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Establishing a Conceptual Framework for a Sustainable Water Ethic

ABSTRACT

Water ethics is an area of research that is still in its infancy and as such there is a real need to provide the basis of a framework which can capture not only the philosophical underpinnings of a sustainable water ethic but also accommodate the significant research already undertaken in a variety of other fields. To date a majority of the work on water ethics has focused on purely economic or environmental concerns and there is a real need to broaden our outlook in developing a more ethical relationship to water. This paper explores a number of general policy approaches to water management in an effort to determine how our moral values and principles might inform and impact upon our practical deliberation and action in this field. I argue that a contractualist approach to ethics might best provide the framework for using reasoned agreement to determine our ethical values and thus lead us closer to the development of a sustainable water ethic.

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BIOGRAPHY

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ESTABLISHING A CONCEPTUAL FRAMEWORK FOR A SUSTAINABLE WATER ETHIC

1.0 INTRODUCTION

Water is currently identified as both a national and international priority, with government, industry and numerous other sectors actively involved in research and education to help address the variety of water quality, availability, conservation, management, use, and related environmental, social, and economic issues. Indeed, the Australian Government has identified water management as one of the 'major natural resource management issues facing Australia's rural industries, regional communities and our unique environment'.ⁱ

Water ethics has emerged as a research area of great significance. However to date, a majority of the research has clustered around environmental and economic themes with a great deal of research capacity devoted to environmental science and ecosystems management. Forays into the ethical management of water have been, for the most part, limited to a deliberative focus on the establishment of property rights and effective water pricing mechanisms. In this paper I aim to outline the broader range of ethical and philosophical underpinnings relating to water resource management that exist both within these environmental and economic concerns but also beyond them. In doing so, I will suggest that by using reason to identify our moral principles, a contractualist approach to ethics will enhance the development of a sustainable water ethic.

While I am working within Western philosophical tradition, it is critical to recognise that ethics reflecting alternative perspectives, such as indigenous or spiritual traditions for example, are developed in response to the particularities of specific cultural and ecological regions. I am not aiming to provide a comparative study of global environmental ethics here but rather will try to identify any common environmental attitudes and values upon which we might base a comprehensive vision for a sustainable water ethic. Such an ethic would ultimately serve to guide our environmental practice both at the individual and institutional levels. The purpose of identifying shared values is not to create one world order or to diminish our diversity but rather to find some common ground from which we can work together.

2.0 SOCIAL ETHICS AND ENVIRONMENTAL ETHICS

Before looking at the specific characteristics of water ethics, it will be useful to take a brief look at how we might establish an ethical framework and what we might expect it to do for us. Importantly, we should recognise that even where ethics become enshrined in law or policy, our decision to respect an ethic is a voluntary decision. So why develop ethical frameworks? According to J. Baird Callicott, 'ethics exert palpable influence on human behaviour' because they exist as ideals or shared norms of human behaviour.ⁱⁱ They serve as standards or benchmarks of practice that show us how we ought to live. Given this role, ethics are normative rather than descriptive. While social ethics prescribe limitations or recommendations for human interaction, environmental ethics are concerned with human behaviour in relation to nature.

Another important point to note is that ethical frameworks do not spring from nowhere. Rather they reflect the history of moral ideals and values of the cultural tradition in which they are created. Ethics must necessarily be embedded within the broader social context. Thus any effective water ethic would need to be a recognisable and rational development of existing ethics we already hold. In the context of developing a water ethic by which we might identify our moral principles in relation to the way we use and manage water resources, I would like to draw on contractual ethics. Contemporary accounts of contractualism describe it as a form of social contract theory which uses fundamental moral principles as the basis for providing an account of what rational agents would agree to. These moral principles are identified based on processes of reasoned and rational agreement. The relevance of contract theory in developing a water ethic is that it provides a way of negotiating our moral principles where a collective of individuals or groups might hold or be motivated by different sets of desires and concerns but also share certain fundamental concerns.ⁱⁱⁱ

According to Thomas Scanlon, our moral principles reflect 'judgement-sensitive attitudes, that is, attitudes that are adopted or withdrawn in accord with appreciation of reasons'.^{iv} This suggests two things. First, that when we use reason to identify our moral principles we are much more likely to act in accordance with them, rather than seeing them as some 'pie in the sky' version of ethics that reflects how we'd behave if we were 'better people'. And second, that our values play an important role in determining what our moral principles or ethics will be.

Mark Sagoff has identified three basic ways in which we value the natural environment.^v Sagoff claims we *use*, *respect* and *appreciate* the natural environment. This gives rise to the notion of three ways of making value judgements about the environment. That is to say, we can make *preference* judgements about how we might use

it; *moral or ethical* judgements about how we might respect it; and *aesthetic* judgements about how we might appreciate it. Preference judgements are made by individuals about what would be good for or beneficial to us. These kinds of preference judgements align well with decision making models based on welfare economics seeking to maximise utility or preference satisfaction. Moral or ethical judgements are rather more concerned with what is good in a more general sense, or right in principle. Moral judgements might reflect what we think is appropriate as a society or the kind of society we would wish to create. There may be little or no personal benefit accrued from such moral judgements; rather they reflect a collective good. Aesthetic judgements are concerned with what is beautiful or worth appreciating about nature. This kind of value judgement relates to intrinsic value or what we think is good in itself.

Sagoff argues that any analysis of environmental goods must be based on principles that are applied through deliberative political processes.^{vi} The distinctions between these three types of value judgements are also important because once we move beyond mere preference judgements; we are concerned with pursuing not only a good life for ourselves but a good society collectively. This reflects concern with not only the outcome of a decision but also as to whether it is 'right, fair, or good in view of the values or reasons we believe carry weight as a society as a whole'.^{vii} Sagoff claims that judgements about what is good in itself or good for the larger community come about as a result of deliberative political processes that reflect the force of the better argument. They reflect concern with resolving the contradictions of public opinion and not only those conflicts of private interests.

The development of a water ethic will reflect a unique blend of concerns embodied in both environmental and social ethics. While it is claimed that a water ethic can be viewed within the broader context of an environmental ethic, there are also significant differences.^{viii} The environmental concerns relating to water management are reflected in the importance of ecosystems health and management, stewardship of land and water resources, and biodiversity and conservation. However water also touches upon a number of critical social issues. These include the provision of water infrastructure for clean drinking water and sanitation services, the provision of water to agriculture as an important source of the world's food supply, and an ability to strike a balance between environmental concerns and economic ones. This difference is partially related to the fact that even though water ethics sits inside the broader context of environmental ethics, it is a matter which impacts directly and explicitly (i.e. food security, drought, flood) on our survival and daily lives. This blend of concerns demonstrates the nature of competing interests for access to water. The purpose therefore of understanding the range of water values is ultimately to help us make ethical decisions about how the resource is best allocated among human and environmental needs.

Water is clearly important to us on many levels – socially, culturally, environmentally, economically and spiritually. There is no question that the management of water is an important ethical issue on all of these levels. But it is also clear that we need to be able to appreciate and understand the full range of water values in the development of a sustainable water ethic.

3.0 WATER AS AN ETHICAL ISSUE

For almost thirty years, a number of international initiatives and conferences addressing water resources management have called for ethical principles and guidelines to govern the use and management of this most critical resource. Since 1977's International Conference on Water in Argentina calling for an ethical commitment to ensuring access to water for basic survival needs, and particularly throughout the 1990s in a range of forums on water management and environmental sustainability, the importance and recognition of the critical nature of water resource management has been building.^{ix}

And while there are no shortage of claims about the critical nature of the world's water crisis and the urgent need for ethical frameworks to guide our water management practice, locating firm ethical principles or guidelines relating to water management is not straightforward. There is a real lack of discourse in this area and water ethics is still in its infancy.^x However in spite of this, it is recognised that the role of ethics is of central importance to securing our water future.

Ethics should have a key role in water management, as should recognition of the importance of the unquantifiable values of water. Preserving the life giving value of water should always be a priority in water allocation. Only when these values are incorporated into our thinking about water and water management will our institutions function to provide fairly for all water needs and enable economic values to be used more productively to help rationalise the use of water.^{xi}

The above statement reveals several areas around which the majority of work on water ethics has coalesced to date. I have summarised these main areas of focus in Figure 1 below. This diagram represents the initial emerging themes within the domain of ethical water management.^{xii}

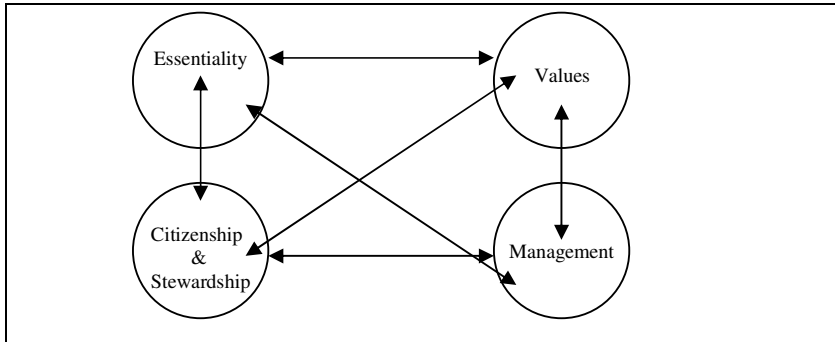


Figure 1: Several emerging themes in water ethics

I claim that several interrelated themes have emerged from the current debate on water ethics. I have identified these as 1) the essentiality of water to life; 2) issues of water management which encompass the broader range of environmental and economic concerns, among others; 3) the importance of recognising and understanding the range of water values; and 4) citizenship and stewardship, which includes ideas of participatory decision making about and integrated approaches to water practice and our relationship with water resources. In the following discussion I seek to demonstrate where the majority of our attention has been focused to date and where we need to do more work.

Water’s Essentiality to Life

Water is essential to life. We simply cannot survive without it. It is a resource that has the ability to operate as a common unifying symbol across all cultures and social boundaries. We drink it, bathe in it, make spiritual pilgrimages to it, and grow our food and fibre with it so that we may feed, clothe and shelter ourselves. On a number of spiritual, cultural and social levels, water is integral to the way in which we live and interact, not only with ourselves, but also with our environment.

Though we are citizens of one ecologically integrated planet, we live in a diversity of ways. And while much attention is focused on the human needs and uses of water, it is also important to recognise that we are a species that exists as only one part of a broader biotic community. Water is not only required for human sustenance. It is also necessary to the survival of all living creatures and the maintenance of the ecosystems which support life on this planet; ecosystems of which we are but one interdependent part.

In raising the role and necessity of water in this broader context, the shift from an anthropocentric view to a non-anthropocentric view of environmental resources has been raised. Aldo Leopold argues that such a shift is an ‘ecological necessity’ and that we must move beyond the mere instrumental value of nature as economic resource to recognise its intrinsic value.^{xiii} Further, that we must broaden our concept of *community* to include the natural environment and ecosystems. While anthropocentric and non-anthropocentric views can share similar practical outlooks, they do require some fundamental changes in how we view ourselves with respect to the environment and natural systems. While this deep ecology approach seeks to avoid utilitarian approaches to environmental ethics, it is also highly controversial and has been criticised on the basis of its internal coherence as a theoretical approach.^{xiv} The debate over the value of deep ecology as an argument requires more detailed examination than I can provide here, however in terms of adopting a contractual approach to the development of a water ethic, deep ecology is unlikely to provide a helpful viewpoint.

Despite water’s ability to unify, decisions about water distribution also have the capacity to be dangerously divisive and the reality of water conflicts is already in evidence around the globe. Every living being and system on the planet is dependent on access to water for survival. Accordingly, decisions about water use and distribution must necessarily reflect principles of social equity and justice (including environmental justice) if they are to be sustainable, effective and widely adopted. In this context, a water ethic may also need to operate on the scale of a global ethic. This in turn raises the issue of identifying ethical principles that might be applicable cross culturally.

It has been suggested that the difficulty of establishing a global and cross cultural water ethic might be due in part to the size and complexity of the task.^{xv} Cardoso de Oliveira, for example, has argued that a key problem with establishing a global ethic remains 'the application of moral values on the community scale which is intermediate between the macrosphere of global norms and the microsphere of inter-personal relationships'.^{xvi} Recent work undertaken by UNESCO suggests that all three of these levels are crucial in the development of a global water ethic. Thus the ability to strike a balance between the global and the local, and the variety of competing interests represented at these levels, is critical to developing an applicable system of water ethics.

In response to the problem of developing a global and cross-cultural water ethic, UNESCO has undertaken some research which aligns shared ethical principles with the shared human experience. In 1997, UNESCO formed its World Commission on the Ethics of Scientific Knowledge and Technology to address the 'ethical, multidisciplinary and multicultural...situations that might become a risk to society as a result of advances in science and technology'.^{xvii} The Commission was asked to provide a set of ethical guidelines based on available scientific data that also addressed conflicts of interest in the management of freshwater resources. As a result, the Commission identified a set of six universal water ethics which were based on the agreed principles of the *Universal Declaration of Human Rights*. While these principles are highly generalised and designed to be applicable universally across developing and developed nations, it is recognised that different strategies and methods may be required to implement the principles in different circumstances. However, the Commission stated the ethical principles themselves would 'be consistent throughout the world'.^{xviii}

The six universal moral principles with which water is associated were identified as:

1. Principle of Human Dignity – water as a basic human right
2. Principle of Participation – focus on citizen participation in decision making
3. Principle of Solidarity – we all rely on the continued health of our ecosystems and are linked through our upstream and downstream dependency on these systems
4. Principle of Human Equality – incorporating the values of justice and equity
5. Principle of Common Good – water as a common good and essential to the realisation of full human potential and dignity
6. Principle of Stewardship – 'moving toward a sustainable ethic and finding a balance between using, changing and preserving our land and water resources'.^{xix}

It has been argued that these six universal principles provide a general framework from which to start discussion on water ethics but should not be assumed to be the final word on the matter.^{xx} The Commission's report is also described as an attempt to find a way of putting people back in the centre of an increasingly fragmented and complex system and that it aims to identify some of the fundamental social and ethical concerns that move beyond science. There is also increasing evidence of links between water policy and ethics emerging across the globe.^{xxi}

Internationally, the issue of ethical water use and distribution has been strongly linked to human dignity and human rights. The World Water Forums have called for governments everywhere to 'acknowledge the central role that water plays in alleviating poverty and advancing socio-economic development'.^{xxii} This strong focus on water and human rights also captures the continuing and critical nature of the problem of access to clean water supplies and human survival which is still occurring in many parts of the globe.

Significant work has been undertaken in addressing water's essentiality to life. Water is recognised as essential to human survival and also as a social and cultural good. However water is not only essential to human survival, and there is a real need to understand water's essentiality to life in the broader context. Further to this, it has been noted that these ideas must be enshrined in the legal frameworks and policies of countries around the world if they are to be taken up in practice.^{xxiii} While work is continuing in this area, we can see that water's essentiality occupies an important role in the construction of an effective water ethic.

Water Management

Another major area of focus is water management. Here I am taking water management to encompass the very broad range of environmental and economic concerns that arise from how we use our water supplies and how this use impacts on natural ecosystems. Understanding the range of environmental and economic roles of water management will also provide some basis for understanding water's environmental and economic values in the broader context. In this section it is not my aim to explore the range of water management issues in detail but to provide a brief summary to capture the range of competing management issues. Our ability to strike a balance

between these competing interests is critical but also raises some important questions as to how we prioritise these interests and who has the right or responsibility to make such decisions.

In 2004, UNESCO published a monograph entitled, *Water and Ethics*, a collection of essays on a variety of topics relevant to ethical water management. While I will not provide an in-depth analysis of the various essays in the collection here, the broad themes identified included: water in the social context; types of use including agricultural, industrial and municipal uses; water and its relation to the earth, specifically including groundwater supplies, ecology, and floods and droughts; and water management with a focus on markets and pricing, institutional issues, and water conflicts. This summary provides a framework of the kinds of water issues that have emerged as ethically important and the kinds of expertise we need to draw together to provide a comprehensive and coordinated response. What we can see is that in the realm of water management a triple bottom line approach incorporating the social, environmental and economic values and uses of water maintains a central place in developing an ethical framework.

Water is a valuable 'economical, social and cultural asset' and the complexity of water values gives rise to a number of important and interrelated ethical issues.^{xxiv} From a management perspective, there seems to be three critical points.

First, we have a *range of competing interests* for water resources. These broadly include water for ecology, water for agriculture, the provision and cost of water infrastructure, water pricing and trading, water governance, and equity between developing and developed nations, among others. It is argued that if the ethics of water management is not taken up seriously in policy formation and planning, then it risks becoming merely a set of ideals which are sidelined in practice.^{xxv} This is significant because it captures the idea that what is important is not only what our values are, but also the social and institutional arrangements within which those values exist.

Second, there is the matter of *defining access entitlements and prioritising use* of the resource. Within the Australian context, the dominant forms of thinking about water management coalesce around economic and environmental concerns. These trends are reflected in the Council of Australian Governments' (COAG) National Water Initiative (NWI) proposed in 2003. At the time, COAG called for 'a robust framework for water access entitlements that encourages investment and maximises the economic value created from water use, while ensuring that there is sufficient water available to maintain healthy rivers and aquifers'.^{xxvi}

Third, emerging from rights to access we come to the issue of how to define *water property rights and their implementation*. Just prior to COAG's announcement of the NWI, the Wentworth Group of Concerned Scientists published their *Blueprint for a Living Continent* which addressed approaches toward sustainable living in the context of the drought stricken Australian landscape.^{xxvii} The report identified water property rights as a core policy issue which impacted on both environmental and market concerns.^{xxviii} The strong focus on water property rights has also been reflected in some significant legal conflict in this area.

In Australia, water property rights continue to dominate discussions of water resource management and one of the biggest emerging issues in Australian water policy now is whether or not water should be re-allocated from rural irrigation to urban uses. There are significant ethical and environmental concerns surrounding this issue. While this is perhaps revealing about how we may or may not value water use for agriculture or in sustaining rural communities, it in turn triggers yet another ethical issue which is evident in the current debate on unrestricted trade in water rights in this country.^{xxix}

In the area of water management, we can already see that there are a number of ethical issues to be considered. It is not clear that we have explored the range of environmental and economic uses to their fullest extent. What is clear however is that balancing these interests based on the values or beliefs we might associate with different forms of water use is highly complex. Currently our triple bottom line thinking is dominated by economic and to a lesser extent environmental concerns.^{xxx} Social outcomes need a more clearly defined place in our decision making processes.

Water Values

From the discussion thus far it appears that an ability to appreciate and understand the full range of water values is essential to refining an ethical framework. The methods by which we do this will also be of central importance in justifying our moral decisions about how we understand, use and manage this resource.

The difficulty associated with identifying and quantifying values has been raised in Australia by CSIRO's Water for a Healthy Country Division. CSIRO has identified and established numerous scientific tools and approaches such as observational analyses, model simulations and testing for measuring a range of issues including water quality and environmental flows for ecosystem health. This knowledge is significant to water management and use. However CSIRO states that currently 'there is no commonly accepted way of comparing or aggregating the 'value' or 'benefits' of the economic, social, environmental and cultural benefits and disbenefits' in this area of research.^{xxxix} This is an important point. If we are going to make decisions about how water is to be used, we need to understand the range of values, and what they mean to us, of the resource about which we are making moral decisions.

In an attempt to articulate water values, CSIRO has developed its Water Benefits Accounting System. The system has been designed as a holistic way of addressing the benefits arising from the variety of water uses. The aim of this research is to develop more sustainable practice in water management based on the integration of economic, environmental and social benefits. Part of this process involves creating a framework within which water use benefits might be accounted for. The CSIRO project has identified six major domains of water benefits which are: 1) Economic Values; 2) Ecosystem Health; 3) Human Health; 4) Social Values; 5) Choice and Control; and 6) Culture and Identity.^{xxxix}

These domain areas represent a mix of the broader social concerns (beyond the environmental and economic) and address the matter of appreciating the range of water values, which has been identified as one of the key challenges to water management in the world today. CSIRO's accounting process will involve a series of surveys and choice modelling activities to assign perceived values to various water benefits so as to create a single metric which can be applied across the spectrum of water uses and values.

The CSIRO model picks up on the importance of recognising the range of water values, but their approach represents a hardline utilitarian approach to comparing, measuring and calculating overall benefit. This approach differs from the rights based theories that emerged in the international context where some of the most important water values were recognised as unquantifiable. However while these approaches are different, the importance of water values appears to be commonly recognised as critical to ethical water management.

'Values are subtle and elusive things: they run like a fine thread through the fabric of culture, weaving through every form and action, but emerging only in the patterns'.^{xxxix} In spite of the fact that our values may not be immediately quantifiable (particularly those which defy economic reduction), they do emerge as a way of creating order or understanding. Our values will also operate as a tool by which we will be able to come to some understanding about how we might weigh up and prioritise ethical water practice. The Ministerial Declaration of The Hague Conference on Water Security in the 21st Century has recognised 'valuing water' as one of the seven key challenges for the global community.^{xxxix} It is clear that water has many values, economic or otherwise. While economic values are strongly linked to the provision of water infrastructure and services and agricultural production, non-economic values are just as critical to guiding equitable water distribution.

Much attention has been focused on the economic value of water and this includes issues of privatisation, particularly in relation to globalisation and private sector involvement, full cost recovery of the provision of water services, rights to access (beyond basic human rights), and effective participation in decision making. Vandana Shiva discusses in detail the problems related to striking a balance between economic and non-economic values and is a vocal critic of what she perceives as the process of commodification of a resource which limits it to its commercial value alone. She also argues this tendency to privilege the commercial value of water has significantly eroded water's spiritual, ecological, cultural and social values.^{xxxv}

In 1995, the vice president of the World Bank, Ismail Seragladin, made the following oft-quoted statement about water resources: 'If the wars of this century were fought over oil, the wars of the next century will be fought over water'.^{xxxvi} Shiva has taken up Seragladin's point and argues that these wars are being fought all around us now but not just in the traditional sense. While there are violent conflicts in progress around the world, Shiva claims we are also facing paradigm wars which she defines as 'conflicts over how we perceive and experience water'.^{xxxvii} Shiva uses a simple but illustrative example of such a clash of water cultures. She describes a train journey she took from Delhi to Jaipur in Western India where she was to attend a public hearing on drought and famine. On the train, passengers were served bottled water supplied by the Pepsi Company's subsidiary Aquafina. However on the streets of Jaipur, which was in drought, she describes *Jal Mandirs* or water temples, which are part of an ancient tradition of supplying free water to the thirsty in public places. For Shiva, this instance captured the clash between a culture that sees water as a sacred gift and a culture that views it as a commodity.^{xxxviii}

It is worth revisiting at this point that the concept of developing a global water ethic is challenging to say the least. While Western moral philosophy might be reflected in the environmental ethics of the West, it should also be noted that other traditions will be reflected elsewhere. However while meeting humanity's basic survival needs has been identified as the most pressing concern in the allocation of freshwater supplies, we are also seeing a critical need to develop an understanding of water values and our relationship to water to guide our decisions about allocation in other areas. The role of water values to ethical water practice is acknowledged. There is however much work to be done in this area.

Citizenship & Stewardship

For the most part, the work I have examined in this paper takes an anthropocentric approach to water ethics and this is linked to the idea that the development of a water ethic must also be participatory. A participatory model seeks to encompass the broad range of scientific and social water expertise and to build linkages across these fragmented domains. Shiva makes some important points about why our resource management needs to take this participatory approach. She argues that centralised control over decision making and resources is not only non-democratic but that it 'displaces people from productive employment and livelihoods and creates a culture of insecurity'.^{xxix} Further to this displacement, is the dispossession of cultural identity.

Maria Kaika has noted that in the context of developing water policy in the European Union, there have been some significant shifts in the roles and power dynamics at work in the arena of water management.^{xi} In particular she suggests there has been a reconfiguration of the traditional role of water citizen to that of water consumer. Recent research in Australia has also identified community engagement and education as key strategies to sustainable water industry development.^{xii} It is worth examining and defining our role in relationship to water, for it is within this broader context that our water ethic will come to reflect how we envision our water future.

'Water problems have to be studied not only from a technical point of view but in close cooperation with the public of users or future users, the local authorities, the local water professionals, all the people who will be involved in a water policy change'.^{xiii} We need to broaden outwards from the narrow environmental and economic concerns to incorporate the multitude of water values and uses. Our approach to water ethics needs to be both holistic and participatory.

It is alongside this idea of citizenship that the notion of stewardship seems to fit. Stewardship was earlier identified as one of the universal ethical principles in the UNESCO research and it is a concept which is readily applicable to ethical water use and practice. The origins of the term stewardship are deeply rooted in moral thinking in terms of concern for the well-being of others, in the development of long standing religious and spiritual beliefs and social values, and in terms of the economic management of resources. These are all important to effective water use and planning but 'stewardship is about more than maintenance, it is about visionary management'.^{xiii} It is in developing this visionary process that our sustainable water ethic will emerge. In stewardship we find the development and application of practical moral wisdom that will be reflective of our principles and values and underpin our decisions.

Further, stewardship is a concept that has the ability to work within differing cultural beliefs about water and the environment. Callicott has made a comprehensive study of multicultural attitudes to environmental ethics around the globe. In his work he has identified that the stewardship ethic provides a readily justifiable environmental approach to resource management among a diversity of cultures, which is relatively compatible with a number of traditional, indigenous and religious streams of thinking.

This is reflected in the Australian context and it has been reported that Australian values in relation to water management are shifting from exploitation to stewardship.^{xiv} The stewardship ethic also seems to support the notion of an integrated approach to land and water management as a way of achieving environmental, economic and social benefits. This integrated approach to land and water management combines a holistic ecological approach that embeds water ethics within the broader conceptual framework, while also incorporating citizen participation and the need to strike a balance between human and environmental water needs.

While overall the Australian experience of water ethics has been strongly focused on the environmental and economic issues related to water management, the stewardship ethic emerges as a common theme across the globe. The benefit of the stewardship ethic, in which humanity is charged with moral responsibility for preserving and maintaining the environment, is that it is an ethic which can be plausibly defended within a variety of social and cultural traditions, not only Western ones.

4.0 CONCLUSION: ETHICAL LOCI

In general, I suggest there are several emerging themes around which current work on water ethics seems to coalesce. Identifying these emerging themes is a response to the current fragmentation of expertise to date and moves toward the development of a holistic framework through which to focus our ethical lens. These themes, or ethical loci, must be broad enough to encompass the wide variety of water values and reflect our knowledge, experiences and understandings about water, and also provide the cornerstones to guide our ethical decision making in this area. They will subsequently serve as the building blocks of a sustainable water vision. I have argued that a contractual approach to identifying our ethical values will best provide the basis for a framework which incorporates the roles of deliberative political reasoning and participatory approaches. Contractual ethics is suited to the task of refining a water ethic as it provides a framework for engaging stakeholders (or rational moral agents) in this process of deliberative political reasoning. As mentioned earlier, this approach is particularly useful in negotiating the outcome of agreed moral principles where a variety of stakeholders are driven by different sets of concerns but may also share other fundamental concerns. Rather than self-interest, individuals are driven by their commitment to publicly justify the moral principles to which they are to be held accountable.

In this paper I have initially identified four emerging themes of critical importance in water ethics. These themes were 1) the essentiality of water to life; 2) issues of water management which encompass the broader range of environmental and economic concerns; 3) the importance of recognising and understanding the range of water values; and 4) citizenship and stewardship. These themes direct us toward a range of critical issues related to ethical water practice including the essential role of water in maintaining healthy ecosystems and waterways, water's production value which encompasses the contentious issue of water as having economic value and its role in production, and water's social and spiritual values. In particular we need to begin to understand and articulate water's many uses and values and while attitudes to water access for the most disadvantaged of the world's citizens and the environment are changing, 'they are still not adequately reflected in the way the water community and water institutions work'.^{xiv} There is a strong sense that these values need to be taken up more effectively if we are to achieve a sustainable and secure water future.

Embedding ethics as an integral part of water resource management will also contribute to the development of moral leadership among water stakeholders and a wider recognition that ethics is in fact an essential part of proper and sustainable use of this resource. In this paper I have aimed to identify emerging ethical themes in relation to water resource management that might form a collection of shared social and environmental values that will guide the development of a sustainable water ethic. I have sought to identify shared values that might operate universally without diminishing the diversity of our cultural and ecological experiences. While some common themes have emerged from the current research, it is also clear that there is more work to be done in effectively engaging with the variety of water expertise to create a more central role for ethics in our water practice. Those differences aside, it is a reasoned approach to ethical water practice which will perhaps provide the best model for a sustainable water ethic.

REFERENCES

ⁱ Commonwealth of Australia, *National Action Plan for Salinity and Water Quality*, www.napswq.gov.au, (accessed 16 August 2004).

ⁱⁱ J. Baird Callicott, *Earth's Insights: A Multicultural Survey of Ecological Ethics from the Mediterranean Basin to the Australian Outback*, (Berkeley, University of California Press, 2004), 5.

ⁱⁱⁱ See Thomas Scanlon, *What We Owe to Each Other*, (Cambridge, Harvard University Press, 1998) and John Rawls, *A Theory of Justice*, (Cambridge, Harvard University Press, 1971).

^{iv} Scanlon, *What We Owe to Each Other*, p.179 in F.M. Kamm, "Owing, Justifying, and Rejecting", *Mind* 111 (2002): 323-354, 325.

^v Mark Sagoff, *Price, Principle, and the Environment*, (Cambridge University Press, Cambridge, 2004), 8-9.

^{vi} Sagoff, *Price, Principle, and the Environment*, 15.

^{vii} Sagoff, *Price, Principle, and the Environment*, 3.

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- viii J. Delli Priscoli, J. Dooge, and R. Llamas, *Water and Ethics: Overview*, UNESCO International Hydrological Programme & World Commission on the Ethics of Scientific Knowledge and Technology, Series on Water and Ethics, Essay 1, (Paris, UNESCO, 2004), 8-9.
- ix A number of high profile international events have been convened including the Dublin Conference on Water and Environment, 1992; the Rio Earth Summit, 1992; the convening of the World Water Forums every three years since 1997; and the Sixth Session of United Nations Commission on Sustainable Development, 1998, among numerous others.
- x M. Rahaman and O. Varis, *The Ethics of Water: Some Realities and Future Challenges*, 2003 www.water.hut.fi/pdf/Rahaman2003_p3.pdf (accessed 4 May 2005).
- xi F. Guerquin et al., *World Water Actions: Making Water Flow for All*, (London, Earthscan Publications Ltd, 2003), 16.
- xii I am not suggesting that this initial picture is a definitive summary of all the relevant concerns with regard to water ethics. It is however a useful starting point for this discussion.
- xiii Aldo Leopold, "The Land Ethic" in *Ethics in Practice*, 2nd edition, H. LaFollette (ed), (Oxford, Blackwell, 2002), 631.
- xiv See William Grey, "A Critique of Deep Green Theory", in *Beneath the Surface*, Eric Katz, Andrew Light and David Rothenberg (eds), (MIT Press, Cambridge, 2000), 43-58; William Grey, "Environmental Value and Anthropocentrism", *Ethics and the Environment* 3 (1998): 97-103.
- xv Priscoli et al., *Water and Ethics: Overview*.
- xvi Cardoso de Oliveira quoted in Priscoli et al, *Water and Ethics: Overview*, 7.
- xvii John Selborne, *The Ethics of Freshwater Use: A Survey*, (Paris, UNESCO, 2000), 2.
- xviii Selborne, *The Ethics of Freshwater Use: A Survey*, 5.
- xix Selborne, *The Ethics of Freshwater Use: A Survey*, 8.
- xx Rahaman & Varis, *The Ethics of Water: Some Realities and Future Challenges*.
- xxi A commonly cited example is the South African Constitution. This document identifies access to water as directly linked with human dignity such that failure to provide access to sanitation and water to all of South African citizens significantly impacts on their right to dignity and their right to life. See Selborne, *The Ethics of Freshwater Use: A Survey*, 7; also Guerquin et al, *World Water Actions: Making Water Flow for All*, 80.
- xxii Guerquin et al., *World Water Actions: Making Water Flow for All*, 21.
- xxiii Priscoli et al., *Water and Ethics: Overview*, 155.
- xxiv Rahaman & Varis, *The Ethics of Water: Some Realities and Future Challenges*, 2.
- xxv Rahaman & Varis, *The Ethics of Water: Some Realities and Future Challenges*, 12.
- xxvi Council of Australian Governments, Untitled Document, (Canberra, Communiqué on Proposed National Water Initiative, 29 August 2003).
- xxvii Wentworth Group of Concerned Scientists, *Blueprint for a Living Continent*, (Sydney, WWF, 2002).
- xxviii See also Wentworth Group of Concerned Scientists, *Blueprint for a National Water Plan*, Sydney, WWF, 2003) and ACIL Tasman (in association with Freehills), *An Effective System of Defining Water Property Titles*, Research Report, (Canberra, Land & Water Australia, 2004).
- xxix John Quiggin, "Water: Going with the flow", *Australian Policy Online*, 8 July 2005, www.apo.org.au (accessed 14 July 2005). While water use for agricultural production is highly contested, I will not explore this issue here. I use this example only to highlight that water management, in this case trading of water rights, is inextricably linked to our values about water and its uses.
- xxx Stephen Dovers, "Australia's National Water Initiative: Critical Implementation and Knowledge Challenges" (paper presented at *Sustainable Water Management: Comparative Perspectives from Australia, Europe and the United States* Conference, ANU, Canberra, Australia, 15-16 September 2005).
- xxxi CSIRO 2004, *Water Benefits Accounting and Assessment*, Water for a Healthy Country Flagship Brochure, http://www.cmis.csiro.au/healthycountry/brochures/wfahc_water_benefits_04.pdf (accessed 16 September 2004).
- xxxii CSIRO *Water Benefits Accounting and Assessment*, see Figure A.
- xxxiii Veronica Strang, *Uncommon Ground: Cultural Landscapes and Environmental Values*, (Oxford, Berg, 1997), 173.
- xxxiv Council of Ministers quoted in Guerquin et al, *World Water Actions: Making Water Flow for*, 14.
- xxxv Vandana Shiva, *Water Wars: Privatization, Pollution and Profit*, (London, Pluto Press, 2002).
- xxxvi Ismail Seragladin quoted in Shiva, *Water Wars: Privatization, Pollution and Profit*, ix.
- xxxvii Shiva, *Water Wars: Privatization, Pollution and Profit*, ix.
- xxxviii Shiva specifically points to the commodification of water as a branded product. The emergence of bottled water as a lucrative private enterprise has also been taken up by Philip Ball. He links the emergence of the industry to the social and mythical ideas that we hold with regard to notions of water purity. In the 1970s and

1980s the United States experienced a number of scares over contaminated water. Around this time, increasing numbers turned to purchasing bottled water, a practice which to this day remains a significant and profitable industry. See Philip Ball, *Life's Matrix: A Biography of Water*, (Berkeley, University of California Press, 2001).

^{xxxix} Shiva, *Water Wars: Privatization, Pollution and Profit*, xi.

^{xi} Maria Kaika, "The Water Framework Directive: A New Directive for a Changing Social, Political and Economic European Framework" (paper presented at *Sustainable Water Management: Comparative Perspectives from Australia, Europe and the United States* Conference, ANU, Canberra, Australia, 15-16 September 2005).

^{xli} Barton Group, *Australian Water Industry Roadmap, A Strategic Blueprint for Sustainable Water Industry Development*, (Canberra, Barton Group, May 2005).

^{xlii} P. Teniere-Buchot, *Water and Ethics: Financial Perspectives*, UNESCO International Hydrological Programme & World Commission on the Ethics of Scientific Knowledge and Technology, Series on Water and Ethics, Essay 10, (Paris, UNESCO, 2004), 41.

^{xliii} Robert L. Payton, "Stewardship" in *Philanthropy in America: A Comprehensive Historical Encyclopaedia*, (Santa Barbara, California, ABC-Clio, 2004).

^{xliv} Integrated Resource Management Research Pty Ltd, *A Vision for Australia's Water Resources 2025: Final Report*, report prepared for the World Water Council, (Paris, UNESCO, 1999), 10.

^{xlvi} Guerquin et al, *World Water Actions: Making Water Flow for All*, 16.