

# Globalisation, Culture And Common Property Resource Management

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***Abstract.** Traditional environmental knowledge is an important culture resource that guides and sustains the operation of management systems, especially community tenure systems. When applied to the Kenyan sector of Lake Victoria, it is postulated that understanding such knowledge is an inseparable part of both research on common property resources and of management designs on them. It has now been well established that for common property resource management to gain sustainability and inter-generational equity, traditional and technical knowledge in the sciences are of great importance.*

*To develop and implement effective management systems, it is necessary to understand the information types and sources required. In this paper I make observations from other related studies but specifically use the case of Kenyan sector of Lake Victoria to illustrate the relevance of both traditional and modern sector in resource management designs. The paper also identifies conservation (sustainability) of resources as a common theme (global culture) and specifies the global efforts in common property resource management. It concludes that traditional knowledge, though important in resource management, does not always mean valuable and therefore the need to complement with scientific knowledge.*

**Key words:** Resources, Traditional / Scientific Knowledge, Stewardship, equity, sustainability. Universal knowledge.

## Introduction

The concept resource presupposes that a planning agent is appraising the usefulness of obtaining the environment for the purpose of obtaining a certain end (Nebel 1981). Appraisal in turn assumes certain technological means at the disposal of the agent and certain institutions (Laws, culture, customs) of the society in which the agent operates (Mokua, 1998). The planning agent may be an individual, state or the community operating at different levels (Ciriacy –Wantrup and Bishop (1975). There exists therefore, private, state, common and open access property resources (Katar, 1994). The effective use of these resource have been captured by the prevailing conservation theme which refute environmental degradation and calls for continued but efficient development of natural resource (Wildes, 1995).

This paper has a broad theoretical significance since it examines the interplay of Culture (traditional /Local) knowledge in the context of Globalisation. It bears directly on the question of the cultural verses Scientific knowledge in the common property resource management. I do not claim to offer detailed case study of cultural effects on Common Property resource management, a topic which would require a empirical study of cultural set-ups. Instead, I have used the preliminary results of an on-going study on Lake Victoria (Kenya) to explain how cultural / traditional knowledge plays an important part in common property resource management. The discussion is predicted on the assumption that the current management problems experienced in common property resources is as a result of the widening gap between the policy makers located in central government departments and the resource users. The ascendancy of centralized, technocratic management systems, embedded in the biological and economic sciences is held by some to reduce the flexibility of local management to marginalize the contribution of local knowledge and expertise and to discrete the professional skills of the resource user. I move to the

next section by describing briefly the relevant terms / concepts which will be common in the rest of the paper sections and which motivate the common property management framework.

### Definitions and characteristics of management concepts

*Common property resources* is a class of resource in which the control of access / exclusion is difficult and each user has the potential of subtracting from the welfare of all other users (Berkes, et, al, 1989, Geheb, 1997). Common property regimes as collective management systems develop when a group of individuals are highly dependent on a resource(s) and when the availability of the resource is uncertain. Common property resources include *fisheries, grazing lands, forests and water*. Where common property resources are open access, the resource users cannot be trusted to exploit the resource in rational manner for long term sustainability (Hardin, 1968). The reason being lack of restraint on exploiters activities and the ignorance about the impact of their activities on the resource and future resource users. The terms common property resource (CPrR), common pool resource (CPR) and commons are often used synonymously and connote an economic resource / facility which is communally /collectively owned (Katar, 1994). Instead of going into details of defining each resource type to distinguish them from common property resource, I present the summary which follows that of (Katar 1994).

**Table 1 Some Salient distinguishing Characterists of PPR, CPrR, OAR and CPR**

Characteristic	Type of resource			
	PPR	CPrR	OAR	CPR
1. Property rights are well defined	yes	yes	no	yes&no
2. Users user groups is defined	yes	yes	no	yes
3. Resource is accessible to everybody	no	no	yes	no
4. Resource is used in common	no	yes	yes	yes
5. Rules, regulations & conventions government the use of resource exist	yes	yes	no	yes&no
6. Exclusion of free-riders is difficult	no	yes	yes	yes
7. Use of resource is subtractable	yes	yes	yes&no	yes&no

**Source: Katar, (1994) :6**

CPrR - Common Property Resources

OAR - Open Access Resources

CPR - Common Pool Resources

Common Property subsumes a set of social conventions norms, legally enforceable rules and procedures for regulating its use (Katar, 1994). The three basic institutional designs recognized solutions to common property resources include the state property (State governance indicating rights to the resource controlled exclusively by government agencies on behalf of all citizens), communal property where by the resource are held by an identified user' group who can exclude others and regulate their own use. The third involves private property a situation in which an individual has the right to exclude others and regulate the resource use (Berkes, 1989). The author notes that despite the potentials of communal based management units, this system has been under- estimated.

*Management* is a term commonly used in the context of resource regulations. The term refers to human intervention in a resource system with the aim of restoring, conserving its productivity to achieve long-term use. (Geheb, 1997). There are several management tools which have been developed and implemented with a view of controlling the resource use. Restrictions on gear, closed area/seasons, catch quotas are some of the management tools which have been used to address the harvesting of fisheries resources. A good management system would normally catch the following characteristics; have clear, precise definition of use rights, well defined set of aims/objectives, have an appropriate geographical scale, involve major stakeholders within the policy community. Others include; simple and transparent procedures, and well integrated regulatory.

Management measures, implemented through a responsible user group, have effective means of surveillance and enforcement /monitoring and should have periodic reviews. But most management tools would fall palpably short of the ideal situation. The most contributing factor to management failure is the reluctance of the central authority to admit responsibility for the implementation of the management policy. Other common limitations are the rigidity of structures and procedures which renders the management system unable to respond promptly to the changing circumstances. This is for example illustrated by the persistent use of management programs used in developing countries which have shown failure in the first world. In most cases the regulations are over – complex, conflicting and unenforceable. Insufficient information on which to base sound strategic planning is another source of management failure (Symmes, 1999).

*Utilitarianism*, a conservation theme attempt to promote conservation measures. The theme operates within the paradigm of resource development and economic growth( Devall, 1980). O’Riordan (1989) describes this perspective as technocentric, accommodating to environmental concerns but retaining the developmental status quo. *Sustainable development* is a strategy of resource use that strives to meet present economic and social needs without compromising the ability of future generation to meet their own requirements (WCED, 1987). IUCN/UNEP/WWF (1991) argue that sustainable development improves the quality of human life while living within the carrying capacity of the supporting ecosystems. It follows that the managing of the resource should ensure that their capability for renewal is not jeopardized, biological potential maintained and long term economic potential of resources enhanced (Wildes, 1995). This view is captured in the ‘*Limits to Growth*’ theory which opposes the traditional view of the world as a virtually limitless place favouring continued economic growth. The theory is reinforced by Bouldings (1966) idea of *Space Ship earth* which illustrate that we are transiting from an open to a closed world system in which mankind must accommodate to a cyclical ecological system and closely limited sphere of human activity. Sustainability as a goal is superior to the goal of maximum sustainable yield which has dominated most goals of Management of many renewable natural resource systems of which some common property resource are a part.

Connected to the common property resource management objectives is the *equity principle*. Common property resource development yields numerous benefits and generate costs. Who gets the benefits, who bears the costs and when, are important observation in common property resources. What is generally desirable and acceptable is some semblance of *intra and inter-generational equity* in the distribution of costs and benefits. The *subsistence (Survival)* criterion and the *contributive principle* are the choice criteria based on the equity principle. In the first criterion, each member of the common property resource users group should have access to an adequate minimum standard of living. In the context of global commons, the subsistence criterion is broadened to become the supreme goal for the survival of humans and other forms of the planet. The contributive principle establishes that income (benefit) received by a person should be allocated in proportion to his/her personal contributions in effort and skills to common property resource development and management (Katar, 1994).

### **Resource management systems**

Privatization, nationalization and communal (collective) and co-management are the systems which could be used to achieve the goals of common property resource management (Berkes, 1989 & Katar 1994). However, there is no single best system of management that will work successfully in all situations and at all times (Katar, 1994). The management system will work when it is interdisciplinary, uses traditional, modern scientific knowledge and involves regular consultation with local people and government functionaries. *Privatization* in common property resources means creating property rights and enforcing them. This could be accomplished by enacting laws, issuing government decrees/resolutions and signing voluntary contracts. This property could be conferred to an individual, a group of individuals, a private firm, a cooperative society or a voluntary group. Privatization in common property resources is appropriate when economic development proceeds and common property resources and their products become valuable and scarce, especially when the expected social benefits

are greater than social cost of creating and enforcing the property rights. Privatization in common property resources is also appropriate when the assignees of the property rights are mostly poor people and are organized into some formal or informal association/ groups. Privatization also works well when the membership of the association in common property resource is open to all legitimate common property users. Privatization also achieves the equity principle in common property resources. This is obtained by provision for equitable sharing of benefits and costs as incorporated in the by-laws of the association. At times the government may be willing and able to assist the assignees with funds, technical information, guidance and training in resource management. In this case privatization becomes appropriate. Lastly, the assignees may undertake to use the resource in a socially optimal and environmentally sound manner.

The second approach to common property resource management is when the *central government* fully owns and manages the resource. This would be done through one of its departments like Fisheries Department, managing the fisheries resource in Kenya's lake Victoria. The rationale is that the governments have the interests of people at heart, is able to raise investment funds and hence a lower discount rate than individuals. Centralised management systems work well when the common property resource users are not able to organize themselves so as to regulate the use, where the resource is over exploited and degraded and when the common property resource is of strategic importance to the nation. But even with the central management system, the needs of the local people should always be considered and thus the approach should follow a people-centered approach rather than a typical bureaucratic /technocratic one. (Katar 1994)

In some cases, the community of common property resource may be small, well-defined, homogenous, self conscious, self governing with political and economic independence. In such conditions, *decentralized collective management* of common property resources is recommended. This system also works when access to and use of common property resources are both regulated by a set of rules that are compatible with the technical and physical characteristics of the resource and the locally setting are mutually accepted, enforced and monitored by the resource users themselves rather than an external authority (Ostrom 1990.) The other principles of a successful decentralized system include clearly defined boundaries, congruence between appropriation and provision rules, collective and choice arrangements (Ostrom, 1990). These principles affect incentives in such a way that appropriators will be willing to commit themselves to conform to operational rules devised in such systems to monitor each other's conformance and to replicate the common resource institutions across generational boundaries.

*Co-management* is an institutional arrangement in the resource management perspective which is currently receiving a lot of significance. Co-management involves sharing responsibility and authority between the government and the community (Pomeroy and Berkes 1997, Pomeroy and Williams 1994, Sen and Nielson 1996). Co-management covers various partnership arrangements and degrees of power sharing and integration of local and centralized management systems. The hierarchy of co-management range from being merely consulted by the government before the regulations are introduced to those in which fishers design, implement and enforce laws/regulations with advice and assistance from the government. Co-management is expected to effectively address problems of over-exploitation, dissipation and redistribution of resource rents among the different resource users (Abdullah, 1998). The reduction in authority and responsibility is expected to lead to improved resource use as measured by economic efficiency, equity and ecosystem sustainability. Co-management involves the recognition and legitimization of traditional/customary local level management systems. The purported advantages of co-management over central management are the reduction of transaction costs (Coase,1937).

Whatever the management System, a lot of information is required to develop a sound sustainable resource management regime. Since common property resources are located in the rural areas, most communities have long established resource management systems based on their cultures. Rural communities therefore often have profound and detailed knowledge of the Ecosystems and species with which they are in contract and have thus developed effective ways of managing them sustainably. To

complement the local knowledge is the scientific information. Unfortunately, currently most management systems have concentrated is the scientific knowledge at the expense of local knowledge. This has not met with much success as portrayed in institutional failure in developing countries due to their partial integration into less complex systems (Haris, et, al 1995).

Some of the preliminary results on the study (Mokua-on-going) reveal that there are certain indicators (attributes) among the fishermen which are management related. Although the attributes are not purely traditional, this study finds them significant since it considers the fishermen to represent the traditional sector verses the government as the source of scientific knowledge.

Education level is found to be a major determinant to the decision to join fishing activities. This is because in most cases education creates awareness in job seeking. At the same time 93 percent % the fishermen agree that one needs to attain 30 years in order to be a good fisherman. With this information, although faced with unemployment problem, the government should observe this age requirement and be a basis of limiting entry into the fishery. The second factor is the income level. As illustrated in the earlier sections, it was indicated that traditionally, fishing was left for poor, landless and those from fishing clans who could not move out of the family activities. This poverty syndrome is still a major factor influencing the decision to join fishing and the lower the income, the more one is motivated to fish. The prevailing situations are such that the communities living around the lake have fewer opportunities to turn to. With this kind of information, the government could invest in alternative economic improvements where some labour could engage in and reduce pressure on the Lake fishery.

The fishermen are aware of the existing number of fishermen harvesting the fisheries resources, are aware of all the types of gears/ vessels and even the available species in Lake Victoria fishery. This is the kind of information required by the Fisheries sector in order to come with measures like total allowable catches, individual transferable quotas as alternative management systems. Presently, although this kind of information can also be found in the fisheries statistical bulletins, they are quite conflicting showing that the accurate information has not been established. This is a case where the fishermen (traditional knowledge) could be incorporated into be the management framework.

Unfortunately, the traditional sector of the fishery is always neglected when issues of management are discussed. The Fisheries Department in collaboration with the Kenya Marine Fisheries Research Institute develop the management decisions. But the study results indicate that these two institutions hardly engage in an integrated fisheries survey activities and the visits to the beaches are common among the Fisheries Department than the Research Institutions. This unintegrated approach exercised by the two institutions in well portrayed by the contradictions in the necessary scientific data required to formulate effective management systems.

For example, once the stock size is judged along with the rates of reproduction (fecundity) and mortality, the optimum rates of fishing can be identified and regulations applied accordingly. But once these are not accurate, there will be recruitment, time of capture, sequential exploitation, crowding and economic overfishing problems. The scientific basis of fishery management is always faced with a lot uncertainties as different researches (studies) come up with different results, the basis of management problems. For example, the maximum sustainable level for the Kenyan sector of Lake Victoria have differed with scientists and periods.

**Table 2: Estimated sustainable Yields for the Kenyan Sector of Lake Victoria and Actual Catches**

Year	MSY Mt.	Actual Catch Mt.	Source
1966	28,000-40,000	n.a.	Rhodes (1966)
1972	25,000	15,989*	Welcome (1972)
1975	25,000	16,581*	Butches & Colaris (1975)
1976	20,000	18,680	Kongere (1976)

1979	30,000	30,592	Kenya Rep. (1979)
1982	46,000	60,958	Coche & Balarin (1982)
1983	10,000 –26,000	77,327	Zonneveld, (1983)
1988	150,000	125,100	Kenya Rep. (1988)

Source, Geheb, (1997):

From the figures, it is well illustrated that the estimates are not species specific and does not also indicate each. But with the current management problems facing the Lake, it means the scientific basis of data estimation has never been accurate as currently no established MSY exist (Personal, communication, 2001). Given that the long experienced fishermen have some of the required information, the modern and the traditional sector would probably complement each others weaknesses to establish a feasible management option for Lake Victoria fishery.

### **Culture / Scientific Knowledge and Common property resource management**

Sustainable utilization of common property resource use will be based on accurate information /knowledge and the more widely shared the information, the more likely it is that individuals /institutions agree on the definition of problems and solutions (Katar, 1994).

Developing and using of accurate information is therefore a requirement of conservation at all levels (Local to global community). In most cases therefore, global conservation efforts would succeed when the information network starts from the local, regional to international scales. This adds to the fact that the local level (traditions knowledge) forms the basis of sustainable development, a factor which is usually ignored by decision makers and even scientists. This is portrayed in the attitudes of many biological and natural resource managers who find it difficult to accept that they have anything to learn from the local people. But it has been observed and noted that modern scientific knowledge and the indigenous technical knowledge of the rural people are grotesquely unequal in leverage. Traditional knowledge is complementary to scientific knowledge and in some respects, superior. The less recognition about the significance of traditional knowledge in common property management arises mostly because the modern scientists have not been trained to seek knowledge through talking with laymen. The research would normally start in the books then proceed directly to nature for the answers. In this section, I will use culture, traditional knowledge and local/rural people, synonymously.

Local knowledge can play an especially important role in common property management. It is an important cultural resource that guides and sustains the operation of common property tenure systems. Johannes (1978) observes that a government which neglects the potentials of traditional systems disposes of a service it gets free and assumes responsibilities it is ill-equipped to handle. Kailis, (1997) doubts whether there is any national agency that can ever have the extensive time and place information to tailor a set of rules to particulars of local people. Anthropological studies have indicated that many policies outcomes of the traditional conservation sector can have fundamental effects on biodiversity (Horak, 1998, Smith and Berkes 1998, Durbin and Ralambo 1998, Sanyanga, 1995, Ulluwishewa, 1995 and Wildes 1995.)

Traditional user-based approach is appropriate because it represents away from the highly abstract modeling techniques that depend upon large inputs of unknown and often unknowable data. Traditional based approach is especially significant as it relies upon data and techniques of analysis that local resource can control and utilize in real time so as to take locally sanctioned corrective actions with a minimum delay. It moves the focus of responsibility for management to those with the greatest direct stake in the sustainable utilization of the resource. The traditional user steward approach to management is unlikely to require any modification in values or beliefs among local resource user. An important feature of traditional based management is that being locally based any environmental change that required modification is applied automatically. Such knowledge of responses accumulate overtime and becomes intuitively incorporated into the system. It has been observed that where the governments have ignored the cultural values of common property management, over – exploitation prevails, a situation which is currently being experienced in the shared fisheries resource of Lake Victoria (Geheb 1997,

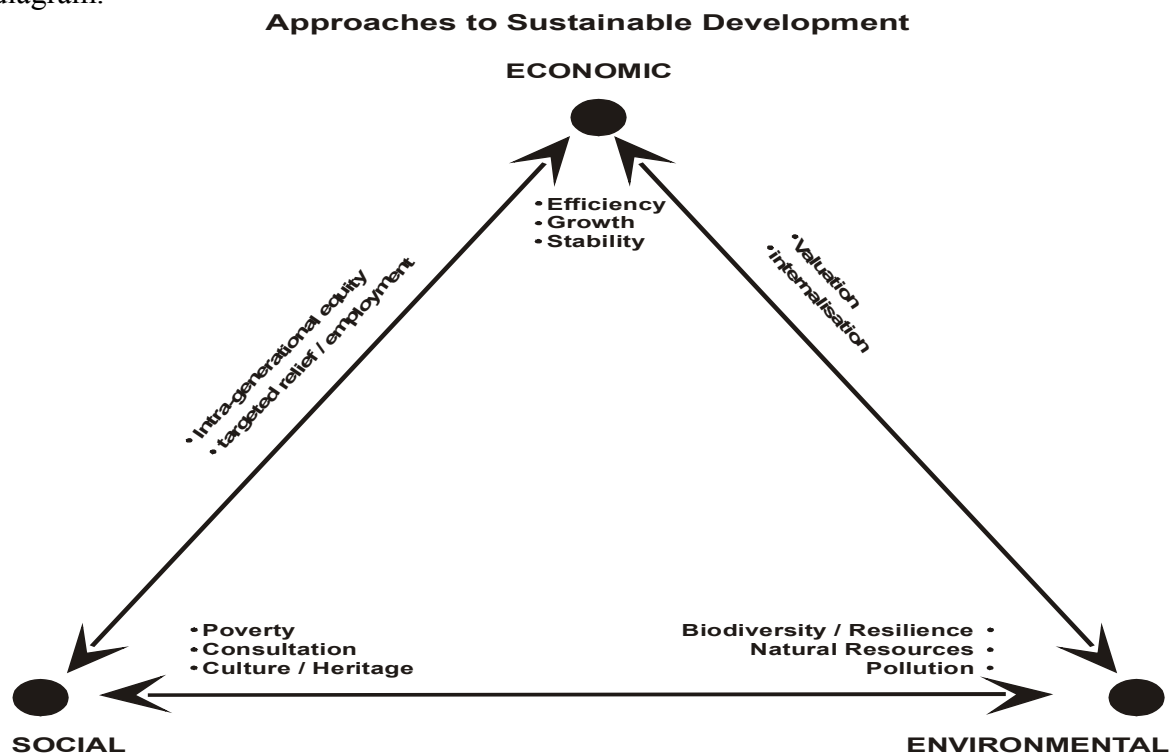
Ikiara 1999, Mokuia – on going). Although Ulluwishewa notes that what is unowned tends to be mismanaged, over-used and wasted, recognizes the important role of traditional knowledge in resource management by illustrating the fact that local people's knowledge in management may have high potential value for planning than currently prevails. Berkes (1989) indicates that, centralizing resource management decision making and replacing the existing local level control, with government controls and nationalizing resources are often unsuccessful.

Geheb (1997) indicate that there exists the potentials of using the customary based units in managing the fisheries resources of Lake Victoria. This observation is established by Mokuia (On-going) that all the principles as postulated by Ostrom (1990) are in place in Lake Victoria. Unfortunately the government has persistently failed to recognize these units. Consequently, the Fisheries Department, a government branch charged with the enforcement of fisheries regulation faces management problems (Ikiara, 1999). To activate this problem is that, most third world governments are often pressed for funds and are rarely able to provide for the necessary research, management and enforcement. But even with this limitation, most conservation efforts would succeed if a segment of local public opinion are in favour conservation. (Ulluwishewa et al, 1995).

But traditional knowledge does not always mean valuable (Ruddle, 1992). This is because local people are fallible, for example, it is not unusual for fishermen to attribute decline in fisheries to soccer or for not pleasing gods. Such beliefs must not only be collected but must also be verified. In that case, despite the important role of cultural values in common property resource management, traditional knowledge must be blended with more technical, biological, physiological, economic and scientific knowledge before it can be put to its best use (Ruddle, 1992). Since local cooperation is essential for the conservation efforts, scientific knowledge would provide the understanding of socio-economic factors, how resource are used, degree of awareness of about controlling regulations among others. Scientific surveys will also provide the necessary raw-material to determining the sorts of behaviour as well as the best means of providing incentive required to bring about the desired changes in behaviour. Scientific knowledge, serving as a basis of empirical outcome, provide managers of resources with the necessary insights into the needs and desires of the local people thus avoiding misunderstandings and disruptions when implementing management systems having briefly considered the role of scientific knowledge, I note that after the local level information, national compilation of resource within the nation is required. But since efficient management is essential at the local level, the data base must be designed with full involvement of those who use them. Otherwise, local, regional, national and international information is required since there exists interactions with other information centers and a wide exchange of information. This is in connection to the theory of *interdependency*, where-by the concept of relationships (individuals, families, communities, nations) is replacing the concept of rigid self-reliance, autarchy and isolation as portrayed in the traditional management views (Jackson R.M, ed, 1991),. Successful relationships depend on mutual adherence to widely shared but unenforceable sets of values. Just as individuals cannot remain unaffected by their communities, so nations can no longer successfully opt out of the global context. There must be some way of getting together and deciding what people of the earth will choose to do to ensure sustainable resource utilizations. Some sort of federal world government is needed to perform the function of telling all what to do on a global scale Jackson (1991). It is this federal world government that this paper considers as *cultural homogenization*. With the market for ecosystem goods becoming increasingly global (World Resources Institute, 2000 – 2001) outside economic forces and government policies are the best intentions to consider for sustainable development. Since it has now been established that openness towards world markets and the removal of barriers to international trade (globalisation-/liberalization) are the main sources of environmental degradation, the world must come up and develop a homogenous culture to achieve sustainable resource use (conservation).

The management of common property resource at whatever level encompasses the economic, social and environment. The concept of sustainability recognizes the social aspect as people oriented and seeks to maintain the stability of social and cultural systems. Equity is an equal important aspect as described in

the earlier section of this paper. Preservation of cultural diversity and capital across the globe and the better use of knowledge concerning sustainable practices are required in common-property resource management. The environmental view of sustainable development focuses on the stability of biological and physical systems. Scientific knowledge would provide the viability of sub-systems that are critical to the global stability of the overall ecosystem. The economic approach is underpinned on the concepts of optimality and economic efficiency. This is based on the Hicks-Kaldors concept of maximum flow of income which should be generated while at least maintaining the stock of assets which yield these benefits. This analytical framework portrays the sustainable management pyramid which comprises of the cultural capital complemented by scientific and environmental values as illustrated in the following diagram.



Source: Munasinghe 1993a : in Kailis G.M 1997: sustainably managing sustainable management, in OECD (1997) Evaluating Economic Instruments for Environment Policy 261 - 265

### **Globalisation and common property management**

As the definition goes, an ecosystem is a grouping of organisms that interact with each other and their environment in such a way as to perpetuate the grouping (Nebel, 1981). This definition reduces the world to a global village in which resource (ecosystems) interact with each other in such a way that the effects environmental pollution is one ecosystem traverse the territorial boundaries of the state. Since these ecosystems (territorial and aquatic) interact and in a way form a grouping, they form the global commons. The implications are a global responsibility to act as *stewards* of the biological diversity. In this case therefore, the states should not only guard their own natural heritage but refrain from actions that threaten that of other states.

To achieve that objective, there has been global efforts in an attempt to address the management of the world resource. Since it's creation in 1972, UNEP has been very active in the development of environmental law and under it's auspices, four major global binding agreements have been developed and implemented. These include the 1985 Vienna Convention for the protection of the Ozone layer, the 1987 Montreal Protocol on substances that Deplete the Ozone layer, the 1989 Basel convention on the control of Transboundary movements of Hazardous wastes and their disposal and the 1992 convention on Biological Diversity. In the same line of global protection, several regional legal agreements have been developed, examples include; several regional seas conventions as well as regional Agreement on the Action plan for the environmentally sound management of the common Zambezi River system. It is



reported that approximately 150 multilateral environmental treaties are in force (UNEP, 1991). One clear achievement of these agreements is that they are legally binding and thus defuse conflicts with the growing pressure on natural resource particularly on land and fresh water resource. Coupled with the mounting transboundary pollutions, the potential flashpoints of conflicts between states are minimized. A second achievement to these treaties is that since the inception of Basel Convention, illegal dumping of wastes have been rare (UNEP, 1991). The UN through the FAO and UNDP has led the way in finding solutions to the global fishing crisis. The 1982 Law of the sea conference brought almost 95 percent of the world's stock under the jurisdiction of coastal states. The UN's conference on Environment and Development (UNCED) (1992) placed the fishery problem on the international agenda. Over the 1996-97 period, FAO set out to promote sustainable development of responsible fisheries and contribution of fisheries to food security through the implementation of the code of conduct for responsible Fisheries (Ikiara, 1999). The author also observes that as a result of well established traditional practice, aquaculture has had modest performance in East, South and South Asia but remains at infancy in Africa and Latin America. But international laws to be implemented effectively legislation must be enacted at national level. This is because other than the national level, environmental problems are easily recognized at the regional level. Lastly when the problems are of a global nature of which most are, governments work together to design responses, providing the facts point to the need for such responses. In this line developing countries have agreed to a number of international environmental legal instruments (convention on International Trade in Endangered species of wild fauna and Flora etc.).

However, for the laws to be effective, financial resources monitoring and assessment capabilities, education and training are required. Multidisciplinary cadres (cultural & scientific knowledge) capable of tackling complex issues are also a necessity. The Pillars of this multi-disciplinary approach include natural scientists, social scientist, engineers, planners, economists and lawyers all working together. The objective of this team is to consider the rights of the born and of the unborn, of individual nations and of our only planet earth to seek guidance in the ideals of justice equity and differentiated responsibility. Global Environmental protection is thus a tool for ensuring environmentally sound and sustainable development.

### **Concluding Remarks**

The conventional views of many people is the comfortable feeling that decisions made on resource management matters based on scientific information is adequate. However, the continued environmental degradation issues reveal that in most cases we have either conflicting or inadequate scientific information and most decisions are made on less than complete evidence. This paper has shown that scientific knowledge as a guide to common property management only one component. The social, moral and economic aspects carry equal weights (Multi-disciplinary approach). It means that before going to the libraries for the documented knowledge and laboratories for verification, the local people's knowledge is paramount. Thanks to most social scientists studies which engage into oral, and structured interviews to collect primary data from the communities.

Therefore, the key characteristics of common property resource management is the dichotomy between two main information sources (Cultural /Traditional and Scientific). The cultural aspect captures the wealth of accurate knowledge from the local people while the scientific espouses the need to establish accurate data on the long-term effects of resource management. This dualism enclosed in the global context should be perpetuated in common resource management. Unfortunately as specified in this paper, this dualism has been ignored in most current systems. But with the persistent dismal performance of these systems, the discussions in the paper shows that Scientific and Cultural knowledge are grotesquely unequal in leverage. The paper sections summarise the common property resource management framework which should include cultural, scientific and global aspects (*interdependency*). The economic, cultural, social, scientific factors influence each other and given that there are no territorial boundaries in most common property resources, global co-operation should be enhanced. However the international (global) cooperation requires local, National and regional participation. This wish enhance a common global goal (culture) which would ensure sustainability of the common resource.

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## **References:**

- Abdullah M. N., K. Kuperan and R.S. Pomeroy (1998): Transaction costs and Fisheries co-management. Marine Resource Economics 13(2): 103 – 114.*
- Berkes, F. (1989): Common Property Resources; Ecology and community based sustainable Development: Belhaven Press 168-*
- Boulding, K. E. (1966): The Economics of the coming Spaceship Earth. In Wildes, F.T. (1995): Recent Themes in conservation Philosophy and Policy in the United States Environmental conservation (22): 145-*
- Ciriacy – Wantrup, S.V. and Richard C. Bishop (1975): Common Property Resources; A concept in Natural Resource Policy Natural Resource Journal.*
- Coase, R. (1937): The nature of the Firm: In Abdullah M.N, K. Kuperan and R.S. Pomeroy (1998): Transaction costs and Fisheries Co-management marine resource economics: 107.*
- Deval B. (1980): The Deep Ecology Movement: In Wildes F.T. (1995) Recent Themes in conservation, Philosophy and Policy in the United States Environmental Conservation (22) : 154.*
- Durbin J. and J. A. Ralambo: The role of Local people in the successful maintenance of protected Areas in Madagascar; Environmental conservation: 115-120*
- Geheb K. (1997): The Regulators and the Regulated: Fisheries Management, options and Dynamics in Kenya's Lake Victoria D. Phil Thesis submitted in the Geography Department, University of Sussex: 3-5, 172-179.*
- Hall, C. (1998) Institutional solutions for Governing the Global commons. Design Factors and Effectiveness. Environment and Development (7) (2): 86 – 114.*
- Harris J., Janet Hunter and C. M. Lewis (eds) (1995). The New Institutional Economics and Third World Development. Routledge, London 200-214.*
- Hardin G. (1968): The Tragedy of commons in Wildes F.T. (1995): Recent Themes in conservation philosophy and policy in the United States Environmental Conservation: 143:*
- Horak, M. (1998): Transforming the Traditional Indigenous Amazonian Resource Regimes and Resource Capture by External Actors – The case of Brazil's Kayapo, Environment and Development (7): 32 – 44.*
- Ikiara M. M. (1999): sustainability, Livelihood and supply behaviour in a Declining Fishery; The case for Lake Victoria Fisheries: Doctoral Dissertation 38-56*
- Jackson R.M. (ed) (1991): Global Issues, Dushkin Publishing Group: 236 – 240*
- Johannes (1978): Traditional Marine Conservation; Methods on Oceania and their Demise: Annual Reviews of Ecology and systematics (9): 349-364*
- Johannes R.E. (ed) (1989): Traditional Ecological knowledge A collection of Essays World Conservation Union, Switzerland: 64 pp.*
- Kailis G. M. (1997): Sustainably Managing sustainable Management in: OECD (1997) Evaluating Economic Instruments for environment Policy: 261-265*
- Katar S. (1994): Managing common pool Resources; Principles and case studies; Oxford University Press India: 3-21*
- Meeham J. E. and C. Reilly (eds) (1982): Progress in Rural Extension and community Development. John Wiley & Sons; New York: 289 – 293.*
- Mokua M.A. (1998): Gender and Resource Tenure; Workshop proceedings organized by Resource Tenure Institute of Forest Action Network – Machakos – Kenya: 81 – 95.*
- Mokua M.A. (on-going): Economic Analysis of Fisheries Regulations of Lake Victoria: Performance and Policy options.*

- Mostafa K. Tolba (1991): *Activities of UNEP in the Field of Environmental Law and institutions, Programme Activity Centre: 1- 17.*
- Muna Sighe M. nad Wilfrida Cruz (1995) *Economy wide Policies and the Environment Lessons from Experience World Bank (10): 9-22.*
- Nebel B. J. (1981): *Environmental Science, the way the World works: Prentice Hall: 8-14*
- O' Riordan T. (1989): *The Challenges for Environmentalism: In Wildes (1995): Recent Themes in the United States. 145.*
- Ostrom, E. (1990): *Governing the commons: The Evolution of Institution for collective Action. Cambridge University Press: 280*
- Pomeroy R.S. and F. Berkes (1997): *Two to Tango: The Role of Government in Fisheries Co-management. Marine Policy (21) (5): 465 – 480.*
- Pomeroy R.S. and M. J. Williams (1994): *Fisheries Co-management and small scale Fisheries. A policy Brief Manila International Centre for living Aquatic Resource management*
- Ruddle K. (1989): *Solving the common – property Dilemma; Village Fisheries Rights in Japanese Coastal Waters: In Berkes F. (1989): Common – Property Resource. Belhaven Press 168.*
- Sanyanga B.A. (1995): *Management of the Lake Kariba Inshore Fishery and some Thought on Biodiversity and Conservation issues; Zimbabwe – Environmental Conservation (22) 111-115.*
- Sen,s and Nielsen, J. R. (1996): *Fisheries Co-management. A comparative Analysis: Marine Policy 20/5. 405 –418.*
- Smith A. H. and Fikret B. (1998): *Solutions to the Tragedy of the commons; Sea – Urchin Management 131-135.*
- Symes D. (1999): *Institutional Change and the Reform of Fisheries Management, Some outstanding Questions OECD: 213 – 215.*
- Ulluwishewa R. (1995): *Traditional Practices of Inland Fishery Resources management in the Dry Zone of SriLanka; Implication for sustainability; Environmental Conservation (22) : 127 –132.*
- Wildes F.T. (1995): *Recent Themes in Conservation Philosophy and Policy in the United States: Environmental Conservation (22): 143 – 150.*
- World Conservation Strategy (1980): Living Resource conservation for sustainable Development; IUCN, UNEP & WWF : 15 – 20.*
- World commission on Environment and Development (1987). Our Common Future: Oxford University Press U.K.*
- World Resources (1997): A Guide to the Global Environment: World Resource Institute; UNEP, WB: 295-300.*