

## **Supporting Collaborative Development and Use of Water Engineering Research Knowledge in Uganda**



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Engineering Research Knowledge in Uganda**

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**Project Title****Knowledge Networks for the Nile Basin**

*Using the innovative potential of Knowledge Networks and CoP's in strengthening human and institutional research capacity in the Nile region*

**Implementing Leading Institute**

UNESCO-IHE Institute for Water Education, Delft, The Netherlands (UNESCO-IHE)

**Partner Institutes**

Ten Selected Universities and Ministries of Water Resources from Nile Basin Countries

**Project Secretariat Office**

Hydraulics Research Institute – Cairo - Egypt

**Beneficiaries**

Water Sector Professionals and Institutions in the Nile Basin Countries

**Short Description**

The idea of establishing a Knowledge Network in the Nile region emerged after encouraging experiences with the first Regional Training Centre on River Engineering in Cairo since 1996. In January 2002 more than 50 representatives from all ten Nile basin countries signed the Cairo Declaration at the end of a kick-off workshop was held in Cairo. This declaration in which the main principles of the network were laid down marked the official start of the Nile Basin Capacity Building Network in River Engineering (NBCBN-RE) as an open network of national and regional capacity building institutions and professional sector organizations.

NBCBN is represented in the Nile basin countries through its nine nodes existing in Egypt, Sudan, Ethiopia, Tanzania, Uganda, Kenya, Rwanda, Burundi and D. R. Congo. The network includes six research clusters working on different research themes namely: Hydropower, Environmental Aspects, GIS and Modelling, River Morphology, flood Management, and River structures.

The remarkable contribution and impact of the network on both local and regional levels in the basin countries created the opportunity for the network to continue its mission for a second phase. The second phase was launched in Cairo in 2007 under the initiative of; Knowledge Networks for the Nile Basin. New capacity building activities including knowledge sharing and dissemination tools specialised training courses and new collaborative research activities were initiated. The different new research modalities adopted by the network in its second phase include; (i) regional cluster research, (ii) integrated research, (iii) local action research and (iv) Multidisciplinary research.

By involving professionals, knowledge institutes and sector organisations from all Nile Basin countries, the network succeeded to create a solid passage from potential conflict to co-operation potential and confidence building between riparian states. More than 500 water professionals representing different disciplines of the water sector and coming from various governmental and private sector institutions selected to join NBCBN to enhance and build their capacities in order to be linked to the available career opportunities. In the last ten years the network succeeded to have both regional and international recognition, and to be the most successful and sustainable capacity building provider in the Nile Basin.



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This report is one of the final outputs of the research activities under the second phase of the Nile Basin Capacity Building Network (NBCBN). The network was established with a main objective to build and strengthen the capacities of the Nile basin water professionals in the field of River Engineering. The first phase was officially launched in 2002. After this launch the network has become one of the most active groupings in generating and disseminating water related knowledge within the Nile region. At the moment it involves more than 500 water professionals who have teamed up in nine national networks (In-country network nodes) under the theme of “Knowledge Networks for the Nile Basin”. The main platform for capacity building adopted by NBCBN is “Collaborative Research” on both regional and local levels. The main aim of collaborative research is to strengthen the individual research capabilities of water professionals through collaboration at cluster/group level on a well-defined specialized research theme within the field of River and Hydraulic Engineering.

This research project was developed under the “Local Action Research Modality” which has a main objective to contribute to the capacity building process at local level and enhance the collaboration among the researchers and institutions in the same country. This activity is the core activity of all NBCBN nodes and is contributing to the establishment of the in-country network.

This report is considered a joint achievement through collaboration and sincere commitment of all the research teams involved with participation of water professionals from all the Nile Basin countries, the Research Coordinators and the Scientific Advisors. Consequently the NBCBN Network Secretariat and Management Team would like to thank all members who contributed to the implementation of these research projects and the development of these valuable outputs.

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# 1 INTRODUCTION AND BACKGROUND

## 1.1 Introduction

Uganda lies wholly within the Nile Basin, and has over the years attracted several national and trans-boundary water resources management initiatives to enhance sustainable and equitable resource utilization. These include studies, research and implementation activities by a variety of national and international institutions and stakeholders. However, collaboration and coordination amongst the researchers is still limited.

More often than not, research is carried out on topics identified by researchers instead of the stakeholders or beneficiaries. This promotes selection of research topics which are not based on priority national needs. Consequently, there is limited demand for research, dissemination of research outputs and sharing of experiences. This in turn leads to duplication of work, wastage of the meager resources and retards up-scaling of good practices.

At regional level, the Nile Basin Capacity Building Network for River Engineering (NBCBN-RE) has been set up for coordinating researchers in River Engineering; however, it needs more focus on the national level to link national research priorities in order to avoid limiting the local value and applicability of results.

## 1.2 Problem Statement

The local action research project is among the many research activities under the Nile Basin Capacity Building Network for River Engineering (NBCBN-RE). Among the problems encountered are:

- Inadequate support for research activities;
- Limited awareness in sourcing practical solutions for priority national problems;
- Fear to implement new innovative ideas;
- Inadequate enabling environment to efficiently manage knowledge.

In absence of a national research and development institution for river engineering ( or even the broader water resources engineering), there is need for the national NBCBN node to take on the mantle of enhancing coordination, collaboration, prioritization and dissemination of river engineering and related research, as well as supporting the development of in-country research capacities. This will ensure that locally available (human and financial) resources are mobilized and supported for greater impact.

## 1.3 General Objectives

The general objective of the research was stakeholder involvement and engagement; to solicit support and full participation of the identified stakeholders and develop a collaborative framework on utilization of research findings aimed at enhancing capacity building in knowledge management in Uganda.

### Specific Objectives

The specific objectives are as follows:

- (i) Identifying the main research institutions, individuals and programs that should take part in the network of in-country researchers,
- (ii) Determine the current research practices in the different institutions in order to ably address the research needs

- (iii) Assessment of capacity building needs and opportunities for water engineering and related research in Uganda.
- (iv) Propose a workable and sustainable solution to the occurring problems in Research
- (v) Develop a management framework for research activities and knowledge.

## 1.4 Significance of the Research

The research will be significant in ensuring collaboration between researchers and beneficiaries, utilization of research inputs, knowledge management, supporting a pool of skilled professionals and promotion of best practices in Uganda with the following aims:

- (i) Enabling utilization of research results to positively influence ongoing programs for better outcomes;
- (ii) Enhancing Uganda's capacity to address local water engineering challenges;
- (iii) Facilitating a more efficient utilization of resources (through improved researchers' knowledge and platforms where professionals share their expertise);
- (iv) Providing an opportunity of tapping into available, and sourcing of , financial resources for relevant research;
- (v) Contributing to the on-going and planned regional and trans-boundary initiatives [NBI-SVP, NELSAP, LVEMP etc.];
- (vi) Enhancing business opportunities for researchers.

## 2 METHODOLOGY

### 2.1 Sample Space

The 31 stake holders were identified and placed under various categories to facilitate the planning for data collection and analysis. These were categorized into five major groups which are; Public Institutions (PIs), Private Sector (PS), Charity Based and Non Government Organisations (CBO/NGOs), Professional Bodies (PBs) and Development Partners (DPs), (Appendix II).

### 2.2 Data Collection and Analysis

In order to generate the required information to achieve the above objectives the following research methods were used:

- developed institutional and professionals' profiles and program/activity inventory
- Used conventional tools such as questionnaire (Appendix I), structured interviews and informal meetings etc. with relevant stakeholders (Appendix II).
- Held a facilitated round table dialogue with stakeholders whose objective included; awareness creation and sharing of status report highlights;
- Information analysis and preparation of a detailed status report;
- Developed a detailed research proposal and made recommendations for possible local//national/regional funding sources.

### 3 RESULTS

#### 3.1 Sample

This research was carried out to identify the gaps in research. A set of relevant questions was put together and total of 32 research stakeholders (Appendix II) were targeted who were issued with questionnaires. 63% of the stakeholders responded to the questionnaires.

**Table 3.1: Samples and Respondents**

Category of Research stake holders	Targeted No	No of respondent	% Response
Public institutions (PIs)	19	15	79
Non governmental organizations/ Charity Based Organization (NGO/CBO)	3	2	67
Private sectors (PS)	3	2	67
Professional Bodies (PB)	3	0	0
Development Partners (DP)	4	1	25
<b>Total</b>	<b>32</b>	<b>20</b>	<b>63</b>

#### 3.2 Research Policy and Strategy

10 (50 %) of respondents were noted to have a policy with respect to Research and Development (R and D) as shown in Table 3.2. Some of the Institutions that have policies were however not sure of those policies leave alone the documents that highlight the policies. Three policies were clearly outlined by the institutions as outlined below.

- (1) The Health Research Policy
- (2) Industrial Research Policy
- (3) National Water Policy

While only 50% have policies in respect to research and development, it was observed that a number of partners have strategies or have already put in place institutional arrangements with respect to research and development. 14 (73 %) of the stakeholders had a strategy for research. The strategies under the different categories are listed in Appendix III, together with the different arrangements to implement the mentioned strategies.

The same number of research partners (14) have already put in place Institutional arrangements with respect to research and development of which 12 (60%) of these are functional. For 2 of these however, while the institutional arrangements are existing, they are not necessarily functional. The reason given for the non functional, but existing Institutional arrangements was because of lack of enough funding for the purpose. Only 3 of the PIs don't have any Institutional arrangements put in place through which the research and development is implemented and 2 PS institutions reported that they do not carry out research and had no strategies.

4 (29%) of the partners have a collaborative institutional arrangement where research is through a collaborative approach with relevant institutions and stakeholders like Universities, the Districts and local community organizations (Appendix III). The rest have either internal arrangements or both internal and collaborative arrangements.

**Table 3.2:** Presence of Research and Development (R&D) Policy

Category of Research stake holders	No of Respondent	Have Policy w.r.t R&D	Have Strategy w.r.t R&D	Have Institutional arrangement w.r.t
PI	15	8	11	10 functional 1 not functional
NGO/CBO	2	1	2	1 functional 1 not functional
PS	2	0	0	0
DP	1	1	1	1 functional
<b>Total</b>	<b>20</b>	<b>10</b>	<b>14</b>	<b>14</b>
<b>%</b>		<b>50</b>	<b>73</b>	<b>73</b>

### 3.3 Research Activities

It was revealed that 17 (85 %) of the stakeholders had successfully carried out research already of which 11 (65 %) of the stakeholders registered at least one of their research to have been implemented. Some of the research themes as listed by the different stake holders can be found in Appendix IV. Inadequate funding was observed as the major limitation to research being implemented. For those that were implemented, a number of benefits are attached to them. (Appendix IV)

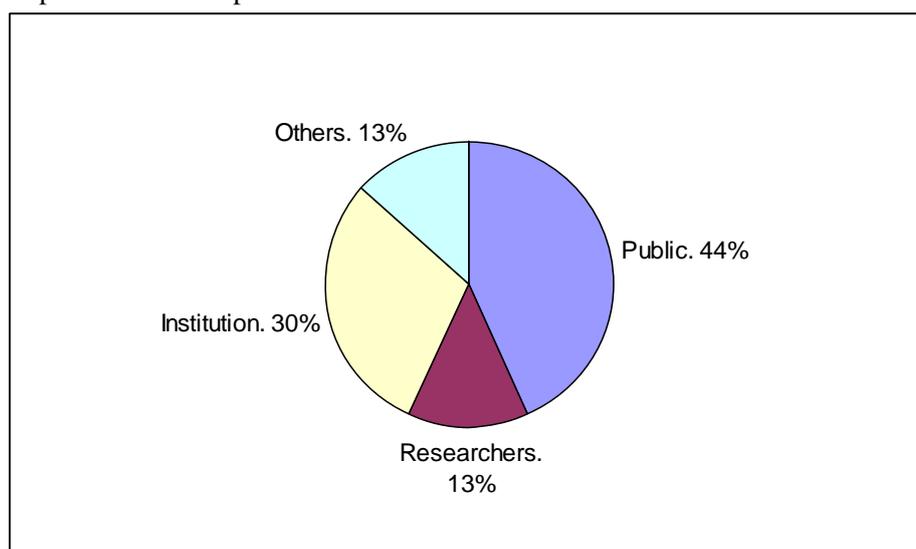
### 3.4 Dissemination of Research

From the institutions that had successful research, its indicated that 1 partially shared the results, 1 was not sure if the research was disseminated, 2 indicated that they shared their research but didn't indicate the method of dissemination and the rest indicated that they have shared the results with other institution using one or a combination of the following methods of dissemination as shown in Tables 3.3.

**Table 3.3:** Frequency (FQY) of Use of Dissemination Methods by Research Stake Holders

Method	FQY	Percentage (%)
Stakeholders meetings/workshops/ focused group discussions	7	30
Product exhibitions	1	4
Research documents e.g. technical reports, publications	6	26
Use of Internet	3	13
Media	5	22
Resource centre/Library	1	4

From four groups that are expected to benefit from the research (i.e.PIs, PBs and others), it was observed the most two targeted beneficiaries are the public and the Institution that are carrying out the research. The level of importance is represented in the pie chart below.



**Figure 3.1:** Pie Chart showing importance of targeted beneficiaries of the stake holder's research.

While the public was the most targeted group of beneficiaries of research, it was more difficult to access information from the local stake holders than the international Institution as revealed by stake holders that responded in Table 3.4.

**Table 3.4:** Ease of Access of Information

	Easy local & international	Easy only with international institutions	Difficult	NA
Respondents	4	3	6	6
%	21	16	31.5	31.5

### 3.5 Challenges and Gaps

Inadequate funding is believed to be the most significant challenge experienced by Research stakeholders. The highlighted challenges and their significance represented by frequency are presented in the Table 3.5.

**Table 3.5:** Challenges and their Frequency (FQY)

CHALLENGES	FQY
Inadequate funding	12
Lack of an organized National policy on research	1
Lack of entrepreneurship	1
Few staff with required practical skills/ research skills	4
Difficulty in accessing information from other stakeholders	3
A number of people still show fear towards carrying out research or getting involved. The public is suspicious and are hesitant to provide the necessary information.	2
Infrastructural challenges still exist that limit research.	1

The gaps in both the successful and unsuccessful researches carried out are generalized as below:

- There is need for strategic and prudent planning before research is carried out
- There is need to encourage participatory approach during the planning and implementation of researches. Community service organization and the relevant stakeholders need to be fully involved, if the research is going to benefit them and be successful
- Need for sufficient funding yet at the moment not much emphasis is put on research as it may not bring in direct monetary benefits
- There is need for publicity, all partners need to understand the usefulness of research in order to limit suspicion from community otherwise the information is not easily accessed and if accessed it may not be in user friendly formats
- There is continual degradation of natural resources
- There is need for emphasis of feed back and dissemination from previously done researchers
- There is need for coherence between institutions

## 4 CONCLUSION

This research was carried out to identify the gaps in research. A total of 32 research stakeholders (Appendix II) and 20 (63%) of them responded.

It's clear from the results that a number of institutions recognize the importance of incorporation of research into their activities. 15 (73%) of the Institutions have already put in place Institutional arrangements with respect to research and development of which 12 (80 %) of them have functional arrangements. Also to note, 17 (85 %) of the stakeholders had already successfully carried out research and even if the percentages of the budget allocated for research in most institution don't exceed 12%, the known actual amounts of allocated for research in the different companies can be said to be sufficient to carry out research comprehensively.

While the recognition of research in most institutions is undeniable, a number of institutions still lack in that area. This is mainly recognized in the Private sector where it was revealed that none had any strategies with respect to research and development and no research had been carried out as yet. It was revealed that the most limiting factor for carrying out research was inadequate funding followed by lack of enough skill and the difficulty in accessing information.

It was revealed that the public is the most targeted group of beneficiaries of research. Yet still, it is more difficult to access information from the local stake holders than the international Institution as revealed by 6 (30%) of the stake holders that responded.

In general, while evidently comprehensive research is being carried out by most stakeholders, there exists a gap in relation to the researchers and the beneficiaries. In other words the existing problem is not insufficient research done but the missing link between the researchers and the implementers. As a result, a number of researches are not implemented as they are not demand driven and hence lack funding. Furthermore, the poor dissemination methods lead to duplication of work; consequently, there is wastage of the meager resources. This further retards the up scaling of good practices, encouraging inadequate capacity building in the research and development sector, in view of that some stake holders have fear of implementing new innovations.

## 5 RECOMMENDATIONS

The current arrangement has not demonstrated the value of research resulting into low enthusiasm from funding partners, beneficiaries as well as the researchers. There is need to close the gap between these stakeholders which could be done by working towards a more demand driven research. Research needs to be recognized by the Government and allocated budgetary funds to enable research implementation. Further more the methods of dissemination of research results need improvement so as to enable easy access of research information in a bid to minimize duplication of work. Also, there is need for a system to enhance capacity building in research and development in order to bring about more confidence in the researchers. In order to address the above mentioned issues, a framework for management of research and development activities in the water sector should be established whose ultimate goal would be to create an institution to manage water research. The strategic action plan are as follows:

### 1) Establishment of an Institutional Arrangement

An Institution to coordinate all the research and development works related to the water sector should be established. Instead of a new institution, it is recommended that a water and environment research centre could be established, which is a cheaper option. The research centre would be established under an already existing Institution, like an academic institution in particular Kyambogo University, under a faculty fully involved in water studies. Furthermore its will be of much benefit to have the research centre directly linked to Ministry of Water

All researchable problems will be presented through the Institution, which will be responsible for identifying the researchers, soliciting for funding for research, archiving data and following up on the use of the data, dissemination of the research results and following up on the use of the research. The Centre will have a knowledge management framework for research dissemination and publications as well as an Electronic platform to easily link the Institutions and persons in the Water sector and to encourage knowledge sharing.

Important to note though is the need for a swot analysis of the existing research institutions whose mandate and capacity may just need strengthening in order to achieve the resource centre mentioned above.

### 2) Policy Formulation

A National Policy to address Research and Development should be formulated in consultation to policy experts. This will require the government to budget and plan for Research and Development activities. To that effect therefore there is need for an inventory of all existing National policies related to research need to be done to establish gaps before proposing a policy to be formulated. For the meantime the research centre can adhere to the existing policies of the institution under which it is formed.

### 3) Legislation

There is need for Legislation with regard to Research and Development and the legal experts should be sought to offer more advice on that.

### 4) Action Plan

A number of activities are expected to comprise the action plan which is to be done in the order as listed below:

- **Establish a research centre in Kyambogo University**
  - Engage a consultant to Prepare a proposal to that aspect (ensure swot analysis of existing institutions is done and also that existing policies are thoroughly reviewed)
  - A small group of consultants to Liaise with Ministry of water in a bid to seek support for establishment of the research centre

- A team to talk to Kyambogo Administration about proposal in a bid to establish a workable framework for the research centre.
  - Establish home for the research centre i.e. identify the faculty and department doing relevant work.
  - Signing of memorandum of understanding with the ministry of Water and other relevant actors.
  - Establish clear policies and administrative structures for the research centre
  - Present idea to joint working group to solicit for funding.
- **Details of proposed activities of the research Centre**
    - Create data base for research stake holders and their research capacity and
    - Gather data locally
    - Involve National council of science and technology
    - I T component will be required to disseminate & exchange data with all institutions and development partners
    - Engage International organizations in vying for funding
    - Establish capacity to analyze & disseminate information, consultancy may be required
    - Incorporate graduate training, doctoral and post doctoral research

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Full Profiles of Research Group Members are available on: *The Nile Basin Knowledge Map*

<http://www.NileBasin-Knowledgemap.com>



## **APPENDICES**



APPENDIX I: QUESTIONNAIRE, Q1

- 1. Name of Institution:  
.....  
.....
- 2. Category: 1) Research; 2) Public; 3) Private; 4) Professional; 5) NGO/CBO; Others;  
.....  
.....
- 3. Is there any policy direction in respect to “Research & Development” [R&D]? Yes / No.
- 4. If yes, which documents highlight such policy?  
.....  
.....
- 5. Is there any strategy on research & development in institution’s strategy & investment plan? YES or NO.
- 6. If YES, state the strategy:  
.....  
.....
- 7. If so, what are the annual resource allocations in the medium term for the strategy on R&D?  
.....  
.....
- 8. What proportion are these allocations to the overall institutional budget?  
.....  
.....
- 9. What are the institutional arrangements proposed to implement the R&D strategy?.....  
.....
- 10. Are the institutions in place & functional? YES or NO.
- 11. If NO, Why?  
.....  
.....
- 12. Who are the targeted beneficiaries of your research?
  - Your institution/organization/ company
  - Researchers
  - Public
  - Others (Specify).....  
.....
- 13. What are the current arrangements in place to implement the R& D strategy?  
.....  
.....
- 14. Has the institution ever conducted any research activity? YES or NO.
- 15. If YES, what research projects; i) have been carried out; ii) on-going? (*use separate page giving; theme, location, objectives, targets/outputs, period of research, costs, source of funding*).
- 16. Which of the projects in (14) were successfully conducted?  
.....  
.....

17. What are the lessons learnt?

.....  
.....

18. For Unsuccessful projects in (14), what were the causes of failure?

.....  
.....

19. What are the lessons learnt from unsuccessful research projects?

.....  
.....

20. Has the institution implemented the outputs of the successful researches in (15)? YES or NO.

21. If YES, which ones were implemented?

.....  
.....

22. Highlight the benefits accruing from implementing the research outputs:

.....  
.....

23. What methods have been used to disseminate the positive research results?

.....  
.....

24. What are the challenges so far experienced?

.....  
.....

25. What are the proposed solutions to challenges?

.....  
.....

26. What are the future plans for R&D?

.....  
.....

27. What are the classes of information you generate

- Reports
- contract documents
- Others (specify).....

28. How are these records kept

- Hardcopies in files /Library
- Soft copies
- Others (Specify).....

29. Who can access these records

- Staff
- Only Authorized non staff/ visitors
- Any interested person (specify how they can accesses it)

.....  
.....

30. What are your Sources of relevant information:

.....  
.....

31. Is it easy to access relevant information from other organizations/ research institutes? If yes, from which organizations/institutions

.....  
.....

32. If No, how does it impact on your research activities?

.....

33. Would prefer information from different organizations to be widely availed to any researcher? Yes or NO

34. If yes, suggest how?

.....  
.....

**THANK YOU**

**APPENDIX 1I: LIST OF TARGETED RESEARCH STAKE HOLDERS**

Name of Research stake Holders	Category of stake Holders
<ol style="list-style-type: none"> <li>1. Kyambogo University, Faculty of Science (KYU Science)</li> <li>2. Kyambogo University, Department of Civil Engineering (KYU Civil)</li> <li>3. Makerere University, Geography Department (MUK Geog)</li> <li>4. Makerere University, Faculty of Computing &amp; Information Technology (MUK, ICT)</li> <li>5. Makerere University, Faculty of Agriculture (MUK, Agric)</li> <li>6. Makerere University, Faculty of Social Sciences (MUK, Social Sciences)</li> <li>7. Uganda Industrial Research Institute (UIRI)</li> <li>8. Uganda National Health Research Organisation (UNHRO)</li> <li>9. Ministry of Lands, Housing &amp; Urban Development (MLH&amp;UD)</li> <li>10. Ministry of Education &amp; Sports</li> <li>11. Ministry of water &amp; Environment (MW&amp;E)</li> <li>12. National Water &amp; Sewerage Corporation (NWSC)</li> <li>13. National Environment Management Authority (NEMA)</li> <li>14. WRMD</li> <li>15. MET</li> <li>16. Wetland Department</li> <li>17. Local Government, Kampala District</li> <li>18. Local Government, Mukono District</li> <li>19. Local Government, Wakiso District</li> </ol>	Public Institutions (PI)
<ol style="list-style-type: none"> <li>20. NAPE</li> <li>21. UIPE</li> <li>22. ERB</li> </ol>	Professional Bodies (PB)
<ol style="list-style-type: none"> <li>23. Association of Consulting Engineers</li> <li>24. Private Sector Foundation Uganda (PSFU)</li> <li>25. National Council of Science and Technology</li> </ol>	Private Sector (PS)

26. BTC 27. ADB 28. WB 29. USAID	Development Partners (DP)
30. UWASNET 31. Water Aid 32. World Vision	NGO/CBO

**APPENDIX 1II: STRATEGIES UNDER THE DIFFERENT CATEGORIES**

<b>Institution</b>	<b>Institutional Arrangements proposed to implement Research</b>	<b>Are institutions in place &amp; Functional? Yes/No</b>	<b>Strategy on research and development in institutions</b>
Kyambogo University, Faculty of Engineering, Civil Engineering Department	Research & staff development of the University senate	Yes	Compiling University's research agenda to be fed by departmental research agenda in line with the nation's development strategy and MDGs
African Development Bank	Development Research Division	Yes	Devise, undertake and disseminate a programme of research and analysis on priority issues related to African social and economic development
Ministry of water and environment, Directorate of water resources Entebbe	Decentralised water resources management in catchment basis; Uganda is divided into catchments namely; Upper Nile, Kyoga, Albert & Victoria	Yes & No Yes- Directorate of water resources management is in place No- Catchment management is a recommendation of the water resources sector review that is being pursued	Strengthen institutional frame work with cross sectional cooperation, selected functions carried out at decentralized levels and consistent stake holders participation
Uganda National Health Research Organisation (UNHRO)	<ul style="list-style-type: none"> <li>• UNHRO Research Institute do research (priority research)</li> <li>• UNHRO Affiliated Institutions; MUK, MUST, District Hospitals, NGOs</li> </ul>	Yes	Strategy in HSSP II
Ministry of lands, housing & urban development	Not in place due to insufficient funding	No due to insufficient funding	Nil
Makerere University, Geography Department	Nil	Nil	Nil
Uganda Association of consulting Engineers	Nil	Nil	N/A
Private Sector Foundation Uganda	Nil	No	N/A
Meteorology Department	N/A	No	N/A
Wetlands Management Department	Research is done through a collaborative approach with relevant institutions	Yes	N/A

	depending on the issue at hand		
Ministry of water & environment	The ministry supports students /employees who wish to take up research especially at post graduate & undergraduate level	Yes	Small towns long term strategy for planning and investment (2003)
Kyambogo University, Faculty of science	An adhoc committee of research committee of senate is working out a policy on this	Yes	N/A
Uganda Industrial Research Institute	<ul style="list-style-type: none"> <li>Recruit staff with atleast a masters degree and some experience</li> <li>Send staff to centres of academic excellence around the world</li> </ul>	Yes	A new department for product development
Uganda Water & Sanitation NGO Network (UWASNET)	To conduct WATSAN related research that will inform planners and act as references to future scholars	Not yet functional due to inadequate funding	Nil
Water Aid Uganda	<ul style="list-style-type: none"> <li>Through partners (Institutions of higher Learning)</li> <li>Internal research can also be internally implemented</li> </ul>	Yes	Global strategy-To influence policy makers institutions in charge of implementation to carry out research
National Environment Management Authority(NEMA)	Department of policy and Information	Yes	N/A
National Water & Sewerage Corporation(NWSC)	<ul style="list-style-type: none"> <li>R&amp;D department set up in April 09</li> <li>Collaboration with academic institutions</li> </ul>	Yes	Research, Knowledge Management & Organisational Learning (REKOL)
Makerere University Faculty of computing & Information	<ul style="list-style-type: none"> <li>Massive Interim Capacity</li> </ul>	Yes	Build local capacity & become leading research institution in the

Technology	<p>Building</p> <ul style="list-style-type: none"> <li>International research collaboration</li> </ul>		region
Ministry of Education & Sports	<ul style="list-style-type: none"> <li>Statistics, Research, Monitoring &amp; Evaluation Division.</li> <li>Also the sector has various working groups designed to do among other things discuss findings of various research studies</li> </ul>	Yes	Research & development is a core mandate of the ministry, various research studies are being conducted annually so as to enhance the provision of equitable access to quality education in Uganda

## APPENDIX IV: LIST OF SUCCESSFUL RESEARCH PROJECTS IN THE RECENT YEARS FOR THE DIFFERENT STAKE HOLDERS

Institution	Successful research Projects	Are the out puts of successful researches implemented? Yes /No	Out puts of successful researches implemented	Benefits accruing from implementing researches out puts
Kyambogo University, Faculty of Engineering, Civil Engineering Department	Procurement trends in Uganda	Yes	Book published & given to all stake holders	<ul style="list-style-type: none"> <li>Improved service delivery in public offices</li> <li>Improved participation of nationals in construction &amp; bidding</li> </ul>
African Development Bank	Nil	Nil	Nil	Nil
Ministry of water and environment, Directorate of water resources Entebbe	<ul style="list-style-type: none"> <li>Iron removal from drinking water using a pot/sand in Rakai</li> <li>The course of brown water in Kayunga water supply/ proposed improvements</li> </ul>	Yes	<ul style="list-style-type: none"> <li>Modification of Kayunga Water Supply to include Coagulation-Step for iron and colour removal</li> </ul>	<ul style="list-style-type: none"> <li>Improved revenue collection through supply of clean water</li> </ul>
Uganda National Health Research Organisation	<ul style="list-style-type: none"> <li>UNHRO is a coordinating body and only carries out research on coordination</li> <li>Analysis of what, where and by who – research in Uganda</li> </ul>	Yes	<ul style="list-style-type: none"> <li>Had workshops with districts in the different regions so as to demonstrate the need and empower districts to research</li> </ul>	<ul style="list-style-type: none"> <li>Knowledge of who and what is done by different research groups in the districts</li> <li>Utilisation of the results from other researches to avoid duplication</li> </ul>
Ministry of lands, housing & urban development	<ul style="list-style-type: none"> <li>Poverty Social Impact Assessment, UNDP/WB</li> </ul>	Nil	<ul style="list-style-type: none"> <li>Nil</li> </ul>	Nil
Makerere University, Geography Department	<ul style="list-style-type: none"> <li>Research is done by Individuals</li> </ul>	Nil	Nil	Nil
Uganda Association of consulting Engineers	Nil	Nil	Nil	Nil
Private Sector Foundation Uganda	Identification of existing clients	No	N/A	N/A
Meteorology Department	Climate Change	Yes	Adaptation strategies to climate change are being communicated to stake holders	<ul style="list-style-type: none"> <li>Mitigation of effects of climate change</li> <li>Minimised loss of life &amp; property</li> </ul>
Wetlands Management Department	<ul style="list-style-type: none"> <li>Baseline studies on wetland status country wide</li> <li>Valuation of wetlands</li> <li>Buffering capacity of wetlands</li> <li>Geological surveys in wetlands</li> <li>Social economic status of wetlands</li> </ul>	Yes	<ul style="list-style-type: none"> <li>The buffering Capacity &amp; valuation studies are being used &amp; justify wetlands</li> <li>Baseline, social economic, ecological studies are being used in the planning process o manage wetlands</li> </ul>	<ul style="list-style-type: none"> <li>Planning is based on information available</li> <li>Management options for wetlands are based on available information</li> <li>Awareness done according to needs of different target groups</li> </ul>
Ministry of water & environment	<ul style="list-style-type: none"> <li>Use of Ecosanitation</li> <li>Solid waste management</li> </ul>	Yes	<ul style="list-style-type: none"> <li>Use of EcoSans in Uganda</li> <li>Use of garbage collection tricks and also Bins in most of the areas</li> </ul>	<ul style="list-style-type: none"> <li>EcoSanitation is not as expensive as conventional treatment process</li> <li>Solid waste management has improved all over Uganda</li> </ul>
Kyambogo University, Faculty of science	<ul style="list-style-type: none"> <li>Research is by Individuals</li> </ul>	No	N/A	N/A
Uganda Industrial Research Institute	<ul style="list-style-type: none"> <li>To check on website</li> </ul>	Nil	<ul style="list-style-type: none"> <li>Visit our Blog</li> </ul>	<ul style="list-style-type: none"> <li>Technologies are developed</li> <li>Commercially viable products are delivered</li> </ul>

				<ul style="list-style-type: none"> <li>Project cycle is completed</li> </ul>
Uganda Water & Sanitation NGO Network (UWASNET)	<ul style="list-style-type: none"> <li>Perceptions of CSOs towards funding mechanisms of AFDB</li> </ul>	No	N/A	N/A
Water Aid Uganda	Check Website	Yes	<ul style="list-style-type: none"> <li>Budget &amp; planning in Local governments(from governance &amp; accountability programme)</li> <li>How efficiently can society engage in government projects (participation)</li> </ul>	<ul style="list-style-type: none"> <li>People become more accountable</li> <li>Improved participation of society in government projects</li> </ul>
National Environment Management Authority(NEMA)	<ul style="list-style-type: none"> <li>Research is undertaken bi-annually to collect information on the state of the environment</li> </ul>	Yes	<ul style="list-style-type: none"> <li>Restoration of degraded environment</li> <li>Enforcement of National environment Act</li> </ul>	<ul style="list-style-type: none"> <li>In pilot areas where research has been undertaken, the rate of degradation has reduced</li> </ul>
National Water & Sewerage Corporation (NWSC)	N/A	No	N/A	N/A
Makerere University, Faculty of computing	Could not list because research is decentralized in small groups	Nil	Nil	Nil
Ministry of Education & Sports	<ul style="list-style-type: none"> <li>Flow of accountability for UPE funds (1999)</li> <li>Use of &amp; accountability for UPE Capitation Grants (2001)</li> <li>Primary Schools Teachers' Recruitment Deployment &amp; Payroll Management (2002)</li> <li>Allocation &amp; Utilisation of resources in conflict districts in northern Uganda in primary education sub sector (2006)</li> <li>Strengthening decentralisation in Uganda phase II – UPE capitation Grant Tracking Study (2006)</li> <li>Tracking the flow &amp; Utilisation of Capital Grants in PTCs (2008)</li> </ul>	Yes	<ul style="list-style-type: none"> <li>Flow of accountability for UPE funds (1999)</li> <li>Use of &amp; accountability for UPE Capitation Grants (2001)</li> <li>Primary Schools Teachers' Recruitment Deployment &amp; Payroll Management (2002)</li> <li>Allocation &amp; Utilisation of resources in conflict districts in northern Uganda in primary education sub sector (2006)</li> <li>Strengthening decentralisation in Uganda phase II – UPE capitation Grant Tracking Study (2006)</li> <li>Tracking the flow &amp; Utilisation of Capital Grants in PTCs (2008)</li> </ul>	<ul style="list-style-type: none"> <li>Promoted private – public partnership in education</li> <li>Enhanced the development &amp; implementation of policies in the sector</li> <li>Helped engage all the stake holders in the development of education &amp; sports</li> </ul>



## Supporting Collaborative Development and Use of Water Engineering Research Knowledge in Uganda

Uganda lies wholly within the Nile Basin, and has over the years attracted several national and trans-boundary water resources management initiatives to enhance sustainable and equitable resource utilization. These include studies, research and implementation activities by a variety of national and international institutions and stakeholders. However, collaboration and coordination amongst the researchers is still limited. More often than not, research is carried out on topics identified by researchers instead of the stakeholders or beneficiaries. This promotes selection of research topics which are not based on priority national needs. Consequently, there is limited demand for research, dissemination of research outputs and sharing of experiences. This in turn leads to duplication of work, wastage of the meager resources and retards up-scaling of good practices.

This research was carried out to identify the gaps in research. In general, while evidently comprehensive research is being carried out by most stakeholders, there exists a gap in relation to the researchers and the beneficiaries. In other words the existing problem is not insufficient research done but the missing link between the researchers and the implementers. As a result, a number of researches are not implemented as they are not demand driven and hence lack funding. Furthermore, the poor dissemination methods lead to duplication of work; consequently, there is wastage of the meager resources. This further retards the up scaling of good practices, encouraging inadequate capacity building in the research and development sector, in view of that some stake holders have fear of implementing new innovations.