

**Indigenous Knowledge, the Environment and Natural Resource
Management: the Adverse Impacts of Development
Interventions**

A Review of Literature

**Paper Presented at the Sensitization Workshop (Center for the
Study of Environment and Society)**

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**May 2005
Awassa, Ethiopia**

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I. Introduction

Environment, society and culture are inextricably interlinked entities. Understanding the dynamics and static of their interactions is essential for any meaningful national, regional or local socioeconomic development activities. *Sustainable development*, the contemporary catchword in the academic and GOs and NGOs circles, lacks any meaning and is unattainable if the social and cultural aspects of environment are neglected.

The overriding reason behind the failures; and intended or unintended huge costs of loss of human, social, cultural and natural capital; of the very development projects that supposedly aim to benefit people, is the neglecting of the very ingredients that determine the of the projects. These essential ingredients include, among other things, the need for genuine grassroots participation in the conception, initiation, planning and implementation of development projects; the need for recognizing and actively applying the traditional social – organizational mechanisms, such as communal kinship based networks; the need for regular, meaningful interactive dialogues between the development planners and the intended local communities; the need for genuine, adequate compensation, incentives and alternative mechanisms for indigenous peoples whose traditional homelands and resources are threatened by development projects; in short effective working out of social and cultural compatibility studies.

I took liberty in reshaping the original title given to me by the organizing office of the Workshop. The title was “Resource Management, Kinship and Heritage”. Realizing that the essence of the topic should focus on the traditional knowledge and practices in natural resource management and how as a cultural heritage these should be revitalized and protected, I slightly reshaped the title to serve this purpose.

The establishment of the Center for Environment, Culture and Society at Debu University is long awaited one, and understandably a highly justified phenomenon. The University’s location at the heart of the constellation of nations, nationalities and peoples with diverse socio – cultural, ethnic, religious and linguistic background; and rich indigenous knowledge and practices pertaining to the natural resources is one major issue. The southern region of Ethiopia is indeed endowed with diverse ethno – botanical, ethno – zoological and ethno – ecological knowledge bases in the Rift Valley region and beyond. It is thus a high time a multi –, inter- disciplinarily study approach began in the region, centered at Debu University.

The southern region houses, as available ethnographical study shows, the lion's share of indigenous cultural groups. The vast repertoire of traditional knowledge and practices in relation to nature and the ecosystem have not been adequately studied so far. The potential, status and role of the traditional practices of natural resource management and conservation in the national environmental protection strategies has to be understood and assessed. The threats and challenges posed by the globalizing economic development and the mega- projects involving construction of dams , huge agribusinesses, loggings, mining, road constructions, etc—which are vivid aspects of the adverse consequences of

development through out the world on the native peoples and their cultural heritages— how this phenomenon looks like in Ethiopia, needs to be studied.

This paper aims at shedding some light on

- (i) The potential, status and contribution of traditional peoples, in time and space, in the conservation and management of the nature and its ecosystem;
- (ii) The traditional mechanisms and organizational setups in resource management;
- (iii) The guiding philosophies of traditional resource management and conservation;
- (iv) The globalizing socio- political threats and challenges facing indigenous cultural heritages relating to conservation of biodiversity;
- (v) The overview of traditional natural resource conservation and management practices, challenges they face and precautions to be made in the context of Ethiopia.

Preparation of this paper has heavily depended on certain anthropological literature and other related documents. Issues raised and theses developed and defended in this paper are preliminary thoughts for debate and they may be further expounded through deeper level of analysis and comments. Hence the author welcomes any comments and critique to further enrich the ideas presented in the paper.

II. Traditional Social and Communal Structures, Cultural Heritage and Resource Management

2.1. The Ecological Knowledge of Traditional Peoples

Literature on ecological anthropology hails the immense indigenous knowledge regarding ecology, the faunal and floral diversity. Anthropologists argue that this encyclopedic knowledge emanates from the traditional peoples intimate relations to nature and natural resources. Their close affinity to nature has helped them to develop a repertoire of knowledge on bio - diversity, the subtle ecological processes, the dynamic and behaviors of fauna and flora, the diverse ways in which resources can be put to use, the ways in which appropriate balance need to be made between people and natural resources, culturally mediated means of managing and conserving natural resources, etc. Regarding this, Durning (1993) states,

Indigenous peoples' unmediated dependence on natural abundance has its parallel in their peerless ecological knowledge. Most forest dwelling tribes display an utter mastery of botany. One typical group, the Shuar people of Equator's Amazonian lowlands, uses 800 species of plants for medicine, food, animal fodder, fuel, construction, fishing and hunting supplies.

The Traditional peoples possess myriads of values, myths, taboos, beliefs and practices that relate to nature and its resources. This body of knowledge is recorded and transmitted as a rich cultural heritage from generation to generation through cultural and religious ways. Behind the beauty of traditional peoples' resource management practices are the overriding cultural and religious values. Traditional people exhibit an unfailing degree of "devotion to future generations, ethical regard for nature, and commitment to community among people..."

Further stories of Indigenous wisdom in natural resources management may be also told. For example, the Koyukon Indians of the Arctic Region believe that animals are considered to be sensitive to how people treat them; they consider animals as members of the total community of human, non - human and inanimate objects. Animals are regarded with respect, even though they are hunted for food (Nelson 1998).

Traditional knowledge of natural world built upon centuries of practical experience encounters interactive relation so subtle and deep that it may be in practical aspects equated with the scientific knowledge. In the words of Nelson (1998) "their insights into the natural world are worth rediscovering "(p. 68). Commenting on the state of mind in the modern world of the west pertaining to human relation with the ecosystems, Nelson writes:

Probably no society has so deeply been alienated as ours from the community of nature, has viewed the natural world from a greater distance of mind, and has lapsed into a murkier comprehension of its connections with the sustaining environment. Because of this, we have great difficulty understanding our rootedness to earth, our affinities with non - human life p. 68

The modern world has thus divorced itself from the broader community of human and non-human world. The indigenous peoples, to the contrast, have had these holistic views of the cosmos. They have thus much to share from their vast knowledge of natural resource management. In the words of Nelson (1998), “. . . these people have accumulated bodies of knowledge much like (western modern) sciences, and they can give us vital insights about responsible membership in the community of life. . .” (p. 68; see also Kottack, 2002; Durning, 1993).

2.2. Traditional Societies Regarded as Stewards and Custodians of Natural Resources

A modest evaluation of anthropological literature shows that the fundamental world view of traditional people dictates their close and intimate affiliation with natural resources. The encyclopedic indigenous knowledge in ethno- botany and ethno-zoology and their affection to the natural resources enabled the sustenance and well- being of biodiversity. Anthropologists regard traditional peoples as the stewards or custodians of nature and its resources. As a Columbian University Anthropologist regarding the traditions, kin- based forest resources management practice of the indigenous American - Indians say "The difference between a colonist ---- and an Indian is that the colonist wants to leave money for his children and that the Indians want to leave forests for their children." (Cited in Durning 1993). The depletion of natural resources that now threaten contemporary governments is the results, by and large, of the introduction of large scale, intensive economic development activities.

To further substantiate the custodianship role of indigenous peoples, let us listen to what Durning (1993: 418) says:

[They] are the sole guardians of vast, little disturbed habitats in remote parts of every continent. These territories provide important ecological service. They regulate hydrological cycles, maintain local and global climatic stability, and harbor a wealth of biological and genetic diversity. Indeed, indigenous homelands may provide safe haven for more endangered plant and animal species than all the world's nature reserves. Native peoples, more over, often hold the key to these vaults of biological diversity. They possess a body of ecological knowledge encoded in their languages customs, and subsistence practices that rival the library of modern science. Indigenous, traditional people have a custodial concept of land and other resources. In part defining them in relation to the habitat from them draw their live hood. They commonly live in or maintain strong ties to a subsistent economy: fishers, nomadic or seasonal herders shifting forest farmers, or subsistent peasant cultivators. And their social relations are often tribal [or kinship based], involving collective management of natural resources, thick network of bonds between individuals and group decision s making , often by consensus an long elders

According to Durning, thus, the endangering of biological diversity may be regarded as the result of sadly vanishing native cultural heritages throughout the world. For him, "biological diversity is inextricably linked to cultural diversity."

One of the major worries of anthropologists and other sympathizers of the indigenous peoples of the world is thus the rapidly disappearing cultural heritages as essential capitals, which are considered as the bases for preservation of other human, natural capitals. Durning (1993: 419) states that many environmentalists and social scientists now lament over "the steady loss of this planet's cultural diversity [and with it the loss of cultural heritage] as thousands of small societies are pushed aside by the relentless march of economic development." This reminds us of the need for caution when government led or other investment projects are launched to safeguard the insidious people's cultural heritages, which constitute indigenous knowledge, skills, social networks and cooperatives and communal organizations, etc.

2.3. " Proven" Practices and Principles Relating to Traditional Natural Resource Management

Indigenous societies may be regarded as those who naturally apply the practices and principles that may be considered as essential in appropriate resource management. These "proven" principles and practices include:

1. *The spirit of interactive relations with the natural resources.* According to a German theologian Carl Barth cited in Solomon (2004), the biblical standard for man's relationship with other lower creatures and the ecosystem should be interactive. This involves sympathetic, good relations and friendliness with the rest of creation. Viewed in the context of traditional societies, this idea is very relevant. In such societies, as anthropological literature shows, people consider the fauna flora and the other inanimate natural resources as if they are "equals" with human beings. They often develop interactive relations with the ecosystem. The human society in the views of traditional people is a community of people, fauna, flora and the ecosystem in general

2. *The principle of stewardship and custodianship* is another related important aspect of the man- ecosystem relations. This involves handling natural resources as things which are given to be cared for. This excludes the exploitative, dominating handling. Anthropological literature shows that traditional peoples living in the various remote corners of the world are usually the custodian of biodiversity. They treat their ecosystem with care. The destruction of biodiversity in today world is usually associated with the destruction of indigenous peoples and their cultural heritages (Kottack, 2002).

3. *Ethical regard for nature:* unethical views and practices reacting to the environment and its resources has, among other things, resulted in the deterioration of the resources and threatening of biodiversity. The traditional people have close and intimate ties with nature and the latter occupies central place in the cultural, religious, social beliefs, practices and institutions. The community of people has no complete picture without the interactive

relations with the ecosystem. The ancient values of these people include ethical regard for nature (Durning, 1993).

4. *Commitment for community life and the future generation and ancestral ties (Cultural heritages):* Individualism promotes the irresponsible use of the natural resources; and selfishness and disregard for the proven, accumulated wisdoms stored in cultural heritages. Commitment for the common good and concern for the future generation contributes for the wise management of natural resources. Because all these values are central to the indigenous peoples' ways of lives, they have lived from time immemorial in harmonious balance with the nature and the ecosystem, and if the intruding actions of the globalizing economy, which is threatening the indigenous cultural heritages stops or reduces, traditional peoples “ offer living examples of cultural patterns that can help revive” appropriate, nature- friendly, interactive and ethical beliefs and practices pertaining to the ecosystem (Durning, 1993; Kottack, 2002).

5. *The principles of sustainable development:* The term “sustainable development” has become a buzz-word in the social science literature and in the GO and NOG development sectors alike. After centuries of economic development activities, the worries of our global society have become how to use the natural resources to feed the present generation without jeopardizing the needs and rights of our future generation. Is sustainable development one of the core values of the indigenous societies? This question can be answered in the affirmative, given that traditional peoples are not just concerned with the needs of their own generation alone, they also pay much attention to their posterity. Generation-old cultural heritages and their local ecosystems with rich biodiversity have been preserved faithfully until intensified use of natural resources was introduced by economic development efforts.

III. Threats and Challenges Facing Cultural Heritages Relating to Nature and Resource Management

3.1. Traditional Resource Management Practices and Clash with Interventions from Development Projects: The Need for Culturally Sustainable Development

Anthropologists argue that traditional people have managed their ecosystems and resources in a sustainable manner. For thousands of years they have been doing a reasonable job of taking care of their natural resources. In the words of anthropologist Kottack (2002), " because of their low energy needs, [traditional societies] have managed their resources better than [the developed societies manage theirs]." (p. 578).

However, as traditional societies are incorporated into the nation - state systems, their indigenous resource management practices become weakened. Indigenous people see and protect their traditional lands and ecosystems as their cultural heritage from antiquity and regard the environment in a reverent, ethical manner. They want to transmit their cultural

heritage intact to their children. But as they become part of nation - states, they fall victims of the central government's effort of exploiting the natural resources to bring about economic development. But conflict usually occurs between natives and governments,

When outside interests exploit resources on tribal lands. Driven by deficits and debts, governments seek to wrest as much wealth as much as possible from the territory they administer. This goal helps explain world wide intrusions on indigenous peoples and their local ecosystems by such form of economic development as high way construction, mining, hydroelectric projects, ranching, lumbering , agribusiness, and planned colonizing... (Bodley 1988, cited in Kottack 2002: 579).

Anthropological literature is replete with causes of how development projects planned without the consultation of anthropologists and intended beneficiaries have done more harm to the people, their cultural heritages, and their local ecosystems than the benefits of improved living standard. Anthropologists argue that any development project should be culturally compatible and such projects are found to be "twice as much successful as the incompatible ones" (*ibid* p 586). Culturally compatible development projects take into account, among other things, the traditional, cultural heritages of the local people concerned; their indigenous knowledge and wisdom; including respecting the peoples' ethical concerns for nature and local ecosystems.

Future national development and natural resource management efforts will succeed and benefit people if they are built on what anthropologists call "alternative model for Third World. This focuses on the indigenous knowledge found in traditional social units, such as clans, lineages, and extended kinship groups...with their communally held estates and resources... Local communities with their traditional cooperative pattern and solidarity based on kinship and descent should be treated as development partners" (Kotack, 2002: 589)

Further, there is an urgent need for incorporating the peoples' views in the current government goals of environmental protection policies. Any environmental conservation and natural resource management activities advocated by outside bodies should not enforce rules and laws on the local people. The local people must involve in planning and carrying out the activity. Conservation strategies of biodiversity should attract and convince local people. It is very essential that such strategies should "pay attention to the customs, needs and incentives of the people living in affected areas." (Kottack 2002: 601) Successes will depend on local cooperation. Only culturally compatible resources management strategies will work "neither development agencies nor NGO'swill succeed if they try to impose their goals without considering the practices, customs, rules, laws, beliefs and values of the peoples to be affected " (*ibid* . 601)

3.2. Industrial Globalization and Its Impact on Indigenous Natural Resource Management Practices

A careful review of literature in social / cultural anthropology shows that the state of the world's ecology, biodiversity and environment was in a good condition until the onset and rapid spread of globalizing industrialization. The indigenous cultures maintained their serene link and balance with the environment and the natural resources. But industrialization brought with it the degradation of the environment. One of the vicious effect of the wide spread effect of "industrialization has been the destruction of indigenous economies, ecologies and population." (Kottack 2002: 502; See also Calhoun, *et al*, 1994). Kottack, quoting Bodley (1985) further writes:

Industrialization is a global process that has destroyed or transformed all previous cultural adaptations and has given humanity the power not only to bring about its own extinction as a species, but also to spread the extinction of many other species and to alter the biological and geological processes as well (p. 5 63).

Genocide, the often purposeful mass murdering of a particular ethnic group by an other major group; *ethnocide* the purposeful and forceful annihilation of the culture with heritages of a particular group of people by the dominate power; and *ecocide* the inadvertent or thoughtless destruction of the ecosystem of a given region, are among the sad results of the globalizing industrialization processes in many parts of the world (Kottack 2002). Although the ravaged conditions of ecology in today's world may also be attributed to other factors, the insidious effect of industrialization outweighs all others.

The increasing concern for the adverse impacts of economic development on the environment has been also shared by many other social scientists and environmentalist advocators. "Economic growth has caused serous environmental damage and the current sate of the environment will constrain further economic development" (Thirlwall 2004: 399; Calhoun, *et al.*, 1994).

Development Economists argue that that the pressure of economic development on environment and natural resources is and will be much higher on the developing countries as they heavily depend on the use of primary natural resources for their livelihood and continued existence (*ibid* p 400).

This thus calls for the meticulous efforts of the development policy makers of the poor, developing countries to aim at sustainable development forms of development that "meet the needs of the present generation while maintaining the potential to meet the needs of future generation" (*ibid* p 400).

A World Bank anthropologist has the following cutting points to say on the issue: "The creation of a global economy... has meant the pillage of native peoples' lands, labor and resources Each cycle of global economic expansion [in world history] was based on the exploitation of natural resources or primary commodities and led to the displacement of

indigenous peoples and the undermining of traditional cultures." Available literature indicate that logging, mining, commercial fishery large scale commercial agriculture, ranching, dam building, oil drilling, etc all have their adverse impacts on the ways of lives and resources of traditional societies.

Needless to repeat the indigenous wisdom has long been jeopardized through out the world as many a mega development projects inspired by the in the name of national, regional and local development often "deprive indigenous peoples of their lands or their livelihood, that scatter their communities or destroy their societies," and their age-old cultural heritages. (Maybury-Lewis, 1999:25).

Mega projects of economic and social development that often involve exploitation of indigenous land resources by logging companies, mining enterprises or agribusinesses and especially the building of dams have often resulted in serious adverse consequences for the minority ethnic groups in many a nation state (Maybury-Lewis, 1999).

Is sustainable development possible? - can we continue to make economic and social progress and "meet the needs of the present without compromising the ability of future generation to meet their own needs" (Bryjak, 1992: 419). Third world nations including Ethiopia are consuming their basic economic capital natural resources faster than if can be replaced. There is now days much talk about sustainable development. In poverty - stricken and resource-depleted countries, governments are making the issue of natural resources conservation and management one of top agenda. So states are committing themselves to the "goal of sustainable development and most have signed a global treaty for the protection of biological diversity." But all these talk amounts to nothing if indigenous resource management knowledge, skills and practices are undermined and if their lands, cultures and peoples are threatened with extinction.

4. Traditional Communal Structures, Cultural Heritage and Natural Resource Management: the Case of Ethiopia

4.1. The State of Traditional Natural Resources Management Knowledge and Practices in Ethiopia

Ethiopia is a home for well over 100 distinct ethno- linguistic groups, of which the majority reside in the Southern Nations, Nationalities and Peoples Regional State (SNNPRS). Many of the groups of people that may be termed as "indigenous" are found in the Region. The different ethnic groups have lived for centuries and institutions relating to the ecosystem of which the primary resources bases for livelihood are the major ones.

References to the accumulated repertoire of indigenous knowledge and practices pertaining to the natural resources conservation, agronomical practices, ethno – veterinary medicine, livestock handling, terracing and irrigation, etc in Ethiopia are often made in

various sources. The Federal Rural Development Policy and Strategy Document (2002), for example, acknowledges this, stating the need for recording and promoting indigenous agronomic practices. "This indigenous knowledge is not to be lightly regarded," says the document (p. 39). Regarding the native knowledge in animal resource husbandry among the nomadic pastoralists, a rough translation of what is stated in the Amharic Document is as follows: "... the pastoral nomads (of Ethiopia) have invaluable livestock resource management knowledge and skill which they have generated over long periods of time. Without recognizing and being based on this, it would be of no use and destined to fail if we try to development animal resources in these areas. Thus to improve three livestock management practices ad technologies in such areas, making detailed evaluation of the local knowledge and practices, and sifting out the beneficial ones form the shortcoming will be a priority task. "(p 123)

The document further makes reference to the kinship and / or clan based pastureland usage and management practices, stating that any future pastureland development projects among nomadic pastoral areas need to take into account, and be based, on this traditional stock of knowledge.

Traditional knowledge in soil conservation practices of the various ethnic groups in Ethiopia is also often well recognized. Notable among these is the traditional agronomic irrigation and soil conservation practices of the Konso of south Ethiopia. Regarding this, Professor Fasil G. Kiros (1993: 23) has this to say:

The highly elaborated system of agricultural production of the Konso represents one of the best examples of how subsistence producers can effectively modify the physical environment and render it more productive. The methods of terracing, irrigation and other technological elements developed by the Konso are probably the most remarkable to be found in the country

In a country where diverse ethnic groups live in varying agro- ecological zones with multiple subsistent production systems, it can be assumed that there are quite many other time – honored traditional knowledge and practices relating to the environment and natural resource use and management. Needless to mention, the bounteous and diverse nature of Ethiopia's natural resources is a well known and often cited fact. Her diverse climatic conditions, viable topographies, rich fauna and flora, vast cattle, unparalleled water sources, among others, are often mentioned.

However, the current state of natural resources and the way they are managed is often regarded as very disappointing. The country is regarded as one of the most leading poor economies where multiplicity of factors have contributed to the depilation of natural resources and to the near ecological disasters that are taking place (Solomon, 2004; Fasil,1993).

Despite these well – acclaimed stock of cultural heritages and rich natural resource bases, the Ethiopia peasantry now ekes out their bare existence under what Fasil (1993) calls as "the subsistence crisis". Among the salient dimensions of this dilemma are the environmental degradation, desertification, soil erosion, deforestation and the depletion of

other natural resources. Environmental degradation and resource deteriorations have become key issues in the contemporary environment and society dialogue in Ethiopia.

The questions that may be raised in this regard are, "Have the peoples of Ethiopia contributed to the environmental degradation and natural resource deterioration?" "Are there inimical elements in the practices, beliefs and institutions of the peoples of Ethiopia in this regard?" Or, "are the indigenous knowledge, practices and structures of conservation in Ethiopia being disintegrated due to outside intervention such as development projects?"

Fuller and adequate answers to these and related questions in Ethiopia may await systematic multi- disciplinary researches. It is, however, assumed that complex interactions of multiplicity of biotic / physical, social- political, cultural and other factors have contributed to the present dismal state of environmental degradation and deterioration of natural resources in Ethiopia. The blame may be shared by all the parties engaged in natural resource uses, including the traditional peoples themselves. Some elements in the traditional, intensive subsistent cultivation of the highlanders and overgrazing of pasture lands among the lowlanders may have practically contributed. However, as shown below, the problem may be mainly attributed to the actions of outside forces rather than the people's traditional practices.

4.2. Indigenous Resource Management Practice and Clash with Outside Intervention in Ethiopia: The Impact of Development on Indigenous Ecosystems, Livelihoods and Customary Resource Management Structures

Evidences of the adverse impacts on the indigenous knowledge, practices and institutions pertaining to natural resource use and management by the outside political factors in Ethiopia exist. For example, the depletion of forest resources of Ethiopia is not so much the result of improper uses by subsistent producers as it was due to the actions of warring factions at various times in the country. Some evidences indicate that massive harm was inflicted on the forest coverage of Ethiopia during, for example, what is commonly called the invasion of Queen Judith (842-890 E.C) ; and also between Emperor Libne- Dengil and Grangn Mehamed (1520 – 1535) (Solomon , 2004).

The effect of civil wars that characterize Ethiopia for centuries on the traditional knowledge and resource bases in Ethiopia cannot be undermined (Fasil, 1993). More recently, the action of successive regimes in Ethiopia in the effort of national, regional and local development in the name of fighting backwardness, agricultural modernizing, etc have had adverse consequences on the valuable traditional practices and institutions.

Indigenous knowledge bases and practices have thus faced threatening challenges in Ethiopia. Anthropologists cite many failed development project efforts because they were not culturally compatible and did not make the people participate. One such case is what Kottack (2002) calls as "a naive, and incompatible project" which was "over-innovative

scheme" of converting nomadic herders into sedentary cultivators. It ignored traditional land rights, outsiders commercial farmers were to get much of the herders' territory. (p 587)

Often the modern development planning aims at "generating individual cash wealth through exports. This goal contrasts with the tendency of [traditional societies] to share resources and to depend on local ecosystems and renewable resource"(*ibid.* p.587).

Anthropological researches on the adverse consequences of development projects of various sorts, development- induced impoverishments, failure stories of development projects, the weakening and disintegration of traditional practices and institutions pertaining to natural resources, the impact of investment of local ecosystems, etc are now coming up in Ethiopia (Gebre, 2004; Boku, 1996; Kasahun, 2004; Melese, 2004; Woldeselassie, 2004; Ayalew, 2004; Tadesse 2004).

According to Gebre (2004), for example, the Derg Regime's Metekel Resettlement Scheme of the 1980's in the northwestern Ethiopia made huge harm to the lives, ecosystems and natural resources of the Gumuz, a Nilo-Saharan ethnic group. It disintegrated the people's traditional systems of livelihoods and resource use and management patterns, Above all, "the Metekel resettlement was carried out without any due regard for the environment. Massive deforestation was the most conspicuous consequence of the program"(p. 103). The sad results of deforestation in the Metekel area included the increasing rate of soil erosion, disappearance of wild animals, and loss of traditionally valued plant species including edible wild plants.

Another writer , Woldeselassie (2004: 80) also notes that the " resettlement operations has taken away the traditional resources of the Gumuz whose livelihood is based on shifting cultivation combined with gathering, hunting, fishing, and honey collection" Wodlesellassie also noted that the massive deforestation that followed resettlement scheme resulted in the disruption of the agro-ecology system.

The state- sponsored agricultural modernization and investment projects also did major harm to the agro-pastoral and pastoral nomadic peoples of Ethiopia, disrupting their local ecosystems and their age-old customary natural resource use and management patterns. Thus, according to Ayalew (2004), the introduction of large scale agricultural investment in the Awash Valley area caused great harm to the Kereyu pastoral nomadic groups and their traditionally valued resources. It resulted in the dwindling of natural resources and the degradation of environment. According to him, "development- induced dispossession/ displacement was evidently responsible for aggravating the drought problem [among the Kereyu] as it was accompanied by diminishing natural resources and high environmental degradation (p. 250). The land use policies and tenure legislation of the state which implicitly encourage the expropriation of traditional pastoral resources in the interest of wider society led to the nullification of the traditional institutional systems of resource management, thus serious effects on the ecology, " as the pastoral nomads are forced to limit their traditional migratory life styles and concentrate with their large livestock in a limited areas, causing overgrazing and resource depletion." (p. 251)

In a similar vein, Melese (2004) aptly discusses the vicious effects of agricultural investment on the age-old means of livelihoods and systems of natural resource use and management of the Tsamako of Southwest Ethiopia in the Woito Valley. According to him, "the customary coping strategies of moving between ecological zones of the Valley are being undermined by the degeneration of the natural resources of the area." (p. 280) Furthermore, the 'proven', environmentally-friendly, local institutional mechanisms of regulating and managing resources are being eroded by the introduction of the investment and with it the growing encroachment by the population immigration to the area from the nearby highland areas. Melese has indicated that the commercial farms have increased pressure on the renewable resources such as trees, pasture, wildlife and water; and he worries that the local people's collective actions, rights and obligations relating to natural resources use and management are beginning to disappear; and this overall worrisome process may lead to "irreversible resource degradation to the area" (p. 279). According to him, some wild animals and tree species have already disappeared.

Further, other indigenous peoples in the country faced resource depletion and disintegration of customary resource use and management practices, and socio-economic impoverishments due to the building of dams (Kassahun, 2004), national parks establishment (Tadesse, 2004) and urban expansion (Feleke, 2004).

V. A Search for Solutions

5.1. The Need for Safeguarding and Revitalizing Traditional Systems of Natural Resource Management

It appears to be one of anthropological doctrines that indigenous natural resource and ecological (knowledge) and management system have intrinsic worth in themselves. Such precious system is now being under constant pressure - and many such systems have already been awakened, and in many places have been totally disintegrated, due to, among other things, the introduction of modernization and globalizing economy; the encroachment of modern agricultural, "developmental" projects on the native lands and the often forceful incorporation of traditional peoples into mainstream political and socio-economic systems. The question is now, "what are the conditions in which traditional systems of ecological management can persist in the modern world?" as Alan T. Durning (1993: 417) asks. He suggests three responses to this question:

"First, indigenous peoples must have secure rights to their subsistence base, rights that are not only recognized but enforced by the state and ideally, backed by international law...

"Second for indigenous ecological stewardship to survive the onslaught of the outside world, indigenous peoples must be organized politically and the states in which they live must allow democratic initiatives...

"Third, indigenous communities must have access to information, support and advice from friendly sources if they are to surmount the obstacles of the outside world ..." (p 424)

"The question of cultural survival and indigenous homelands cannot be avoided any longer as guardians and stewards of remote and fragile ecosystems , indigenous cultures could play a crucial role in safeguarding humanity's planetary home...." (ibid. p 424)

There is much to learn form the repertoire of indigenous peoples' ecological knowledge. Helping safeguarding cultural heritage of traditional peoples and revitalizing them would be of paramount importance in the sustainable development goals and attaining environment friendly development.

5.2. Measures to Be Taken to Strengthen Natural Resource Management in Ethiopia

Ethiopia is currently engaged in massive national regional and local level socio-economic development activities. The centuries old complex historical, social political , natural and other factors have contributed to what some writers call as the "near ecological disaster" in which we find ourselves (Fasil,1993; Solomon,2004)

One of the key activities in Ethiopia now is reviving the depleted natural resources of the country and conserving the threatened biodiversity, and protecting the environment. Central to all these efforts is streamlining people's mass participation in appropriate ways. But for effective natural resource management, it is essential for development policy makers and implementers to take into account the clashes that occur between the various peoples, cultural heritages and values on the one land and the globally enforced principles and national regulations, pertaining to environment and natural resources

As Kottack (2002) and Durning (1993) argue, the first clash of cultures occurs when economic development projects which are meant to benefit the people or others wise threaten the very lives of indigenous peoples and their local ecosystems. Many native peoples and their cultures around the world have been threatened and in many cases damaged by massive development projects such as hydroelectric dams, roads, mining, losing, commercial farming, ranching, etc. Government planned actions of developing the backward living conditions of people often fail due to cultural clashes. In Ethiopia also cases of such kinds of clashes, damages and threatening of indigenous cultural heritages are discussed above.

Thus, it would be very important to consider these adverse conditions of development projects in Ethiopia. Culturally compatible and people- centered principles should govern all environmental management activities. Destruction of the traditional homelands and cultural heritages of indigenous peoples should not be overlooked for the sake of development.

Furthermore, care should also be given that the external regulations should not threaten indigenous peoples. As Kottack (2002) argues, sometimes the very environmental plans that seek to improve the local national resources threaten the native people. When external regulations disregard the age- old traditional beliefs and practices of the people, problems and failures would occur. Such problems arise when outside planners"expect local people

to give up many of their customary economic and cultural activities without clear substitutes, alternatives, or incentives in order to conserve endangered species" (*ibid.* P.600).

In Ethiopia, a country with diverse ethno linguistic groups, paying due consideration for the cultural practices, customs, beliefs, institutions, and values of the people would be very essential in all natural resource conservation and management activities, through genuine interactive dialogue with local communities. It is mandatory, before enforcing any laws and regulations

VI. Summary and Conclusion

A brief summary and conclusion of the theses that have been presented and developed in this paper are as follow. The issues of environment and society in a multi- ethnic and economically poor country like Ethiopia, where environmental degradation and natural resource deterioration have become a national agenda, automatically become very important. One of the top concerns of environmentalists and social scientists in our contemporary world is the dangers and threats of the intensification of economic development and the high growth of globalizing industrialism on the future of the planet earth. The threats to biodiversity and the natural resources have become intensified. The challenges call for an appropriate management and conservation of the earth's natural resources.

One of the salient dimensions of this issue is the role and potential of traditional knowledge and practices relating to the ecosystem and natural resource management. Anthropological literature have made a bold statement about the virtues of indigenous wisdom in natural resource management, stating that there are vivid examples of how traditional peoples living in intimate relations with nature, in a spirit of custodianship, across time and space contributed to the preservation of the biodiversity. They have lived in good harmony with nature. But the beginning and intensification of industrialism and economic development projects have greatly contributed to the destruction and disintegration of indigenous cultural heritages thereby contributing to the loss of biodiversity.

Ethiopia is a home for many indigenous ethnic groups, the majority of which live in the Southern Region. The different ethnic groups in the country have accumulated a wealth of indigenous knowledge in natural resource management. The country is endowed with diverse natural resources, despite it currently faces the challenges of environmental degradation and natural resource deterioration. Some recent anthropological researches findings show that the traditional cultural heritages pertaining to natural resource management has been weakened due to various factors, not the least of which is the effect of the many development projects which lack adequate cultural and social compatibility. Sustainable development now and in the future largely depends on giving due attention to the traditional cultural values and communal social structures and involving people at the grassroots level in all development and natural resource conservation activities.

Finally, the following compelling statements by Alan T. Durning (1993) may be taken as important issues for debate:

- "Human cultures are disappearing at unprecedented rates. Worldwide, the loss of cultural diversity is keeping pace of the global loss of biological diversity. Cultures are dying out even faster than the peoples who belong to them."
- "The biosphere's most diverse habitats are usually homes to endangered cultures."
- "The relation between cultural diversity and biological diversity stands out even in global statistics."
- "Where there are forests there are indigenous people, and where to there are indigenous people there are forests."
- "The creation of a.... global economy.... has meant the pillage of native people's land, labor and resources."

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