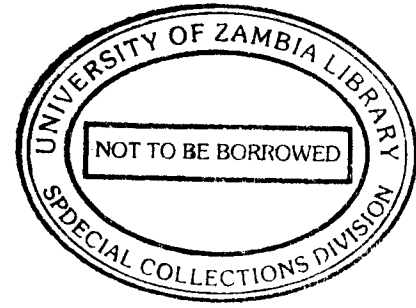


**MEASURES TO PROVIDE FOR TRADABLE
WATER RIGHTS IN ZAMBIA**

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DIRECTED RESEARCH

ON

MEASURES TO PROVIDE FOR TRADABLE WATER RIGHTS IN ZAMBIA

BY

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SUBMITTED TO THE UNIVERSITY OF ZAMBIA THE SCHOOL OF LAW IN PARTIAL
FULFILMENT OF THE CONDITIONS FOR THE AWARD OF THE BACHELOR OF LAWS
(LLB) DEGREE

SUPERVISOR: Misozi Lwatula

Declaration

I CECIL DULU NUNDWE – Computer number 21103909, do hereby declare that the contents of the this directed research paper are entirely based on my own research and that I have not in any manner used any persons work without acknowledging the same to be so. This is the first submission of this work; it is not the subject of any previously submitted work in this University

I bear absolute responsibility for errors, defects or any omissions therein.

DATE 14th February 2007

SIGNATURE..... *Cecil Dulu Nundwe*

Dedication

**To the idea or the meaning of the word “I” or “Individual”
or “Self”**

and

**to all those who simply love me and take me as I am, warts
and all.**

Acknowledgement

Many thanks to all those who supported and encouraged me to pursue this path and this essay.

Many thanks to the creative qualities of those who brought the Internet into being and to those who continue to feed it with valuable information.

Thanks to the former Coordinator Mr. Mumba Malila for letting me pursue this topic.

Thanks to Mr. Nicolas Kahn-Fogel, the current Coordinator, for his flexible considerate nature.

Thanks to Ms. Misozi Lwatula for the comments and advice that greatly helped me reshape this Essay.

Lastly, I would like to acknowledge the series of unfortunate events that have brought me to the point of writing this essay.

Preface

There is a fast growing water scarcity problem in Zambia. This problem is already making itself manifest by a lack of agricultural expansion in the more productive areas of Zambia due to the unavailability of water. The Kaleya River catchment, as an example, has a long history of conflicts resulting from water rights. Bearing in mind that Government currently lacks adequate financial resources to develop water for its water dependant sectors, other initiatives are needed to help solve this problem. The use of the private sector and the promotion of water use activities that can yield the highest returns is one such initiative. One way of bringing the private sector into play is by promoting the trading of water rights. It is therefore now time that the Water Act be appropriately understood, further developed and applied to facilitate the trading of water rights in key areas of Zambia where water availability is a major bottleneck to development.

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Chapter one Introduction and Literature Review

1.1 Introduction

Water law is a system of enforceable rules that controls the human use of water resources¹. The formalisation of this system is commonly carried out through a legal instrument called a water right. A water right establishes an agreed relationship between an individual entity and the State with respect to the use of water. It formalises the right of a user to use water from a water source. In areas with plentiful water and few users, such systems are generally not complicated or contentious. In other areas, especially arid areas where irrigation is practiced and water is scarce with many users, water use systems are often the source of conflicts, both legal and physical². Water rights are about legal rights to use water from a water source³.

For the sake of clarity, the term “water right” must be contrasted with the term “right to water”. At the international level, there is a growing acceptance of a "human right to water," where the term "right" is used in the sense of genuine rights under international law. The derivative of the right to water is the encompassment, by the United Nations, of a broader set of concerns related to human well being. The United Nations approved General Comment 15 in 2002, explicitly acknowledges human right to water⁴. Water rights, the subject matter of this essay is not about the right to water from the human rights perspective, but it is about the legal right to water use entitlements.

¹ <http://www.waterencyclopedia.com/LaMi/law-water.htm> ; date of visit 10/9/2006

² http://en.wikipedia.org/wiki/Water_right; date of visit 9/9/2006

³ S. Hodgson, Land and water rights interface, FAO legislative Study 84, FAO 2004, pages 7, 14

⁴ http://en.wikipedia.org/wiki/Right_to_water ; date visited 11/9/2006

There are a number of water right regimes existent in the world. These form the basis upon which water rights are managed. The main ones are the “Riparian”, the “Prior Appropriation”, the “Public Trust” and the “Hybrid” doctrines. Riparian water right (or simply riparian rights) is a system of allocating water among the property owners who abut its source⁵. Prior Appropriation water rights, sometimes known as the "Colorado Doctrine." is a system of allocating water rights from a water source based on the “first in time first in right principle”⁶. The Public Trust doctrine is based on the principle that certain resources are preserved for public use, and that the government is required to manage the particular resources for the public's reasonable use⁷. The Hybrid Doctrine is the mix of two or all of the above doctrines⁸.

The history of Zambia’s water use system by way of granting water rights stems from the colonial era. The law that formalises the water rights system is the Water Act Cap 198 of 1949. It is an Act that provides for the ownership, control and use of water.⁹ Section 9 deals with the application, by a land owner, for public water for primary, secondary or tertiary use and it states that:

⁵ http://en.wikipedia.org/wiki/Riparian_water_rights; date of visit 12/10/2006

⁶ http://en.wikipedia.org/wiki/Prior_appropriation_water_rights; date of visit 12/10/06

⁷ http://en.wikipedia.org/wiki/Public_trust_doctrine; date of visit 12/10/06

⁹ See Preamble of Water Act Cap 198

“Any person may make an application to the Secretary for permission to impound and store or divert water from a public stream for primary, secondary or tertiary use, and the Water Board¹⁰ may grant such application on such terms and conditions as it may think fit”¹¹

The grant is called a water right. Upon being granted, this right is registered in a Water Register under the Ministry of lands. Section 45 of the Act states:

“All rights granted under this Part shall be registered by the applicant with the Water Registrar within three months of the date of granting thereof and in the manner and on paying the fees prescribed, and, in addition, all such rights which affect land shall be registered by the applicant with the Registrar of Lands and Deeds within the time and in the manner and on paying the fees provided by the Lands and Deeds Registry Act”¹².

Over 5000 water rights have been granted in Zambia to different individuals and institutions from diverse sectors including agriculture, mining, water and sanitation (municipal water supplies), industry, recreation and energy¹³. By virtue of the water right grant, these sectors have the right to abstract and use surface water from a specific point in any surface water body such as a river, stream, natural or man made dam (reservoir) for their enterprises. For example the Lusaka Water and Sewerage Company holds a water right for the abstraction of water from Kafue River in order to provide Municipal water supply to the city of Lusaka. Ground water is

¹⁰ The Water Board is the organ, established under the Water Act, responsible for hearing and determining applications for Water Rights in Zambia. See Part IV of the Water Cap 198 of the Laws of Zambia.

¹¹ Water Act Cap 198; section 9

¹² Water Act Cap 198; section 45

¹³ Water Rights Certificates are numbered in incremental order. A water right certificate numbered 5000 means that 4999 water rights have been granted before it. There are water rights in Zambia that surpass the number 5000. e.g WDB 5635 belonging to Chimsoro Frams in Mkushi District (See Water Board file WDB 5635 Water Board Registry). This means that over 5000 thousand water rights have granted in this country.

also used for various purposes without the requirement of a water right. For example a land owner may drill a borehole for the abstraction of water for domestic and agricultural purposes. Many farmers in Lusaka's Makeni area have boreholes for such purposes. They do not apply for water rights from the Water Board to abstract water from the ground. The position held by the Zambian government is that, under the Water Act, ground water falls under the category of water called "Private Water". A water right grant is not required for Private Water except in special circumstances¹⁴. The subject matter of "Private Water" will be discussed later in this study.

As the country's population and economy continues to grow, the demand for more water rights has continued to increase and yet the amount of water available in the different parts of the country has remained limited based on the hydrological cycle. At the same time due to financial resource and other capacity constraints, Government has not been able to adequately harness its water resources for purposes of economic growth. The Water Resources Master Plan (1995) for Zambia shows that a number of water storage reservoirs (dams) should have been built by now to secure Zambia's water resources for use by the sectors¹⁵. None of these have been built to date. On account of this demand, the Government has continued to allocate water rights, in certain areas of the country to a point where, it has become almost impossible for new entrants or investors to pursue water dependant investments. For example in 2003, Tara Estates, a Farm Enterprise in Mukusi District could not readily obtain a water right for abstraction of water for irrigation from the Lusenfwa River as the Water Board was of the view that all available water

¹⁴ See section 10 of Water Act Cap 198

¹⁵ Ibid see Chapter 6 "Water Resources Development Plan Towards Year 2015"

had already been allocated¹⁶. No more water can be allocated in certain areas, as all available water allocations are tied to existing water right holders.

Zambia's Water Resources Master Plan (1995) shows that water demand in Southern Province (Part of the Zambezi River Basin) exceeds the available water in that area today¹⁷. Other parts of the country that have registered clear signals of water stress; include the parts of Lusaka and central provinces, particularly the Chalimbana¹⁸, Ngwerere¹⁹, and Lusenfwa²⁰ river catchment areas. In addition, the down stream location of major hydro-power schemes have committed huge volumes of water upstream to the detriment of upstream demands, thereafter water soon flows to other countries.

Considering that water is used for various purposes and that some water use activities yield higher economic benefits than others or that some water uses have greater priority to government than others, the question that arises is how best can water be reallocated or redistributed to other sectors and individual entities in line with higher returns and government priority? One of the ways of effecting such redistribution is by trading water rights. Trading water rights is about the legal transfer of legal rights to water (that is a water right) from one entity to another for

¹⁶ Rights and Rights Agency; Application for Water a Right by Tara Estates, 2003, Page 1 or Water Board Registry, File No WDB 5516.

¹⁷ Japan International Cooperation; Republic of Zambia; Ministry of Energy and Water Development ; The Study in the National Water Resources Master Plan in the Republic of Zambia; 1995; See Water Balance on Page (5-6) in the Final Report

¹⁸ Rights and Rights Agency, Opinion on the Application of Water rights in Respects of Pebble Brook Farms, 2001, pages 1,2,3 or Water Board Registry, File No WDB 1596

¹⁹ Application for a water right by Kapepa Fram (Bucaneer Products) Ltd was not granted due to the exhausted allocation of available water on Ngwerere River in 1999. See Water Board Registry, File No. WDB 5244

²⁰ Rights and Rights Agency; Application for Water a Right by Tara Estates, 2003, Page 1 or Water Board Registry, File No WDB 5516

consideration²¹. The characteristics of the water right regime that governs a water law in a country determine whether or not water rights are transferable and tradable. The characteristics of the various water rights regimes will be discussed in detail, later in this Chapter.

The Zambian position as to whether water rights are tradable is not clear. Various reports, as well as historical practice on water law in Zambia hold the position that water rights are not transferable. Suffice to say there is no record of a traded water right in Zambia to date. There are no provisions in the Water Act that make mention of the terms “Transfer, or Trading” of water rights. In addition, the administrative handbook guiding the administration of the Water Act Cap 198 of the laws of Zambia clearly states that a water right is not transferable²². Further records and information publications under the administrators of the Water Act affirm this position. For example, when a farmer sells his land and property to a new owner, the existing water rights under the land are withdrawn and the new owner is required to apply for a new water right²³. The Irrigation Policy and Strategy (2004) also states that water rights in Zambia are not tradable²⁴. This is a position that is different from Chileshe, Trottier and Wilson (2005) which clearly suggests that water rights are tied to land and can only be transferred through the sell and purchase of land²⁵.

However, Section 27 of Water Act provides for the variation and amendment of water rights by the Water Board. It also provides that the variation of water rights can only be effected by either

²¹ S. Hodgson, Land and Water Rights Interface, FAO Legislative Study 84, FAO 2004, page 39,40,41

²² Department of Water Affairs, Administration of Water Act Handbook, 1950, page 11

²³ Ministry of Energy and Water Development, Water Board, Notes on the Use of Public Water in Zambia, 2005, page 6

²⁴ Ministry of Agriculture and Cooperatives; Irrigation Policy and Strategy (2004), see page 40

²⁵ Paxina Chileshe, Julie Trottier and Leanne Wilson; Translation of Water Rights and Water Management in Zambia; 2005; see page 5

the consent of affected water right holders or by payment of compensation to the affected parties who by virtue of such variation or amendments, their water rights are affected²⁶. This clause suggests that a transfer of water rights may be possible. This position will be discussed in more detail in chapter three. Henceforth, the interpretation of the position of the law with regard to water right transfers is uncertain.

In order to provide for the appropriate redistribution and further development of water resources, the Zambian Government's policy and strategy on irrigation is advocating for the amendment of the Water Act to accommodate the regulation of stable, transferable and mortgagable water rights²⁷. It seeks to encourage significant private sector involvement in the determination of the allocation of water²⁸. This is based on the observation that Government does not have sufficient financial resources to develop its water resources on its own.

Based on the above, and the importance of water in the development of the country, it is important that the current legislation is analysed to determine the true position with respect to the tradability of water rights under the Act. Where it is established that water rights are not tradable under the Act, appropriate measures for reform will be investigated and recommended. In addressing the problem the following questions are worth considering:

1. What are the legal and/or governing doctrines or regimes that allow for the trading of water rights?
2. What are the legal doctrines that govern Zambia's Water Act with respect to water rights and do these principles allow for the trading of water rights?

²⁶ Water Act Cap 198 of the Laws of Zambia, See Section 27(d)

²⁷ Ministry of Agriculture and Cooperatives; Irrigation Policy and Strategy (2004), pages 40 and 53

²⁸ Ibid

3. If not, what kind of legislative amendments/improvements should Zambia effect to provide for tradable water rights?

The main objective of the study is therefore to determine the true position of the law with respect to the tradability of water rights under the Water Act Cap 198 of the Laws of Zambia and to make recommendations for water law reform to provide for tradability, if it is established that the water rights are not tradable under the Act.

1.2 Tradable and Transferable Water Rights

As mentioned in the introduction, a water right is a legal right to use water for a purpose. Section 9 of Zambia's water act shows, that a water right is a legal right that allows a holder of such a right to impound and store or divert water from a public stream for a specified amount and purpose²⁹. Being legal rights, they are capable of being asserted against the state and third parties in a court of law³⁰. This position is true for Zambia. Any person aggrieved by a decision of the Water Board in a matter relating to the determination of water rights, may appeal to the High Court against such a decision³¹.

By transfer, it is meant that certain parameters (that is, the purpose of use or, amount of water to abstracted or volume of impoundment or point of abstraction or location of use) that define the water right, which parameters may have an effect on third parties, have been changed. A transfer can therefore occur when such a legal right is passed on from one entity to another. Such a

²⁹ Ibid

³⁰ S. Hodgson, Land and water rights interface, FAO legislative Study 84, FAO 2004, page 7

³¹ Water Act Cap 198 of the Laws of Zambia, see section 29

transfer occurs, when at least, the location of use has been changed from one plot of land to a different plot of land. The Zambian position with respect to the transferability of water rights is in part what this study intends to establish. This aspect will therefore be discussed in Chapter three. Suffice to say, water right regimes that result in water rights being clearly defined as above are likely to lend themselves to being transferable. This is one of the characteristics of a tradable water right. By trading, it is meant that such a legal right can be transferred from one entity to another for consideration. Other characteristics of tradable water rights are discussed below.

1.2.1 Characteristics of Tradable Water Rights

Holden and Tobani (1996) and Armitage, Nieuwoudt and Backeberg (1999) identify the key characteristics of tradable water rights. It is worth mentioning that these characteristics appear to have a great connection with land and property law principles. The characteristics of tradable water rights are as follows:

- a) They are independent of land and can be traded separately from land within a legal and institutional framework, which framework must have an efficient administration system to maintain the proper chain of title over the water rights³²;
- b) They are property rights that can ideally be sold at freely negotiated prices to any one for any purpose³³;

³² Paul Holden and Mateen Thobani, Tradable Water Rights, A Property Rights Based Approach to Resolving Water Shortages and Promoting Investment, World Bank Policy Research Paper Working Paper WPS1627, July 1996, Page 6

³³ Ibid

- c) They are well defined and completely specified in the unit of the measurement, reliability and priority, creating certainty in what is being traded and predictability in the reallocation process³⁴;
- d) They are enforceable rights that secure the net benefits flowing from the use of the water rights for the rights of the holder³⁵; and
- e) They must be rights that have a constitutionally guaranteed title of ownership and legal sanction of water transfers by a relevant government jurisdiction that must be present to provide for secure water rights³⁶.

A number of observations regarding the characteristics of tradable water rights are worth mentioning. Firstly, that the statement that water rights must be independent of land has been loosely used to refer to the situation where water rights are not tied to a specific parcel of land. However from a legal point, it is the authors' view that water remains part of land. To explain this position it is worth stating that Land law deals mainly with ownership. According to common law, ownership of land means the right of everything in or under or over the land. The Latin maxim for this is "Cuius est solum ejus est usque" and "coelum et ad inferos"³⁷. This definition includes water and therefore under common law water represents an interest in land. Noting that, originally, land and water were considered as one thing, it is important to understand that the derivative of water law in many respects is land law. Much as in recent years water has been separated from land in a number of respects due to the special premium placed on water owing to both its scarcity value and its hydrological characteristics, it stands true to say that the main principles governing land law are the same principles governing water law.

³⁴ R.M Armitage, W.L. Nieuwoudt and G.R. Backeberg, *Establishing Tradable Water Rights: Case studies of two irrigation districts in South Africa*, 1998, pages 2-3

³⁵ Ibid

³⁶ Ibid

³⁷ Lord Templeman, *Land: The Law of Real Property*, Old Bailey Press, 1998, Page 22

Secondly that the characteristics deal mainly with 'ownership'³⁸, from two perspectives namely the incidences of ownership of water as they relate to its use and the enabling institutional environment that guarantee the existence of the incidences of ownership. It is also true to say that the degree to which the certain incidences of ownership are permissible and the degree to which they are legally protected under a particular water law regime determines tradability. It is therefore true to say that the characteristics of tradable water rights are in fact incidences of ownership conferred upon water by a water right regime. The critical incidences of ownership as derived from land/property law³⁹ that relate to tradability are highlighted below:

- a) The right to have exclusive physical control of the water. That is to say, there must be a right to be put in exclusive control of the water entitlement and to remain in control without undue interference. Remaining in control, relates to the right to security to the extent that the owner of the water right has the right to retain ownership of the water entitlement indefinitely. It is in essence a form of immunity from expropriation.

As mentioned earlier, an important point to note is that a water entitlement must be definite and clearly defined. It is not possible to have exclusive control (possession) of water if the entitlement is not defined as this would raise questions as to what is really being owned. It is also worth stating that Leases are the legal instruments

³⁸ Ownership has two dimensions. The first dimension of ownerships denotes title to water and this signifies a legal right to water. The second dimension is that ownership denotes the ultimate right of enjoyment of the water to the extent permitted by the state. Ownership is therefore not absolute but is subject to limitation placed on water by way of state legislation or government water right regimes. The limitation to be placed by the states will normally determine the degree of ownership based on incidents of ownership. See <http://en.wikipedia.org/wiki/ownership>; possession page 1 and 1 and 3 respectively; date of visit 10/10/07

³⁹ See "Concepts of Ownership and Possession" at http://www.mlsa.ca/study_Guides/... date of visit (08/11/2006)

through which clear definition is provided. Leases essentially provide rules and procedures for attaining the two principle goals of ownership, that is, exclusive possession and control within the limits set by the state.

One fundamental parameter that defines ownership in water or property is that of ‘Original Appropriation’, that is first in time, first in right. The parameter has to be present explicitly or implicitly as part of the definition of the water entitlement. The ownership of “Originally Appropriated” places and goods (say water) by a person implies a persons’ right to use and transform these places and goods in any way he sees fit, provided that he does not hereby forcibly change the physical integrity of places and goods originally appropriated by another⁴⁰. Appropriation occurs by “mixing ones labour” with the places and goods⁴¹. This position is also supported by the equitable maxim: Where equities are equal, the first in time prevails (Qui prior est tempore, potior est iure)⁴². The mixing of ones labour with water entails beneficial use.

Other incidences are:

- b) The right to use the water which includes a cluster of rights such as the right to manage; the right and liberty to enjoy the use of water to ones discretion including the right use of water to generate income;

⁴⁰ Hans-Hermann Hoppe, *The Ethics and Economics of Private Property*, 2004, page 2

⁴¹ Ibid

⁴² Sheila Bone, *Osborn’s Concise Law Dictionary*, Sweet and Maxwell, 2001, page 153

- c) The right to alienate the water entitlement (i.e. power to transfer) as well as the liberty to consume or waste or destroy. The right to alienate water can be manifested in the power to sell the water entitlement or the power to gift it and;
- d) Prohibition of harmful use is a duty where the owners liberty to use and manage property is subject to the condition that uses, harmful to other members of society are forbidden. This prohibition is essential for the existence of an orderly society without which the concept of ownership could in fact be destructive.

1.2.2 Tradability under Different Water Rights Regimes

Based on the above, it is now possible to assess the tradability of water rights under the various water right regimes obtaining. In doing so, the paper shall establish which regimes allow for tradability. In this regard, the paper shall examine the main water rights which are “Riparian”, “Prior Appropriation”, “Public Trust” and the “Hybrid” doctrines.

1.2.2.1 Riparian Rights Regime

Riparian water rights occur as a consequence of landownership. A landowner who owns land that physically touches a river, stream, pond, or lake has an equal right to the use of water from that source. The water may be used as it passes through the property of the landowner, but it cannot be unreasonably detained or diverted, and it must be returned to the stream from which it was obtained⁴³.

⁴³ <http://www.blm.gov/nstc/WaterLaws/pdf/WaterApprSystems.pdf>; date of visit 6/9/2006

The classic dictum by **Parke B** in *Embery v Owen*⁴⁴ best describes the substance and context of riparian rights, as follows:

“The right to have a stream flow in its natural state, without diminution or alteration, is an incident of property in the land through which it passes; but flowing water is publici juris, not in the sense that it is a bonum vacans, to which the first occupant may acquire an exclusive right, but that it is public and common in this sense only, that all may reasonably use it who have a right of access to it, and that none can have any property in the water itself, except in the particular portion which he may choose to abstract from the stream and take into his possession, and that during the time of his possession only. ... But each proprietor of the adjacent land has the right to the usufruct of the stream which flows through it⁴⁵.”

From the following quote it is obvious, that riparian regime water rights are tied to land in relation to the characteristics of tradable water rights as espoused above. They are rights that are not defined into a specific form that can be possessed. All may have reasonable use of the water to the effect that none can have exclusive right. The dictum above clearly states that none can have property in water itself. It therefore follows that riparian water rights are not tradable.

1.2.2.2 Prior Appropriation

The basis of prior appropriation is tied to the doctrine of ‘beneficial use.’ Basically if you can show that you need to use water ‘beneficially,’ then you shall be entitled to it. The doctrine of appropriation embodies seven basic principles. The first one relates to the beneficial use of water as a basis of the right to use water. Secondly the water right user must have a definite quantity of

⁴⁴ (1893) AC 691 at 698

⁴⁵ The Common Law Riparian Rights Doctrine and It’s Applicability in Papua New Guinea, Volume 26 Article [1998] MLJ 6, Lawrence Kuna Kalinoe, 1998 University of the South Pacific; Page 3

water he/she intends to abstract and this is measured by the first principle which is beneficial use. Thirdly, there must be intent to appropriate and pursue the diversion of water with diligence. Fourthly notice must be given to other users or potential users. Fifthly, water rights are ranked in a system of priority in time (first come first serve). Sixthly, the water right is transferable and forfeitable. Lastly this entire system is administered by a government⁴⁶.

It follows from the above, water rights that are based on prior appropriation bear many of the characteristics that support transferability and tradability. The derivative water rights are well defined and are based on the original appropriation. In addition, water must be used beneficially to demonstrate the “mix of one labour with the entitlement” without causing harm to others.

1.2.2.3 Public Trust Doctrine

The key feature of the public trust doctrine is that control is vested in a Government and they decide how water rights are administered⁴⁷.

The implication of this doctrine is that a Government can decide in line with its policy position, to establish tradable water rights by incorporating the characteristics of tradable water rights as described above. The establishment of tradable water rights is therefore optional.

1.2.2.4 Hybrid Doctrine

The hybrid doctrine recognizes a mix of doctrines. Riparian and Appropriative water rights may be found in one jurisdiction. This duality may result from the fact that riparian rights were historically recognized, but the state has changed to an appropriative system or that public policy

⁴⁶ Albert E. Utton and Ludwik Teclaff, *Water in a Developing World, The Management of a Critical Resource*. 1978 Westview Press EICN Bolder Colorado USA, Page 240

⁴⁷ See <http://www.overmywaders.com/articles/publictrust.html>

dictates that certain occurrences of water are to remain riparian in character. The public trust doctrine may also introduce new categories of water priorities based on public policy⁴⁸.

This doctrine therefore, may in part, provide for tradable water rights if the prior appropriation regime is a part of mixed doctrines or if public policy dictates that certain categories of water should be tradable.

From the above discussion, it is noted that the doctrine of prior appropriation formalises or supports the formalisation of tradable water rights. It is also noted that the Public Trust doctrine can establish water rights that are tradable. The following is a country example that demonstrates tradability through the application of the doctrine of prior appropriation.

1.2.2 5 Country Example

Looking at the example of the Western United States in more detail, one notes that these States primarily recognises two categories of water. These are Surface Water and Groundwater. The doctrine of prior appropriation is the main regime that governs surface water rights. The system evolved as a result of the shortage of water to meet competing demands. The characteristic of the Western States system is that the use to which water is put cannot be changed without the authorisation of state water authorities thus requiring the existence of public institutions to administer water rights. The process of obtaining authorisation to change water use is lengthy and costly due to the required administrative procedures. It requires consent from the relevant governing body after public inquiries in which people who could suffer damages by the change

⁴⁸ Ibid

in use, can object.⁴⁹ The Water rights are therefore transferable under the superintendence of the state authorities.

The Western States appropriative right is generally based upon physical control and beneficial use of water. These rights are entitlements to a specific amount of water, for a specified use, at a specific location with a definite date of priority. The appropriative right depends upon continued use of the water and may be lost through non-use. They can also be sold or transferred, and long-term storage is not only permissible but common.⁵⁰ The Western States system is also characterised by four essential elements of the prior appropriation doctrine. These are *Intent, Diversion, Beneficial Use, and Priority*.

The acquisition of water requires that the appropriator demonstrates *intent* to appropriate the water, divert the water, and apply it to beneficial use. Historically, intent was indicated by on-the-ground acts such as site surveys, land clearing, preparation of diversion points, and most importantly, posting of notice. Today, however, intent is generally indicated by the application for a permit.

With respect to *diversion*, historically, a physical diversion of water was required in order to acquire a water right. These days a point of diversion remains an essential element of a water right.

In the Western States system *beneficial use* is used to determine whether a certain use of water will be recognized and protected by law against later appropriations. The justification for

⁴⁹ Paul Holden and Mateen Thobani ,Tradable Water Rights, A Property Rights Based Approach to Resolving Water Shortages and Promoting Investment, World Bank Policy Research Paper Working Paper WPS1627, July 1996, Page .

⁵⁰ <http://www.blm.gov/nstc/WaterLaws/pdf/WaterApprSystems.pdf>; date of Visit 6/9/2006

beneficial use criteria is to prevent waste.⁵¹ The beneficial use principle is extended to mean that the state owned water resource must be used for the benefit of society. When water is no longer used for a beneficial purpose, the water entitlement (or water rights) is lost.⁵²

With respect to **priority**, the first appropriator on a water source has the right to use all the water in the system necessary to fulfil his/her water right. A later appropriator cannot use water to satisfy his/her water right if it will injure the earlier appropriator. It must be noted that both private and public entities hold rights. This means that, private and government entities are required to acquire water rights based on the same principles.⁵³

In addition, the appropriative right does not depend on land ownership, but requires that the water is appurtenant to the land on which it is used.⁵⁴ This applies to both underground and surface water resources.⁵⁵

With respect to groundwater, the governing water rights regimes vary from State to State. Taking the example of two States, California, and Colorado, the following is observed:

There are three legally recognized classifications of groundwater in California: subterranean streams, underflow of surface waters, and percolating groundwater. Subterranean streams and underflow of surface waters are subject to the laws of surface waters⁵⁶. Percolating groundwater⁵⁷ has few regulation requirements.⁵⁸ Percolating groundwater has two sub

⁵¹ <http://www.blm.gov/nstc/WaterLaws/pdf/WaterApprSystems.pdf>; date of Visit 6/9/2006

⁵² Ibid

⁵³ Ibid

⁵⁴ See <http://www.blm.gov/nstc/WaterLaws/pdf/WaterApprSystems.pdf>; date of visit 6/9/2006

⁵⁵ Ibid

⁵⁶ subterranean streams, underflow of surface waters are groundwater sources that from part of natural drainage system.

⁵⁷ Percolating groundwater is water that permeates underground at a very slow rate.

classifications: overlying land use and surplus groundwater. Land owners overlying percolating groundwater may use it on an equal and correlative basis implying all property owners above a common aquifer possess a shared right to reasonable use of the groundwater source. These rights are similar to riparian rights and since they are correlative, a user cannot take unlimited quantities without regard to the needs of other users. Surplus groundwater may be appropriated for use on non-overlying lands, provided such use will not create overdraft conditions. A permit is not required to use percolating groundwater of either classification, but the appropriation of surplus groundwater is subordinate to the correlative rights of overlying users⁵⁹.

Colorado administers ground water based on the doctrine of prior appropriation. Colorado considers all water within the state to be tributary to a surface stream, unless a water applicant can prove otherwise. When a non-tributary groundwater⁶⁰ source is established by law, the water in the groundwater source is allocated based on the percentage of land owned on the surface above the groundwater source. If the applicant cannot establish non-tributary groundwater, then the use of groundwater falls under the prior appropriation system and water rights must be obtained through same process as surface water⁶¹.

These characteristics will amongst other considerations be used to compare the Zambian system to the Western United States systems and help clarify and/or provide insights on how the Zambian system can be modified to provide for tradable water rights.

⁵⁸ State Water Resources Control Board, Division of Water Rights, California Water Rights Fact Sheet, 2001, page 3

⁵⁹ Ibid

⁶⁰ By non-tributary groundwater source, it is meant groundwater that does not from part of natural drainage system.

⁶¹ Colorado Division of Water Resources, Colorado Water Rights Fact Sheet, 2001, page 3

1.2.3 Advantages of Trading Water Rights

Dinar, Rosegrant, Meinzen-Dick (1999) have identified advantages and disadvantages of trading water rights. The advantages include:

- a) Reasonable returns to the seller of water rights and increased water availability to the buyer; environmental benefits from trade across sectors such as agriculture and urban water supply. The benefits could be by way of shifts towards improved water management and efficiency in agriculture, reducing irrigation-water-related pollution and by way of farmers affording to internalise externality costs, or even pay higher pollution related social cost⁶²;
- b) Empowerment of water users by requiring their consent to any reallocation of water and compensation for any water transferred⁶³;
- c) Providing security of water rights tenure to the water users which could in turn promote more efficient use of water by users⁶⁴;
- d) Tradable rights to water would induce water users to consider the full opportunity cost of water, including its value in alternative uses, thus providing incentives to efficiently use water and to gain additional income through the sale of saved water⁶⁵;
- e) Tradable water rights will provide incentives for water users to take account of the external costs imposed by their water use, reducing the pressure to degrade resources⁶⁶;
and
- f) The allocation of water through tradable rights provides maximum flexibility in

⁶² Ariel Dinar, Mark W. Rosegrant, and Ruth Meinzen-Dick, *Water Allocation Mechanisms-Principles and Examples*, 1999, page 13 and 14.

⁶³ Ibid

⁶⁴ Ibid

⁶⁵ Ibid

⁶⁶ Ibid

responding to changes in crop prices and water values as demand patterns and comparative advantage change and diversification of cropping proceeds⁶⁷.

Generally, the advantages are those that result from economic and private property considerations towards water. A country that follows or intends to follow liberal economic policies that promote private sector involvement in the social and economic advancement of a country could benefit from such a system. Zambia appears to be taking such a direction in terms of its economic policies since the commencement of the third republic under the Chiluba Government in 1991.

1.3.4 Disadvantages Tradable Water Rights

The noted disadvantages include difficulties arising from unique characteristics of water such as those of measuring water, defining water rights when flows are variable, enforcing withdrawal rules, investing in necessary conveyance systems, sale of water-for-cash by poor farmers, and finally, externality and, third party effects and environmental degradation. The pervasiveness of externalities such as changes in downstream and return flows, pollution, overdraft of water tables, water logging, and other adverse, often irreversible, environmental effects provide the fundamental argument against trading in water rights.⁶⁸

However, it is worth mentioning that, save for the selling of water by poor farmers, these disadvantages can also occur as a consequence of non tradable water rights. The determination

⁶⁷ Ibid

⁶⁸ Ibid

and/or granting of water rights normally requires the same kind of information and administrative systems. Water still has to be measured, defined in some respect and enforced for non tradable water rights.

Chapter Two Zambia's Water Rights Regime

2.1 Relevant Background to Zambia's Water Law/Rights Regime

2.1.1 Relevant History

“In place of common rights, the state has taken over the care and allocation of water except in the case of private waters, which however, have been reduced at very small dimensions. No one can use the public waters for irrigation without a permit from the state. Two great principles, which are laid down for guidance in granting such rights, are priority of time and public interest. That is to say, when a new application is made for a right to divert, use or store water the first consideration is the reasonable protection of all rights previously granted.”⁶⁹

The quote above, in many respects, with the exception of key amendments made soon after Zambia's independence from the British reflects the form and character of Zambia's Water Act Cap 198 of 1949. It is during the period from late 1920s to late 1940 that the southern region of Africa, particularly Zambia, then called Northern Rhodesia that its water law changed from the English common law system to the code system or modern Roman law system.

⁶⁹ A.D. Lewis, Director of Irrigation, Union of South Africa, 1928, Blue Book UG8 0-29, pages 19-20

The works and research carried out by public authorities during this time, particularly the work of H. L. Canthart (C.M.G. M. Inst. C. E Consulting Engineer) was very influential to the framing of Zambia's Act. The main highlights of these works, important for this study are as follows:

1. The principles that framed Northern Rhodesia's Water Act differed fundamentally from those operating in the Union of South Africa and from older laws, which were in force in the British colonies/protectorates prior to the Union of South Africa. The basic principles that governed Union water law were:
 - a. Firstly, that the use of water in public streams is vested in the land riparian to such public streams.⁷⁰
 - b. Secondly, that there was no right of property in public water.⁷¹
 - c. Thirdly, that water in public streams was divided into two classes. The first being "Normal flow" in which every riparian owner is entitled to a reasonable share. The second being " Surplus Water" which may be stored, diverted and beneficially used on riparian land without restriction unless a " protection" order had been applied for in which case such water could be allocated wholly or in part to individual riparian owners who have filed declarations in respect of definite schemes, and who undertook to carry out such schemes within a specified period of time.⁷²
 - d. The fourth principle was that the use of water was divided into three categories. The first being "Primary user" for domestic and livestock. This user whilst confined to riparian owners was otherwise unrestricted. The second being

⁷⁰H.L Canthart, Critical Notes on the Northern Rhodesia Water Ordianance, 1930

⁷¹ Ibid

⁷² Ibid

“secondary user” for irrigation and formed a subject of all riparian water rights. A user was only limited to the extent that primary requirements were to be first satisfied. The last category being “Tertiary user” for waterpower and industry. This user was at the time circumscribed and could frequently only obtain the right “by consent” or by special Act of Parliament. It could only be exercised after both existing and potential primary and secondary rights have been satisfied.⁷³

2. Northern Rhodesia broke away from most of the above principles of exclusive riparian right to the use of water in a public stream which principles were sometimes referred to as Roman- Dutch-Cape Principles. Northern Rhodesia instead adopted amongst others the doctrine of public trust and consequently took State ownership of water. This approach was derived from the Italian precedent where water fell under State control and was governed on the basis of two principles; “Priority in Time” and “Public Interest”⁷⁴
3. Not all principles were thrown out. The concept of “Public” and “Private” water was maintained with some modifications to definitions.⁷⁵
4. There are a number of factors that influenced the shift from the Roman-Dutch-Cape principles to “Priority in Time” and “Public Interest”:
 - a. The recognition that the hydrographic conditions in Northern Rhodesia differed fundamentally from those where riparian law applied to an extent that riparian principles were unsuitable for such conditions.⁷⁶
 - b. Experiences with Roman-Dutch-Cape principles under the Cape Water and Union laws of 1906 and 1912 which were almost strained to a breaking point by a long

⁷³ H.L. Canthart, Critical Notes on the Northern Rhodesia Water Ordinance, 1930, summarised from Pages 1-11

⁷⁴ Ibid

⁷⁵ Ibid

⁷⁶ Ibid

series of judgments of Lord de Villiers, Sir James Rose Innes and other eminent lawyers, who attempted to adopt the ancient riparian law of very humid countries to the needs of irrigation in an arid country.⁷⁷

- c. Research into developments in water law and the drawing of experiences from Europe and the United States leading to the adoption of the principles of prior right and public interest.⁷⁸

2.1.2 Current Water Rights Regime

Based on these historical influences, upon its independence, Zambia adopted the Water Act of 1949 with the exception of a few amendments. However, the principle features governing the water rights regime were not changed. Notable changes of interest were:

1. The vesting of ownership of all water in the President.⁷⁹ Previously, all water was vested in the Crown. This transferred control of all water to the state of Zambia.
2. During the time of British rule or influence in Northern Rhodesia (Zambia) from 1899 to 1964, part of its territory, “Barotse Land” was not subject to the Water Act. After Independence, amendments were made to the Water Act to include the territory of Barotse land now called Western Province.⁸⁰
3. The Water rights regime was also not applicable to Africans. Special provisions had been made for protection of African rights in African areas. These provisions were

⁷⁷ Ibid

⁷⁸ Ibid

⁷⁹ See section 5, Water Act Cap 198 of the laws of Zambia.

⁸⁰ It must be stated that the current Water Act Cap 198 still shows, under Section 3, that the Act does not apply to Western Province. However an amendment was made to the Act, by “No. 47 of 1970” which amendment repealed Section 3 (a). This amendment was clearly stated in the previous edition of the Laws of Zambia. Suffice to say, the editors of the 1995 edition may have omitted this amendment by mistake.

dropped in later years to the effect that the water rights regime is now applicable to all peoples in the territory including Africans.⁸¹

The changes above show that after independence, ownership of water was vested under State control and extended to cover most parts of the country or the country's rivers. The water rights regime is applicable in most parts of the country except for the Zambezi River, the Luapula River and the portion of the Luangwa River, which constitutes the boundary between Zambia and Mozambique. These are excluded under the Act⁸² because of their international characteristics.

On account of the British Sphere of influence and the English heritage, the current water rights regime has taken on the characteristics of all doctrines previously discussed in Chapter one.

1. The Public Trust doctrine has been embraced by way of vesting ownership of all water in the President. In addition, water rights are administered, in part, based on the principle of public interest. Section 5 of the Water Act Cap 198 states that

“The ownership of all water is vested in the President. The use, diversion and apportionment of all water shall be made in terms of this Act.”

In addition, the Act assigns discretionary power to the Water Board⁸³ to allocate water to applicants of water rights. The vesting of discretionary power in the Board is the mechanism

⁸¹ Note that section 6 and section 24 (4) under the Water Act Cap 198 are “Obsolete”. Previously under the Water Act Cap 312, these sections dealt with the protection of African rights through the Minister.

⁸² Water Act Cap 198 of the Laws of Zambia, Section 5.

⁸³ See Part IV Hearing and Determination of Applications; Water Act Cap 189 of the Laws of Zambia

used to allow for the consideration of public interest. It is not meant for the Board to act according to its whims and caprices. Section 25, subsections 1 and 2, states

“When the Water Board has received the documents submitted by the secretary and the report of the Water Officer, it shall consider the application. If no objections have been received, the Water Board may grant the application in whole or in part or refuse the same in its discretion. In granting an application in whole or in part, the Water Board may, in its discretion, attach conditions to the grant⁸⁴.”

The public trust is also manifested in how the Act treats certain categories of uses. To explain this point it must be noted that the Act under parts 2 and 3 establishes two main categories of use of water. The first category of use of water is for purposes other than Mining, Railway or Urban. The second category is for the use of water for Mining, Railway and Urban Purposes. Under these two categories are three sub categories namely: "primary use" defined as the use of water for domestic purposes and the support of animal life (including the dipping of cattle);⁸⁵ "secondary use" defined as the use of water for the irrigation of land and pisciculture;⁸⁶ and "tertiary use" defined as the use of water for mechanical and industrial purposes or for the generation of power.⁸⁷ The categorisation of water allows for the prioritisation of uses of water according to public policy.

⁸⁴ Section 25, Water Act Cap 198 of the Laws of Zambia

⁸⁵ See Section 2, Water Act Cap 198 of the Laws of Zambia.

⁸⁶ Ibid

⁸⁷ Ibid

Water for primary purposes enjoys priority over all other category of uses, that is to say, water for domestic use and basic animal life must be satisfied first before other uses.⁸⁸ Water for tertiary purposes enjoys preference over water for secondary purposes to an extent that the Water Board, after a public inquiry, can withdraw the water right upon payment of compensation to the existing water right holder.⁸⁹ In other words, save for primary use of water, the use of water for mining, rail and urban purposes have priority over water for agricultural purposes. Of the three purposes, water for urban purposes enjoys preference to the extent that water rights for mining and railway purposes can be transferred to be used for urban purposes upon a public inquiry and compensation. Public policy, at that time, was such that Northern Rhodesia had to develop on the basis of industrialization as opposed to agriculture.. H.L. Canthart (1930) states, “Northern Rhodesia is not and never will be an irrigating country in the sense that the Cape Province is. Irrigation schemes will, no doubt, be carried out but they are likely to be specialties and of small size and much better dealt with on their merits. Industrial and mechanical uses of water are of far greater importance to Northern Rhodesia than secondary uses and the Government should in dealing with the former not have its hands tied by riparian claims.”⁹⁰

2. The doctrine of prior appropriation is formalised under section 9 of the Water Act. The section limits the exercise of discretionary powers conferred on the Water Board with respect to the granting of water rights by requiring the Board to take into account the principle of priority in time. The Water Board must consider applications for water rights with reasonable regard to existing rights. Section 9 states:

⁸⁸ See section 8, Water Act Cap 198

⁸⁹ See section 16, 18 and 20, Water Act Cap 198

⁹⁰ H.L. Canthart, Critical Note on the Northern Rhodesia Water Ordinance, 1930, Page 8

“Any person may make an application to the Secretary for permission to impound and store or divert water from a public stream for primary, secondary or tertiary use, and the Water Board may grant such application on such terms and conditions as it may think fit. Provided that any such grant is made with reasonable regard to the primary use of water and any existing rights lawfully granted for any other purpose.”⁹¹”

It is important to state that the priority principle applies only to Public Water as defined in the Water Act. “Public Water” is defined as:

“All water flowing or found in or above the bed of a public stream, whether visible or not, including lakes, swamps or marshes forming the source of such a stream or found along its course”⁹².”

To make this definition, clear, the term “public stream” has also been defined under the Act as:

“either-

(a) a water-course; or

(b) a drainage depression; or

(c) a dambo of natural origin;

forming part of a natural drainage system, wherein water flows in ordinary seasons where such water is not private water and whether or not-

(i) such water flows visibly on the surface;

(ii) such water-course, drainage depression or dambo is dry during any portion of the year;

and

⁹¹ Water Act Cap 189 of the Laws of Zambia, Section 9.

⁹² Section 2, of the Water Act Cap 198 of the Laws of Zambia

(iii) *the conformation thereof has been changed by artificial means*⁹³;

It is important to note that this definition covers all surface water and water under the surface, which water forms part of a natural drainage system. This definition therefore means that groundwater that forms part of a natural drainage system is public water. According to this point of view, the implication is that there is a category of groundwater as described above, which requires a water right before it is abstracted for use. The government presently does not recognise or is not aware of this category. This is evidenced by the absence of any water rights for the abstraction of water from a groundwater source since the Act came into force in 1949. The government position is that the legal and regulatory framework does not adequately provide for the regulation of groundwater.⁹⁴

3. As mentioned above the Act makes distinction between public and private water. It has also been mentioned that the concepts of Private Water stems from the Roman-Dutch-Cape principles which are predominantly riparian in character. Private Water under the Act is based on, one part, on the riparian principle. The other part is statute based.⁹⁵

Under the Act, private water is defined as follows: "Private Water" means:

⁹³ Ibid

⁹⁴ Government of the Republic of Zambia, Ministry of Energy and Water Development, Draft National Water Policy. November 2006, page 46.

⁹⁵ Most literature from the colonial era and in recent times suggests that that private water is based on the riparian principle. However, the strict definition of riparian water excludes ground water (ground water is the most prominent form of private water in Zambia). Kalinoe in this paper "The Common Law Riparian Rights Doctrine and it's applicability in Papua New Guinea 1998" states "Riparian Rights are only attainable in relation to water in a natural watercourse flowing in known and defined channels *ex jure naturae*, whether upon or below the surface of the ground. It therefore follows that the riparian rights doctrine has no application in the following situations: a) Where a flow of the surface squanders itself over an undefined area; b) in the case of ground water which merely percolates through the strata in unknown and unidentified channels (as was the case in *chasemore v Richards* 1859 11 ER 140) ; c) Plainly artificial unless the origin and purpose for which such watercourse was built is unknown and over time has acquired the character of a natural watercourse (as was the case in *Bailey and Co v Clark, Son and Morland* [1902] 1 Ch 649)". This leads one to believe that the code Countries (e.g. France, Portugal, Spain, Italy, Belgium, Netherlands), must have modified riparian principles to address ground water by way of

- a. *the water in a swamp, the boundaries of which are wholly within the boundaries of the land owned by any one landowner and which do not cross or abut against the boundaries of the said land and to, or from which no stream extending beyond the boundaries of the said land flows, either continuously or intermittently;*
- b. *the water in a spring which is situated wholly within the boundaries of the land owned by any one owner and which does not naturally discharge water into a water-course beyond the boundaries of the aforesaid land or abutting on its boundaries;*
- c. *the water brought to the surface of such aforesaid land by artificial means;*
- d. *flood waters which are impounded on the aforesaid land by artificial means and would otherwise have run to waste⁹⁶;*

It must be noted from above that, the incidences of private water are very limited in real terms. Water that can be brought to the surface by artificial means is only the prominent occurrence of private water by way of drilling boreholes or constructing wells. This is the second category of groundwater. This category being "Private Water," does not require a land owner to secure a water right before using the water. It must be emphasised however, that "Private Water" as described in "c" above is itself very limited. "Private Water" has reference to a unit area of land, viz: land held under an original grant or deed of transfer of such grant or certificate of title.⁹⁷ A limitation is placed to the area of land to be considered as the source and gathering ground of

statute. Suffice to say private water bears on hand riparian characteristics and on the other is based on statute and public policy.

⁹⁶ Section 2, Water Act Cap 198 of the Laws of Zambia,

⁹⁷ H.L. Canthart, Critical Note on the Northern Rhodesia Water Ordinance, 1930, Page 6

“Private Water⁹⁸”. “Private Water,” therefore can only have reference to certain water arising on a defined portion of privately owned land and only to land privately held under an original grant or title.⁹⁹. It must be emphasised that, groundwater that forms part of a natural drainage system, even if occurring under a privately owned land, is not “Private Water.” Such water according to the Act is “Public Water.” It is therefore true that the scope of private water and in turn the manifestation of the riparian principle is very limited.

From the above, it is noted that the Water Act embraces, to varying degrees, all doctrines therefore creating a hybrid system. The public trust principle formalizes the other doctrines under the Act and the degree to which the characteristic of the two doctrines apply. Chapter 3 will help determine the extent to which these regimes apply with a view to determine tradability.

⁹⁸ Ibid

⁹⁹ Ibid

Chapter 3 Tradability of Zambian Water Rights

3.1 Transferability and Tradability of Water Rights Under Zambia's Water Act.

To analyze transferability and tradability, an effort is now made to determine the extent to which the doctrine of prior appropriation is engrained under the Act. Along side this analysis shall be the determination of whether the Water Act accommodates the key incidents of ownership or possession (that is, the characteristics of tradable water rights) that allow for the transfer of water rights with consideration. The analysis will examine the tradability of water rights under the two categories of water as defined in the Water Act, that is "Public" and "Private" Water.

3.1.1 Tradability of Rights Derived from Public Water

In chapter 2 it was established that the Water Act is based on a hybrid doctrine that embraces, among others, the doctrine of prior appropriation. The characteristics of the doctrine of prior appropriation as highlighted in Chapter One including the country example of the Western United States are now assessed in light of the Water Act.¹⁰⁰

It was established from the American country example that there are four essential elements of the prior appropriation doctrine: *Intent, Diversion, Beneficial Use, and Priority*. The element of "*Intent*" makes itself manifest by the requirement that an application for a water right must be made to the Water Board for consideration. Section 24 (1) of the Water Act states: "*Any person who wishes to be granted any water right or other right to enable him to exercise a right to the*

¹⁰⁰ Cap 198 of the Laws of Zambia

use of water shall submit an application therefore to the secretary". It is important to note that both public and private institutions are subject to such an application. The element of "Diversion" or abstraction from a specific point on the water body is established in the detail of the prescribed application forms under the Act and is specified in the water right certificate.¹⁰¹ The certificate is in fact a lease agreement which, among other things, defines the water right. It is the legal document/instrument that formalises a water right and has the following elements:

1. Provides a grant for the use of a specified volume of water per day, at a specified location for specified duration. The specified number of years for the duration of the grant is determined at the discretion of the Water Board but is normally five years.
2. The grant is subject to renewal at the expiry date
3. The grant sets out conditions, which have to be satisfied by the holder. Failure to comply with the duties/conditions may result in the cancellation of the water rights.
4. The grant attracts a charge per cubic meter per day due to the Government.¹⁰²
5. The grant specifies the category of use of water and the mode of abstraction including details of storage.
6. The grant gives details with respect to the Title of the land associated with the water right.

One notes that the first 4 elements of the grant are in fact the main characteristics of a lease. The state owns all water and allocates it to various users for various purposes by way of a lease. It being a lease means that it represents a legal interest in land. It is also clear from the above that the grant is not a license. By way of lease the Rights are secured and like in land law or the law

¹⁰¹ See Water Right Certificate WDB 1598 in respect of Pebble Brook Farms stand no. Sub. B of 28A, Water Registry, Ministry of Lands.

¹⁰² See section 46- The Water Board (Charges and Fees) Regulations. No 125 of 1990

applicable to land in Zambia, the various incidences of ownership apply to a degree set by the limits in the Water Act. Evidence to show that a water right is a lease can be derived from an application made to the Water Board in 2001 for the Reinstatement of Water right held by Mr. George Bender of Pebble Brook Farms in the Chalimbana River Catchment area of Zambia. Mr. Bender, among others, had had their water rights cancelled by the Water Board because there was not sufficient water in the river to satisfy the demands. Right and Rights Agency, a water resources management agent retained by Mr. Bender argued that a water right could not be cancelled without compensation, and that a public hearing to determine the basis of such a cancellation needed to take place. It also argued that Mr Bender's water rights having been a water right secured at an earlier date to most other water rights on the river, enjoyed priority over the others and its demands needed to be met first in preference to the other users.¹⁰³ Upon seeking advice, the Solicitor General informed the Board that they could not cancel a water right in the manner they did and that the law needs to change if they wanted to exercise that kind of power.¹⁰⁴ The water right along with all other water rights that were cancelled were reinstated. It is important to note that reinstatement is an equitable remedy which is readily available when dealing with matters relating to interests in land. Had the water right been a license, the remedy available could have, at most, been normally damages. An owner reserves the right to withdraw the license. Damages accrue due to breach of contract. whereas for a lease, the leaseholder has certain level of right of possession to the exclusion of the owner, in this case, the State. It must be appreciated that use of water is tied to property ownership. The withdrawal of water results in

¹⁰³ See Rights and Rights Agency, Opinion on Water Right WDB 1598, 2001 page 2 and 3 or Water Board Registry File WDB, 1598.

¹⁰⁴ Water Board Registry, File No. WDB 1589, See Letter of Reinstatement by the Water Board dated 23rd September 2002, page 1

loss of property. Water entitlements must therefore be secured as a lease, since a lease provides for such security.

The element of “*Beneficial Use*” is formalised, in part, under section 51 (1) which outlines that where an owner of any right registered in accordance with the provisions of this Act fails to make full beneficial use of the same for a consecutive period of three years; or fails to comply with any condition imposed under section twenty-five, twenty-seven or thirty-two requiring any works to be constructed and maintained by such a water right may be forfeited , that is, after appropriate procedures have been followed as specified in the Act. The beneficial use principle is also formalised by the specification of entitlements to a specific amount of water, for a specified use, at a specific location with a definite date of priority. These aspects are a part of Zambia’s water rights system The formalised procedures for applications are appropriately reflected in the Water right certificate. It is important to note that both the application forms and the water right certificate are legal documents. Under subsidiary legislation entitled “Section 23 (6) The Water Rights (Procedure on Application) Rules” section 6 makes it an offence if anyone makes false statements, in material particulars, in an application.

Section 32, addresses the renewal of water rights. Under this section renewed water rights are deemed to be a continuation of the original grant and, for the purpose of priority under the Act. This further reinforces the element of priority.

It is clear from the above that all the key elements of the doctrine of prior appropriation are a part of the Water Act insofar as public water is concerned. Further, the above supports the fact that a water right under the Zambian system is clearly defined.

With respect to characteristics of tradable water rights the following position holds as true:¹⁰⁵

- a) With regard to the requirement that water rights should be independent from land, the Zambian scenario is such that water rights must be linked or associated to land on which it is used. This is similar to the Western States example. Basically, you cannot have a water right without owning land. However, this does not mean that water right is tied to land. The water right is a clearly defined lease that is registered in the Water Register which is linked to the Land Register. It can, therefore, be transferred.
- b) With respect to tradability, in examining Section 27 of the Act, entitled “Order by Water Board” it states that;

*“The Water Board may, in its discretion, after a public inquiry- (a) grant or refuse an application in whole or in part; (b) attach any conditions to the granting of an application; (c) award compensation to affected registered owners of water rights; (d) revoke, vary or amend any registered water right in respect of the public water concerned in the application then before the Water Board: Provided that the powers of revocation, variation and amendment shall not be exercised unless the affected registered holders of water rights consent, or unless the applicant pays such compensation as the Water Board may award to such registered holders; (e) make such order as to costs as it shall deem just.”*¹⁰⁶

It must be noted that the order of the Board is preceded by an application from an applicant, an investigation by the technical Advisor of the Board (referred to as the Water Officer)¹⁰⁷

¹⁰⁵ Note that the Characteristics as identified and discussed in Chapter One, refer to sub heading “Characteristics of Tradable Water rights”.

¹⁰⁶ Water Act Cap 198 of the Laws of Zambia, section 27

¹⁰⁷ See section 4(a)

under the Act), and a public inquiry. This is the same arrangement as in the Western States example.

Section 27 (d) is of particular importance, as it makes the trading of water rights possible in the number of ways. Firstly, the powers of revocation, variation and amendment creates room for a party interested in selling all or part of his/her entitlements to another to do so by making such a variation possible. Secondly, the element of “consent” allows for the wilful or voluntary transfer of a water entitlement in part or as a whole. The basis of one’s consent may be negotiated for a return. Therefore, consent to release water entitlements can be subject to a bargain price negotiated between parties interested in buying or selling water entitlements.

c) With respect to water rights being private property, the Zambian position is that, like land, all water is vested in the President and therefore, the State. Henceforth, a water right is not private property in the absolute sense. However, as with land, water is granted to a user as a lease and a lease bears great resemblance to private property. As discussed in Chapter One, the degree of possession to a lease-holder is to such an extent that the incidence of ownership “right to alienate the water entitlement which right is formalised in section 27”. The argument under b) confirms this position. It must be noted, however, that trading of water rights will have to be subject to regulation. Regulation will be required to protect, among other things, third party and public interest and is by default possible through water rights application, hearing and determination procedures set out in Part IV of the Water Act. Like in the Western States , trading water rights has to be supported by the administrative system and

authorities that facilitate the provision of water rights which is the Water Board and its technical administrative arm.

- d) With regard to definition and specification, as mentioned earlier, the Zambian water right is well defined and specified in unit of measurement and priority. This position is affirmed by the fact that a water right certificate is granted to a water right holder which right, specifies the nature of the right. Reliability is a function of adequate technical investigations, and may be subject of concern where the investigating institution has inadequate capacity to carry out proper assessments as is the case in Zambia.¹⁰⁸ There is, therefore, save for the reliability factor, certainty and predictability in what can be traded.
- e) With respect to enforceability and security of the water rights of use, the formalisation of a water right in the form of a lease, which is registered in a water registry as the existence on an institutional framework, the Water Board, and its technical arm¹⁰⁹ and the High Court provides for enforceability and security for administering water rights
- f) With respect to Constitutional guarantees of ownership and legal sanction of water transfers by a relevant government Jurisdiction, it is worth noting that, Article 11 of the constitution provides for the protection of property and from deprivation of property without compensation. In addition the Water Act also provides that for compensation in line with constitutional requirements when water rights are withdrawn. Legal sanction is available through the High Court, section 29 states that
“Any person aggrieved by a decision of the Water Board may, within thirty days,

¹⁰⁸ See Article on Water Law in Zambia by Mphanza P. Mvunga, *Zambia Law Journal* Volumes 7-9, 1975 -1977, Page 136 and 137

¹⁰⁹ See section 4

appeal to the High Court against such a decision.” It must be noted that the decision to transfer a water right can only be made by way of an application to the Water Board.

- g) With regard to there being an efficient system to maintain the proper chain of title over water rights, it may be true to say the institutional architecture, exists that could allow for maintenance of title over water rights. The existence of a publicly administered water rights register allows for this. The problem arises from the human and financial resource capacities to administer the system.

It is evident from the above that a water right from Public Water under the Act is tradable through the Water Rights administrative system.

3.1.2 Tradability of Rights Derived from Private Water

As mentioned in Chapter 2, Private water is based on the Roman- Dutch- Cape principles which are riparian in character. They are without clear definition and are tied to land. The Water Boards’ regulation of Private Water is nominal. Section 10 provides that:

“Any owner of land may make application to the Secretary for the use of Private Water surplus to the needs of the owner of the land upon which such water occurs, and the Water Board may grant such application on conditions which will secure to the owner of the land upon which the water occurs his existing rights and a reasonable return for any capital expense incurred or work performed by him in making such water available” Provided that no such right to the use of Private Water shall be granted unless the Water Board is satisfied that the applicant cannot obtain by reasonable means on his own property water adequate for his requirements.”

This is the only intervention available. Private Water under the Act can, therefore, not be traded as private property. The incidences of ownership are so few and to an extent less than public water. That is to say, Public Water bears greater characteristics of private property than Private Water. Comparing the treatment of groundwater between the Zambian system and those of California and Colorado, the following observations are made:

1. All three systems have two categories of groundwater. The first category is groundwater that forms part of the natural drainage system. The second category is groundwater that does not form part of the drainage system.
2. The first category is treated in the same way in all systems. The groundwater in this category is treated in same or similar way as surface water; that is, based on the doctrine of prior appropriation. A water right must be secured for this water to be put to beneficial use.
3. Regarding the second category, it is true to say that the Zambian system and that of California are the same with the exception of the following: in the California case, all property owners above a common groundwater source possess a shared right to reasonable use of the groundwater. In the Zambian scenario, property owners can only draw groundwater that occurs only within the defined property. This particular difference is similar to that of the Colorado system in which water is allocated based on the percentage of land owned on the surface above the groundwater source.
4. The Colorado system requires the issuance of a water right for the abstraction of ground water in the second category. The Californian system does not, whilst the Zambian system only requires a water right for surplus groundwater.

3.2 Areas Where Amendments and/or Subsidiary Legislation is Needed

In making or proposing legislative amendments to serve one purpose, care and attention needs to be made to the implications of the proposed changes on the overall system. That is to say, making legislative changes solely for the purpose of making water rights transferable requires much study to determine the implications of such a change on the whole water rights system. Whilst this study may present proposals for legislative changes, it must be noted that the study of the effects of such changes may be limited. The legislative proposal presented may require more detailed study analysis as to their implications on other provisions. In this regard, the presentation below is limited in light of the above.

3.2.1 Areas where Amendments are Needed

Private Water to be Public Water

It is established, that private water is not tradable and that public water under the Water Act is. An area that would require legislative amendments would be that of making private water tradable. This can be done by changing Private Water to fall under the doctrine of prior appropriation. This means turning private water into public water. By turning private water to public water, the legal provisions under the Act addressing public water will apply. Since public water is tradable, the body of water falling under private water will have to become tradable. This essentially means that ground water would become tradable and any one wishing to use it for any of the established purposes under the law would have to make an application to the Board.

Making such an amendment has implications. Notable consequences are firstly that, the task of the Water Board will have to grow substantially to cover ground water. Carrying out water rights investigations on water right applications and public inquiries for determining the transferability may have major cost implications. Government would need a better understanding of its ground water regime or hydrogeology. This implies the establishing of a permanent system of measuring for ground water in order to determine how much water is available under ground for use. It also means that there should be more officials to travel around the country to investigate each and every borehole application. The Government would also have to consider the cost benefit of transforming private water into public water. Drawing lessons from the Western United States requires careful consideration since systems vary from one State to another. However, the manner in which Colorado manages its second category of ground water may be worth emulating as it treats all water as public water unless proven other wise.

3.2.2. Subsidiary Legislation

Subsidiary Legislation may be required to firm up a procedure for transferring water rights with relative ease. Here again, the approach would be to align very much with the existing procedure of acquiring water rights from public water. The legislation should allow for the recording of those open to trading water rights, that is to say, those who are willing to consent to have their water rights transferred in part and in whole. Appropriate application forms can be designed to allow for applications that deal with transfers to be used along side the ordinary application forms. The legislation would need to draw from existing clauses and therefore they would not be yielding implications that would require major consideration.

As in the Western United States, another complication that negatively affects trading water rights is derived from the nature of the Water Act. That is, the transaction costs that would result from the procedure of hearing and determining of water rights. Though the procedure would essentially be the same as that of an ordinary application for the water right, the added requirement of there being a public enquiry inevitably results in increased transaction costs. In other words, it is very expensive to hold public inquiries as this entails hosting meetings with the general public in order to hear their views and determine applications.

In addition, trading water rights may require the need for third parties or brokers to help the water rights holders with negotiations for the buying and selling of water rights in a market place as lawyers do in the conveyance of land.

Chapter 4 Conclusions, Recommendations and Proposals

4.1 Conclusions and Recommendations

Conclusions

This study had two objectives. The first was to determine the true position of the law with respect to the tradability of water rights under the Water Act, Cap 198 of the Laws of Zambia. The second was to make recommendations for water law reform to provide for tradability where it is established that the water rights are not tradable under the Act.

To satisfy these objectives, the study set out to establish the characteristics of tradable water rights and to establish which water right regimes support tradable water rights. It was established that the main principles of water law are derived from the principles that govern land law. The characteristics of tradable water rights deal mainly with 'ownership' from two perspectives which are, the incidences of ownership of water as they relate to its use and the enabling institutional environment that guarantees the existence of the incidences of ownership. It is established that, it is the degree to which certain incidences of ownership are permitted by a State and the degree to which they are legally protected under a particular water law regime which determines tradability. The various water rights regimes discussed confer varying degrees of ownership to the extent that some regimes support tradability whilst others do not. The following has been established:

1. Riparian water rights are not tradable. The incidences of ownership are restricted primarily to the right of possession and exclusive use which possession is momentary.

2. Prior Appropriation water rights are tradable as they embrace all relevant incidences of ownership to extent that the entitlement resembles property.
3. Water rights based on the public trust doctrine may be tradable as dictated by government policy.
4. Hybrid doctrines may result in some water rights in a jurisdiction being tradable.

Upon investigating Zambia's water rights regime including the historical development of water law and analysing its current character the following has been established. Zambia's water rights regime is based on the Hybrid doctrine. The Water Act defines water in terms of Public and Private Water. Private Water is governed on the basis of the Roman-Dutch-Cape principle which is in fact, a modified riparian principle. Public Water is governed on the basis of the Prior Appropriation doctrine.

Because Private Water is based on the riparian doctrine, it is not tradable. However, the occurrences of private water are limited. Government needs to make legislative amendments to make water entitlements under this definition tradable.

Because Public Water is based on the prior appropriation doctrine, water rights under this definition are tradable. Section 27 of the Water Act is the key section that makes the trading of water rights possible by providing for the possibility of varying water rights on the basis of consent. This provision provides for the right to alienate water entitlements. It also establishes that trading water rights is a superintended process under the State authorities responsible for administering water rights (that is the Water Board and its administrative arm). Section 27

alludes to this position. It is also important to observe that groundwater sources that form part of a natural drainage system fall under the category of Public Water and therefore require water rights. Such water rights are also tradable.

The position held in various reports, by State authorities and other scholars to the effect that water rights are not transferable and tradable in Zambia is incorrect. The error appears to stem from the lack of clarity as to what is meant by transferable water right and lack of appreciation of some of the underlying characteristics that govern water right regimes. The thinking appears to be that, by transfer, it is meant the passing of a water entitlement from one person to another without any kind of superintendence or, that the water entitlement is tied to land. The true position is that by transfer, it is meant that certain parameters that define the water rights, have been changed. These parameters may have an effect on third parties. The parameters include:

1. The purpose of use
2. Amount of water to be abstracted
3. The volume of impoundment
4. The point of abstraction
5. The location of use

A transfer can therefore occur when such a legal right can be passed on from an entity possessing the right to another. Such a transfer occurs, when at least, the location of use has been changed from one plot of land to another. The process of transfer is superintended.

Based on the above, the reform as proposed in the Irrigation Policy and Strategy (2004) with respect to making water rights tradable is therefore not necessary. For public water as defined

under the Act. Public water primarily constitutes all water that follow through a natural drainage system, sub water constituting both surface and ground water. The majority of Zambia's water users use this portion of water. The incidences of private water as defined under the Act are few. However, should government wish to follow through with the policy proposals, reform is required in respect of private water.

Recommendations

1. In order to make all water rights tradable in Zambia it is recommended that amendments as proposed in section 4.2.1 below should be adopted by government.
2. To make water rights readily tradable under the Act subsidiary legislation may be required to facilitate such a trade. This is especially important if water markets are to be created in order to support the determination of market prices for water. Notwithstanding the above, water rights can be traded under the Water Act without additional subsidiary legislation. All that is required is to effect section 27 of the Act or parts thereof. It is however recommended that subsidiary legislation should be put in place as proposed in section 4.2.2 below in the event that government moves to make water rights readily tradable.
3. It must be stated however, government needs to improve its capacity to administer the Water Act effectively. This has not happened over many years. As a result, a clear understanding of the water legislation in Zambia has been lost. The current draft Water Policy prepared in

2006 still states that Zambia's water law is based on English Common Law.¹¹⁰ This position is incorrect. This paper clearly establishes a different position, that of a hybrid Doctrine predominated by the principles of prior appropriation. Mphanza P. Mvunga's article on Water Law in Zambia (1977)¹¹¹ also supports this assertion. The article also states that capacity to administer the Act more effectively is required.¹¹² Without this capacity, it will remain difficult for government to adequately administer water rights in general and the trading of water rights in particular. It is therefore recommended that government should consider rebuilding its capacity in this field.

In the interest of effectively redistributing the water resources to more productive activities with higher economic and environmental benefits to the country, the application of the Water Act in this manner, that is, trading water rights should be encouraged by Government.

4.2 Outline of Proposed Amendments and/or Subsidiary Legislation

4.2.1 Amendments to Transform Private Water to Public Water

The following amendments will be required to transform private water to public water:

- a) An amendment to remove from the Act, under section 2 "interpretation", the meaning of Private Water.
- b) An amendment to add to the Act and to the definition of Public Water under section 2 "Interpretation" the incidences of the meaning of private water.

¹¹⁰ Republic of Zambia, National Water Policy, Final Draft' November 2006; page 14

¹¹¹ See Zambia Law Journal Volumes 7 – 9; 1975 – 1977 ; page 129

¹¹² See Zambia Law Journal Volumes 7 – 9; 1975 – 1977 ; page 136 and 137

- c) An amendment to remove from the Act section 10 “Application by owner of land for private water for secondary use.
- d) An amendment to remove from the Act anywhere where the term private water occurs and to replace this term with public water.
- e) An amendment under Part VII “Miscellaneous” to allow for the preservation and registration of existing rights with respect to private water. This is in order to ensure that the Act does not apply retrospectively, and to bring these rights into the fold of the new regime.

4.2.2 Proposed Subsidiary Legislation

The Minister can provide for additional rules to allow a clear and recorded transfer of water rights through the exercise of this Ministerial powers set out under section 23 (6). This section states that the Minister may, by statutory instrument/s, make rules prescribing the practice and procedure of the Board. The statutory instruments would cover the following details:

- a) An application form for the transfer of a water right by the transferee setting the following:
 - i purpose of transfer
 - ii the description of rights or portion thereof after the requested change
- b) An application form for the transferor setting out the following:
 - i) the description of the right as recorded;
 - ii) The description of the right being transferred;
 - iii) The description of the unchanged portion of the right.
- c) An application form requesting

- i) A map indicating the new points of diversion and/or new place of use of water rights;
- ii) changes in the nature of use.
- d) A form requesting an action point for the Water Officer, showing the results of an examination, investigation of the application with a recommendation.¹¹³

Prior to the following legal procedure, which procedure will be outlined below, some negotiation for the trading of water between water right holders and water right aspirants may need to take place. Parties wishing to trade in water rights will need to seek each other out and negotiate prices and agreements. Such an activity may require the establishment of a market place for trading water. If a market place is to be created, market price for water, applications from the transferor, without the existence of a transferee would need to be accommodated by the Water Board. The application grant can then be negotiated for in the market place. The establishment of a market place is not the thrust of this paper and is therefore limited to the extent highlighted above.

4.2 Sketch of Legal Procedure for Trading Water Rights

With the above application forms in place, the same procedures as with the application of ordinary water rights can apply with regard to Part IV of the Water Act "Hearing and Determination of Water Rights." In summary the following sequence of events will take place:

¹¹³ Derived from Form 222 November 30, 1999; State of IDAHO Department of Water Resources

1. Application for a transfer as set out in the application forms lodged with the Secretary of the Water Board;
2. An advertisement in the public media and the sending of registered mail to users who may potentially be affected by the application to seek objections;
3. An investigation into the applications is undertaken by the Water Officer or his/her agent;
4. The applications and recommendations of the Water Officer are considered by the Water Board;
5. Where there is an objection or where the board deems fit, the Secretary shall give one month notice for “public inquiries”; and
6. There after the Water Board shall consider and make orders with respect to the transfer. The Grants are then registered with the Water Registrar within three months of the date of the grant and on paying prescribed fees. It must be stated that, as with property transfer related to land, a water right transfer may attract a Transfer Tax which would have to be established by relevant authorities.¹¹⁴

¹¹⁴ See Part IV Hearing and Determination of Applications; Water Act Cap 189 of the Laws of Zambia

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