THE LEGAL FRAMEWORK REGULATING WATER RIGHTS IN UGANDA: AN APPRAISAL.

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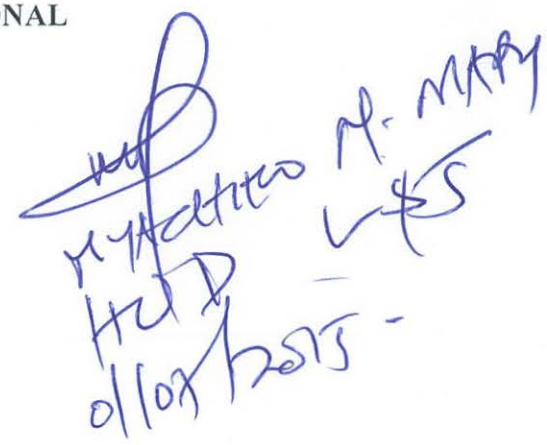

MAY, 2015

DECLARATION A

I RUHIRI EMMY declare that this project is my original work and has never been presented to any other university for award of any academic certificate or anything similar to such. I solemnly bear and stand by it.

Signature:.....

Date: 05/06/2015

APPROVAL

This is to acknowledge that this research report has been under my supervision as a university supervisor and is now ready for submission.

Signature:.....

Name of the Supervisor; Mr. TAJUDEEN SANI

Date: .....10-6-15.....

DEDICATION

This work is dedicated to my parents Mr. & Mrs. Nathan Ninsiima and Joy Ninsiima as a token of love and appreciation.

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I would like to first of all to thank God for provision, Guidance and life during my study I further acknowledge much assistance and vital role played by my beloved family in completion of my studies and this research in particular both economically and morally. Many thanks go to family of Mr & Mrs Miriel Kayangyire and Tom Kayangyire, my Aunties; Hope and Naume Barahire.and our KIU fellowship for prayers.

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CHAPTER ONE

1.0 INTRODUCTION

Freshwater is the essential resource for the creation and existence of virtually all life forms on earth. Water is also a major component of the social and economic systems that sustain human welfare. The agricultural sector (crop moisture, livestock, watering, food processing, preparation etc), sanitation, industry, fisheries, water transport, and recreational facilities are all heavily water dependent.

Fortunately, Uganda is well endowed with freshwater resources comprising lakes, rivers, and wetlands. These resources support a vast array of biodiversity that is vital in the maintenance of quality and viability of the aquatic environment as well as supplying food and other materials used by man.

Water resources are limited and subject to competing legitimate demands from human settlements, agriculture, livestock and industry. This then calls for appropriate mechanisms for the allocation of the resource.

In the process of water resource management however, conflict may arise as to who should control these water resources. This raises the question of rights relating to water, a water right can be widely defined as a right to use or enjoy the flowing water in a stream. It may emerge from a persons' ownership of land on the banks of the stream (riparian ownership), or from persons' actual use of the stream this stemmed from the Medieval period. During this period, water was regarded as a public resource and each person had a right to use water since it was considered something owned by the public. The rights under this period were based on land ownership but all users of water were required to respect the "good neighbour" principle of land use. This meant that no user of land would do so in a way as to cause injury to his neighbor. However, there were few competing uses as the population was still scanty and the level of economic development was still low. Hence, the demand for water was satisfied by the abundant flows. These rights were vested in the riparian owners of land adjacent to rivers and streams.

With time and as the economy developed, through extensive agriculture and industry, the number of users increased, some of whom may not have been riparian owners of land. Another

form of rights then developed based on use. These two bases of rights i.e. the rights based on land ownership and rights based on water-use gave rise to private and public concern respectively "The tension between customary and modem systems arises from their different notions of the private and public domains; their different ideas of, ownership and its attributes".'

These conflicts, therefore, call for resolution through appropriate mechanisms of appropriation of water resources. Since the public cannot effectively maintain the quality of water, there is a requirement for administrative measures to be put in place by the state. The state then holds in trust for the citizens and develops both economic and legislative means of control. This is basically to control the abstraction of the resources and their pollution. This is especially common in developing countries where the economic growth especially through industrialization has not been in line with environmental considerations. Nevertheless, the legislation has, in granting tights to people, to have in' mind the traditional use rights in particular regarding domestic uses.

"It is customary for legislation to grant similar exemptions, allowing people to take water for limited purposes without the need to obtain permission"

The evolution of the rights overtime has resulted into the development of the legislative measures in Uganda through the enactment of the Water Statute 1995. The statute vests the rights to investigate Control and manage water resources in Uganda for any use, in the Government. The rights under the Statute are granted through the issuance of permits to users and these are basically for water abstraction and waste water discharge.

1.1 STATEMENT OF THE PROBLEM.

The problem under this study mainly concerned the following;

(a) The need to regulate water from the ancient ways of thinking when water was looked at as a common good. Why should the rights of a riparian owner of land as to water be regulated and controlled by the state? Why should water use be paid for when it is commonly known to be a free and natural good; in. other words why is it today being regarded as an economic good?

(b) As a result of this necessity to control the rights to use water resources, conflicts have arisen. What are the appropriate measures needed to strike a balance between the various types of water

use rights in order to resolv these conflicts? What system of control is put in place? Should it be only legislation or even economic control? Which forms of institutional Management should be put in place and vested with the duty to grant the rights to use water?

(c) The suitability of the current legal regimes in the management of water resources: How adequate is the current legislative machinery and its enforcement? How: effective is the permit system provided for under the law?

(d) Looking at and analyzing the evolution of water rights over time, what is the - most suitable anticipated form of water rights regime that should be adopted or maintained?

1.2 OBJECTIVES OF THE STUDY.

Generally the objectives of this study are based on examining and analyzing the changes in the rights related to water sources overtime. In particular the study is basically aimed at analyzing the socio-economic transformation in relation to these changes and the conflicts that have arisen. Further to this, the study discusses the adequacy and practicability of the current legal regime relating to water resources, the interests of different groups of people in our community. This is with particular emphasis to the post - 1994 enactments.

The specific objectives embodied in this study include the following;

(1) To analyze the evolution and the causes of the dynamics of change in water rights over time and to relate it with the current situations in developing countries, with particular emphasis to Uganda.

ii) To examine the tension and conflicts that has arisen out of the legislative measures in water resources as management with the customary tights to use water.

iii) To examine the impact of unregulated water use tights on the environment.

iv) To make a review on the current state of the Legislative and administrative Machinery responsible for the regulation and enforcement of the water rights Management systems in the current water regime in Uganda.

v) To identify the possible methods in harmonizing the conflicts arising from the legal instruments and the institutional arrangements created there under.

1.3 HYPOTHESES

a) The legal regime governing the allocation of water resources of granting of rights to its use, through the permit systems should be strengthened. The administrative structures provided for should be well empowered and facilitated in their enforcement process.

b) The law should always be flexible to cater for the traditional rights to use water, that do not have an adverse impact on other people's rights and interests in particular and the environment in general.

c) The laws and the system provided there under should be based on the principles of sustainable utilization of the water resources, in the sense that whoever acquires right to use water should have this principle in mind to meet the needs of the present without compromising the interests of future generations.

1.4 SCOPE OF THE STUDY

The study shall cover the period when the rights to water began to develop and this is more especially in the medieval period 1066 - 1600, when the first of water law regimes actually took place in England. This period was mostly characterized by the users' claims of navigation and fishing which gave the earliest known disputes. Although the topic basically required the researcher to analyse the Uganda's natural resources legislation post - 1994, he could not achieve this without looking at the international perspective. This is particularly in relation to the evolution and development of water rights. This historical review will be helpful in analysing the changes as affected by the socio - economic development overtime especially in agriculture and industry.

This chapter covers the introduction, background to the study, statement of the problem, objectives of the study, hypotheses, scope of the study, literature review, methodology etc. The chapter shall lay a clear background of the whole study especially on water rights, conflicts arising from the allocation of those rights and possible ways of resolving these conflicts.

Chapter 2 will discuss the foundations and development of water rights. It also deals with the guiding principles on property rights to water and the characteristics on property rights as applied to water. The rationale for the regulation of water rights through legislation will also be

addressed. This is especially by looking at the social, economic and political circumstances that have necessitated the regulation of water resources use on a global perspective.

Chapter 3 gives a reflection on the evolution of water rights in Uganda and state of legislation relating to water resources, rights and management in Uganda especially the post - 1994 enactments.

Chapter 4 basically deals with the current water rights regime in Uganda. This has been by looking at the granting of rights to water by use of the permit system in relation to the private rights to use water. It further addresses the problems facing the current) systems of water rights management in Uganda.

Chapter 5 covers the conclusions based on the summary findings of this study. It also contains the recommendations suggested as a result of the problems identified during the course of this study.

1.5 LITERATURE REVIEW

Though the question on water rights management and administration has been an important issue especially in the maintenance and conservation of water quantity and quality, little has so far been discovered to have been written on it. The basic sources of this research so far have been found in various environmental reports relating to water resource management. Nevertheless, the same ideas are very fundamental principles in these reports since the issue of water rights management basically leads to the achievement of the goals of water quality maintenance.

Bondi D.Ogolla[1] believes that the licensing process enables the government regulate and control the exploitation of the country's water resources. He hither asserts that the licensee will be required to examine his water rights in accordance with the abstraction conditions, the breach of which may lead to the withdrawal of his license.

He is also of the view that legislative instruments are very important for they regulate activities that are susceptible to cause water pollution. In this case he looks at human activities through their settlemen habits as likely to have adverse effects on the quality of the water resources. He

[1] Bondi d.ogolla:environmental management policy and law,june 1992.vol.22,environmental policy and law article n.3

does not recommend that the community be denied rights in water but he suggests that the control of these rights through legislation and grant through a permit system would be more appropriate.

The observations of this author have justified the regulation of rights to use water. This regulation must, however, not take away the traditional rights to water for domestic purposes.

Cunha,Figueiredo,Coreia and Goncalves[2] are of the opinion that water appropriation be granted by the authorities on application from the interested party. That the land to which the water is appropriated may or may not be adjacent to the water course from where water is withdrawn. They go on to say that an appropriate right usually specifies the purpose of the water use, the period of concession and the quantity of water that must be abstracted. They hence advocate for a use-based system of water rights rather than the land ownership based rights.

The observation derived here is that people, through the appropriation of water resources, are given an opportunity to share the scarce resource. The essence also is to maintain the quality and quantity of the resource.

Sanford D. Clark[3] asserts that the tensions between customary and modem systems arises from their different notions of private and public domains coupled with their different ideas of ownership and its attributes. He goes ahead to discuss that customary rights are capable of causing problems in most areas of water management. He however does not believe in doing away with customary rights in as far as they can co-exist with legislation. In essence therefore, he appears to be advocating for a flexible form of legislation that can also cater for customary rights and interests.

The fore going expresses fear for the uncontrolled public use of water. It however guides on the legislation reserving the customary rights which the study intends to analyse.

Scott and Constalin," in their detailed writing have tried to define a water right as a "right to use or enjoy the flowing water in a steam. It may emerge from a person's ownership of land on the banks of the stream. It may be administered and controlled by a government agency, or it may

[2] Luis cunha, victor figueiredo, Mario l.correia,Antonio s.gonclaves: management and law for water resources;1977,water resources publications, fort Collin Colorado,usa,pp 29.
[3] Stanford d.clark:loc.cit pp.503

not be administered at all, and be subject to enforcement. A water right can also be created indirectly through a contract with a right holder." They go on to enumerate the process of evolution of water rights but basically they expound the bases of these rights as from the land ownership - based and the use - based notions.

The guidance from these authors is the explanation they give on what a water right means. This has offered a basis for this study especially in relation to the two bases of water rights: the land ownership and use-based.

1.6 METHODOLOGY

The study will be mainly on library research and interviews from professionals and experienced persons in the field of water and environment. Information shall be obtained from Makerere University Main Library,National Environment Management Authority (NEMA) Library, Kampala International University Main Library and internet.

CHAPTER 2
EVOLUTION AND DEVELOPMENT OF WATER RIGHTS AND THE RATIONALE FOR THE REGULATION THROUGH LEGISLATION

2.0 Introduction

A water right can be widely defined as the right to use or enjoy the flowing water in a stream. This enjoyment relates to either the abstraction of water or its use for disposal of waste. The right may emerge from a person's ownership of land on the banks of the stream It may be administered and controlled by a government agency, or it may not be administered at all, and be subject to enforcement only in the courts. A water right can also be created indirectly through a contract with a right holder.[4] In this case, therefore, a water right is an extent to which a person or groups of persons can use or enjoy water either by virtue of owning land adjacent to a watercourse or through grant.

In analysing the rights to water it is important to look at their evolution from the traditional uses through to the current uses. These rights are appreciated alongside the general idea of property or resource regimes. These have been said to be "a structure of rights and duties characterizing the relationships of individuals to one another with respect to that particular resource".[5]

2.1 Evolution and Development of Water Rights

Water is a resource that has existed since time immemorial and has been so vital that it determines the people's conditions of settlement.

"Water was considered a public and free commodity that was used only in the way nature provided it, that is natural flow with natural guarantee. "[6]

An evolution in water rights has taken place in the common law world and the first of our water law regimes is believed to have been created in England in the Medieval period (1066 - 1600)

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[4] Anthony scott,georgina constalin:the evolution of water rights,1995,vol.35,natural resources journal,fall,pp.82

[5] John kigula:tenure relations,law and policy in wetland common properly regimes in urban Uganda.october,1997 pp.3

[6] Jose maria martin mendiluce:water resources planning in spain: presentation to the second meeting of the board of governors world water council.granada,16-17 july 1996.

During this time however, there was a low demand for the resource (water) and the few demands that were, were satisfied by the abundant flows Hence the evolution of water rights can be traceable during the following periods especially m England and United States

- Medieval, Post conquest period in England (1066 - 1600)

- Early Industrial Revolution in England (1600 - 1850)

- Mid and late industrial revolution in England (1850 - 1900)

- Industrial period in New England (Eastern United States 1827 - 1900)

- Settlement and development period in United States (1850 - 1900)

- Modem period in United States and England (1900 - present)

The evolution of water rights and the development of these rights have shown different, characteristics. The most important to note is that they are built or developed on shifting foundations. These foundations are basically:

i. Land ownership based rights (riparian rights)
ii. Water - use based rights

The periods of time in which any of the two foundations operated has acted as a basis for water law.

The medieval common law conceptualized a stream, as it would land, as static. Rights were not attached to a thing flowing by land, but were a feature of land. In relation to the owner's vertical cylinder of land, stretching from center of the earth to the heavens, water was like a pond "situate" on the surface like wood or a field. The land owner "owned" the water course, or his portion of it, and technically had full rights to do with the water as he wished. If the river formed a boundary of his land, he owned the part of the bed to the middle of the deepest point of the stream (thalweg). The owner of the land on the opposite banks owning the other part.[7]

[7] Anthony Scott,Geogia contain:The Evolution of water Right,1995,Vol.35,Natural Resources Journal,fall.pp.840

As early as 1215 with the Magna Carter, a distinction was made between private and public rivers based on the presence of tidal influence. King John dedicated to the public all rights of fishing in public rivers as in the seas and estuarine. Even though the banks of these public rivers may have been privately owned, the crown owned and never granted their bed, and riparian had no rights over the public rights to the river or the river water.[8] This, therefore, implies that the Government control over water resources is not a recent phenomenon.

With the first dynamics of change in the water rights, during the medieval period, various activities developed. The period saw the beginning of industrial revolution in England and the number of users of the river increased dramatically. The principle use of water, however, remained the same Land holdings remained large blocks inspite of the increase in demand for water.

2.1.1 Land-based (Riparian) and Use-based rights

The land-based (Riparian) rights accrue from ones ownership of land that is adjacent to a stream. The riparian would therefore claim as of right the water that passed through his land. This appeared to be the first of the water rights regime and these rights were basically governed by the customary principles of the riparian communities. In analyzing the exercise of riparian rights the following are some of the basic features:

i) Only the owner of the stream banks had rights in the flow;

ii) Rights were to the undiminished, unaltered flow of water from such a stream;

iii) The owner of the land could use the flow at anytime, in any way and in any quantity provided he does not cause damage to other owners along the stream (that is alter or diminish the flow to them);

iv) Rights were relative and imposed corresponding obligations amongst the riparian community. The rights and obligations of each riparian were equal, regardless of how much land he owned;

v) Only transferring title to the riparian land could transfer full riparian rights.

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[8]Anthony Scott,Geogia contain:The Evolution of water Right,1995,Vol.35,Natural Resources Journal,fall.pp.840

On the other hand, as time went on there was an increase in population and production which necessitated the people who owned land that was not necessarily adjacent to the stream, o have access to the water.

"The widening scope of persons with enforceable rights was, without doubt, a reflection of the quickly growing demand for water in the early industrial revolution period and of the very limited water supply.

At this time of the developmental pressure it meant that enforceable water rights could no longer be restricted to few land owners as before."[9]

The usufructuary prior rights were upheld in the case of WILLIAMS v MORELAN[10] as "public rights" in water in that anyone could acquire them subject only to those rights of those already using the water.

2.1.2 Prescriptive/Seniority rights

Prescriptive rights are rights, which accrue to a person as a matter of priority to use a resource. Prescription had an influence on the water rights during the growth of industries. Here the claim of right was based on seniority on use of the water on the stream regardless of whether the person owned land or not. It is an ancient doctrine, which creates a property right from long-term unchallenged use.

> "Prescription is the result of hardening of actual use into right of use. This right becomes a right of the land next to which the water use takes place. Prescriptive water rights were recognized in all common law periods until abrogated by statute. Seniority which gives chronological priority to rights based on use was enforced by the remedy of damages for harm caused to the prior user..."[11]

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[9] Anthony Scott,Geogia contain:The Evolution of water Right,1995,Vol.35,Natural Resources Journal,fall.pp.848

[10] *Williams v Morelan 107 eng.rep.620 (1824)*

[11] Anthony Scott,Geogia contain:The Evolution of water Right,1995,Vol.35,Natural Resources Journal,fall.pp.827

Prescriptive rights become more relevant with the gradual decline of the riparian right and the applications of these rights are generally discussed by looking at the underlying characteristics associated with it:

- Its theme is mainly based on adverse possession as a fact of right unless they are expressly prohibited by statute.

- Presumed acquiescence from the time the holder knew (or was expected to have known) of others' adverse use which he could have stopped, but never did so. In other words, the use must have been unchallenged and uninterrupted for a long time.

In Re: Serjeanys at Law [12] Judge Tindal analyzed the concept of prescriptive use and said;

"Immemorial enjoyment is the most solid of all titles."

Therefore the right to use water was established by prescription and this had been referred to as "the prescriptive easement." Prescriptive rights were believed to be more valuable than rights acquired under an express contract such as formal easements or grants. This is because they were valid against all the users of water on the river and more certain and definite for all time.

The form of redress in the enforcement of these rights was by bringing a direct action. Therefore, it appeared costly by some developers to bring actions on the wealthy opponents who already held these rights. That was why new corners are said to have opposed it. Thus, until 1823 at least water users relied on their prior - use or prescriptive rights and contracted on these bases. The holders sued in tort, and if successful got damages.

2.1.3 The Natural Flow theory

"On the pollution side of things, the water ways of England had become a dumping ground for wastes. Industries emitted new chemicals and the steam power from the industries created thermal pollution. Sewerage was routinely dumped into rivers at the outskirts of the cities, towns and villages. So serious was river pollution and so extensive were the diversions, that the small

[12] *re: serjeanys at l4w 133 eng.rep.93 at 94 (cp 1840)*

farms and other properties along side rivers were now effectively deprived of the "benefit and advantage of the natural flow of water "by their property."[13]

The above phenomenon became so disastrous and this led to the development of natural flow theory. This theory was basically meant to protect the banks of rivers from the destruction .through diversion of water. This theory had been expounded in the ancient case of shury v piggot[14]. In this case court observed that because the water once flowed it should continue to flow - the right to use water should not be extinguished simply because of some technical rule applying to easements over land. Justice Whitlock said;

"A water course doth not begin by prescription nor yet by assent (that is - grant), but the same doth begin ex jure naturae, having taken this course naturally, and cannot be averted."

This theory then became necessary during the first half of the nineteenth century to protect the riparian's from the unreasonable use of the stream by the industrialists who had acquired prescriptive rights. However, this never meant that the owners of prescriptive rights were denied the rights they held. This was basically to check on the method of use not to affect the other users of the stream. It was developed in the case of Wright V Howard [15] where it was held that the natural flow principle could mean that any use of the stream which changes its quality, quantity or manner of flow was wrongful without consent from riparian's who could be affected by it.

This position was, however, improved upon by Chief Justice Tindal in the case of Bower V Hill[16] when he found that even if the plaintiff had not suffered damage, he should still have standing to sue because failure to do so would enable a prescriptive right to accrue in the defendant

"Natural flow theory which had been successfully used in cases of pollution was too severe where abstraction was necessary for diversions that provided drinking water for cities and for

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[13] Anthony Scott,Geogia contain:The Evolution of water Right,1995,Vol.35,Natural Resources Journal,fall.pp.927

[14] Shury V Piggot 81 Eng.Rep.280 (16625)

[15] Wright V Howard 57 Eng Rep.280 (1625)

[16] Bower V Hill 131 Eng.Rep.1229 (CP 1835)

other beneficial social activities. The idea that polluters must stop made sense. The motion that abstractors must behave more 'reasonably' appeared to everyone"[17]

Although the natural flow theory became very instrumental and attractive for purposes of reducing and controlling pollution, it was not conveniently effective in cases of abstraction. It was, therefore, never effectively applied in England to cases of water abstraction.

2.1.4 The reasonable-use concept.

In every period of English law, protection of property from actionable damage at the hands of others has been recognized by law. This concept was introduced by the American case of Tyler v Wilkinson [18] into the common law. This was the development of the Roman law principle "Sic utere tuo ut alienum non laedas" (use your land without harming your neighbours). This case was followed by the English case of Embrey V Owen [19] which appreciated the essence of the reasonable use concept. In this case, Baron Parkes pronounced that;

The reasonable-use concept basically came into place out of a need to harmonize the interest of different users and uses of water. These, were especially ordinary uses and commercial or industrial uses. It also improved on the operation of the natural flow theory. The latter had no economic implications since it did not provide for the extent of use of the water.

However, the problem encountered here was to determine what was "reasonable" though the size of the river was taken into account, there were no specifications given on which court could rely in settling disputes. The Embrey and Tyler cases (supra) never sufficiently protect small scale land owners by the stream who were merely using the water for domestic and stock purposes. This was then addressed by the case of miner v Gilmour[20] which gave ordinary users an almost absolute right to use the water regardless of the effect it had on others. It suggested that ordinary use is per se reasonable. This exempted ordinary uses from any action. It became a relief to ordinary users from actions by the industrialists who had capacity to bring the actions against them.

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[17] Anthony Scott,Geogia contain:The Evolution of water Right,1995,Vol.35,Natural Resources Journal,fall.pp.882

[18]Tyler v Wilkinson 107.24 FCas.472 (C.C.D.RI.1827)

[19] Embrey V Owen ENG.861 (p.c 1858)

[20]Miner V Gilmour 155 Eng.Rep.579 (Exch.1851)

By the third quarter of the nineteenth century the English version of the reasonable-use theory was well established and widely acceptable. However, a fact remained that certain users were by their very nature detrimental or wasteful. The common law[21] therefore moved in swiftly to combine with the growing volume of statutory laws discouraging these unreasonable uses of water by trying to define and distinguish between reasonable and unreasonable uses. Examples of the unreasonable uses were: polluting uses, wasteful or merely ornamental uses and the uses which took the water out of the river basin or off the riparian tenement. This saw the development of the idea of beneficial uses hence the need to grant water rights.

2.1.5 Appropriative rights

The end of the nineteenth century was characterized by the increased yielding of steam power, city water supply, transportation and sewerage removal. These uses began to be placed under special statutory systems of charters. The courts which had seemed to develop new doctrines relating to water quality and river pollution were relieved by this responsibility.

The system of appropriation of rights characterises the beginning of water resources planning which is a required tool consequence of water use situation and public conscience of its progressive scarcity. In Spain the system seems to have began much earlier. In 1866 - 1879, the state issued the first Spanish water law, with the main objective to legalise the normal control practice of water management and to establish the legal control of this natural and valuable resource and the policy for how to act in the future. One important aspect of the law was the formal recognition of Water Users' Association.[22]

A common theory which attempts to explain why appropriation rights were introduced stresses the beneficial-use requirement of the rights rather than the consumptive use intention of the farmers. Where industry and government were both pressing for rapid development in the face of

[21] At this time the legislature had started coming into enact laws and regulations to check on the uncontinued unreasonable uses of water.

[22] Jose maria martin mendiluce:water resources planning in spain: presentation to the second meeting of the board of governors world water council.granada,16-17 july 1996.

a relative scarcity of water, a use-based individual right was more attractive than a land based right because it gives access to more potential developers and settlers.[23]

In British Colombia water law rules relating to appropriation were an extension of the Crown Mineral Disposal Law 1875. At this time the gold mining industry had grown and there was need for its regulation. After that they broadened periodically to recognise domestic and agricultural uses, and continued to have a public lands disposal flavour. In 1892, a government declaration placed all water under crown ownership. Licenses that were the lineal descendant of miners' water rights were to be issued for any use, and some attempt was made to give administrators'' priority ordering[24]. All American and Canadian water law was developed in the nineteenth and twentieth century's. In that era legislatures took some problems away from the courts and the common law. With the development of the water law by appropriation, most states in United States exempted domestic and certain other water uses from permit requirements.

2.2 Guiding Principles on Property Rights to Water.

Like any other form of property, water rights should be appreciated with other general rights relating to property. Hence there are general guiding principles that relate to property as well as water. These property rights can be categorized into;

i) Private property regimes

ii) State property regimes and

iii) Common property regimes

iv) Open access regimes

In private property regimes, the bundle of rights is comprehensive. The individual or corporate body may have exclusive though not necessarily absolute tights to manage natural resources. The rights are not necessarily absolute because resource owners under private property are not

[23] Anthony Scott,Geogia contain:The Evolution of water Right,1995,Vol.35,Natural Resources Journal,fall.pp.908

[24]Anthony Scott,Geogia contain:The Evolution of water Right,1995,Vol.35,Natural Resources Journal.fall.pp.840

necessarily entirely free to do as they wish with the natural resources[25].This form of tights is aimed at generating incentives and maximization of profits in the field of agriculture and industry.

In state property regimes, ownership and control of property rests in the hands of the state. Individuals and groups may be able to make use of the resources, but only at the forbearance of the state[26].The essence of state intervention in the control and management of the natural resources here is to enhance and promote the idea of sustainable utilization of the resources.

Common property (res. communis) on the other hand represents private property for the community. Individuals have rights and duties in a common property regime. In one important sense the common property has something very much in common with private property - exclusion of non-owners[27]. The members of the group can exclude non-members from use and decision making[28].The concepts of res communis and res nullius originate from the Roman law of Property.[29] The general similarity is that they can all be assessed by the public. However, the distinction is that in res communis, a certain group of people can claim exclusive use over another.

It is, however, argued that in the current legal system of Uganda, common property resources are not provided for under any law. It may only be relevant in customary land tenure systems.[30]

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[25] John kigula:tenure relations,law and policy in wetland common properly regimes in urban Uganda.october,1997 pp.4

[26]John kigula:tenure relations,law and policy in wetland common properly regimes in urban Uganda.october,1997 pp.5

[27]John kigula:tenure relations,law and policy in wetland common properly regimes in urban Uganda.october,1997 pp.6

[28] John Ntambirweki:"african customary law,common property,and the emerging Environmental law in uganda" in Stefano Nespor (Ed):A world survey of environmental law,1986-1996,Rivista Giuridica Dell'Ambient

[29] John Ntambirweki:"african customary law,common property,and the emerging Environmental law in uganda" in Stefano Nespor (Ed):A world survey of environmental law,1986-1996,Rivista Giuridica Dell'Ambient

[30]John Ntambirweki:"african customary law,common property,and the emerging Environmental law in uganda" in Stefano Nespor (Ed):A world survey of environmental law,1986-1996,Rivista Giuridica Dell'Ambient

The categories analysed above are generally governed by some principles which determine how an individual or groups of individuals can claim as of right such property. The general principles of property to be discussed below are generally applied to water.

2.2.1 Enforcement of rights.

A person will normally e considered to have a right if he has a legal entitlement to the property which can be enforced and protected. If one claims a right to something, he must have the capacity or otherwise locus standing to claim and defend his title to it. This principle was given ii the case of Ashby v white [31] where court resolved that "want of right and want of remedy are reciprocal" or without a remedy there is no right. This principle applies to water since a person claiming a right to use water either as a riparian or other user must be able to have a remedy either where he claims absolute ownership or where he suffers damage from other users.

2.2.2 Legal Protection.

If a person has no initial legal entitlement to do something, but others have no means of preventing or blocking him from his use or enjoyment of it, and he has the legal means of protecting his action from harm from others, what he has is tantamount to a "right". This has been defined as:

"The ability to do something which is recognized directly or indirectly in law, to the extent that the law can be expected positively to protect the ability or negatively to prevent others from interfering with that ability"[32].

2.2.3. Absolute Right.

This relates to the ability of a person or group of persons to enjoy the use of water without the intervention of others affecting such use. The user in this case is able to use the water either through his ownership of land adjacent to the river or through any other form of use. "Water rights are absolute if no action by others affects the owners' uses, plans or profits. They are close to zero if independent use is impossible without multilateral control agreement or combination, upstream and downstream".[33]

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[31] *Ashby V White* Eng.Rep.126 (K.B 1703)

[32] Anthony Scott,Geogia contain:The Evolution of water Right,1995,Vol.35,Natural Resources Journal,fall.pp.824

[33] Anthony Scott,Geogia contain:The Evolution of water Right,1995,Vol.35,Natural Resources Journal,fall.pp.830

However this does not necessarily imply that there should be no means of control on the use of the water. Even complete exclusivity in the legal sense does not guarantee certainty to a user. Because other factors line charges in the flows or water level due to seasonal and other natural changes can affect the use beyond the users' control.

2.3.1 Acquisition of right

This relates to the capacity of the holder of water rights to transfer or pass on his title or part of it to another person. This phenomenon developed during the seventeen and eighteenth centuries when water started gaining value. During this period industrialists and large scale agriculturists began entering into contracts either by sale of land or leases. These arrangements were between owners of water rights and those who wished to acquire all or part of them.

"A contract for water rights was almost as good as a lease of land with water attached. Since both could be time limited and subject to various conditions and covenants, both provided a good solution for all parties"[34].

Flexibility in this case may not be absolute hence may be subject to certain conditions. In Uganda it is not absolute for a person to change the mode of operation owing to any changes or modifications.

"The holder of a permit under these regulations shall apply to the Director to amend the terms of the permit due to subsequent changes or modifications in operation which lead to relevant or significant changes in discharges in form E set out in the sixth schedule to these regulations"[35].This therefore means that the change should be backed by sufficient cause and must not have a significant impact on other peoples use. The element of flexibility is thus conditional not absolute.

2.3.4 Divisibility

This relates to the ability by someone to break an interest into smaller units of rights with respect to ownership, rent or extent of using the streams physical attributes. In riparian system, sub-

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[34] Anthony Scott,Geogia contain:The Evolution of water Right,1995,Vol.35,Natural Resources Journal,fall.pp.858

[35] Regulation 7 (5) of the water (waste discharge) Regulations,1997.

division of land leads to automatic creation of new water rights. "The divisibility of a right can increase or reduce the exclusivity of other user's rights because of its ability to change the available flow through the numbers of users of the right"[36].

"Development "involves a progressive transformation of the economy and society". But this transformation can be done at the expense of the environment and will likely have only short-term gains."[37]

It is, therefore, essential that these activities be regulated. The legal machinery for the regulation of man's activities is normally through legislation:

i) There should be a legal framework for management of water resources that vests the resources in the state. The state should be able to oversee and control the resources by putting up a system of allocation of water.

ii) The legislation should also set up authorities to administer system of licenses or permits for abstraction, and utilization of the resource.

"The licensee is required to exercise his water rights in accordance with the abstraction conditions. The breach of any conditions may lead to the withdrawal of the license."[38]

The legislative instrument should be able to set both ambient and effluent standards. It should also give wide discretionary powers to administrative bodies in the exercise of its powers of monitoring. The following therefore are therefore are the main reasons necessitating the regulation of water rights through legislation.

2.4.1 Scarcity due population to Increase

"Man is probably the greatest single biogenic factor affecting river water quality both directly as a result of discharges into rivers, and indirectly through his activities on land"[39].

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[36] Anthony Scott,Geogia contain:The Evolution of water Right,1995,Vol.35,Natural Resources Journal,fall.pp.831

[37] J.B.Ojwang with Calestous Juma "towards ecological jurisprudence":in land we trust,1996,initiatives ltd/Zed press.Nairobi,pp 310.

[38] Bondi D.Ogolla "environmental management policy and law" june 1992,Vol 22,environmental policy and law,Article No.3,pp.168

[39] C.M. Breen: "River" in J.J. SYMOENS (Ed), The ecology and utilization of African inland waters,1981, UNEP Reports and Proceedings series 1. Nairobi.

In this case legislation and prohibition became important because even science was believed not to give a better solution in the control of the depletion of water resources in relation to the population growth rates.

"If the rate of population growth and man's attitude to nature do not change, there is no guarantee that science and technology will be able to prevent irreversible degradation of the environment and continuing poverty for even more of the world's population."[40]

Legislation therefore plays an important role in regulating the use of water resources and ensuring that every citizen makes use of the resource sustainably.

"Water use for irrigation has a long tradition in Spain. Up to the middle of the past century water development to irrigate lands was the result of private local and Independent promotions (individuals and collectives), that did not contemplate all the possible relationships in between uses for future developments."[41]

2.4.3 Increase in industry and technology

Throughout the process of evolution of water rights, as discussed in the previous sub- chapters, much of the concern that has led to the regulation of water rights was the growth of industries. During the era of industrial revolution water users acquired a right to sue under the law of nuisance for the injuries resulting from the industrial effluents. The increase in technology contributed much to the shift from the prior-use concept to the reasonable-use concept. These changes in technology created new types of demand for water hence changes in rights. Industrialized countries spend considerable funds on the development and maintenance of water purification facilities. Introducing, as well as the expansion of primary (mechanical) and secondary (biological) treatment of waste water, tertiary (chemical and biological) treatment.[42]

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[40] Dieter Frisch: "We have not inherited the land from our parents, we are borrowing it from our children" Dossier May - June1992, The courier No. 133,

[41] Jose Maria martin mendiluce:water resources planning in Spain: presentation to the second meeting of the board of governors world water council.granada,16-17 July 1996.pp.1

[42] Genady N. Goiubev. "Sustainable water development: Implications for the future." Asit K. Biswas (ed), 1993, Vol. 9, International Journal of WATER RESOURCES DEVELOPMENT. UNEP No.2 Carfax publishing company.

For this matter therefore, legislation has to put in place the conditions for pretreatment of waste before they are discharged into the sewer system. The abstraction of water should be regulated by use of a permit system. Industrialization, therefore, has played an important role in the regulation of water rights and the development of water legislation.

"The serious problem of water shortage in Africa, especially in the semi-arid and arid zones of the continent, arises from the recurrence of severe droughts. This has drastically reduced the water table in some areas to such extents that the development of water resources, particularly ground water, requires such technology that is beyond the means of the local peasants."[43]

Two major categories of problems exist related to water as a resource: Its availability and its quality. The former is more typical of arid and semi-arid regions, while the latter could be found anywhere, correlating more with the pressure of man's activity rather than with natural conditions.[44]

This phenomenon of scarcity has made it possible for states concerned in these areas to resort to regulation of extraction of water resource in order to maintain the water resources especially the ground water which is utilised during the seasons of shortages. It has thus made it necessary to apply the strong mechanism (legislation) in controlling water resources.

Many countries of the world have now adopted the legislative mechanism to control and regulate water resource. This system of regulation seems to show some signs of success despite the conflicts from the people who still regard water as a public and free resource. "In addition to pure legislative and regulative means of controlling and adjusting behaviour as to use of water resources, economic measures may be introduced. Economic measures may provide incentives to behave rationally to support sound water resources management and conservation."[45]

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[43] African Regional preparatory conference achieving our development goals through the environment.

[44] Genady N. Goiubev. "Sustainable water development: Implications for the future." Asit K. Biswas (ed), 1993, Vol. 9, International Journal of WATER RESOURCES DEVELOPMENT. UNEP No.2 Carfax publishing company.pp.128

[45] Directorate of water development- Uganda water action plan (annex 14) volume 3- background for regulation.

It is important to note that water resources have also been regarded as an "economic good". An economic good has been defined as "a scarce good which can be acquired through exchange."[46] The basic reasons for this are:

i) Development models - maximizing production without looking at the quantity of the resources available and how or whether they can be renewed.

ii) Significant climatic variation which in certain regions have exacerbated human despoliation of economic system.

iii) The pace of scientific change which has required more sophisticated means of control hence the increased value for water.

This whole phenomenon has led to the development of sustainable development. This means that there should be development which should however not compromise the natural resources. "The quest for sustainable development not only means that there should be no direct contradiction between environmental protection and economic development, but is also an acknowledgement of the fact that poverty is in itself one of the chief causes of the deterioration of the environment and that in its turn creates further poverty."[47]

Therefore government control of resources allocation decision should be achieved through the instrumentality of government grants of permits, licenses or authorizations, all of which convey a "water right" i.e. the right to take and use 'Water subject to the terms and conditions of the grant. This will help in controlling disasters of over exploitation and pollution of water resources.

[46] 'Dossier "Environment And Do Development: May - June 1992, The Courier No. 133

[47] Dieter Frisch: "We have not inherited the land from our parents, we are borrowing it from our children" Dossier May - June1992, The courier No. 133,pp.44

Conclusion:

This chapter has basically dealt with the global setting considering foundation and development of water rights from the common law concepts of riparianism to the modern appropriate mechanisms that are a basis for legislation. This transformation is based on the various characteristics of general property value. The chapter has also made a discussion on the factors that have led to this evolution and the subsequent need for legislation.

CHAPTER 3
WATER RIGHTS AND THE STATE OF LEGISLATION IN UGANDA

3.0Introduction

Uganda has from the past undergone several economic changes as a result of the population growth. This has therefore necessitated the government control of the natural resources including water resources. This rising population has in turn resulted in:

i) An increased demand for water for domestic use, more so with the development of urbanization.

ii) Increasing industrialization including mining in relation to increased demand for clean water. This called for the need to control and regulate the disposal of increasing volumes of industrial influence.

iii) The increasing agricultural production especially with the introduction of the cash crop economy. This led to the demand for extensive irrigation and application of agro-chemicals. It thus became necessary to control the abstraction of irrigation water and the disposal of wastewater mixed with chemicals from the large estates.

iv) The more settled and organized livestock industry, which required much more water, supplies.

v) The need for more hydroelectric power schemes.

This gradual development has therefore imposed new pressures on water resources in particular and the environment at large. The issue of water rights has therefore developed over time and they have developed either through customs or common law principles. The rights have also been developed through legislation. However, water use for domestic purposes has not been subjected to regulation since it has always been regarded as unable to pose an adverse impact to water resources.

This chapter will hence discuss the evolution of water rights especially from the colonial times to-date. It will also focus at the current state of legislation especially the laws relating to water

rights subsequent to 1994. This is basically through analyzing the economic and environmental functions of water resources.

"Water is a key factor of production in e.g. manufacturing industry, power generation, mining and agriculture. It sustains the natural environment, which is why it is not only the quantity of water available which is critical, but also its quality - its fitness for use. For this reason, economic activities which can pollute water and render it unfair for other uses must be controlled."[48]

3.1 The Evolution and Development of Water Rights in Uganda.

Before the colonial period, people in Uganda lived in communities in the units of families, clans or tribes. These communities were governed under the customary norms particular to each community. The people at this time depended so much on the natural resources.

"Not endowed with large scale technological advance, the traditional society derived its survival needs directly from the fauna, flora, land and its resources. It was therefore essential that the use of such resources be managed so as to ensure present and future utility."[49]

Some of the resources at this time were animals, fruits, firewood, grass and water.

The communities then developed slowly and gradually and started formulating policies for protecting their property rights in natural resources. The property interest developed from the traditional philosophy which embraced a number of broad aspects normally: the exclusive rights to possession, use and disposition.

"Modem society came through fundamental changes and revolution, which in the course of time, altered the equation of parity between human kind and natural resources."[50]

During the colonial period, the idea of protection and conservation of natural resources like water, forests and minerals developed. In the areas of Buganda, after the 1900 Agreement, land was given to the Kabaka and his loyal leaving the rest of the land under the control of the

[48] the republic of Uganda - of natural resources nai7onal water policy - draft, fer b 1996 pp.3

[49] J.B Ojwang with calestous juma. "Towards ecolocogical jurisprudence". in land we trust, initiatives ltd/zed press, nairobi 1996 pp.314

[50] ibid

protectorate government (crown). Much of this land covered all the swamps, forests and waters. These were thus referred to as crown lands from where the idea of public lands developed. These were held and regulated by the Crown Lands Ordinance 1903.

The natural resources covered under the ordinance were purportedly held by the crown on behalf of and in trust for the people of Uganda. All the minerals even if they were on somebody's mailo belonged to the crown. In 1907, there was enacted the Rivers Act[51]. This Act regulated dredging in a river by granting a license under Section 5(i):

"It shall not be lawful to dredge in any river without a license from the Minister..."

This Act was however, inadequate and insufficient in addressing the question 9 of water rights. It never regulated the use of water from the rivers and the disposal of waste into the rivers. The reason being that it came at the time when the industrial and agricultural activities of the people of Uganda were very low. The legislators did not put into consideration the future abstraction of water and the pollution of these rivers. It has ever since never been amended to suit the changing socio-economic conditions. No rules or regulations were enacted to provide for the prior preparation of the provision of the Act. Nevertheless the Act can be seen as the beginning of the realization of the new era of water rights management.

Further realization of Water rights can be seen to have developed, especially in light of waste discharges, in 1935 with the enactment of the Public health Act[52].

The Act provides for the prevention of diseases to the public arising from sewerage, poor sanitation and pollution of the environment. It regulates the use of chemicals for public health and sets up the Health Inspectorate to ensure compliance. It also sets up the drainage and sanitation rules that specifically mention technical aspects of the waste disposal.

Section 82 makes provisions for the owners of land to drain as public sewer into any available public sewer. This is aimed at preventing discharges into public waters resulting in their hence pollution.

[51]the Rivers Act Chapter 347 laws of Uganda
[52]the Public health act Chapter 269 laws of Uganda

The development of water rights was further advanced with the enactment of the Mining Act6' in 1949. The Act gives privileges and obligations to a holder of a prospecting license. Section 33(d):

"Use so much water as will enable him to test the mineral bearing qualities of land by washing, sluicing or other means." There is however a proviso to this paragraph such use of water should not interfere with any existing user of water.

The implication of this is not to give the holder of a prospecting license absolute powers that may lead to over exploitation and pollution of water resources. The Act also under Section 34 grants the license holder ancillary privileges which include grazing livestock for subsistence purposes, prospecting or mining, for domestic use from any spring, water hole, lake, river or stream.

Part IV of the Act regulates the use of water and introduces the idea of a water permit under sections 60 and 61. Section 6 provides that the Commissioner may on application, grant to the holder of a mining right, in respect of any water supply over which the government may have control, a temporary permit, which shall be known as a "water permit". This permit is required for prospecting and mining operations, washing the natural resources and any necessary works for the collection storage or conveyance of such water.

Sections 58 and 59 forbid the interference with water without consent and pollution of water supply respectively. Section 58 provides; "Save as provided in paragraph (d) of Section 33 of this Act, no water of any spring, stream, river, water course or natural water supply controlled by the government shall be dammed, diverted or iii any way interfered with or without the consent of the Minister."

Section 59 prohibits the discharge into any natural supply of any poisonous or noxious matter.

The Act further sets out a provision for compensation by the grantee of water permit whose activities under the permit may disturb any person and cause him damage. The idea of compensation upholds the element of reasonable use. The activities of one person, despite being a holder of water permit, should not cause damage to any other person.

With the development of the mining industry it was necessary to control and regulate the discharge of metallic substances and acids into the waters. The dangers from mining were evidenced in Kasese with a stockpile of cobalt on river Nyamwamba. Therefore the Mining Act and the Mines Act enacted in 1969 provide a good background for the acquisition of water rights and the prevention of pollution by the holders of mining rights. The point of inadequacy in this Act is that it does not specific standards of effluent aid the methods of treatment of these wastes. It ought to be reviewed owing to the growth of the economy and the mining industry which should be compatible with the water quality standards under the National Environment Statute[53]

The question of provision of clean drinking water was realized in the Factories Act[54] that was enacted in 1953. This is in line with the rights to water. Section 47 states; "An adequate supply of wholesome drinking water shall be provided and maintained at suitable points conveniently accessible to all persons employed."

This implies that drinking water is an essential element that must be observed. And this can only be through a system, of management of water rights.

However, this law basically falls short of addressing the principles of water tights management owing to the use of water in factories and the discharges from those factories. The law was basically aimed at protecting the health of the workers inside the factory. It does not put into account the conservation of water resources through the discharge of effluent from such factories. There is, therefore, a need for a review and improve on the law relating to factories to cater for the growing concern on the impact that may arise from the wastes discharged from the factories in relation to water resources in particular and the environment at large.

Water rights evolution and development reached a climax with the enactment of the Public Lands Act64[55] in 1962. This was repealed and replaced by the Public Lands Act 1969[56]. The question of water rights is provided for under Section 27 in relation to public land. The Section expressly reserves all rights in water to the government. Section 27 (i) provide: "All rights in the water of any spring, river, stream, water course, pond or lake on or under public land, whether

[53] the National Environment Statute no.4 of 1995 sections 26 and 27
[54] the Factories Act Chapter 198 laws of Uganda
[55] Public Lands Act64 Chapter 201 laws of Uganda
[56] Public Lands Act64Act 13 of 1969

alienated or an alienated shall be reserved to the government. No such water shall be abstracted, dammed, diverted, polluted or otherwise interfered with directly or indirectly except in pursuance of permission in writing granted by the Ministers in accordance with such procedure as may be prescribed."

The Section developed the idea of grant of permits for either abstraction of or discharging wastes into waters. At that time all land other than that under mailo and freehold, was considered to be public land owned by the state on behalf of the citizens. This was later amended by the 1975 Land Reform Decree which abolished mailo and freehold tenures and made all land public land. Government controlled all the natural resources including water for and on behalf of the citizens.

Essentially the Act vested all the rights in the government and the, development of water allocation. The Act further vests the power to investigate, manage, control and use the water resources in Uganda in the state. The Water Statute has upheld this view.[57]

The objectives of vesting all rights to water in the Government are basically:

i) To promote the rational management and use of the water resources,

ii) To promote the provision of clean safe and sufficient supply of water for domestic purposes to all persons,

iii) To allow for orderly developed and use of water resources other than domestic use such as livestock, irrigation, industrial, commercial, mining, navigation, fishing, hydro electric or geothermal energy generation, preservation of fauna and flora and recreation purposes,

iv) To control pollution and to promote the safe storage, treatment, discharge and disposal of wastes or otherwise harm the environment.

The Act on the other hand maintains the rights of the occupier of public land to use water for domestic purposes. This is provided for under Section 27 (2); "Nothing contained in this section shall prevent the reasonable use by an occupier of public land of any such waters for domestic or small scale agricultural or pastoral purposes only."

[57] The Water Statute no.7 of 1995

The detailed procedure for the grant of water tights was provided for under the Water Right Rules67 which were enacted pursuant to Section 37(i) (c) of the Public Lands Act 1962 (Cap. 201 Laws of Uganda).

Section 2 of the Rules provides for the procedures for the application for a water right like the application being in duplicate and accompanied by appropriate fees. It also requires the plans for the area and points of abstraction.

Section 3 provides for the requirement of consent of the neighbor occupier in cases where the proposed water source forms the boundary of the land occupied by the applicant or where the proposed water source does not adjoin land occupied by the applicant in which case the proof is on the applicant.

Section 4 and 5 provide for the procedure of processing the application and the issue of conditions of issuing the water rights license.

Although the Public Lands Act fell short of analyzing and specifying the quantities of water to be abstracted and the standards of effluent, it set up basic principles which have been upheld and unproved upon by the current legislation. These legislative instruments include the National Environment Statute, The Water Statute and the Regulations made there under. Basically the Public Lands Act has laid a good background for the current modem water rights regime which is based on the resource allocation.

3.2 The State of legislation relating to Water Resources Rights in Uganda

By the year 1992, Uganda bad no comprehensive water policy and the legislation governing the use and protection of water resources was inadequate and out of date. The legislation on water rights was not consolidated. It was contained in various Acts and most of these were outdated. It, therefore, became necessary to put a law into place to establish a framework which allows proper management of water rights that is compatible with the environmental needs and does not violate the people's traditional rights to use water for domestic purposes.

The Water Action Plan for the development and management of water resources was completed in 1994. It basically provided an initial framework for the development of the National Water Resources Policy. This was aimed at the management and allocation of water, at a sustainable

level. It was also aimed at analyzing the extent of present and possible future exploitation of water resources.

Basically the plan made a study on how there could be a consolidation of laws relating to water resources since the previous legislation was inadequate.

"For many years the legislation for the proper use of water and regulation of the water sector was inadequate, outmoded and scattered under different Statutes and Acts. Government therefore initiated a water sector legislation study which led to the formulation of a new comprehensive Water Statute 1995"[58]

The enactment of the Water Statute was in conformity with other laws relating to environment e.g. the National Environment Statute 1995, and the constitutional provisions relating to the environment. This study will then proceed to make a review the legislation and provisions relating to water resources as enacted after 1994.

3.2.1 The Constitution of the Republic of Uganda, 1995

The constitution of the. Republic of Uganda, 1995, gives highlights on the issues relating to the environment and this is emphasized in its' objectives. Objective XIII provides that it shall be the aim of the State to protect important natural resources which include land, water, wetlands, minerals, oil, fauna and flora on behalf of the people of the people of Uganda.

Under objective XXVII the constitution emphasizes the issue of sustainable development in relation to the management of water resources. "The State shall promote sustainable development and public awareness of the need to manage land, air, water resources in a balanced and sustainable manner for the present and future generations".

It further provides for the utilization of natural resources to be managed such as to meet the development and environmental needs of present and future generation of Ugandans. It also guarantees the State's measures to prevent or minimize damage and destruction to land, air and water resulting from pollution or any other cause.

[58] The republic of Uganda-ministry of natural resources: "national water policy" draft, feb.1996 pp.3

3.2.2 The National Environment Statute

The Statute lays down the basic principles of environmental management under Section 3. These principles basically emphasize the aspects of sustainable utilization of natural resources including water, and public participation in the conservation of natural resources.

Section 4 gives a right to a healthy environment to every person. It also gives a duty to every person to maintain the environment that includes the duty to inform the authorities of the activities that affect the environment. In view of water rights this provision makes it possible for people to use the water resources sustainable and to be responsible for all the activities that may lead to pollution and reduction in quantity of the resources.

Section 27 of the Statute goes ahead to provide for establishing the standards for the discharge of effluent into water. Water is the destination for all wastes. It therefore follows that these wastes or effluent must be controlled by way of treatment before it finds its way into the waters. The standards for various types of discharges must differ e.g. the level of treatment for industrial waste must be different from that of domestic waste.

The Section therefore, enumerates the establishment of the discharge standards of any effluent into the waters, prescription of measures for the treatment of effluent before discharge into the sewage system and the undertaking of works for treatment of effluent before it is discharged into water.

The implication of the above is the regulation of water uses by any person who has a right to use such water. It brings out the control of water rights by the National Environment Management Authority (NEMA) with the help of lead agencies like the Directorate of Water Development (D.W.D). Through these institutions the Statute subjects the water rights to approval and grant of permits subsequent to conditions which include the carrying out of Environmental Impact Assessments (E.I.A), by preparing Environmental Impact Statements (EIS). There must also be regular Environmental Audits (E.A) carried out periodically especially when it comes to renewal of rights.

The Statute therefore has tried to consolidate all the aspects of the environment by setting out standards in relation to each field of environment. The general provisions of pollution control

under Part VIII also refer to every aspect of the environment hence making the statute to appear as a basis for all other laws relating to the environment.

3.2.3 The Water Statute

The Statute emphasis the general rights in the use of water and the water rights management. Section 5 provides as follows: "All rights to investigate, control, protect and manage water in Uganda for any use, is vested in the government and shall be exercised by the Minister and the Director in accordance with the provisions of this part of the Statute."

This provision therefore means that the Government of Uganda reserves its tights relating to water in other words it holds the rights in water on behalf of the people of Uganda. Any person therefore who wishes to use water other than for domestic purposes as provided for under Section 7(1) of the Statute, must be granted such a right in form of a permit by the relevant authorities.

Section 7(2) recognizes riparian rights to use water by an occupier of lands although this is subject to approval by a local authority. It provides: "In addition to the right to water under subsection (1) the occupier of land or resident may, with the approval of the authority responsible for the area, use any water under the land occupied by him or is resident on or any land adjacent to that land."

The rationale behind this is to try to resolve the conflict between the traditional uses of water and legislation. Ordinarily people have a right to access water for domestic livestock and small-scale agricultural purposes. The Statute has therefore tried to maintain these use rights.

In exercising the rights granted to him under the Statute, a permit holder has to abide by the conditions set out. This can be observed by a penal system provided in enforcing the provisions. A person who violates the provisions of the Statute would be penalized either through imprisonment, fine, cancellation or suspension of the pennant. In the effective enforcement of the provisions of this Statute, it was necessary that regulations be made pursuant to Section 107. This is aimed at giving effect to the provisions of the Statute in a more detailed and procedural manner. Presently two statutory instruments have been made:

(a) The Water Resources Regulations 1997

(b) The Water (Waste Discharge) Regulations 1997

(a) The Water Resources Regulations 1997

These regulations have been made to control and regulate the use of water through abstraction. The regulations provide for a procedure of applying for a water permit to the Director[59]. The Regulations require payment of fees. The rationale here is because water is now looked at as an economic good which now has an economic value.

The Director is supposed to carry out sufficient investigations and may require the applicant to advertise the permit at his own cost. The Director reserves the right of granting the permit subject to conditions attached. Permits to abstract can be either for ground water or surface water.

"Ground water resources have always played a critical role in meeting the water demands of traditionally water - short areas of the world ... As a result, the Government tends everywhere to substitute itself for the land owner in the latter's traditional role of Master of the waters lying under his land and Government administered regulatory legislation tends to replace property - minded doctrines ..."[60]

Ground water resources can be controlled through the control of drilling. Bore-holes are normally dug to search for ground water in quality and quantity to justly its extraction for use and to bring ground water to the surface. This exercise has got an impact on the water table especially in arid and semi-arid areas hence it requires regulation. Most bore-hole digging or drilling and well construction is done nowadays on a commercial basis; the exercise of such activity has been increasingly attracted into the scope of regulatory ground water management legislation. This is typically exemplified by legislation subjecting commercial well digging or drilling to registration or licensing requirements."[61]

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[59] The "director" is defined under the water statute as the director of water development

[60] Stefano burchi: "preparing national regulation for water resources management principles and practice: f.a.o legislative study, rome 1994, pp.109

[61] Stefano burchi: "preparing national regulation for water resources management principles and practice: f.a.o legislative study, rome 1994, pp.130

In Uganda this activity is regulated under regulation 16[62] which requires the licensing of a person wishing to engage in drilling business and the land owner who wishes to have a bore-hole constructed on his land.

The Regulations generally set out a system of water use rights control through a permit system. They set out the conditions attached to the permit and the Director's powers to cancel such a permit. On the institutional arrangements in the enforcement of the Regulations they have established a Water Policy Committee under regulations 11, 12, 14 and 15 pursuant to Section 9 of the Water Statute. There is also provided penal provisions under Regulation 28, which give force to the Regulations in their enforcement.

(b) The Water (Waste discharge) Regulations, 1997

Uganda has experienced growth in her economy especially in the field of industry. The increasing number of industries coupled with agriculture poses a threat to the sectors of environment, through the discharge of chemicals and gases otherwise known as pollutants.

This has, therefore, required the making of Regulation to control, in the case of water, effluent from various sources into the water system. The Regulations govern waste water, principally discharges from urban sewerage, mining, industrial and agricultural operations. They however do not cover discharges into a sewer system.

"Regulations govern waste water discharged directly into any natural recipient, comprising surface and ground water bodies, wetlands and topsoil. Waste water discharged into a sewer system is not covered by the regulations."[63]

The regulations establish the criteria and procedures for issuance of permits for wastewater discharges in a water medium controlled by the Government.

These Regulations are to be implemented by D.WD and NEMA, both of which are under the Ministry of Natural Resources (MNR). Since NEMA has no technical capacity to perform these functions. Section 7 of the National Environment Statute provides for a delegation of functions

[62] The water resources regulations, 1997
[63] Directorate of water development: Uganda water action plan: outline regulation and management procedures for waste water discharge. Pp.1

from NEMA to lead agencies, in this case, D.W.D. The following benefits accrue from the implementation of the regulations.

i) Water users acquire legal certainty in the use of water.

ii) Reliable data can be obtained in order to achieve sustainable development of water resources.

iii) Combined regulatory and economic measures can be applied to water abstraction and waste discharges. At present the regulations are not yet in effect, despite having been signed by the Minister.

3.2.4 The National Water and Sewerage Corporation Statute, 1995

This Statute basically establishes the National and sewerage Corporation as a body responsible for the abstraction processing and supply of water especially to urban areas. It is also responsible for the treatment and discharge of urban sewage. The Statute however, appears quite inadequate in addressing the issues of other areas like industrial wastes, which find their way into the water system. The Statute also does not cover sewerage systems outside urban centers or otherwise private sewers.

Chapter further makes a review of the existing legislation with special emphasis to the post 1994 legal regime.

3.2.5 The Local Governments Act[1]

Since one of the principles of management and administration of water rights is public participation, it becomes necessary that powers be devolved to the grassroots. This then enhances the participation of the local people.

The Local Government's Act has provided for the decentralization of the environmental services. It has also established District Environmental Committees and Local Committees charged with the observance of all activities that may have an impact on the environment.

Part 1 of the Second Schedule provides for functions and services for which Government is responsible. The seventh function there under includes land, mines, minerals and water resources. This implies that rights to water are reserved by Government.

Part 2 basically provides for the devolution of services to District Councils. The third function provides for the provision and maintenance of water services by the District Councils in liaison with the Ministry responsible for Natural resources.

At the local level functions relating to water are also exercised under Part 4 of the Second Schedule. These include proper methods for disposal of refuse and the making, improving, operation and maintenance of wells, dams and other water supplies. It further stipulates the protection and maintenance of local water sources.

The problem however arises from lack of technical capacity by the local authorities. It is therefore a short coming that the Act did not provide a system of monitoring and emphasizing public awareness by the Government. The Act also falls short of providing for a penal system that may be implemented by the local authorities in case of default.

The Local Government committees at all levels should work hand in hand with the respective Environment Committees. Section 17 of the National Environment Statute provides that the Local Government Systems appoint the Local Environment Committees on the advice of the District Environment Committees of various districts. This is meant to ease the carrying out of the function under the statutes.

However the government of Uganda ought to double recognizing of human rights to water taking reference from other states.

3.3Explicit references from African and some Asian countries

South Africa

South Africa's constitution, adopted in 1996, has been praised as the model social rights constitution.

Article 27.1(b) confirms that everyone has the right to access to sufficient food and water.

South Africa's Water Services Act, Act 108 of 1997, contains Section 3 on Right of access to basic water supply and basic sanitation, it states that:

1) Everyone has a right of access to basic water supply and basic sanitation.

2) Every water services institution must take reasonable measures to realize these rights.

(3) Every water services authority must, in its water services development plan, provide for measures to realize these rights...

The National Water Act, Act 36, 1998, discusses permissible water use. Section 1 states that a person may (a) take water for reasonable domestic use in that person's household, directly from any water resource to which that person has lawful access;(b) take water for use on land owned or occupied by that person, for (i) reasonable domestic use; (ii) small gardening not for commercial purposes; and

(iii) the watering of animals (excluding feedlots) which graze on that land within the grazing capacity of that land, from any water resource which is situated on or forms a boundary o1 that land. if the use is not excessive in relation to the capacity of the water resource and the needs of other users; (c) store and use run-off water from a roof; (d) in emergency situations, take water from any water resource for human consumption or firefighting.

Gambia

The Constitution of Gambia, 1996, does not explicitly refer to water and sanitation as human rights but in Article 216(4) obligates the State to endeavor to facilitate equal access to clean and safe water, adequate health and medical services, habitable shelter, sufficient food and security to all persons.

Mauritania

Article 57 of the Mauritania Constitution, 1991, confirms that water is a fundamental right owing government responsibility.

Water Code, Law No. 2005- 030, Article 2, recognizes water as a right, subject to the laws and rules in force. The State policy aims to guarantee access to potable water to the popu1atiors.

Article 37 states that urban areas must have a collective sanitation system allowing for the rapid and complete evacuation of domestic and industrial wastewaters as well as their treatment, subject to the public health and environmental protection norms and conditions.

Madagascar

Water Code, Law No. 98- 029, Article 37, confirms that the public service is responsible for the universal provision of potable water, which is based on the obligation to provide a minimum quantity and a minimum service of potable water.

Tanzania

Article 10 of the Water Utilization Act, 1974, as revised 1993, pronounces the right to water for domestic purposes.

Algeria

Article 3, Water Law No. 05-12, 2005, recognizes the right to access to water and sanitation to satisfy the basic needs of the population, respecting equity.

Morocco

Water Law, Law No. 10-95, 1995, states that the development of water resources must allow for the availability of water in sufficient quantity and quality for the benefit of all users. Article 86 states that in the event of water shortage due to overexploitation or to exceptional events such as droughts, the administration shall.., enact temporary local regulations aiming to ensure a matter of priority the provision of water to the population and to animals.

India

The Supreme Court has ruled that both water and sanitation are part of the constitutional right to life (Article 21). The Court has stated that 'the right to access clean drinking water is fundamental to life and there is a duty on the state under Article 2l to provide clean drinking water to its citizens'[64]

[64] A.P. Pollution Control Board 11 v Prof. M.V. Naidu and Others (Civil Appeal Nos. 368-3 73 of 1999).

Indonesia

Article 5 of the Water Resources Law, confirms that the State must guarantee individual access and availability of water for everyone residing within the territory of the Republic of Indonesia.

Bangladesh

The Constitution of Bangladesh provides provisions to protect people's rights to basic services and needs.

The National Water Policy, 1999, gives the State the right to allocate water to ensure equitable distribution, efficient development and use, and to address poverty, giving priority to domestic uses.

The National Policy for Safe Water and Sanitation, 1998, aims to facilitate access of all citizens to basic level of services in water supply and sanitation.

Within the overall objectives the following specific goals will be targeted for achievement in phases in the near future:-.....

i. Ensuring the installation of one sanitary latrine in each household in the rural areas and improving public health standard through inculcating the habit of proper use of sanitary latrines.
ii. Making safe drinking water available to each household in the urban areas.

iii. Ensuring sanitary latrine within easy access of every urban household through technology options ranging from pit latrines to water borne sewerage.

CHAPTER 4
THE CURRENT WATER RIGHTS REGIME IN UGANDA

4.0Introduction

The level of development will usually change the socio-economic conditions in any given community. In Uganda like any other countries, the level of economic growth coupled with the increase in population have led to increased demand for water and on the other hand had an impact on it. This situation has imposed new pressures on water resources and on the environment.

Water legislation had to be developed and has offered means to deal with a changing and developing society while:

(a) Providing the means to manage the national water resources including their allocation between competing users in areas where water is scarce;

(b) Facilitating the provision of water supplies to meet the people's domestic needs and for economically viable industrial commercial and agricultural development;

(c) Giving appropriate powers to protect the environment ensure adequate provision for water disposal and control effluent discharges into natural water.

In light of the above, a new water regime has emerged. The emerging regime has moved from the ancient common property regime similar to that of the Roman system, where the property rights in water were said to have been vested in the public. The new regime seems to be composed of both state property regime and private property regime.

In a state property regime, ownership and control over use vests in the hands of the state. Individuals and groups may be able to make use of the resources, but only at the forbearance of the state.[65] In this case property rights to water in Uganda have been vested in the government as provided for under Section 5 of the Water Statute[66]. Therefore, the government has undertaken a

[65]John Kigula 'Tenure Relations, Law and policy in wetland Common Property Regimes in Urban Uganda" pp. 5

[66]the Water Statute No.9 of 1995

duty to manage the water resources by granting the rights through a permit system both for abstraction and waste discharge.

On the other hand a private property regime seems to exist. This is where "a bundle of rights is comprehensive, the individual or corporate body may have exclusive though not necessarily absolute rights to manage natural necessarily entirely free to do so as they wish with natural resources."[67]

The chapter therefore is intended to analyses the above aspects of the war rights regime. It will basically discuss the grants of rights through a permit system, the private rights to use water and this will bring out the analysis on the possible conflicts. Problems affecting water rights management will also be discussed in this chapter.

4.1 Granting of rights to water through a permit system

Water uses are categorized into consumptive and non-consumptive uses.

"The consumptive water demands mainly come from domestic (urban and rural water supplies, irrigation, livestock and industrial water supply...)"[68]

In other words these are uses that do require abstraction from the source. On the other hand non-consumptive uses are those water uses that do not warrant the extraction of water from the source and these include fishing, navigation, recreation purposes and hydro power generation. In Uganda under the current water rights regime, the regulation of water uses is through permit system.

"A permit is the instrument of the grant and at the same time it constitutes and is evidence of a right to use water, with the limitations specified in the grant."[69]

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[67] John Kigula 'Tenure Relations, Law and policy in wetland Common Property Regimes in Urban Uganda" pp. 4

[68] Oscar m.henera Camacho (f.a.o consultant) report of the first mission of the international consultant on water rights administration in uganda.g.c.p/int/net-waterlaw and policy advisory programme.february-march 1997,chapter 3:3:1

[69] Stefano burch: "preparing national regulations for water resources management :principles and practice"-f.a.o legislative study pp.22

The grant of permits is essentially aimed at controlling the use of water both surface and ground. Water is a resource that must be available in the required amount (quantity) and also with the necessary quality. The control under a permit system will

Therefore determine how much of the resource is abstracted and also check on what type of waste is being discharged into the water.

When granting water rights usually, apart from looking at it on the legislative point of view, economic factors have also been put into consideration since water has now attained value and become an economic good. Permits are normally granted after the applicant has paid the appropriate fees.

Under the Water Resources Regulations, various applications must be accompanied by fees and charges. These are Regulations 10(3), 1.6(4) and 26(3). The respective fees and charges are set out in the second schedule to the Regulations.

"The new law faces the water as an economic good and established the necessary guidelines to advance in water efficiency through the fees. No water conservation policy can be established with free water as has been in the past."[70]

Water, is therefore, recognised as an economic good and without proper tariffs it is not possible to achieve a good water management strategy and to carry out successful water quality and quantity maintenance programmes. This is because the co-operation of users does not have enough incentives when water is almost a free commodity. None imposition of tariffs and fines will encourage the irresponsible use of water on one hand and on the other hand deny the responsible authorities revenue to run the activities.

On the side of waste discharges it is also important that the person discharging waste be required to pay fees. This follows the principle of "polluter pays" and it helps the controlling authority to carry out treatment of wastes.

[70] Jose' Maria Martin Mendiluce: "Water Resources Planning in Spain": Presentation to the second meeting of the Board of Governors, World Water Council Granada, 17-16 July 1996, pp26

"Following the principle 'who pollutes pays' establishes fees for water discharge depending on the pollutant content, that in case no treatment by the user, are high enough to allow the state to build, at his own expense, proper waste water treatment without any additional cost."[71]

In Uganda under Water Resources Management and Development (WDMD), there are two types of permits, the abstraction permits and water waste discharge permits and water waste discharge permits. These are issued by D.W.D. The next discussion will therefore be based on the details of these permits.

4.1.1 Water extraction permits

Abstraction of water is the taking or extraction of water from its source for various purposes. Water being a scarce resource, its abstraction especially for use for commercial purposes should be regulated. The regulation of water abstraction has been established generally under section 8 of the Water Statute[72]. The detailed system for the grant of water abstraction permits is laid down in the Water Resources Regulations, 1997.

Regulation 3(1) provides:

"A person who,

(a) Occupies or intends to occupy land,

(b) Wishes to construct, own, occupy or control any works on or adjacent to the land referred to in regulation 10, may apply to the Director for a water permit".

Regulation 10 states some of the particular purposes for which water is required. It also gives the thresholds on the amount of water that can be abstracted or diverted in a period of twenty-four hours.

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[71] Jose' Maria Martin Mendiluce: "Water Resources Planning in Spain": Presentation to the second meeting of the Board of Governors, World Water Council Granada, 17-16 July 1996, pp12

[72] the Water Statute No. 9 of 1995

Types of water abstraction permits

Water abstraction permits are normally classified into:

(a) Surface water permits

(b) Ground water permits

(a) Surface water permits are granted when abstraction is to be done on surface water e.g. from rivers, lakes, streams and ponds. This is the most common type of water abstraction in Uganda especially for industrial, irrigation, domestic, public and power generation purposes. The main purposes for which a permit will be required are those set out in attachments A, B, C, D, E, or F of the first schedule to the regulations.[73]

The surface water permit will normally contain the names and addresses of the applicant, location and type of land requiring water, the use for which water as required, source o water, details of diversion and any other relevant information.

(b) Ground water permits are required where the abstraction involves underground water resources. Ground water resources are normally exploited in arid and semi-arid areas. However currently ground water is also being used in tropical areas.

"Historically ground water has been utilised for major schemes, mostly in the arid and temperate zones. However, it is increasingly being used in tropical"[74]

In Uganda the use of ground water resources is not very common, since the country is endowed with almost sufficient surface water resources. The utilization of ground water in Uganda is normally in rural areas and small towns where boreholes and wells are used. However, this is commonly on a small scale especially for domestic and livestock purposes.

Ground water permits can be further sub-divided into two types: the driller's permit and construction permit. Regulation 16 (1) [75] provides for a drillers permit:

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[73] The Water Resources Regulation, 1997

[74] asit k biswas, tn. khoshoo and ashok khosla, environmental modeling for developing countries - natural resources and the environment series vol 5, tycooly publishing London and new York,pp. 84

"A person who wishes to engage in the business of constructing boreholes to enable people obtain water shall apply to the Director for a driller's permit in Form D1 set out in the Fifth Schedule.'[75]

Application for grant of water extraction permits

All applications for water permits are made to the Director of Water Development. The fees specified in the second schedule to the regulations must accompany the applications.[76] There may also be a requirement for attachment or submission of plans and other information to support the application.

There may also be requirements by the Director for an applicant to advertise the application at his (applicant's) cost in a manner determined by him (the Director). Regulation 5 requires the Director to refer the application to an' public authority designated by the Water Policy Committee[77], for considerations and comments.

When considering an application the Director has to consider and take into account the factors laid down under Regulation 6 some of which are:

(a) The existing and projected availability of water in the area,

(b) The existing and projected quality of water in the area,

(c) Any diverse effect which the use for which the permit is likely to have on,

i. Existing authorized uses of water
ii. An aquifer or water way, including effects on land which forms the waterway or its surroundings
iii. The drainage regime
iv. In-stream uses of water

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[75] The water resources regulations, 1997.

[76] The water resources regulations, 1997.

[77] Established under part iii of the water resources regulations.

(d) Any water to which the applicant is already entitled.

(e) The availability of any alternative sources of supply

(f) The need to protect the environment

(g) The conservation policy of the Government

(h) Government policy on preferred allocation or use of water resources

(i) Safety of works

(j) Any submissions

(k) The comments made by a public authority

After analyzing the above observations the Director still reserves the discretion to grant the water permit. The Director shall also consider the conditions spelt out under section 20 of the Statute.[78] In addition Regulation 7(2) also lays out the condition for the grant and the Director may attach all or part of them to the permit. He shall then issue the permits set out in Forms C1 and C2 for surface water and ground water respectively.

In case of a drillers or construction permit, after receiving the application made under Regulation 16 of the Water Resources Regulations, the Director may take into account factors laid down under Regulation 18. These may include inspection of land or equipment, giving of public notice and to invite submissions on the application.

When the Director is satisfied with the above conditions he shall then grant a driller's permit in Form D2 or construction in Form D3 all set out in the Fifth Schedule to the regulations.

A permit may be cancelled if the holder fails to observe the conditions or fails to give the required information. The Regulations also provide for the cancellation of a permit if the holder is charged of an offence under the Water Statute or the Water Resources Regulations. Though

[78] the water statute no. 9 of 1995

not provided for under the Regulations, it should be important that a permit be cancelled or revised in times of shortage or risk to public health.

4.1.2 Waste Water discharge permits

These are permits issued to persons who wish to discharge waste into the water system. The discharge of wastes should therefore be regulated as they normally lead to pollution of water resources. In Uganda the regulation on waste water has dealt with the discharges from sewerage systems, industries and mining.

"Regulation to govern waste water will principally concern discharges from urban sewerage operations and from industrial and mining operations outside towns."[79]

Since water is now seen as an economic resource and the implementation of laws should include penalties. The penalties usually do not include imprisonment only, but will also include fines and charges. This therefore has to be included in the regulations. Secondly looking as the economic measures as a fore seen, cannot be implemented effectively without a force of law. Charges will always be set but may be avoided. Therefore this requires legal measures failure of which may call for an imprisonment penalty. Therefore

"Installations discharging to a sewer system should be subject to regulation by the body responsible for treatment of the sewage".[80]

Water statute section 29 provides for the procedures of applying for a waste discharge permit and the conditions to be considered for the grant of the permit. These conditions are necessary for protecting the environment or preventing, controlling or abating pollution. It also gives the Director Powers to amend the terms of the permit at the request of the holder. He can also at any time amend the terms, suspend the operation or cancel the permit if in his opinion, it is necessary to protect the environment or prevent the pollution of any water.

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[79] directorate of water development: outline regulation and management procedures for waste water discharge, vol. 3 (annex 16) pp.1

[80] Directorate of water development. outline regulation and management procedures for waste water discharge, 3 (annex 16) pp. 1

Pollution

Pollution has been defined "as the action and effect of introducing materials, forms of energy and conditions in the water which directly or indirectly result in the harmful alteration of its quality for subsequent uses or of its ecological function".[81] Under the Spanish law, 'discharge' is defined as, "shall be deemed as an disposal of waste carried out directly or indirectly, on the beds, irrespectively of their nature, as well as those carried out in the sub-soil, land, ponds, or excavations by discharge, injections or depositing."[82]

Pollution of water or discharge of wastes is known to originate from a variety of sources. These can be conveniently grouped into two basic categories: "point" and "non-point" sources. The former group is identified with "pollution traceable to specific sources, such as industrial out falls, domestic drains, municipal sewers and wastes water treatment plants, injection wells, and waste pumps, whose entry point into specific bodies of water, surface or underground, can be determined with sufficient accuracy."[83]

"The 'non-point' category group sources whose discrete origins are difficult to V pin down with accuracy, such as the run off of agricultural land where fertilizers and pesticides are employed, or run off of urban storm water, and whose point of entry into water bodies - surface or underground - is difficult or impossible to determine with accuracy."[84]

In Ugandan legislation 'pollution of water is prohibited under section 31 of an offence for a person to cause or allow waste to come into contact with any water or waste to be discharged directly or indirectly into water or water to be polluted.

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[81] directorate of water development: Uganda water action plan - background for regulations (annex 14) vol.3,3.2

[82] the water act (Spain), act no.29 of 1985, (august 2, 1985)

[83] Stefano burch: "preparing national regulations for water resources management :principles and practice"-f.a.o legislative study pp.22

[84] Stefano burch: "preparing national regulations for water resources management :principles and practice"-f.a.o legislative study pp.50

Under the Regulations [85] the provisions seem to control discharge or pollution from "point" sources. Regulation 3 provides for the application of Waste Discharge Permit by a person "to whom a works approval has been issued" or who proposes to carry out any works for producing, storing discharging or disposing of any waste or waste containing substance. It also requires the owner or occupier of premises specified in the second schedule to apply for the water waste discharge permit.

The Director also has to consider various conditions before granting the permit, under Regulation 6. These may include existing authorized and projected quality of water in and downstream of the area, effects on such authorized or beneficial uses of water, any aquifer or water way, including effects on land which forms the water way or its surroundings. The Director shall also have to look at the minimum water quality (ambient) standards and effluent standards set under sections 26 and 27 of the National Environment Statute.[86] The conditions relating to waste discharge permits prescribed by the Minister under Section 29(6) of the Water Statute.[87]The Director has also to put into considerations the conservation policies of government, submissions by the applicant, comments of any authority and any other matter which he considers relevant to the application.

The Director shall grant the water waste discharge permit after he has satisfied himself with the conditions attached to the permit .The permit is granted in Form B set out in the sixth schedule. Where the permit is not granted the Director shall notify the applicant n writing. The applicant has a right to appeal to the Minister in Form D set out in the sixth schedule and such an appeal shall state the grounds of objection. The Minister can determine the appeal or refer it to the Water Policy Committee within twenty one days of the receipt of the appeal. Where it is referred to the Water Policy Committee the Minister shall determine it within seven days of the receipt of the recommendations.

Water conservation activities therefore need the proper definition of water rights. This will normally be through three basic aspects:

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[85] The water (waste discharge) regulations 1997

[86] The national environment Statute no.4 of 1995

[87] The water Statute no.9 of 1995

(a) An integrated and comprehensive water resource planning.

(b) A proper integrated, sufficient and comprehensive legislation.

(c) An adequate institutional organization responsible for water rights management through the grant of rights relating to water use and control of water pollution. This will basically require technical know-how and co-ordination between various agencies and the public.

4.2 Traditional rights to use water

Water is one of the basic essential elements of life. It must therefore be made available to all people. There are those who may not afford to acquire permits to use water since it requires payment of fees and charges. It is therefore inevitable that legislation must maintain tradition rights of all the people to use water especially for domestic purposes.

Section 2 of the Water Statute defined 'domestic use' as including use for the purposes of:

(a) Human consumption, washing and cooking by persons ordinarily resident on the land where the use occurs;

(b) Watering not more than thirty livestock units;

(c) Irrigating a subsistence garden, and

(d) Watering a subsistence fish pond

Section 7 of the Statute [88] also guarantees the general rights to use water. The section provides:

"(1) Subject to section 8 a person may:

(a) While temporarily at any place, or

(b) Being the occupier of or resident on any land,

Where there is a natural source of water, use that water for domestic use, fighting fire or irrigating a subsistence garden.

[88]The Water statue no.9 of 1995

(2) In addition to the right to water under sub-section (1) the occupier of land or resident on land may, with the approval of the authority responsible for the area, use any water under the land occupied by him or is resident on or any adjacent to that land.

(3) The rights under sub-sections (1) and (2) do not per se authorize a person to construct any works."

This section therefore maintains the ancient traditional riparian rights. However these rights are modified being not absolute. These general rights are subject to some conditions including regulating the water to be used for a particular purpose.

When permit requirements are introduced for the first time, or when important changes are introduced to an established system of water use permits or comparable requirements, it is standard practice for the relevant legislation to provide relief to the water users who are lawfully utilizing water at the time the new or changed requirements come into operation. The rationale for this special treatment is one of fairness as it existed prior to the changes brought about by subsequent legislation."[89]

Throughout the transition between water rights regimes, it has always been recommended that water for domestic purposes be exempt from regulation. It has been regarded as the overlying principle. This affords flexibility to legislation and also introduces the aspect of sustainability since water use should be in line with environmental aspects.

The element of sustainable use is provided for under objective XXVII (iii) of the constitution.[90] "The state shall promote and implement strategy policies that will ensure that peoples basic needs and those of environmental conservation are met."

The issue of allowing public rights to use water is a mechanism for harmonizing the harsh authority of the law and public interest. The grant of rights and the traditional use rights have to

[89] Stefano burch: "preparing national regulations for water resources management :principles and practice"-f.a.o legislative study pp.39

[90] The Constitution of the Republic of Uganda 1995

be included in legislation. "These two doctrines of riparian and appropriate rights form the basis for water legislation in a very large number of countries".[91]

The above statement implies that the conflicts between the two uses have always been instrumental in the formulation of the legislative machinery. This therefore warrants them to run concurrently. Nevertheless they have to be based on reasonableness as the owner of land adjacent to a water source must take reasonable care to use the water for domestic purposes in a way that will not harm their neighbours. In the same way the holders of permits ought not to rely on this title to cause harm to other users.

Unless the private means of holding rights in water are encouraged and emphasized in legislation there will be less development, as nobody would recognize the economic values in water. The customary values will always deter development and the end result will be the reduction in the quality and quantity of the resource. It even has led to the development of other resources like land. "Individualisation of titles certainly empowered those who had no previous ability to deal with land to pledge it."[92]

This implies that the consideration that water is an economic good encourages the growth and development of other resources attached to it. If therefore there is a custom that can control extractions of water for uses other than domestic purposes, it should be maintained.

4.3 Problems in management of water rights in Uganda

Granting water rights in Uganda has taken root and many people are willing and some have already started applying for permits. The delay in giving effect to the regulations has been a setback. Besides there are various problems that have been faced in the management of water rights. This is either through the legal instruments themselves or the institutional management of the resources. These problems include lack of enough hydrological and hydro geological data, political interference, systems of land tenure, conflicts of laws and abuse of government's rights.

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[91] Luis v. cunha, victor uigueiredo, mariol correia, antonio s.gonclaves: management and law for water resources: water resources publications, fort Collin, colorado usa, 1977 pp.30

[92] sanfo,d clark: tension between water legislation and customary right , 1990 vol. 30, natural resources journal, summer, pp. 511

4.3.1 Lack of enough hydrological and hydro-geological data

Having a regulating system in place is a step forward but is not enough in managing this system of analyzing the nature of the resources. It is therefore necessary to have a technical requirement for the hydrological and hydro-geological analysis. This is very important in establishing the present quantity and quality of the resource. This can also be facilitated by correct information regarding water extraction, from the permit holders. "An essential aspect of water resources management is allocation, at a sustainable level of available water resources for different uses and especially prioritization between different uses in case of scarce resources. In order to execute rational management, it is necessary to possess knowledge on available resources and the extent of present and possible future exploitation of these resources. This can only be obtained if extractors of water provide information on their extraction to their authorities responsible for management of the resources, hence the need for regulation of water extraction."[93]

This is why the Director is required to keep a register of any works and uses of water registered under the regulations.'[94] This information must be handled together with the established amount of water resources available at a given time in a given area. Therefore in the assessment of the availability of water resources, especially ground water, the aspect of hydrological and hydro-geological properties must be considered. These aspects in conjunction with the hydrological cycle will determine the availability of the resources at a present and future date. This will therefore act as a yard stick for the determination on how much of the water rights should be granted at a given time.

However, in Uganda today this is still being developed and such data system has not been achieved. There is however hope that this will be achieved in future through the Water Resources Assessment Project ('WRAP).

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[93] directorate of water development: Uganda water action plan, "background for regulations".vol.3-(annex 14) chapter 2-4

[94] The water resources regulations,1997.(regulation 27)

4.3.2 Political influence

In some cases politicians have greatly interfered in environmental affairs. In most cases the executive arm of the Government has had an influence in the formulation of the laws. At times the executive feels that the procedures involved in attaining permits is cumbersome especially .the preparation of E.I.As, these are said to discourage investors. On many occasions the Government has looked at getting revenue from developers through taxes and this has greatly compromised the conservation of the environment in general and water rights management in particular. This has also greatly compromised the independence of the institutions responsible for Water rights management for example, NEMA and DWD. An institution like the Water Policy Committee consists of government servants and political appointees who are easily compromised.

4.3.3 The Internal Conflict of Laws

It has been a common problem in drafting water laws in conformity with some constitutional provisions. Some people have' taken it among themselves that the constitutional right to privacy in regard to property should exonerate them form Government interference when it comes to managing water resources through grant of permits.

Another conflict can also be sighted in the Mining Act' [95]where a holder of a prospecting license has a privilege to use so much water as will enable him to test the mineral bearing qualities of the land by washing, sluicing or other means. Although section 6 of the Water Statute has tried to resolve this conflict, the problem still originates from the issuing authorities. The issue is whether the prospector has to obtain two permits from two different organs or they can be issued by one organ.

"Conflict between mining and water legislation is a vexed matter in many countries. Mining companies favour 'one stop' licensing procedures... on the other hand there is absolutely no doubt that both from a water management and an environmental point of view, mining operations must be subject to the generally prevailing licensing regimes for building hydraulic

[95] Mining act Cap. 248 laws of Uganda (section 33)

structures, taking water constructing and using boreholes and discharging wastes to land or to water."[96]

The water law also seems to have abolished the traditional water use rights without meeting constitutional obligations to pay compensation to those whose rights have been taken away.

In addition there is a conflict between the common law principles of land ownership and legislation on water rights. The principle of cujus est solum est usque ad coelum et ad inferos who ever owns the soils owns the air spaced above the surface and everything beneath the surface - conflicts with the Governments rights to control water, since waterfalls beneath the land.

4.3.4 Land holding systems

Land holding systems in Uganda today which have been provided for by the Constitution [97]are:

(a) The customary tenure,

(b) The freehold tenure,

(c) The leasehold tenure, and

(d) The mailo tenure systems

The constitution seems to have abolished the public land and repealed the Public Lands Act in essence.

It has also paved way for easy conversion of any other land tenure system into a freehold land tenure system. This is characterized by some element of absolute ownership. This may therefore pose a difficulty in Government's control over water resources. The same can be on Mailo system especially where land has been returned to the traditional rulers with full powers. Some of the water resources may be difficult to control by the Government e.g. the Kabaka's lake.

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[96] Government of Uganda: ministry of wale, energy, minerals and environmental protection: Uganda second water supply project, water legislation study - final report -june 1993. mott macdonald. "water and waste water" kabugo and company advocates 4- 12

[97] the constitution of the republic of Uganda 1995, article 237(3)

4.3.5 Liability of Government

The Government itself is among the titleholders to use water. Various departments have rights to use water. The legislation has however not clearly defined the extent to which Government would le liable in its use of water resources. It should be clearly stipulated in the law on how the Government authorities should be liable thereby setting a good example by observing legal obligations. An example of such Government authorities are urban authorities which have been known for abstracting large quantities of water and on the other hand do not properly observe the proper ways of discharging waste.

According to the study made in Kampala it has been found out that

"For Kampala the discharge of waste water into Murchison Bay, where also the water intake for the city of Kampala is located, constitutes a special problem. This situation may warrant reduction in discharges of nutrients giving rise to excessive growth of toxic algal and water hyacinth with its well known side effects and hazardous substances in order to protect the drinking water quality."[98]

This therefore requires the law to provide measures for the urban authorities together with the National Water and Sewerage Corporation, in observing the proper protection mechanisms. Such bodies should be obliged to make E.I.As and Audits in carrying out any of its activities.

"It is necessary however for legislation to clarif' the liability of government authorities by legislative requirements..."[99]

It is therefore necessary that all other permit holders learn from the way the government authorities observe the obligation of dealing with water resources. The system of allocation of water rights should also be given by one body. Because the Urban Authorities Act [100]empowered a council to acquire a water right with the consent of the Minister of Local Government and

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[98] Directorate of development: background for regulations, op.cit. chapter 3-5

[99] Government of Uganda; ministry of water energy, minerals and environmental protection: Uganda second water supply project. Water legislation study. draft final report September 1992 chapter 4 -13

[100] The urban authorities act 9cap 27 laws of Uganda (section 35(1))

section 37 of the same Act gave the council powers to alter water courses subject to any law relating to water rights. This amounts to an abuse of rights by urban authorities as government agencies.

"It is difficult for legislation alone to deal with such flagrant disregard of the laws. It can only be countered by education and insistence on the principle that no citizen can be expected to abide by laws which Government, itself, treats with flagrant disregard. Government authorities should set an impeccable example by observing legal obligations to the latter. Any other road leads to anarchy and contempt of Government and those who serve it."[101]

It might therefore be argued that government authorities must apply for water rights. A government authority should not take and use water as it pleases without observing the legal obligations under the laws relating to water rights.

4.3.6 Bureaucracy:

During the system of management and granting of water tights, there are procedures to be followed. These include processing applications, consultations, approvals and decision making.

The law provides that a person who intends to acquire rights to water must apply to the Director for a water permit. The application may therefore need to be advertised. This may also invite arguments from the public matters arising may have to be referred to the Water Policy Committee which is a quasi-judicial body. Such a committee may by one reason or another be unable to resolve the issues promptly.

On the other hand MA as a coordinating agency has got a supervisory role to play in overseeing how activities relatin to water are being carried out. This is done to bring management of water resources into conformity with other environmental related aspects. For example NEMA has got to approve an E.I.A where an applicant for a water permit is required to prepare one. This

[101] Government of Uganda: ministry of wale, energy, minerals and environmental protection: Uganda second water supply project, water legislation study - final report -june 1993. mott macdonald. "water and waste water" kabugo and company advocates 4- 13

formality is quite bureaucratic and causes unnecessary delays since NEMA lacks technical expertise and manpower to handle all the affairs from various environmental agencies.

Section 7(2) [102]provides that the Authority may delegate some of its functions by statutory instrument, to a lead agency, technical committee, the Executive Director or other public officer.

In the case of water rights management, no statutory instrument has been put in place in spite of many people being interested to apply for permits. This has caused a delay to developers and people who have been abstracting water or discharging wastes have continued to do so without permits.

Conclusion

This chapter discusses the current water rights management in Uganda by looking at the regulation of the use of water for abstraction and waste discharge. It also gives an account on the public rights to use water which are traditional in nature.

The chapter further enumerates the problems affecting the water rights management in Uganda.

[102] The national environment statute No.4 of 1995

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSION

Looking at the whole process of evolution of water resources, it is important to note that the current water rights regime i.e. through legislation and appropriation has been balanced with the customary rights to avoid unnecessary conflicts. This has been achieved by considering following:

i. The natures of water as a resource itself
ii. The supply and demand condition of the resource.
iii. The characteristics of the users of the resource.
iv. The relationship between legal and political policies.

This is because the changes in property regime have undergone significant evolution over years to incorporate other concerns; it has been of importance that ecological considerations give equal importance. Under circumstances of scarcity, conflicts between property rights and sustainable use are likely to increase. The solution is that the law has tried to provide and ensure that environmental considerations are reflected throughout the process of evolution, thus maintaining traditional uses that do not have an adverse impact on the water resources and the environment generally.

"It follows that goals of economic and social development now have to be defined in all states in terms of sustainability ... New concepts are emerging such as inherent rights or interests of future generations of equitable utilization, and the precautionary principle".[103]

In adopting national legislation regard has been given to environmental planning, development, construction, operation of water projects. This should continue to be enhanced through E.LA. Procedures. The implementation of the legislation should be supported by appropriate machinery with regard to water supply and discharge of wastes.

Proper management should also be based on a multi-criteria and multidisciplinary approach. It should stress the need to combine technical, economic, environmental, legal institutional and

[103] UNCHE – united nations Stockholm conference on human environment 1972

political actions because none of these taken in isolation can provide effective and lasting solutions.

"In dealing with rights to water, the secret is to try to isolate and entrench these elements of customary rights which are essential to the continued traditional life style. To ensure that they remain domain without the possibility of bureaucratic interference uses beyond, or for the purposes other than those uses actually employed by the traditional society an assigned to public domain. This allows the wider community to share in the benefits of use for those purposes on precisely the same terms as the clan claiming traditional rights. This is similar, in principle to legislation, which qualified the common law riparian right, by ensuring adjacent landowners. A continued right to take water for domestic and stock purposes and to irrigate a subsistence garden by making any further uses subject to an administrative permit for which non-riparian's may also apply."[104]

In Uganda generally, legislation has tried to resolve the conflict between the traditional use rights and the grant of rights through permits by allowing domestic uses to be carried on without the need for a permit. It can therefore be said that with the coming into effect of the regulatory the conflict between the uses will be minimal. However, there may be need for "revising legislative and institutional arrangements to accord with modern hydrological knowledge and principles of resource management"[105]

This has been in conformity with Article XI of the African Convention on the Conservation of Nature and Natural Resources.[106] This provides that all contracting states to this convention would take all legislative measures to reconcile customary rights with the provisions of the Convention.

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[104] Sanford D. Clark: Tensions between Water Legislation and Customary Rights, 1990, Vol. 30, Natural Resources Journal, summer. pp. 515

[105] Sanford D. Clark: Tensions between Water Legislation and Customary Rights, 1990, Vol. 30, Natural Resources Journal, summer. pp. 503

[106] Adopted at Algiers on 15 September 1968

5.2 Recommendations

Although the laws governing water rights management in Uganda are in place, there is still much to be done to rectify the problems especially those discussed in the previous chapter. Conflicts between traditional use rights and rights granted under legislation ought to be resolved. The principle of sustainability should be observed in accordance with the appropriate means of environmental protection. Water resources should be managed more effectively in order not to put human health and welfare, food security, industrial development and the ecosystem at risk. The next discussion will be based on recommendation on the improvements to be done on the existing legislation.

5.2.1 Comprehensive Legislation

It is clear that the current water rights regime is based' on control of these rights through legislation. However, the legal framework for water resources development and management needs to be clear and comprehensive. Among other things the law ought to: - V

- Specify the duties, obligations and liabilities on all the holders of water rights,
- Declare and entrench those elements of existing traditional uses which are actually exercised or capable of being exercised without having an impact on the water resources,
- Ensure administrative sanctions for the existing uses beyond those entrenched rights can be obtained simply without cost, unless they are quite irreconcilable with proper management practices,
- Be flexible in constructing system of tenure, administration, and control, so that they can reflect the customary systems.
- Attract support of local customary authorities and where ever possible involve them directly in water management structures,
- Provide for an appropriate and efficient system for resolving conflicts arising between different uses e.g. by establishing in depended local tribunals responsible for arbitrating between different users.

The law should generally establish a framework which allows continued evolution of administrative structures; this means that it should cater for the future evolution of rights

management without the need for major amendments. Legislation should also be easy to harmonize in case there is a need for regional or international uniformity on similar objectives.

5.2.2 Public participation and sensitization

The legal instruments to guide the administration of water rights should allow for full participation of the people. It should promote public awareness, and participation through education e.g. through school curricula, holding of seminars and workshops, or through the media.

This should be aimed at promoting general education of the public about the proper use of water and its economic value, the factors which need to be taken into account and the methods by which decisions are taken require full public participation. Principle No. 2 of the Dublin statement and Conference Report[107], provides:

"Water water rights management should be on a participatory approach, involving users, planners and policy makers at all levels."

This involves raising awareness of the importance of water among policy makers and the general public "It means that decisions are taken at the lowest appropriate level, with full public consultations and involvement of users in the planning and implementation of water projects."[108]

The aspect of public participation is crucial for two basic reasons:

(1) It makes it easy for the public to abide by the laws since they will have been aware and participated in their formulation.

(ii) It helps the authorities responsible for management of water resources to make a proper follow-up and to get easy access to information since at that level the public will be co-operative.

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[107] international conference on water and environment (development issues for the 21st century) 26-31, January, Dublin, Ireland

[108] international conference on water and environment (development issues for the 21st century) 26-31, January, Dublin, Ireland

5.2.3 Independent authorities/institutions

The law relating to management of water rights in Uganda has made provisions for an institutional framework. These institutes include the Directorate of Water Development, Water Policy Committee and this works hand in hand with the Minister responsible for Natural Resources and in consultation with N.E.M.A. and the lower Environment Committees. These institutions are supposed to manage and control water resources in trust for the people of Uganda. However, these institutions need to operate more independently. They also fall short of proper technical know- how through capacity building.

On the question of independence the Water Policy' Committee established under Section 9 of the Water Statute [109] is composed of members who are heads of other Government Agencies. The Minister appoints others. Such people are vulnerable to Government influence.

There is therefore a need to have these institutions appointed independently through a system of advertising and the appointments are by individual merit through technical know-how. That is when such people will be properly accountable to the public. These institutions should also be trained and restructured from e.g. pure engineering to multi-disciplinary functions like E.I.A. They should be acquainted with capacity to carry out more detailed surveys that are required to facilitate various activities and the assessment of their impacts on the water resources in particular and the environment in general.

They should further be given adequate powers through legislation and should not perform these duties outside the statutory powers.

The institutions should be able to obtain and interpret adequate and comparable information that is essential for sound decisions. Such information may include:

- Information on water resources both surface and ground water quality,
- Water -use data and information for those concerned in or affected by that water and their likely development and demands,
- Social and economic data,
- Information on the natural environment.

[109] The water Statute No. 9 of 1995

They may involve coordinating existing databases. Continued scientific and technical research and the sharing and dissemination of know-how are also essential.

"These data need to be validated, kept up to date and to be accompanied with evaluations and assessments in order to analyse the effects of decisions based upon them. Only in this way can the development and management of the water resources be made responsive to demands and be enabled to influence the way in which those demands develop."[110]

5.2.4 Empowerment of Institutions

Uganda has undergone a system of decentralization. This has been affected under the Local Governments Act.[111] The Act has provided for the decentralization of the environment, by establishing District and Local Environment Committees.

Recognizing the need for a central mechanism capable of ensuring co-ordination of national social and economic interests, the role of governments needs to be reviewed to ensure that users, local institutions and the formal or informal private sectors can play a more direct part. A key aim must be to improve accountability to the public. The levels at which management decisions can be taken and problems solved will vary widely from country to country and case to case. In any given situation, however, water resources must be managed at the lowest levels. Integrated water resources development and management therefore should be delegated to those lowest appropriate levels which would ensure the representations of those concerned or affected and integration of sectoral demands.

These in addition require human resources development through training. To implement this, communities need to have adequate skills. In Uganda however, this has not been achieved and this is likely to cause unnecessary delays especially in the process of grant of water rights. It may also render the enforcement of the regulations difficult.

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[110] international conference on water and environment (development issues for the 21st century) 26-31, January, Dublin, Ireland

[111] the Local Governments Act no.1 of 1997

5.2.5 Improved government control over land

From .the discussion in the previous chapter (4:3; 4) on systems of land ownership, it seems that Government is likely to have limited control over land. Conflicts between water use rights have always emanated from land ownership systems.

"The tensions between customary and modem systems arises from their different notions of their private and public domains, their different ideas of ownership and its attributes".[112]

Government should therefore have sufficient control over land, water and other natural resources to be able to effectively monitor the uses of these resources. A public lands policy should be put in place to expressly provide which areas of environmental importance should be controlled by the Government to ensure proper monitoring of resource use and to avoid challenges on the water use rights from the public.

Since water was an asset of the community and water courses public property rules governing land ownership affected water. This situation therefore needs to be specified by the law defining the extent Governments control over land and its resources.

[112] Sanford D. Clark: Tensions between Water Legislation and Customary Rights, 1990, Vol. 30, Natural Resources Journal, summer. pp. 503

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UNSCHE	United Nations Stockholm Conference on the Human Environment.
MISR	Makerere Institute of Social Research
NEMA	National Environment Management Authority
D.W.D	Directorate of Water Development
UNEP	United Nations Environment Programme
NEAP	National Environment Action Plan
IUCN	International Union for the Conservation of Nature
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EA	Environmental Audit
F.A.O	Food and Agricultural Organisation
MNR	Ministry of Natural Resources
WDMD	Water Resources Management and Development WRAP Water Resources Assessment Project

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