

## Statutory protection for the water requirements of natural ecosystems

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A project was recently registered with the National Parks Board to investigate the need for legal protection of the water requirements of natural ecosystems and the existing legislation which provides such protection. There is a distinct lack of legal protection, which is identified and discussed in this paper. It is submitted that the current South African water law is outdated and in need of reform so as to accommodate the demands of a wider spectrum of user sectors. Since the amendment of the existing water allocation system (in a country where water is a scarce resource) could be politically a disconcerting step, it should be made only after due consideration of the various needs for water, the historical foundation of the existing system, and a study made of effective systems in countries with similar water problems. An in-depth study of the historical development of South African water law has already revealed interesting yet abrogated concepts, which can possibly serve as a means of protecting the natural water requirements.

Key words: environmental law, ecobiota, conservation, public and private water, allocation mechanism, integrated water management, natural law, public interest, riparian ownership.

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### Introduction

The development of a legal field called 'environmental law' in recent years, has been the result of the dedication of a few devotees to bridge the inconvenient interdisciplinary gap between natural science and the law. General ignorance of the function of the law and the value of a stable set of legal rules controlling environmental aspects, as well as the lack of credibility of the legal system due to inadequate environmental legislation or the ineffective application of existing rules, have, for years, been a barrier to the development of environmental law and its acceptance in scientific circles. This antagonism can be remedied only by updating environmental legislation to keep pace with dynamic environmental conservation questions, as well as by the provision of intelligible information as to the function of the legal system (Thornton & Day 1989; Fuggle & Rabie 1983). In a modern society, where an awareness and un-

derstanding of the value of conservation is well-developed, water law should no longer mainly be aimed at proper water utilisation and apportionment, but also at the conservation of the resource. Viewed from this angle, water law is a part of conservation law, which is, in its turn, part of environmental law.

This contribution is an effort to address the credibility of the legal system as far as water law in the Republic of South Africa is concerned.

### The law

#### *Definition*

The law is the body of rules which, in accordance with policy principles, regulate human interaction in order to maintain order and stability (Hahlo & Kahn 1968). As far as its philosophical basis is concerned, the law can be described as the rules of the game in a

society. No community can harmoniously survive without a set of rules to control inter-relationships, including not only those between humans, but also between man and his surroundings.

A legal system is the dynamic result of a long development process during which rules were constantly adapted to suit practical requirements.

"It is the facts and requirements of life which determine the content of a legal system, including its classifications and indeed its whole apparatus of systematization and dogmatics – not the other way round" (Cowen 1985).

When the law no longer fulfils reasonable public needs, it is no longer capable of regulating the balance between the divergent interests in society, causing disorder and a loss of its credibility. Therefore legal rules ought to be continually revised and updated to keep pace with a developing society.

### ***The sources of law***

Legal rules are mainly found in legislation, encompassing, *inter alia*, acts of parliament, provincial ordinances, regulations and municipal by-laws. Other sources of law are the common law, precedent (being the case law), and custom (which is often difficult to trace, and is a less important source of law) (Hahlo & Kahn 1960; Venter *et al* 1990).

South African law was derived mainly from Roman and Roman-Dutch law. Legal principles derived from old authorities have been adapted by our courts to suit the practical situation in this country (Hahlo & Kahn 1960, 1968). Where Roman and Roman-Dutch law provided insufficient rules to apply in South Africa, foreign law, especially English law, was used to supplement it (Hahlo & Kahn 1968; Wessels 1908). The incorporation of foreign law should be done with circumspection:

"The proper course to adopt is ... to determine what principles of the English law are to be incorporated into our law, to formulate these principles so that they harmonise with the principles of our law, ... to have a clear idea of what you are taking over from the English law, and to know that there is little or no

likelihood of a conflict between what you take over and what you already have" (Wessels 1908).

## **Environmental law**

### ***The environment***

In terms of section 1(x) of the Environment Conservation Act 73 of 1989, the environment is the aggregate of surrounding objects, conditions and influences that affect the life and habits of man or any other organism or collection of organisms. To make this very broad term more digestible for practical usage, it is often used in combination with some restrictive adjective, such as the natural environment, the cultural environment, the biotic environment, or the spacial, social, economic, political or labour environment (Rabie 1991a).

Ecology is the study of living organisms in their habitat; a habitat is a life-supporting area (Ryke 1978; Holmes 1979). The ecological environment is generally accepted as referring to the interaction of living organisms. This term is incorrectly employed in this sense, since it bears no reference to a *study*, which the word *ecology* implies (Greek *logos* = study). Linguistically the term biotic environment would be more correct, referring to that part of the environment consisting of living organisms. The *ecobiotic* environment will be an even more suitable term, referring to that part of the environment consisting of living organisms *in their natural habitat*.

### ***Conservation***

The Environment Conservation Act does not define the term 'conservation', but makes provision for a conservation policy to be declared by the minister. This has not as yet been done (s 2). This topical term has been defined by the IUCN (International Union for the Conservation of Nature and Natural Resources), as "the management of human use of the biosphere so that it may yield the greatest sustained benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations". This definition has been accepted by the National Parks Board in its policy state-

ment (1984). The accentuation of long term human requirements and human survival was also reflected in the policy statement of the Department of Environment Affairs (WPO '80). The World Conservation Strategy (1980) defined conservation as the ecologically sound management of productive systems and the maintenance of their viability, to ensure the earth's capacity to sustain development and to support all life. This definition, accepted by the Chief Directorate: Nature and Environmental Conservation of the Transvaal Provincial Administration, emphasises the preservation of biotic diversity rather than human survival. These two definitions represent the main tendencies in the philosophic school of thought on the objectives of conservation, meaning the ethical and utilitarian objectives. Much has been written on this subject (Fuggle & Rabie 1983; Burgert 1991; Green 1985; Rabie 1976), which will not be laboured here. If human survival or the maintenance of biotic diversity, or of natural resources is mainly envisaged, the survival of any of these is dependent on the maintenance of interrelationships between all elements of the environment. This is a purpose in itself, and conservation should aim mainly at maintaining these interrelationships.

### ***Environmental law and conservation law***

It therefore seems possible that environmental law can, in a broad sense, be viewed as encompassing *all* law. The reason is that the law has been defined as the body of rules regulating the interrelationships between man and man, as well as between man and his surroundings, while the environment is the aggregate of man's surroundings: there is hardly a legal rule which can linguistically be excluded from the field of environmental law (Rabie 1991a; MacWilliam 1982).

The term 'environmental law' is usually employed in a narrower sense, i.e. referring only to those legal rules aimed at the conservation of natural resources and the control of environmental pollution. It is the instrument to obtain a balance between the utilisation and preservation of components of the environ-

ment to ensure the maintenance of interrelationships. The target of these rules is environmental *conservation*, and therefore 'conservation law' is a linguistically more descriptive term than 'environmental law'. In the light of the definition of the term 'conservation', conservation law is aimed only at the preservation of natural systems, organisms and resources, as well as their interrelationships. (The term 'ecobiotic law' is of a similar extent, referring to rules to preserve organisms in their natural habitat.) It can therefore be argued that conservation (or ecobiotic) law is that part of the environmental law which is aimed at maintaining the interrelationships of elements within the environment.

### ***Conservation law in South Africa***

In South Africa, rules regarding environmental conservation have been part of the legal system since the earliest years. In 1655, Jan van Riebeeck issued a *Placcaat* prohibiting the pollution of the streams of Table Valley, to ensure peaceful common use by inhabitants and crew members (C 680 OPB 53 dated 10/4/1655). Various regulations protecting fauna and flora were also placed on the statute book in those early years.

A variety of rules aimed at environmental conservation currently exists, scattered through a number of enactments such as the Water Act of 1956, the Atmospheric Pollution Prevention Act of 1965, the Mountain Catchment Areas Act of 1970, the Sea Birds and Seals Protection Act of 1973, the Lake Areas Development Act of 1975, the National Parks Act of 1976, the Conservation of Agricultural Resources Act of 1983, the Forest Act of 1984 and the Physical Planning Act of 1991 (Bands 1989; Rabie 1990c). A need to consolidate environmental law developed, encouraged by a world-wide awareness of the need for conservation, as well as a rapid development of similar legal fields in other countries, like the USA and England. This led to the promulgation of The Environment Conservation Act in 1982, replaced by the Environment Conservation Act of 1989, a potentially strong instrument in the hands of

conservationists (Rabie 1990c; Hoogervorst 1989). The problem with a rapidly developing field such as environmental conservation, is that the rules are often, as a result of administrative laboriousness as well as a lack of research, either outdated or underdeveloped (Visser 1989). When the rules in society fail to keep pace with changing practice it is necessary to revise the rules.

## Water law

### Water

South Africa is an arid country, poorly served with well-distributed natural water sources (Fuggle and Rabie 1983; PC 1/1991). The main freshwater resources are rivers, although permanent fresh water is also found in vleis and floodplains, endorhic pans, lakes, impoundments, coastal and estuarine lakes, estuaries and lagoons, and open and closed sinkholes (Noble & Hemens 1978). Although the quantity, quality, regularity of need, temperature, oxygen content and purposes of water utilisation differ from organism to organism, water is essential for sustaining every form of life. Because water is needed by all creatures, and because creatures are interdependent, a proper water management system should respect every demand.

"Water is South Africa's primary national asset, the one which makes life possible. As such, it cannot be regarded as the property of any one sector or individual, nor can the actions of any user agency be allowed to impinge on others in a detrimental manner. It is a question of survival for all" (O'Keeffe 1986b).

Because water is in constant circulation, and is constantly exploited and utilised, it ought also to be constantly renewed. This function, to a large extent, is fulfilled by the network of interacting elements in and around water sources. Besides abiotic elements such as sunlight, air and soil, the biota in and around these systems are also of vital importance in the process of purification and renewal of water. The exact role of each of the diversity of living organisms in and around fresh water resources, in the functioning of aquatic sys-

tems, has not yet been determined to such a degree that proper water management is possible. An example of in-depth research which is currently being undertaken to unravel the complex functioning of river systems so as to improve management and the legal system, is the Kruger National Park Rivers Research Programme, which commenced in 1987. This comprehensive programme, in which more than fifty researchers from all over the country are involved, and of which this legal project is part, is supported by a variety of government, semi-government and private institutions. It is hoped that the quantitative and qualitative water requirements of aquatic species and their function in river systems, will simplify the development of a water management mechanism in terms of which the sensitive balance of these systems, as well as the water demands of man, can be addressed. With some degree of certainty, it can be argued that each element in the environment has some role to play in the conservation of water (O'Keeffe 1986a; Chutter 1973; Davies & Day 1986; Ferrar 1989). For these to be able to fulfill their functions, and supply all water user sectors and all forms of life with water according to their life-essential needs, a body of rules is necessary which accommodates all the role-players. This is where water law is of relevance.

Man is the manager of the natural environment. He is also a competitor for certain life-sustaining elements, such as water. It comes down to a problem of setting the fox to keep the geese. Man should fulfil this dual function by objectively creating a water allocation system which will accommodate the water requirements of both himself and his competitors. Man, due to constant development and progress, is the user sector having the greatest negative impact on water resources, (PC 1/1991; O'Keeffe 1986a; 1986b; Petitjean & Davies 1988; DWA 1986; Fuggle & Rabie 1983) and therefore he should, apart from allocating water, also find a means to protect water resources from his own destructive utilisation.

## *Water law*

### *Philosophy*

If conservation law is the set of rules aimed at regulating the interrelationships between organisms and their natural habitat, then water law, in a modern and conservation-mature society, is also a part of it. The reason is that the rules of water law ought no longer to be aimed only at allocating the maximum exploitable water to the widest spectrum of user sectors, but also at preserving the resource, both quantitatively and qualitatively.

The recognition of the interdependency of elements of the environment implies a recognition of the water needs of all organisms, in that both water and biota are elements interacting in this network of interdependency. Water allocation to the environment can no longer be regarded as a question of goodwill. Condolence with the defencelessness of ecosystems in times of water scarcity may place a moral burden on the Department of Water Affairs to allocate water according to survival needs, but as long as no rights exist, the Department is under no obligation to do so. The recognition of these needs requires the establishment of mechanisms to ensure that all organisms are supplied with water. Such a mechanism should be contained not only in government policy, but in the legal system, embodied in statutory provisions and enforced by the courts of law. If water law does not recognise these principles, it is outdated and ought to be revised.

### *Objectives*

The rules of water law should aim firstly at establishing a fair allocation system for water utilisation by all organisms, and secondly at preserving the resource. Preservation is not possible without the allocation of water to those natural systems which play a role in the renewal of the resource. Although allocation, which necessarily implies utilisation, seems to contradict preservation, a proper management system, contained in legislation and enforced by legal mechanisms, which aims at

managing the entire resource system, should be able to exploit the resource to its maximum extent, apportion it and conserve it for long term purposes. In a country where water is described as an increasingly scarce strategic resource, and where demand will soon exceed availability, the legal system should provide a thorough management strategy to achieve these goals (Department of Water Affairs 1986).

As far as preservation is concerned, the legal system should, in the first place, contain rules aimed at the avoidance of pollution, eutrophication, salination, mineralization, silting and other harmful qualitative influences caused by human utilisation. It should, in the second place, also regulate actions concerning flow conditions, including riparian and other land-use practices such as forestry, agriculture and impoundment, as well the control of wastage. It should, in the third place, control the exploitation of water sources, such as rain modification and ground water exploitation. It should, in the fourth place, protect those aquatic biotic and abiotic elements which play a role in the functioning of aquatic systems. In South African water law, such legislative provisions have been made but with varying degrees of efficiency. These measures are to be found in the Water Act of 1956, The Mountain Catchment Areas Act of 1970, which was promulgated to provide for the conservation, use and management of land situated in mountain catchments, the Conservation of Agricultural Resources Act of 1983, the Forest Act of 1984 (sections 1, 8 and 21), the Lake Areas Development Act of 1975, the Electricity Act of 1987, which concerns the use of water for power generation, and the various provincial nature conservation ordinances (the Transvaal Provincial Ordinance of 1983, the Cape Provincial Ordinance of 1974, the Free State Provincial Ordinance of 1969 and the Natal Provincial Ordinance of 1974). Legislation concerning the preservation of water will not be considered in further detail, but refer in general to Fuggle & Rabie (1983), Begg (1986), Walmsley (1987), Rabie & Loubser (1990), Rabie (1989b, 1990b), Visser (1989). The fourth of the abovementioned aspects deserves

further discussion, viz. the provision of protection for biotic elements which play a role in the functioning of aquatic systems. This includes protection against human interference which could eradicate species, for instance pollution, the introduction of harmful intrusive species, the over-abstraction of fish and the construction of barriers in rivers without providing fish ladders for migrating species. It also includes rules which provide for the basic survival requirements of these species, e.g. the maintenance of the food cycle, and the provision of sufficient water and oxygen. The provision of water for the survival of aquatic species is one of the prerequisites of proper water management so as to preserve water as a natural resource. This overlaps with the first mentioned aspect of proper river management, viz. *allocation*, as discussed in the previous paragraph. Provision of water for ecobiotic requirements is thus an aspect which ought to be addressed by the water law to achieve both of the objectives of water management, viz. allocation and preservation.

To ascertain whether South African water law complies with these goals, it is necessary to evaluate the water management system as it is contained in the legislation. If it is found that this system does not comply with the goals of water conservation, the legislation is outdated and ought to be revised.

## South African water law

### *The allocation mechanism*

The South African water allocation system is codified in the Water Act of 1956. The system is based mainly on the distinction between public and private water. Private water is water which naturally rises or falls or drains or is channelled onto land, but which is not capable of being used for common irrigation. Public water is water found in a public stream, where a public stream is a natural stream of water flowing in a known and defined channel, capable of being used for common irrigation (section 1). While private water is available to an owner on whose land it occurs for his sole and exclusive use and enjoyment (section 5), public water is avail-

able for the common use of riparian owners for reasonable agricultural and urban purposes (sections 9 and 10). This allocation system is, in various ways, exclusive. In the first place, only riparian owners have rights to public water (section 9(1)). In cases of emergency, however, any person who is lawfully at any place where he has access to a public stream, can make use of the water (section 7). Secondly, this limited group of owners is only entitled to use the water for prescribed purposes (in the case of public water), viz. for agricultural and urban purposes (section 9(1)). To use water for industrial or any other purpose, a court order is necessary (section 11). Thirdly, each riparian owner is entitled to the reasonable use of his share only (section 9(1)). A 'share' is determined by the court, by considering *inter alia* the yield of the stream, the land to be irrigated and other water sources on the owner's land (section 52). What a 'reasonable' share is, depends on the requirements of other riparian owners. In the case of surplus water, which is public water which cannot be beneficially used for irrigation of riparian land without storage, a riparian owner is not bound to reasonable consideration of the requirements of other riparian owners but may draw as much water as he can beneficially use for domestic, agricultural and urban purposes and for stock watering (section 10).

### *Restrictions on water rights*

#### *Ministerial discretion*

The Minister of Water Affairs is empowered to suspend or restrict or redistribute existing water rights in the public interest. This extensive jurisdiction is mainly exercised by declaring control areas, in cases where such declaration serves the public interest (section 59). Five kinds of control areas exist :

- A subterranean government control area can be declared when the minister is of the opinion that the abstraction, use, supply or distribution of subterranean water should be controlled (section 28). Outside such control areas, owners may apply ground water (which is private water in so far as it does not comply with the definitions of public water or public streams) for purposes of the maintenance of ecobiota. As soon as a subter-

anean government control area is declared, the minister assumes the right to use and control subterranean water, notwithstanding any existing right which is not exercised (section 29). The minister may specify the purposes for which such water may be abstracted (section 32B). The allocation of rights ought to be made in the public interest (section 28). What the public interest is, is not defined. It is therefore not sure whether an allocation for the abstraction of subterranean water may be made for the purpose of the maintenance of ecobiota. Until the term public interest is defined by statute so as to include the interests of natural systems, or until a governmental policy regarding environmental conservation is declared in terms of the Environment Conservation Act 73 of 1989, to which all ministerial discretions must comply (in terms of section 3), the minister is not bound to consider these systems when allocating water rights.

- A government water control area is declared whenever the minister considers that the utilisation, abstraction, supply or distribution of a public stream should be controlled in the public interest (section 59(1)(b)). Once again, all unexercised existing rights relating to public water are suspended and vested in the minister, which he must allocate in the public interest. In these control areas, the purposes for which the allocation of water rights is made, are mainly the rights of irrigation (section 62(2)).
- A catchment control area is declared when the flow of a public stream has to be controlled for the prevention of silt or damage to riparian land, or when such an area is required for the protection of the catchment (section 59(2)). The minister may suspend owners' rights on the land and even take possession of the land, to carry out such protective steps (section 61). Once again the minister has to take the public interest into account. This does not necessarily mean that biota must be considered.
- A dam basin control area, declared in terms of section 59(4)(a), is an area reserved for the construction of a dam. The water rights of riparian owners in such an area may be expropriated (section 59(4)(c)). It is the policy of the Department of Water Affairs to consider environmental aspects when constructing any water work (DWA 1986), yet this policy is not reflected in legislation, which affords little protection for the water requirements of ecobiota.
- A government drainage control area is declared when the minister wants to restrict owners' rights on private water as regards its accumulation, abstraction, impoundment, storage or use, which will reduce the availability of water in a public stream in the area (section 59(5)).

From this, it is clear that the minister has a far-reaching discretion regarding the allocation of both public and private water. The public interest, which ought to be considered in the exercise of this discretion, is a jurisdictional fact (Rabie 1978) which has little restrictive force as far as the allocation of water for the requirements of aquatic species is concerned.

### *Ecobiotic water requirements*

The water requirements of ecobiota are not catered for in the water allocation mechanism: it is neither entitled to water use in its own right, because it is excluded from the definition of a riparian owner, nor is a riparian owner who is entitled to public water empowered to use water for the maintenance of such wildlife, because conservation purposes are not provided for in the definitions of either agricultural or urban use or stock watering (section 9(1)). An owner on whose land private water occurs, is empowered to make use of such water for the maintenance of natural systems, but the definitions of public and private water overlap to such an extent that it is difficult to distinguish between the two without the intervention of the water court (section 40(d)).

"In short private water is water you had better not go to court about, for it may cost you more than its worth. In fact it is not worth reading the act to try and find out what it is. Grab the water on the ancient principle of first come first served and put the onus on any claimant to the contrary" (Findlay 1973).

The water court is empowered to allocate a specified quantity of public water to any person on application, for purposes determined by the court, if such allocation is in the public interest (section 11(2)(b)(ii)). It can be argued that a persona, such as a conservation organisation, or even an owner of land who wishes to use water for the maintenance of ecobiota, will be able to make such an application on behalf of wildlife. But, once again, this is not sufficient protection for the water requirements of species, because private owners outside conservation areas are seldom sufficiently conservation-inspired to bring such an application regardless of the money, effort and time involved. Moreover, the public in-

terest is not defined, and hardly provides more than a mere hope or expectation of water allocation.

A conclusion that the Water Act currently provides no legally enforceable protection for the water requirements of natural ecosystems (Hiddema 1989), cannot be passed over in silence. It was said earlier that a legal system should be a dynamic set of rules, adaptable to changing practice, and if rules fail to meet newly developed norms, they ought to be revised. Revision of the law to accommodate such requirements, can be harmful to current lawful water users, since the allocation of scarce water to additional users would reduce their shares. Politically this is a hazardous step, and consideration ought also to be given to exploiting existing surface and ground water sources to provide the maximum yield, to develop unconventional water resources, to re-use effluent, and to obtain water from other countries (DWA 1986). These methods of increasing the available exploitable water are not enough because of the simultaneous increase in water demand.

What is needed is the accommodation of the water requirements of ecobiota in the statutory water-allocation system. The indirect ways in which these systems can claim water rights in terms of the provisions mentioned previously, are insecure and guarantee no protection in times of water scarcity. The allocation system of the Water Act ought to be amended, in the first place, to define the public interest with reference to the interests of ecobiota, and, in the second place, to include these biotic systems as a lawful water user sector entitled to rights of use in terms of the basic allocation system, as well as to a quota at the discretion of the minister. In the third place, private water ought to be as apportionable as public water, and the continued existence of a distinction between these terms is questionable (Rabie 1990b). Finally, an integrated water system, contained in a single act, is necessary to effect proper conservation of water. Proposals as to the legal justification and the contents of a new allocation mechanism should have a sound histori-

cal foundation. It is necessary to investigate the origin of the current water allocation mechanism to ascertain its practical relevance.

### **Origin of South African water law**

South African water law was derived from Roman and Roman-Dutch law. The main period in which the water law was formed, was the late nineteenth century. A series of water disputes forced the courts to lay down principles for the apportionment of water. Chief Justice De Villiers played a leading role in this law-making process. Although the courts attempted to found the principles on Roman and Roman-Dutch authorities, the often divergent principles of, especially, the English and American, and also the Scottish and French water law systems were inevitably adopted, often due to the opinions of judges who had been schooled in English law, or to a dearth of common law authorities.

### **Roman law**

Roman law was codified in the sixth century by the emperor Justinian, in an extensive work called the *Corpus Iuris Civilis*. This work consisted of four books, of which the Digest (*D*) is the most important, being a compilation of age-old rules and the opinions of the jurists of Roman times (Nathan 1913). The Institutes (*I*) were compiled as a student handbook, and contained a summarised account of the Roman law (Van Zyl 1983).

### ***The classification of water***

In terms of the Roman law of things, things were either common to all, or common to a body corporate, or belonging to individuals or to no one (*D* 1 8 2 *pr*). Running water came under the first class, being common to all (*D* 1 8 2 1). The two main jurists quoted in the Digest, where this classification was set out, were Gaius and Marcianus. Their classification was, basically, similar, but their nomenclature differed. While Gaius named the class of things common to all *res publicae*, Marcianus named it *res omnium communes*. This difference in nomenclature caused much



confusion in later water law, as will be explained later. The other things included in this group of common things were the air and the sea, both also being natural resources. 'All' included each and everyone in need of it. This meant that natural resources, such as air and running water, on which everyone was dependent for survival, could not be appropriated, yet no one could be deterred from making use of them. The principle subjacent to the allocation of these things to all, was contained in the principles of the natural law. Natural law was "a valid and binding body of law which gave substance and reality to the community's feeling of, and desire for justice, in the sense of *iustitia* [justice] or *aequitas* [equity]" (Van Zyl 1990). Various philosophic schools of thought developed around natural law. Whereas many attributed it to the laws of nature, others were of the opinion that it was inspired by divine providence, and others that it was a mere result of human common sense and man's instinctive feeling for righteousness (Hahlo & Kahn 1968; Nathan 1913; Van Zyl 1979; 1991a; 1991b). Whatever the real source of natural law, it was expressly made applicable to the allocation of water. This system, based on justice for all, was the reason for the view that water was common to each and all, belonging to no one in ownership. Although modern law is no longer based on natural law, its principles reflected in the positive law, are timeless and universal, and ought to be understood to understand the positive law (Wessels 1908).

Although all running water was common to all, perennial rivers (*flumina perennia*) were distinguished from seasonal rivers (*flumina torrentia*). A river which ceased to flow during some dry seasons, was not necessarily seasonal. Perennial rivers were called public rivers (*flumina publica*), while seasonal rivers were called private rivers (*flumina privata*) (D 43 12 1). Private rivers were not private property (*res privatae*), but remained common to all (*res communes*). These rivers, due to their negligible common value, were seldom subjected to competitive use, and principles of justice allowed owners on whose land they flowed to use them exclusively. The use of public rivers, being peren-

nial and often subject to heavy competitive use for shipping, was controlled by the state to ensure peaceful common utilization. This was done by praetorian interdicts. State control was possible over all water, but the state seldom interfered with the use of rivers which were relatively free of disputes. The distinction between public and private rivers was therefore drawn for administrative reasons, and not to create a class of water excluded from the natural law rule that running water was common to all.

Water contained in public waterworks, such as dams and aqueducts and channels, was also available for common use, although the waterworks belonged to the municipality or body that constructed and controlled it (D 1 8 6 1).

### ***State control***

The state was not owner of water. It was the administrator of water in the public interest. It exercised this function by issuing interdicts, in terms of which the common use of water was controlled. The water sources subjected to such interdicts were those due to competitive use. Because shipping was of great importance, the utilization of navigable rivers were strictly controlled (D 43 12-22). These strict control measures did not imply that the praetor was the owner of the water. Neither did the lack of control measures, in respect of small streams and seasonal rivers imply that the riparian owners were owners of those. State control did not deviate from the rule that water was common to all.

### ***The public right of use (usus publicus)***

A public right of use (*usus publicus*) existed in Roman law, to comply with the natural law that water was available for all who needed it. This right of use applied not only to natural running water, which was the property of no one, but also to impounded water, which belonged to municipalities, and to the banks of rivers, which belonged to individuals. Who the owner of the water, channel or banks was, was not the crucial principle in the determining water rights. The right of use existed

irrespective of the rights of ownership. The public right of use was not a servitude which had to be registered in order to obtain use, but it existed automatically in terms of natural law (D 1 8 2, 5).

It has been said that state control measures were issued to regulate common use and prevent disputes arising from competitive use. Most of the interdicts were aimed at restraining water users from causing harm or inconvenience to other users with similar rights. The public right of use was a right of reasonable common use (D 43 13 1).

The purposes for which water could be used included water travel (D 43 12 1), fishing (I 2 1 2), diversion (D 43 20 1), stock watering (D 43 21 1), household purposes (D 43 20 1 11; 43 20 3), recreation (D 43 20 1 11) and irrigation (D 8 3 17).

### **Conservation**

No conservation areas or clear signs of conservation awareness existed in Roman times. Wildlife was *res nullius*, which means that it belonged to no-one. It was however available for human occupation: a person who captured an animal so as to vest effective control over it, became the owner thereof until it escaped, when it once again became *res nullius* (D 41 1 1-5). In the case of vegetation, plants were included in the rights of ownership of the owners of the land where they grew. This was attributable to a doctrine that an owner of land was also owner of everything beneath and above his land. The owner was entitled to dispose of vegetation on his land as he pleased. This right was often exercised by granting a personal servitude or usufruct, in terms of which a third party was allowed to appropriate the produce of a farm.

Because wildlife had no place in the law unless it was under human control, no rules existed which provided legal protection for animals and plants living in their natural conditions. This also implied the absence of water rights for wildlife. An owner was entitled to use water to irrigate his crops or water

his stock, but these water rights belonged to the owners of the plants and animals, and not to species in their own right. This lack of expressive protection of the water requirements of wildlife was in accordance with the lack of conservation awareness, yet contradictory to the principles of natural law. The laws of nature represented and recognised the complex network of interrelationships between natural environmental elements. If the laws of nature were the origin of natural law principles of justice, this interdependence of elements would be part and parcel of them, and water law, based on natural law, could not deny the water requirements of ecobiota. If divine providence or human common sense was the origin, a denial of these ecological needs would be ever so contradictory. The philosophic justification for the existence of water rights for ecobiota in Roman law can be argued to have been confirmed by the definitions of two terms. First, the term *universitas* meant 'the whole number of things' (Lewis and Short 1975), 'the whole world' (Marchant & Charles 1946), or 'the universe' (Van Wageningen 1914). These definitions can hardly be argued to refer to humans only. In the Roman classification of things contained in the Digest, water was described by Gaius as belonging to no-one in ownership, but being that of the *universitas* (D 1 8 1 *pr*). Secondly, the term *omnium* was used in another text in the Digest (D 1 8 2) to refer to running water belonging to everyone in common. This term meant 'all things', and therefore did not necessarily refer only to humans, either. Although no expressed protection was granted for the water requirements of ecobiota, it was due to a lack of an awareness of conservation, and not to legal principles denying these requirements. Legal rules are only made when practical needs require them (Cowen 1985). In Roman times, wildlife did not experience any recognised threat because of over-utilisation of water by the human user sector, and therefore no rules were ever made to control such a threat. What is important, is that the basic principles of water law, viz. that water was common to each and all in terms of natural law, made provision for the issue of such rules when they became necessary.

## Roman-Dutch law

Roman law was accepted in Holland and adapted to local practical requirements (Venter *et al* 1990; Wessels 1908). As far as water law was concerned, the extensive difference in climatic conditions and the availability of water in Italy and Holland, necessitated significant differences between the nature of these two water law systems (Hall 1939).

### *The classification of water*

Roman-Dutch authors were not unanimous about the classification of water. Some were of the opinion that it was *regalia*, i.e. that it belonged to the crown in ownership (Groenewegen 2 1 2 1; Voet 1 8 9; Vinnius 2 1 12). Others held that water was public (*res publicae*), in the sense that it belonged to the whole civil community (Grotius *De Jure* 2 1 12; *Inl* 2 1 25-28; Van Leeuwen *RDL* 2 1; Van der Keessel 2 1 25). A third group was of the opinion that all water was common (*res communes*), belonging to the whole world, like in Roman law (Van Leeuwen *CF* 2 1; Voet 1 8 2). There were also those who taught that while perennial rivers were public, running water was common, and seasonal streams were 'the private property of the owners on whose land they flowed (Voet 1 8 3, 8; 43 12). It seems that the second view gained the most support: water belonged to the state of Holland, and not, as the position was in the Roman law, to each and all. 'Belonged to the state' probably implied common rights of use for the citizens, with the power of control of such use vesting in the government. Because of the classification of rivers as belonging to the state, foreigners were excluded from rights of use of rivers, unlike the Roman classification, where water was common to all (*res communes*), irrespective of political and territorial boundaries. Government control was exercised by way of strict control measures in the form of levies, tollage, permits and restrictions as to the purposes of use. Both water travel and fishing were under strict government control, and no one could freely make use of navigable rivers for these purposes (Wessels 1908; Grotius *Inl* 2 4 18-

24; 2 1 26; Van der Keessel 2 1 1; Van Leeuwen *CF* 2 1 12; *RDL* 2 3 7; Voet 41 1 6).

### *Res publicae and res communes*

The reasons for the Roman-Dutch classification of water as public (*res publicae*) and not common (*res communes*), probably lay in the need for political demarcation of rivers due to international competitive use, as well as in the confusion caused by the Roman law nomenclature in the classification of things. Justinian's interpretation of the classification of things and the consequential doubling of the class of common things, was followed by the majority of the Roman-Dutch authors. One of the greatest of Roman-Dutch jurists, Voet, explained this chain-reaction in the following way:

"No-one who is not altogether a stranger to the law can help knowing that our jurists, intent rather on things than on words, have often described things by inconsistent names, such as are commonly attached to a distinct class... What wonder then that things which are by Justinian and Marcianus called 'common by the law of nations', and the use of which is common by the law of nations, are elsewhere found in writers and jurists to be classed under the name 'public'" (Voet *Ad Pand* 1 8 (Gane tr)).

Be that as it may, the recognition of two classes of common things, viz. *res publicae* and *res communes*, called for justification, and so equally did the consequential yet untenable distinction between *rivers* and *running water*. The majority of authors solved it by totally removing water from *res communes*, leaving only the air and the sea in this class, and classifying all forms of water under *res publicae*. *Res publicae* was defined as things belonging only to the civil community of Holland, while *res communes* were natural resources which belonged to all, irrespective of political boundaries. The removal of fresh water, being a natural and vital resource, from *res communes*, was an unfortunate tactical step. The result was that fresh water was no longer available to each and all in need of it, but only to the citizens of Holland. This excluded not only foreigners, but also other forms of life, from the water allocation mechanism. Moreover, it excluded the effect of the principles of natural justice from the allo-

cation mechanism, in favour of strict government control of water allocation.

### *Public and private water*

The terms public and private rivers and water were hardly ever mentioned by Roman-Dutch jurists, probably due to their administrative role; in Roman law, the distinction was drawn to release smaller streams from the application of strict praetorian interdicts regulating common water utilisation, because of the minor common value of such streams. In the Roman-Dutch law, such interdicts, probably because water was abundant and there was less competition between user sectors, were *functus officio*. This negated the need for a distinction being made between streams according to size or perennial nature.

### *Conservation*

In the works of Roman-Dutch authorities there appear signs of an increasing awareness of the need for conservation. This was mainly evidenced in the form of statutory restrictions on hunting or the disturbance of game, birds and fish (GPB 1315-1430; 2887; 1300-1315; 2151; 2509; 3133; 3179; 610-621). The reason was the equal distribution of available wildlife rather than the protection of species. As far as plants were concerned, no conservation measures were applicable, unless such plants were the objects of farming operations.

Because game was protected more for human utilization than the preservation of species and the protection of environmental interrelationships, no direct provision was made in water law for the allocation of water for ecobiotic use. The reservation of rivers for civil use only, indicates the lack of consideration for the requirements of wildlife. This is further confirmed by the disappearance of the influence of the natural law in the water law. The universal principles of justice, in terms of which all water was available for each and all, in accordance with their needs, was no longer valid.

### **Anglo-American law**

Although the English and American legal systems were not, strictly speaking, sources of South African law, the water law was heavily influenced by the water rules in these countries (Wessels 1908). One of the reasons (Hahlo & Kahn 1968) for this, was that the courts of the late nineteenth century, which played a significant role in developing the South African legal system, were unable to find sufficient authority in the Roman and Roman-Dutch water law systems (*Relief v Louw* 1874; *Struben v Cape Town Waterworks Ltd; Vermaak v Palmer* 1976; *Van Heerden v Weise* 1880), mainly because of the uncertain position in Roman-Dutch law, and the difference in climatic conditions (Hall 1939). A further important reason for the need to refer to Anglo-American water law was the failure of the courts to investigate the Roman water law thoroughly, in which sufficient principles were available on which South African water law could have been based.

The Anglo-American law to which the courts referred, was contained in an extensive work written by Angell (1854). In terms of this system, water was divided into public and private water. This distinction was, unlike that of the Roman law, not merely administrative. While public rivers were excluded from private ownership and belonged to the state, private rivers belonged to riparian owners of private property. Members of the public who wished to make use of the water of these rivers had to register servitudes of use. Riparian owners along such private rivers were restricted in their rights of use not only by the rights of holders of registered servitudes, but also by the rights of other riparian owners, arising from their proprietary rights. Public rivers were only those parts of rivers below the cotidal line. This water belonged to the state, but was available for public use.

The reservation of rivers for ownership of riparian owners, was far removed from the Roman natural law principle that running water belonged to no-one but was available for use by all who needed it. In the Anglo-

American water law, there was no room for the allocation of water rights to wildlife. The reason for the difference in these two water law systems, lay in the ownership of beds. While, in Roman law, riparian owners' proprietary rights stretched to the banks of rivers only, and thus excluded the beds and the water, in Anglo-American law their ownership stretched to the hypothetical middle line of the river beds. This made the doctrine in terms of which an owner owned everything beneath and above his land, applicable. The water running over the beds which belonged to these riparian owners, was thus included in their rights of ownership.

### South African law

Roman-Dutch law was vested in the Cape with the Dutch occupation (Hahlo & Kahn 1960, 1968). Where the water law was concerned, water was available for common use, while the government issued rules whenever streams became subject to user disputes due to over-utilisation and competitive use (Hall 1939). In 1655 Jan van Riebeeck issued a Placcaat to prohibit the pollution of the streams of Table Valley, to ensure that the water was available to all for purposes of drinking and washing. This, and other such control measures, were not necessarily signs of the Dutch government being owner of the water (Hall 1939). In cases of less popular streams, no rules existed, and the inhabitants were free to use it in common. The water, being common, but subject to state control, was in accordance with the Roman and Roman-Dutch systems, where the state only interfered in common use of water in cases of competition.

### Development of water law by the courts

The large-scale development of irrigation, and the scarcity of streams which were capable of being used for irrigation purposes, lead to increasing numbers of disputes in the years that followed. By the late nineteenth century, the courts were submerged in work solving these disputes, which obliged them, by lack of clear statutory rules, to develop a water law system, in order to ensure peaceful common

use of this scarce commodity. This system was, in the first place, founded on Roman and Roman-Dutch law, but, as has been said above, the courts were also eager to incorporate foreign water law principles. The result was that principles from two contradictory systems were intermixed, causing more confusion than before.

### Public and private water

A distinction between public and private rivers was drawn. This distinction was formally imported by De Villiers CJ in *Van Heerden v Weise*, in 1880. The distinction was originally based on perennality, as in Roman law, but in due course the courts subtly amended the definition of perennality to suit the South African practical conditions, where perennial streams hardly existed. Eventually, the distinction was based on the capability of the streams to be utilized for common irrigation, a criterion unknown to the Roman, Roman-Dutch or Anglo-American systems. It was related to the Roman law distinction, in that the relative size of the stream determined its common value. Public streams included all streams originating from a perennial source, even if the stream, during dry periods and hot days, dried up (*Hough v Van der Merwe* 1874). It is clear that even weak streamlets still qualified as public, as long as the sources were perennial. Even if the sources dried up, it could still be public, if the water flowed for the benefit of lower owners for a period longer than thirty years (*Vermaak v Palmer* 1874; *Myburgh v Van der Bijl* 1882; *Van Heerden v Weise* 1880). This broad definition of public streams left only very weak trickles of water to be still defined as private streams, which is the reason why these were left for the exclusive use of the owners on whose land they flowed, without state interference. Public streams, on the other hand, were subject to reasonable common use, for which a preferential order of purposes of use was developed by the courts. Primary use was the use of water for maintaining of animal life, including domestic use and stock watering. Secondary use included the use of water to support vegetable life, while the use of water for other purposes was tertiary use, which

could only take place after the primary and secondary requirements of other users were satisfied (*Retief v Louw* 1874; *Hough v Van der Merwe* 1874; *Van Schalkwyk v Hauman* 1897; *Struben v Cape Town District Water Works* 1891).

### *Water rights*

The preferential order of water rights did not exclude water rights for animal and plant life. Wildlife was, however, probably not specifically contemplated, since the use of water for the support of animal and vegetable life probably referred only to stock watering and irrigation. However, the courts, under the influence of the Roman law classification of water as common in terms of the natural law, supported the view that no form of life in need of water could be deprived of it :

“Water is scattered over the face of the earth in rivers, lakes etc, for the use of animals and vegetables” (*Hough v Van der Merwe* 1874),

and

“Common things... which on account of the common use that all have a right to by nature, cannot, by the law of nations, be divided...for without the use of air and water no one could live or breathe” (*Retief v Louw* 1874).

On the other hand, the water allocation system which the courts developed, did not coincide with this principle, since they adopted, from the English law, the principle of riparian ownership.

“In my opinion ... after considering the authorities ... the flowing perennial stream ... is the common property of the proprietors of these two parcels of land, and of all the other proprietors of land lying on the course of the stream” (*Retief v Louw* 1874).

If private water belonged to private owners, and public water was available for the reasonable common use of riparian owners only, there was hardly any room left for the natural law principle of common use by each and all, as is in Roman law. This distinction negated the Roman-Dutch law, where water belonged to the whole civil community, as well as the Roman law, which allowed of water belonging to each and all.

### *Codification of water law*

The underlying natural law principle of justice finally disappeared when water law was codified in 1912. The reason was that the Act (The Irrigation and Conservation of Waters Act 8 of 1912) was, in the first place, promulgated to address the multiple irrigation problems. This process of drafting an act aimed at the solution of irrigation disputes, resulted in many a decision based on Roman law principles of natural justice being lost, in favour of a rigid distinction drawn between public and private water.

As far as the allocation system is concerned, neither Roman, Roman-Dutch nor Anglo-American law was followed. Principles from all three these systems were haphazardly intermixed, to create and justify a system in terms of which water was available for a limited group of people for limited purposes, of which irrigation was the most important. This system was continued in the current Water Act, which came into force in 1956.

### *Evaluation of South African water law*

In the light of the historical development of South African water law, the allocation mechanism contains several provisions which are unsuited to South African practice, often because of ill-considered take-overs from the Roman, Roman-Dutch and foreign water law systems.

The basis of the current water allocation mechanism is the distinction between public and private water, founded on the principles set out by nineteenth century judicature, as well as on earlier codifications. Neither public nor private water belong to anyone by right of ownership. Both forms of water are common, but the extent of state control varies. While private water is available for exclusive rights of use, the use of public water is controlled by the water allocation system of the act. The reason for this distinction lies in the common value of these forms of water. In Roman law, the distinction between public and private water was administrative: only

those streams which were of strategic common value and subject to heavy competitive use were called public, and were regulated by state control. The others, called private streams, could be utilised by the firstcomer. While in Roman law only perennial streams were public, in South African law all streams capable of common use for irrigation qualified as public. Climatic conditions and population density differences brought about this diversion.

The conclusion is that the scarcer the water, the stricter the government control. It is submitted that, if water in South Africa can be described as an increasingly scarce and strategic resource (DWA 1986), some streams, however weak, can no longer be excepted from state control and from the water allocation mechanism, merely because of their negligible common value as far as irrigation is concerned. Exclusive rights of use of water can only be permitted where such water is of negligible common value for use by *all* user sectors. The conclusion is that a distinction between public and private water has become obsolete in our law, because of climatological differences. Furthermore, the consequences of the distinction is questionable (Visser 1989; Rabie 1991b). The allocation of small, negligible trickles of water to riparian owners in rights of exclusive use, especially where many such springs or streamlets are the sources of public streams, could materially reduce the run-off in public streams. This reduction is encouraged by the rights of these private owners to impound private water. In a country where water is scarce we can no longer afford to allocate the sources of streams to exclusive rights of use (Rabie 1991a). Ineffective draftsmanship as far as the distinction is concerned, throws further doubt on the validity of the right of existence of the distinction in South African law.

### ***Ecobiotic water rights***

The disappearance of the influence of the natural law principles from water law, as well as of the congruent rule that water is the common property of each and everyone in need of it, now exclude any fundamental

claim as to water rights which wildlife might have had. Water now belongs only to those with statutory water rights. This limited group consist mainly of riparian owners, using water for irrigation, but also for urban and even industrial purposes. In the Roman law, the principles of natural law, based on justice, allowed water for the requirements of each and all in accordance of their needs. Although no rule specifically allocated water for wildlife purposes, the reason therefor was an underdeveloped awareness of conservation, as well as the fact that there was no recognised shortage of water, and therefore no significant competition between species for sufficient water for survival. In Roman-Dutch law the position was that water was available in abundance, and that even the slight evidence of a conservation conscience among the authorities, did not necessitate the specific allocation of water rights to wildlife.

The only trace of the once strong principles of natural law still to be found in the Water Act, is hidden in the term "public interest". This term is generously scattered through the provisions of the Act, limiting the discretion of the minister, the water court and other bodies empowered to allocate water. Yet the term is nowhere defined, and no measure of control exists to test whether a discretion *was* exercised in the public interest.

It is submitted that principles of justice and equity, as contained in natural law, and in terms of which no life could be deprived of water, ought to be incorporated into a definition of the public interest. If the public interest is the criterion for water allocation, and the public interest includes the principle that water as a natural resource is the common property of each and everyone who has need of it, and the state is the controller, then natural ecosystems can hardly be ignored when water is allocated. These principles of natural justice should be incorporated into water law in general. This would negate the principle of riparian ownership, which inhibits the allocation of water to ecobiota; it would invalidate the restriction on the purposes for which water may be used; it would annul the distinction between public and pri-

vate water, which has become obsolete in our law. There is a need for integrated management of water sources (Hoogervorst 1989; Visser 1989; Hiddema 1989; Rabie 1990). Although the act does not recognise this need, it is nevertheless recognised by the Department of Water Affairs, and contained in their water management policy (DWA 1989).

## Conclusion

It was said earlier that the purpose of a legal system is to maintain order and stability in society, by keeping pace with ever-changing needs. Where water law is concerned, it was submitted that it is part of conservation law, aimed at allocating and preserving water for the benefit of interrelationships within the environment. It was furthermore submitted that South African water law, contained in the Water Act of 1956, is outdated in that it does not fulfil these purposes, and that it therefore did not keep up with practical needs. The main deficiencies of the act are the restricted group of user sectors entitled to water rights, the limited purposes of lawful water utilisation, the uncertain meaning of 'public interest', and the fallacious and historically unsound distinction between public and private water.

The incorporation of some Roman water law principles, such as the principle of natural justice and the principle of all water being common, i.e. available for use by each and all but subject to government control, would negate most of the untenable provisions of the Water Act, and provide a sound foundation for the reconstruction of the South African water allocation mechanism. This would give recognition to the water requirements of ecobiota.

Revision of the South African water allocation system will not be an easy step, since many a river has already been divided in its entirety, and allocated for urban, agricultural and industrial purposes, in terms of the current allocation mechanism recognised by the act. A system introducing another legitimate user sector, i.e. ecobiotic systems, will have wide-ranging political and economic im-

plications, especially as irrigation is the traditional cornerstone of South African water law (Hiddema 1989). But in a world which is becoming increasingly aware of the importance of conservation, economic values are no longer the only interest to consider when the rules of the game are designed.

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The Free State Provincial Ordinance 8 of 1969.

The Natal Provincial Ordinance 15 of 1974.

The Irrigation and Conservation of Waters Act 8 of 1912.