Internationally aided Development for Arid and Semi-arid lands in Kenya: A Comparative Sociological Analysis and a Framework for Project Planning

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Thesis submitted to the faculty of Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of Masters of Science in Sociology

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Spring, 1996

Blacksburg, Virginia
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(ABSTRACT)

Majority of the world’s poor live in marginal areas. In developing countries, about 60 percent of the poorest population live in hilly vulnerable ecological areas which include arid and semi-arid lands with limited soil fertility, hilly upland areas, and steep slopes. Most of the inhabitants of these areas owe their livelihood primarily to the exploitation of the natural resource. However, the natural resources and ecosystems in these areas have continually undergone severe degradation. Governments and development agencies face a major challenge in their efforts to achieve sustainable development in the world’s fragile ecological areas. The poor inhabitants of the world’s fragile ecological areas are faced with increasing population pressure, lack of protective infrastructure such as transportation and communication systems, investment, and inadequate technology. These conditions continue to affect their social and economical standards of living. The deteriorating living conditions of the world’s poorest population inhabiting arid and semi-arid lands result in a cycle of continued economic decline and land resource destruction. Hence the challenge to focus on development strategies which would break the vicious circle of poverty and environmental degradation. This research employs thematic content analysis as a research technique to do a comparative sociological study of two rural development projects, (Turkana rural development project and Lokitaung pastoral rural development project), in arid and semi-arid Turkana district in Kenya. I propose and use COPETT, (culture, organization, population, environment, technology,
and time), a human social-ecological framework as a tool for analysis. Specifically, this study presents a descriptive account of the project's history; the formal development objectives of the Turkana rural development project and Lokitaung pastoral development project as set by NORAD and OXFAM. The study also examines the projects management and the interaction effects with the Turkana people, their culture, organization, environment, and technology. The understanding of the two international development agencies of the concept and the effect of time with regard to culture, organization, population, environment, and technology is also examined.

I argue that the continued use of the project approach to development particularly in rural areas call for an examination and identification of sociological requirements attached to this framework for development intervention. The use of COPETT framework for development planning could provide a holistic human-centered development strategy that engenders mobilization and empowerment of the rural population socially, economically, and politically not only in Kenya but also for the world at large. Further, the analysis adopted in this study could serve as a point of departure for understanding ways through which international development agencies could improve on the strategies needed in designing and implementing development projects in order to achieve sustainable development.
ACKNOWLEDGMENTS

I would like to express my appreciation to my committee members, Dr. Theodore Fuller, for serving as the committee chairman and for his support and encouragement since the beginning of this study. Dr. Fuller’s advise and suggestions are specially appreciated. To Dr. John Ballweg and Dr. L. Tlou much gratitude is due, for serving on my committee, and for their suggestions which I have valued throughout this research.

Special thanks go to the Virginia Tech interlibrary loan office workers for their assistance in getting the research material. This study could not have succeeded without their help. Also much thanks to my friends for their friendship and encouragement. Above all I thank God for giving me the gift of life, good health and strength throughout my education at Virginia Tech.

Finally, I wish to thank my family for their love, support and encouragement throughout my life. Special thanks go to my loving husband Gichina and our children Njeri and Wanjiru for their love, patience and understanding throughout my masters program. Without their support the completion of this study could not have been possible. It is to them that this thesis is dedicated.
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Chapter I

STATEMENT OF THE PROBLEM

This study aims at establishing a framework within which issues in project establishment specific to rural development in rural dry areas, through the project approach, can be examined. An establishment of a model within which issues in the development of rural marginal areas through the project approach could be examined is important; because most development organizations continue to use projects as instruments of intervention oriented development, particularly in rural areas (Cernea, 1991). Although this research uses two case studies from Kenya as a point of departure, such a framework would serve to order further investigation, debate, and policy formulation regarding rural development projects in marginal areas not only in Kenya but also in other arid and semi-arid lands of the world.

The majority of the world’s poor live in marginal areas. About 470 million (60 percent) of the developing world’s poorest population live in hilly vulnerable ecological areas. These areas include arid and semi-arid lands with limited soil fertility, hilly upland areas, and steep slopes. Majority of the inhabitants of these areas owe their livelihood primarily to the exploitation of the natural resource. However, the natural resources and ecosystems in these areas have continually undergone severe degradation, and therefore the need for better development strategies (Royal Tropical Institute, Netherlands, 1991 Savenije et al ed.). In Kenya, arid and semi-arid areas comprise 70-83 percent of the total land surface area. These areas support over 25 percent of the human population and slightly over half of livestock population (Adams, 1990; Keya, 1991; Oba, 1992; Miller and Yeager, 1994). The population inhabiting Kenya’s arid and semi-arid lands may not seem high, as compared to over 80 percent of the country’s total population living in less
than 20 percent of the total land area (Thomas-Slayter, 1992; Miller and Yeager, 1994). However, this population distribution raises a critical issue, as observed by the Food and Agricultural Organization (FAO), on Kenya’s food production. The FAO survey found out that the population of Kenya’s high potential area has already exceeded the land’s carrying capacity (Darkoh, 1990; Oba, 1992). Consequently, arable land for subsistence farming in the high potential areas has continued to diminish (Ondiege, 1992). As a result, there has been inevitable expansion of the cultivation boundary into semi-arid, arid, and drought prone areas (Ondiege, 1992; Miller et al, 1994; Darkoh, 1990; Oba, 1992).

Governments and development agencies face a big challenge in their efforts to achieve sustainable rural development in the world’s fragile ecological areas. Such areas as arid lands, hilly zones, and tropical soils host widespread poverty. The poor inhabitants of the world’s fragile ecological areas are faced with increasing population pressure, lack of protective infrastructure such as transportation and communication systems, investment, and inadequate technology. These conditions continue to affect their social and economical standards of living. The deteriorating living conditions of the world’s poor population inhabiting arid and semiarid areas results in a cycle of continued economic decline and land resource destruction (Williams, 1989). Hence the challenge to focus on strategies which would break the vicious circle of poverty and environmental degradation. The state of poverty and environmental degradation could be alleviated by balancing the goals of increasing fragile lands productivity while maintaining socio-economic systems which seek to support and preserve environmental integrity. Understanding socio-cultural structures such as indigenous knowledge systems within rural communities occupying fragile ecological areas is a step towards the achievement of sustainable development.

According to Porter et al (1991) many books on development implementation were published in the 1980’s, a few of which were about improvement of development projects success. Like development practice much of this literature has been focused on a
prospective future and forward looking in comparison with past development experience which was characterized by failures. Porter et al (1991) continues to argue that the design of many development projects ignores the concept of history and assumes that time begins with project implementation. Consequently, past lessons are rarely examined. Worse still, few development oriented professionals inquire into the historical circumstances of the people their interventions seek to assist. As a result, posits Porter et al (1991), there is less range of perception in the present development assumptions and circumstances for the notion of "equitable environmentally, sustainable, participatory development future, currently popular in development literature." Further, this development literature fails to explicitly recognize that modern development practice is part of a broader social and political philosophy which assumes peoples incapability in decision making about their own development. Such modern development practice is particularly directed towards more control over projects; a deliberate attempt to ensure that the target group of people in question do not control their own lives (Heyer et al, 1981; Ake, 1990; Darkoh, 1990; Porter et al, 1991).

Cernea (1991) argues that despite the recurrent debate on the successes and failures of projects as objects of intervention oriented development, an establishment of more effective development alternatives has not yet been achieved. Consequently, projects as instruments of development particularly in the rural areas may basically remain the popular means for policy translation into action oriented development programs. The continued use of the project approach to development therefore calls for an identification of sociological requirements attached to this framework for development intervention. Social scientists, contends Cernea (1991), would gain from a further exploration of project potential that seeks to overcome the limitations involved in order to broaden and fully use the available opportunities for the inquiry of action oriented or "participatory" sociology. Further, a systematic application of sociological knowledge as a compliment to technical and economic knowledge in development interventions particularly in rural
areas is indispensable for a realization of sustainable change. This is especially important while putting into consideration the most often used definition of developmental sociology as the sociology of interventions or sociology of strategies.

Despite the fact that most development endeavors in Kenyan marginal areas have met with increasing disillusionment concerning their effectiveness in alleviating rural poverty (Adams, 1990; Hogg, 1992), the Kenyan government has continued to look to donors for the stimulation of the rate of current progress and future sustainability in development through identification of more cost effective strategies. Therefore, an identification of more effective and less expensive development strategies in Kenya’s arid and semi-arid regions is critical due to a number of reasons. First, half of all Kenya’s predominantly rural districts contain large expanses of arid and semi-arid lands. Second, these areas continually absorb a persistent flow of immigrants from high populated wetter areas which have been given over to commercial agriculture. This situation has produced a steady raise of environmentally risky dry land farming and a threatening loss of pastoral rangelands. However, an adoption of more effective development strategies in Kenya’s arid and semi arid lands (ASAL) by foreign agencies who have been heavily involved in ASAL’s development would offer considerable hope for Kenya’s economic productivity (Miller et al, 1994).

This thesis studies the characteristics of project development approach on Kenya's arid and semi-arid (ASAL) areas. Two development projects and their underlying approach to change are used as a point of departure. The main objective of this study is to contribute to the formation of a theory which can assist in the classification of development strategies and determine the effect they have on the intended target groups (beneficiaries). I argue that there is need to seek better ways of increasing the effectiveness of investments of western resources such as liquid capital, and time used by the international development agencies in Kenya’s dry areas. Specifically, this study employs a comparative sociological analysis of Turkana rural development project and Lokitaung pastoral development project in Turkana district, Kenya. I use a comparative

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sociological analysis as a most suitable way to assess performance of change strategies. As a research methodology, comparative sociological study draws attention to the interconnectedness of different elements of change which comes with development. In particular, this analysis is suitable to the study of social change due to its recognition of the fact that change strategies deal with several interrelated goal directed elements and that failure to pay attention to one aspect could affect the overall result of development endeavors. Further, I propose a framework which offers a foundation through which rural development projects in dry lands would realize more success. An understanding of the elements of the proposed framework broadens the scope of options for effective development design and implementation. This framework is particularly useful because it includes sociological elements such as gender, gender issues, and relations of power in development, which are of paramount importance in the realization of sustainability in development endeavors. This study puts emphasis on the inclusion of sociological variables in development planning and practice, an important condition in project success which most studies on rural development projects in the past have reluctantly recognized.

Cernea (1991) posits that development programs have consistently failed due to lack of sound sociological foundation, a situation which he refers to as “sociologically ill-informed and ill-conceived.” Yet most project experiences argue for an approach which empowers the target population at the local level which is vital for the success of any development programs at the national or international level. However, the information and experience necessary to know what should be done, and the capacity needed for the implementation are not always readily available at the local level (Budelman et al, 1991). The ultimate test of development programs is whether or not they improve human living conditions (Adedeji, 1992). Development agencies could succeed in achieving development in rural marginal areas by assisting the poor inhabitants to be less vulnerable through alleviation of poverty. Rural poverty could be alleviated through economic empowerment of the poor; a situation which would offer accessibility to the means of

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production, and basic services. Further, a recognition of gender roles and needs; particularly practical and strategic needs, marks a headstart in the achievement of development.

The analysis adopted in this study, I argue, could serve as a starting point for understanding ways through which international development agencies could improve on the strategies needed in designing and implementing development projects in order to achieve sustainable development. According to Buvinic and Yudelman (1989), sustainable development is development that exploits the environment to meet the needs of current generation, without endangering the needs of future generations. Achievement of sustainable development on arid and semi-and areas in Kenya is crucial to the development of the rest of the country because it would create room for the surplus population in high agricultural potential areas which, as noted earlier on, has already exceeded human and animal carrying capacity. Moreover, the COPETT (Culture, Organization, Population, Environment, Technology and Time) framework proposed in this study, could provide a holistic human-centered development strategy that engenders mobilization and empowerment of the rural population socially, economically, and politically not only for Kenya but for the world at large. An exploration of the variables contained in the elements that make up the COPETT framework with main focus on indigenous knowledge, gender, and power relations is done. The literature cited in this study provides an important contribution towards the establishment of the proposed framework. However, no such framework has been established to date to the best of the authors’ knowledge.
Chapter II

LITERATURE REVIEW

Since 1973, definitions of development have stressed the need for general improvement of individual's, family's and community's quality of life through greater participation in decision making, opportunities for productive employment, access to consumer goods, and basic services. Such services include clean water supply, medicine, education, and communication. According to Cernea (1991) a more recent definition of development as defined by the United Nations Development Program (UNDP) 1990, asserts that development is a process of enlarging people's wide ranging choices among which three of the most critical are: (1) to live a long healthy life. (2) to acquire education and (3) to have access to resources necessary for a decent standard of living. Other choices of importance include political freedom, guaranteed human rights, and personal self respect. Boserup and LiLjenerrant (1975) defined development as a dual process which greatly expands new economic and social activities, transforming traditional activities and reducing their relative importance so that labor is released for new activities. Development planning should be in a position to guide the transformation processes in ways which allow efficient use of human resources, such that the largest possible number of families get a chance of improving their living standards.

Todaro (1989) defines development as the process of improving the quality of all human lives. This process involves three equally important aspects: first raising peoples living levels such as incomes, quality and quantity of food consumption, medical services, education through “relevant” growth processes. Second, creating conditions which are conducive to the growth of people's self esteem through the establishment of social, political, and economic systems and institutions which promote self dignity and respect. Third, increasing people's freedom of choice by enlarging the range of their choice variables, such as increasing varieties of consumer goods and services.
The definitions of development outlined in this study point out some important ideological differences within developmental agencies on the subject. First there is the dominant equation which serves as a vehicle of progress in development model; "development is equal to economic growth." While it is important to acknowledge the existence of subsets of overarching goals within this dominant development paradigm, the primary indicator for goals of development lay under the umbrella of economic growth. This conceptualization has dominated the field of international development since its commencement over fifty years ago (McCorkle, 1989; Styrensen, 1990).

A more recent approach to development, though still in its infancy, deals with the empowerment of marginalized groups in the definition of their own means and ends for community development. This alternative paradigm is beginning to gain ground within non-governmental development agencies. As a development ideology, the empowerment of the poor bears two important components: practical needs and strategic needs (Styrensen, 1990). Practical needs, for example, include gaining access to quality health care, improving agricultural yields, and sustainable use and management of natural resources, while strategic needs involve variables such as self-esteem, access to political participation, self-determination, and raising people's consciousness.

**Rural development**

Since this study is focused on development projects in rural arid areas it is important to have an overview on rural development. Rural development emerged in the 1970's as a possible way of recognizing the indispensable role played by the rural people on increased agricultural production (Wisner, 1988). Abubakar (1989) claims that rural development can never succeed unless and until a clear generally acceptable definition is reached. Unfortunately this has not been so as many people tend to associate rural development vaguely with activities in rural areas designed to improve living conditions with a view to stemming rural-urban migration; a view which has prevailed for many years. More recent reorientation of rural development contends that rural development
refers to the activities of donor and governmental agencies designed to improve rural life with donor agencies working through field representatives and the people, while government agencies work through field administrators. Such a view of rural development tends to give local governments a prominent place in serving the people in question; that of being nearer to the people through the provision of services. This rural development strategy, of provision of services through institutions has created an organizational definition of rural development by some governments and donor agencies as well. That is, rural development has come to be defined as the provision of services coordinated by more than one government and or donor agency (Abubakar, 1989).

Stocking (1987) acknowledges that rural development deals with complex problems such as the production of insufficient food such as is the case for most African rural areas where people do not fail to produce enough food because they chose to, but it is due to a variety of factors. Such factors as availability or lack of the resources to produce food vary from one area to another, and between different individuals.

Todaro (1989) asserts that rural development is synonymous to integrated rural development. It refers to a broad array of activities which include small-farmer agricultural progress, provision of social and physical infrastructure, development of rural non-farm industries, and the capacity of rural sector to sustain and accelerate these activities rate of improvement over time.

According to Heyer et al (1981) rural development is planned change by public agencies based outside rural areas. Development agencies include national governments acting alone, and international organizations acting in association with national governments. In general these agencies represent development as an impossibility without their intervention. As a result, rural development is defined to be undertaken for peasants not by the peasants. International development agencies and foreign governments provide financial and personnel sources for rural development. These agencies also play the role of instigators and agents of rural development policy.

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Food and Agricultural Organization (FAO) states that a definition for rural development could be achieved by defining rural development projects. However, critics of this school of thought argue that the definition of rural development projects can not in any way be synonymous with that of rural development because rural development is a broader concept under which the concept of rural development projects is subsumed. Yet a definition of rural development project is a step further into defining rural development. Henceforth, FAO formulates the objectives of rural development as follows: (1) direct or indirect improvement of the capabilities and well-being of rural people, (2) enabling the rural poor to participate in project identification, implementation, and decision making, and (3) to help the rural poor in different environments solve their problems (Abubakar, 1989).

International development practitioners have been accused of working through and being representative of developing countries governments which do not cater to their people’s needs and especially those of the poor. For many critics, international development agencies assume the role of rural peoples developers. These agencies accuse the rural poor of either being hindrances to their own development or being incapable of grasping the benefits of development intervention activities until and unless they are persuaded that development endeavors in question are indeed in their interest. Where development agencies use terminology such as partnership and participation the target rural population does not enter into the conception of rural development. Consequently, where rural populations engage in grassroots initiatives on their own, these activities are suppressed, diverted or pre-empted. In such a contention, participation seems to mean getting the target population to do what outsiders think is good for them (Heyer et al, 1981; Porter et al. 1991; Kronenburg, 1986; Morgan, 1987). Hyden (1990) posits that excessive control and guidance of development practice by outsiders define the relationship between agencies of development and peasants. Such moves exclude peasants conceptions and participation of their own development.

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Rural development projects

The idea of rural development projects for integrating inputs and services for the poor was initiated by the World Bank (International Bank for Reconstruction and Development) in the 1970s. The World Bank led in research on basic human rights under the presidency of Robert S. McNamara, who led the fight for the alleviation of Third World poverty. The services included fertilizer, credit, roads, schools, skills training, and nutrition. This move was later supported by other bilateral and multilateral donors who followed suit. Due to rural development project’s focus on alleviation of poverty, funds became readily available with the objective of increasing the incomes and productivity of the poor. As a result, international relief agencies as well as private voluntary organizations started to develop their own small-scale economic development projects (Buvinic and Yudelman, 1989). Since the initiation, the general traditional criteria for rural development projects has been technical soundness, economic profitability, and social acceptability (Wiersum, 1991).

Rural development projects may be defined with regard to their types and aims. Abubakar (1989) distinguishes between two types at the general level; productive and income-generating projects, and those which provide social services and infrastructure. The former category may for instance be formulated in fields such as agriculture, livestock, fishery, poultry, and cottage industries while the latter are concerned with water supply, health, education, electricity, roads, markets and motor parks for commercial vehicles (Wiggins, 1985; Abubakar, 1989).

The World Bank (1983) defines rural human development projects as all those projects intended to raise the welfare of rural people directly. Such projects include education, health, community development, and small holder agricultural production projects. Human development projects are carried out by either non-governmental organizations or by governments.
Cernea (1985) defines development projects as purposive planned interventions that are commonly used to accelerate economic and social development. Further, he states that rural development projects are vehicles for financially induced growth and change, a situation that challenges development applied sociology. The project approach to development will probably remain “ubiquitous” and most preferred by national and international agencies. However, project approach to development has some shortcomings such as (1) projects concentrate resources on selected priorities, focus on circumscribed geographical areas, and address specific population groups which constrains development; (2) projects are segmented units of intervention which often bypass overall structures and they therefore develop atypically; and (3) projects tend to create enclosures, draw off from parallel non project activities and might not generate sustainable development beyond their specified time frame.

The intervention character of development projects towards economic and social change has negative and positive effect on the target population. However, development projects offer a wide scope for intensive applied social anthropological work. Therefore, Cernea (1991) asserts that development projects offer contextual ground for the use of a wider range of the products of social science and its approaches to inducing change as compared to the inventions of professional social science community. On the other hand developmental sociology offers the theoretical argument for an alternative model of project development in which the social actors are the crucial elements, the central core around which all other resources should be disposed for action.

According to Heyer et al (1981) rural development projects provide one means through which peasants conform to the requirements of outsiders. While most development projects are undertaken with inadequate knowledge of fundamental facts such as population, land, income distribution, ranges of crop yield on the onset or implementation, project failure is often seen as a result of problems between rural societies and the external partners in rural development. Usually conservatism or traditionalism on the peasant societies are used as scapegoats. Alternatively, project
failure is attributed to implementation and delivery systems which are castigated as either inefficient, incompetent or uncoordinated. Frequent development project failure has raised the need for revision of development strategies (Ake, 1990; Cernea, 1991).

**International agencies and African development**

Ake (1990) argues that many international development agencies have learnt to their dismay that the development of Africa is a much more complicated undertaking than they originally anticipated. As noted earlier, many development agencies have ventured into development strategies for Africa with an assumption that they know what the problem is and where it is situated. Most often than not this move has resulted in endless project failure (Oakley and Marsden, 1984).

Darkoh (1990) for example, contends that foreign assistance in development in Kenya’s arid and semiarid lands has not been able to reverse the negative development trends. This is attributed to the fact that most development programs and projects have been founded on the belief that the assistance needed by the local people for development involves the direct transfer of industrialized nations’ technology and knowledge. Development programs organized in such beliefs have proved that more often than not industrialized countries knowledge and technology is of little use. Sometimes such knowledge and technology bears direct damaging effects especially on the environment.

An analysis of past rural development experiences through project approach in Africa lays a foundation for future options in development endeavors. Since the assumptions on the knowledge of the problem in African development leads to neglecting of fundamental aspects on the role of indigenous African institutions in development, there is need to address this neglected aspect. Such a move would reveal important deficiencies in existing development strategies. Ake (1990) goes on to contend that in their involvement in African development, international agencies fail to see inter-agencies preoccupation with development as a problem of its own. Thus international development agencies are overly concerned and preoccupied with development goals that

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they fail to pay enough attention to the fundamental grassroots problems. Consequently, there is a tendency to look at society as a process that begets society in an ideal form as opposed to seeing society as an existence. Such an outlook fails to acknowledge the significance of developing world's history; a situation which calls for a need for a better understanding of the historical, economic and socio-cultural organization of different social groups in relation to development and change (Hyden, 1990; Ake, 1990; Porter et al, 1991).

One of the international development agencies most expensive errors concerning African development is the assumption that indigenous African cultural and social institutions are not conducive to development. However, these institutions and their peoples can never be stumbling blocks to their own development. Rather, the problem lies in the process of societal change from one state of development to another. Furthermore, all people according to Ake (1990), actively work for the improvement of their lives within the context of their socio-economic, cultural values, and understanding. Unfortunately, development agencies may not conceptualize such a situation quite that way since very often there is usually a confusion between science and ideology with the ignorance of the populations they set out to develop (Ake, 1990; Ayittey, 1990; Diouf, 1990; Hyden, 1990; MacGaffey, 1990; Windsperger; 1990).

In the same line of argument, Heyer et al (1981) and Darkoh (1990) assert that in their practice of development for Africa, international rural development organizations may lack the knowledge and experience to achieve the goals they set. Their conception of the prevailing African problems may, for example, hinder them from acknowledging the fact that peasant producers are more knowledgeable than officials and experts on local production within the environmental context. Moreover, it is the peasants who bear the consequences of error and not the consultants of international development agencies. Consequently, target development populations are more likely to be thorough in their assessment of the advantages of new development technologies under the conditions of their provision. Such a proposition implies the need for more cooperation between
international development practitioners and the benefactors of development in African societies. In his remarks, Tom Mboya (1968) pointed out that the ultimate job of the development of Africa lay entirely on the African people themselves. However, such a venture would be easier through cooperation within African populations; a condition which would engender an earlier achievement of the objective of a sustained and a higher rate of development in Africa. Nevertheless, rapid development would require developed countries to increase assistance to Africa and at the same time carry out some necessary reforms in their aid programs.

**Kenya: Location, Land and Population**

Kenya is one among fifty-two countries that constitute the continent of Africa. It encompasses an area of 583,748 square kilometers which is equivalent to 233,099 square miles (Ramsey, 1993). According to Darkoh (1990) 11,230 square kilometers of the total area consist of water surfaces. Located astride the Equator on the Indian ocean (fig. 1), Kenya is situated in the eastern part of Africa. It borders Uganda to the west, Tanzania to the south-west, Sudan to the north-west, Ethiopia to the north, and Somalia to the east (Ramsey, 1993; Miller and Yeager, 1994). Kenya is as large as France and slightly larger than Texas in the USA (Ramsey, 1993).

For a long time, Kenya has remained a “most favored nation” of western analysts often bearing the description of a country that is economically prosperous, politically stable, culturally and ethnically diverse, and gifted with a most attractive population and landscape (Thomas-Slayter, 1992). However, Kenya has one of the fastest growing populations in the world (Mcgivney and Murray, 1991; Miller and Yeager, 1994; Cleaver and Schreiber, 1994).

According to Davison (1988) and Hogg (1992) Kenya’s annual population growth rates stands at 3.6-3.7 percent. In 1948, Kenya’s population was 5.25 million which increased to 8.6 million by 1962. By 1979, it had reached 15,327,061 million (Ondiege, 1992; Darkoh, 1990). Kenya’s population had increased at a rate of 4 percent in 1984 to

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19.5 million with an estimate of 27.3 million by the year 1993 (Lundegren, 1992; Miller and Yeager, 1994).

By the turn of the century, it is estimated that Kenya’s population will increase to about 35 million persons (Ondiege, 1992). Kenya’s population remains overwhelmingly rural with voluntary and economic forced urbanization accounting for only 20 percent (Ondiege, 1992; Miller and Yeager, 1994). According to Thomas-Slayter (1992), 80 percent of Kenya’s total population lives in rural areas and mostly depends on agriculture which form the backbone of the country’s economy (Lundgren, 1992) for their livelihood. However, nearly the whole country is faced with a resource that is under stress particularly in arid and semi-arid regions where there is more stress on the fragile ecologically balanced indigenous production systems.

Kenya’s population consists of forty ethnic groups dominated by three very large ones. The Gikuyu tribe is the largest comprising 20 percent of the total population (Davison, 1988).
Figure 1: Kenya: geographical location

Source: Yeager and Miller (1994)
This population composition has caused ethnic competition for land which has characterized the Kenyan society. Kenya’s population has long been influenced by a mixture of Asians, Arabs, and European (Miller and Yeager, 1994). High population and scarcity of arable land to accommodate such a highly growing population has created one of the biggest problems facing Kenya’s changing socio-economic development Over 80 percent of the population inhabits less than 20 percent of the land (fig. 2); a situation that poses a threat to the agricultural carrying capacity of the fertile land (Darkoh, 1990; Oba, 1992; Ondiege, 1992; Lundgren, 1992; Miller and Yeager, 1994). Between 1/3 and 2/5 of all Kenyan households are unable to feed themselves adequately, with 1/3 of all children suffering malnutrition. High population densities in arable land has forced the poor to migrate into less arable, arid and semi-arid areas (Wisner, 1988; Thomas-Slayter, 1992; Oba, 1992; Miller and Yeager, 1994). This outmigration has also resulted in rapid rural urban migration totaling over 8 percent annually. In 1965, for example, 9 percent of the total Kenyan population was urban as compared to 24 percent in 1990 (Miller and Yeager, 1994). A British Overseas Development Administration (ODA) study observes that:

“Everywhere there is competition for limited land and water resources, the potential for further gains in production being limited in many areas to yield increases derived from more intensive use of farm inputs and improved management. As the population increases...highland farms are increasingly fragmented and people are forced into the semi-arid margins, where cropping is precarious and where successful pastoralism depends on maintaining livestock numbers in equilibrium with range potential” (Miller and Yeager 1994, p.66).

More than any other East African country, with over half of the population under 15 years of age, Kenya faces a dilemma; how to produce enough food to feed fast growing numbers of urban and rural dwellers, on a land that is often less arable and at the same time becoming a scarce resource (Davison, 1988). Today as has always been, 70-83
percent of Kenya’s land area is arid or semi-arid (Adams, 1990; Keya, 1991; Oba, 1992; Miller and Yeager, 1994). Of this percentage, only 12 percent of the total arid and semi-arid land area having potential for rain-fed agriculture. This environmental constraint is the cause of many human-ecological, political, and socio-economic problems facing the majority of the marginalized rural population (Wisner, 1988; Ramsey, 1993; Miller and Yeager, 1994).

**Arid and Semi-arid lands of Kenya**

Figure 3 shows Kenya’s arid and semi-arid (ASAL) lands which make up to 70-83 percent of the total land surface area. Over 25 percent of the total Kenyan human population and over half of the country’s livestock population owe their livelihood to the arid and semi-arid lands (Adams, 1990; Keya, 1991; Oba, 1992; Miller and Yeager, 1994). The inhabitants of Kenya’s arid and semi-arid districts (fig. 4) practice nomadic pastoralism and agropastoralism. Nomadic pastoralists own the following proportions of Kenya’s livestock population: over 30 percent of the cattle, 69 percent of the goats, 66 percent of the sheep, and 100 percent of the camels (Oba, 1992).

Kenya’s ASAL stretches from the south-east to the north and north-eastern part of the country. This area’s ecology is characterized by low and variable rainfall, mostly not more than 800 mm, with most areas receiving 200-350 mm annually, frequent drought and rocky wasteland, with hilly scattered outcrops, low mountains, and shallow stony soils. Water is a limited and poorly distributed resource in Kenya’s ASAL. Although there are a few permanent rivers in the north and southern rangelands, most of the other riverline catchments are characterized by seasonal streams that flow during wet seasons and remain dry throughout the rest of the year. However, Kenya’s ASAL offers enough vegetation and moisture to support its widely scattered human and animal populations.
Figure 2: Kenya: Population distribution

Source: Darkoh (1990)
AGRO CLIMATIC ZONES (1980)

MOISTURE AVAILABILITY ZONES (Medium soils)

<table>
<thead>
<tr>
<th>Zone</th>
<th>Potential</th>
<th>Rainfall in mm</th>
<th>r/Eo 1981</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>Medium</td>
<td>600 - 1000</td>
<td>40-50</td>
</tr>
<tr>
<td>V</td>
<td>Semi-arid</td>
<td>450 - 600</td>
<td>25-40</td>
</tr>
<tr>
<td>VI</td>
<td>Arid</td>
<td>300 - 550</td>
<td>15-25</td>
</tr>
<tr>
<td>VII</td>
<td>Very arid</td>
<td>150 - 250</td>
<td>&lt;15</td>
</tr>
</tbody>
</table>

Figure 3: Kenya: Arid and Semi-arid lands

Source: Darkoh (1990)
Such tribes as the Turkana, Samburu, Maasai, Rendile, Gabbra, Tugen and Pokot hold to their time-honored semi-nomadic traditions of pastoralism, in spite of the Kenyan government's attempts to settle them through the provision of improved education, healthcare, and livestock commercialization (Keya, 1991; Miller and Yeager, 1994).

The inhabitants of Kenya’s ASAL are faced with rapid population increase which has doubled since 1962, recurrent drought that has continued to reduce livestock population, loss of control over critical dry season grazing zones to wildlife reserves and national parks, population migration from high potential areas to marginal lands, and reduced mobility of ASAL peoples through a shift from nomadic to sedentary lifestyle. Compounded together these factors result and enhance serious land degradation through overexploitation of limited available resources to meet the high consumption demand by livestock and human population (Omoro, 1987; Adams, 1990; Darkoh, 1990; Keya, 1991; Oba, 1992). According to Keya (1991), for example, about 30-40 percent of Kenya’s ASAL is degrading fast with another 2 percent completely lost to the process of environmental degradation.

Past development endeavors in Kenya’s ASAL concentrated on enforcing the reduction of livestock restocking and sedentary agriculture to which the inhabitants have persistently been opposed. Where new development strategies such as grazing programs were introduced and implemented, development practitioners ignored indigenous and socio-cultural land use methods, which the ASAL people have used throughout history (Oba, 1992). During the 1980s development approach in Kenya’s arid and semi-arid lands have largely been a response to drought and famine, centered on poverty and food scarcity (Adams, 1990).
Figure 4: Kenya: Arid and Semi-arid districts

Source: Adams (1990)
Chapter III

THE COPET FRAMEWORK AND THE COPETT HUMAN SOCIAL-
ECOLOGICAL MODEL

In spite of the diverse complexities inherent in foreign assisted development practice in dry and marginal areas of Kenya, this study is intended to illuminate the understanding of development professionals on the subject of development of rural arid and semi-arid lands. In order to do this I use the COPET (Culture, Organization, Population, Environment, Technology) framework to analyze two development Project case studies in the arid and semi-arid Turkana district of Kenya. Further, I argue that the COPET framework bears two limitations: (1) it does not value the centrality of the element of time as an equally independent element upon which all the other five elements (culture, organization, population, environment and technology) are founded; (2) the COPET framework also fails to put into consideration the influence of gender, gender roles, and gendered indigenous knowledge systems within culture, organization, population, environment and technology. Consequently, I propose a modified COPET framework; the COPETT which incorporates the element of time (T) as an equally independent element as culture (C), organization (O), population (P), environment (E) and technology (T). Further, it is upon the element of time that the elements which form the COPET framework are founded. The proposed COPETT framework is a Human social-ecological model which puts into consideration the influence and effects of gender, gender roles and gendered indigenous knowledge systems within culture, organization, population, environment, and technology.
Figure 5: COPEF FRAMEWORK
(adapted from Duncan 1959, 1973, in Hodge, 1994)
The COPET Framework

Overview

Figure 5 refers to the COPET framework which was designed by Sandra Hodge (1994, lecture notes), from a human ecology model formulated by Otis Dudley Duncan (1959, 1973). Duncan used four structural elements of the human social structure to illuminate the understanding of the emerging interaction in the course of human adaptation to the environment, which he called the “ecological complex.” The four elements utilized by Duncan were; Population (P), Environment (E), Organization (O), and Technology (T).

According to Hodge (1994, lecture notes), Duncan’s model bears one limitation because it does not value the element of culture as an equally independent, still interdependent, element of the social system. Instead, Duncan’s ideology assumes that culture is an integral part of population, environment, organization and technology. Hence Duncan fails to put into consideration the cultural influence which in essence exists beyond the provision of its use within organization, technology, environment and population.

People use culture to simplify, organize, and interpret their perceptions of the environment and the world around them. From the culturally-coded interpretations of their surroundings people make decisions based on myths, cultural values, and beliefs. The purpose of culture in COPET framework is to gain insight into the worldview of the decision-maker(s) and their assumptions on the nature of reality. The COPET model could be used as a tool for discerning the influence and the effects of human interaction with the environment. All the elements of the COPET framework interact in its most abstract form. However, when applied to society’s social interactions at specific points in time during particular processes, all elements are not necessarily involved.

The COPET framework: element definitions

Social organization: This refers to process and product. Process brings order and
meaning to people’s social life by social ordering of stable social patterns. The product is
the society’s social structure which is embedded in social institutions and systems which
endures and bring stability in society.

**Culture:** A historically transmitted pattern of meanings embodied in
symbols...through which people communicate, perpetuate and develop their knowledge
and attitudes about life.

**Population:** It is defined as a concept of aggregates; collected but unorganized
wholes which are arranged in categories. The aggregates are not considered in terms of
social interaction which form social patterns, but rather they become part of social
organization when they form patterns.

**Environment:** The physical surroundings of a society which provide natural
resources such as water, minerals, soil, fuels, solar energy and climate. The topography
of a given region such as the mountains, hills, deserts, sand dunes as well as the effects of
human modification like pollution, erosion and tree planting are part of the environment
which must be put into consideration.

**Technology:** Technology refers to any knowledge, theories, and ideologies which
could be applied as techniques for the utilization, maintenance or to enhance and improve
the environment. This includes material technologies like machinery, and other
equipment as well as the application of indigenous knowledge held by groups such as
peasant farmers.

Indigenous knowledge and its application by societies which are considered
traditional and marginalized is an important tool for the utilization and management of
natural resources for survival. For the Turkana people of Kenya whose development
forms the analytical point of departure in this study, indigenous knowledge is an
indispensable element for their science of survival in an arid environment. Consequently
an understanding of indigenous knowledge and its place in development is important.
Further, this understanding supports the usefulness of the modified COPETT framework
in the formulation of development strategies.
**Indigenous knowledge and development**

The term indigenous knowledge has entered the rhetoric of environment and development fields as a foundation for the formulation of alternative strategies for sustainable development. Being one among many terms that fall into the hands of politicians and academicians, indigenous knowledge bears different meanings to different development practitioners. It emerges from century-old anthropological studies of folk or ethno-knowledge which is specific to a mostly rural culture (Brush, 1993). In the academic arena indigenous knowledge is often defined as “non-literate” or “pre-scientific” knowledge. The political contextual usage of the terminology “indigenous knowledge” is suggestive of minority-ethnic groups whose social, political and economic organizations are not formally recognized by the nation-state. Worse still for some people, indigenous knowledge generally refers to knowledge possessed by people who still owe their subsistence largely to their land and natural environment. Thus the meaning of indigenous knowledge is highly contextual. For the most part, academicians and development practitioners define it in terms of its use, either in particular strategic ideological position or in specific methodological approach. Consequently, the term indigenous knowledge is extracted from its contextual base only to be reintroduced as a new technology after being analyzed. O’Brien and Flora (1992) contend that development professionals following the conventions of mainstream development paradigms have removed indigenous knowledge out of the community for analytical purposes in order to reintroduce it as an economic strategy or new approach to development. Such an approach is not consistent with the meaning of indigenous knowledge which is conceptually more complex.

Indigenous knowledge is a socially constructed system and not just facts and values which are ecologically-based. As a social construct, indigenous knowledge’s greatest value for development can best be perceived from a perspective which adopts an integrated view of the knowledge system (rather than its parts), and not just the technical
facts it renders (Brush, 1993). Indigenous knowledge systems are more than static
tale or technical knowledge; they are dynamic systems of people and resources which adapt and change in response to external and internal provocation, stress or growth. Henceforth, it is important to probe the social, political, ecological and economic systems in specific communities where indigenous knowledge is embedded in order to grasp its meaning, use, and potential for widespread durability, and application. Consequently, I argue that it is necessary to modify the COPET framework so as to include and emphasize the importance of the role played by indigenous knowledge in rural development.

As indicated earlier in this chapter, indigenous knowledge is knowledge embedded in a culture which people use to simplify, organize, and interpret their perceptions of the world around them. Identifying indigenous knowledge as an indispensable variable in rural development is a step towards the acknowledgment of the importance of the cultural dimension in development as noted by the United Nations and UNESCO (UNESCO, 1995) during the Mexico conference on cultural policies. The two organizations recognized that culture constitutes a fundamental part of each individual as well as each community. As a result development whose ultimate aim should be focused on man must have a cultural dimension. While culture is an element of development, it is not just a factor among others but the very basis of development; the driving force and final horizon of development. In the so-called "primitive" or "underdeveloped" societies, the element of culture is founded upon those societies indigenous knowledge systems. It is upon culture that these societies built their technologies, form their organizations and use their environment. In return, culture, organization, technology and environment affects the development of such populations either positively or negatively.

As an element that is embedded in culture, indigenous knowledge covers and expresses the perception of nature as a set of abundant or scarce resources or a dominating or dominated environment. Indigenous knowledge regulates the management
of the ecological heritage which is directly dependent on peoples cultural relationship with the environment. Indigenous knowledge therefore serves as an indicator which provides an approach to different modes of life whether sedentary or nomadic (UNESCO, 1995). On the other hand indigenous knowledge concerns the perception of what authority is based on in societies. This brings in the notion of indigenous knowledge relationship with hierarchy and power within and outside a group, the process of and power of decision making. This relationship determines human rights and duties, individual and group interactions, links of authority or subordination, and the distribution of power within institutions. The process and power of decision making covers the gender division of labor within education, family and work institutions.

The question of a group organization, especially a sustenance organization, is founded on the techniques and know-how (modern and traditional) of a society which regulates the acceptance or rejection of innovation techniques depending on the risk that the population in question foresees. Knowledge is capital, but in a form that does not rust or easily inflate. Knowledge, the human capital, is not only mankind’s most important resource; but it is a necessary prerequisite for development as compared to most other resources. Knowledge is found everywhere-in enormous amount. It is flexible, easy to transport, inexpensive, and it can be developed, maintained and improved with limited costs (Oyhus, 1988). Knowledge is also created, adopted or rejected, adjusted and developed in a continuous societal process. The producers and consumers of knowledge are individuals who jointly seek an optimal and rational adaptation according to the existing natural and social circumstances. The process of knowledge-formation will always be adjusted to the living conditions of the knowledge consumers. Since knowledge constitutes the core of the total societal capital, the process of knowledge-formation constitutes the main force within the total societal development process. Oyhus (1988) contends that culture, while providing the social framework for change, is itself a process under continuous change. Likewise, the organization, technology, population and environment are processes which are under continuous change. The level
of change taking place is dependent on time, which is the sixth element in the COPETT, human social-ecological model. As Bebbington notes,

“ITK [Indigenous technical knowledge] is a dynamic response to changing contexts constructed through farmers’ practices as situated agents: agents because they are actively engaged in the generation, acquisition, and classification of knowledge; and situated in cultural, economic, and sociopolitical contexts that are products of local and non-local processes, and that influence how and why farmers manage resources in particular ways” (Bebbington 1993, p. 275).

Though referring to technical knowledge, Bebbington’s characterization identifies essential elements of an integrated understanding of indigenous knowledge: agency- the ideology that rural people themselves are creative forces, and catalysts through which indigenous knowledge is used and maintained. Bebbington also points to the contextual importance of indigenous knowledge. It is impossible to grasp a full understanding of indigenous knowledge without investigating the social, economic, and cultural systems in which indigenous knowledge resides. The dynamism through which indigenous knowledge evolves, changes, incorporates and refines other knowledge systems is dependent on experience, and the notion that indigenous knowledge is an integral part of a belief system that influences decision-making, practices and adaptation. This is another crucial element. Thrupp (1989) and McCorkle (1989) also support the idea of the importance of indigenous knowledge characteristics of agency and dynamism. Thrupp (1989) for example, holds that the local community’s knowledge is not static. Instead, it is a body of wisdom which usually consists of dynamic insights and techniques which are changed through experiments and adaptations to environmental and socio-economic changes over time. On the other hand, McCorkle (1989), brings up a critical insight that indigenous knowledge “theories, techniques, beliefs, practices and technology” are not
confined to people who live predominantly on subsistence-based economies or in third world communities.

The conceptualization of indigenous knowledge and its value as posited by Bebbington (1993), Thrupp (1989), and McCorkle (1989) overlooks the notion of indigenous knowledge as different theories of nature. They contend that indigenous knowledge might possibly inform and transform western ideologies of developmental research and methodologies instead of just incorporating it into such ideologies. Indigenous knowledge deals with peoples ways of acquisition, maintenance, and transfer of knowledge. It has to do with ways through which human beings make inquiries, confirm what they know, why and how they come to value practices or beliefs, and what they regard as indicators of sustainability in development. I posit that Indigenous knowledge refers to those unique and dynamic ways of perceiving and knowing the world. It refers to the process of testing and communicating those perceptions distinct from western science founded on decades of practical experience which is regionally and contextually specific and are preserved in a socially-constructed way. Indigenous knowledge systems could be described as a rich knowledge base, a source of empirically-based methods, and a value system upon which communities have relied for diverse practical, spiritual, and economical purposes.

Darkoh (1990) and Barrow (1991) argue that most development programs have often disregarded local peoples' knowledge about their environment and the right possibilities for the production of life's basic necessities. Local people such as farmers, herders, and fishermen are rich custodians of indigenous knowledge about their surroundings; a critical element that presides over the producer's ability to adapt to environmental changes. However, development "specialists" have continually overlooked this element. One other important fact that development practitioners should be aware of is the rapid socio-economic and demographic changes that take place in developing countries which hinders the local people from adapting to the increasing lack of access to resources. The
big challenge becomes how to establish more intensive sustainable exploitation of natural resources.

The resources transferred from developed countries to poor countries have to be given in a form that will really benefit the recipients. Most important, the assistance rendered should be of long-term duration. Development projects and programs should be imbedded in the local structures. Also, they should be planned and implemented under a holistic perspective where proper concern is taken both to ecology, economy, and culture.

Traditionally, proponents of indigenous knowledge have argued that building on time-tested knowledge can give development projects a head start, saving time and expenses. McCorkle (1989) supports this line of argument by contending that, "Existing farmer practices should be the starting point for integrating the best of traditional and modern technologies." Invariably, this approach appeals to founders and supporters of the "efficiency" model of development. Indeed extracting indigenous knowledge (for instance having local people identify plants and their uses, ethnoveterinary practices or traditional agricultural practices) tends to require fewer scientists or development "experts," less technical equipment, and therefore less finances. However, learning from and thus validating different theories of the nature, sources, and limits of indigenous knowledge is a logical component in development practice with the goal of self-development. Therefore, development institutions must shift their focus on investments in concrete outcomes to that of partnerships; a condition that is not realized in a day. The concept of time is a critical element in development practice, one that might not make development more efficient but certainly more sustainable. Consequently, I now discuss the element of time, which makes the sixth element in the modified COPETT human social-ecological framework.

Time

According to UNESCO (1995) time is an indicator that covers perception of the future and the role of history in collective representations. It is not only bound up with
beliefs, but also with the results of the interaction with social inequalities. Time is an indicator of beliefs in nature which guides the perception of and attitudes towards the future. People's perceptions and attitude towards the future are partly conditioned by the dependency on individual economic situations. The rate of progress of a development project may depend on this relationship with time. Further, the organization of the day and the seasons also plays an important role in the rate of development.

The element of time plays a central role in the perception of cultural, organizational, technological, environmental and demographic changes in society. Cultures, for example, have a past, a present, and a future. Cultures are not reflections of consensus, asserts UNESCO (1995), but are manifestations of power. Further, cultures should not only be perceivable by reference to an original, or less mythical state; they are being continuously changed by constants of all kinds between the various peoples. Cultures also retain their primitive state solely in the case of certain minorities who are isolated by their activities from the trends occurring in the greater part of society.

Among the definitions of the concept of time, as defined in Webster's New World dictionary, the following seem to fit the description of the element of time as used in the COPETT social-ecological model: (1) the indefinite, unlimited duration in which things are considered as happening in the past, present, or the future; every moment there has ever been or ever will be; (2) a system measuring duration; the period between two events or during which something exists, happens, or acts. Consequently, as used in the COPETT model, the concept of time is of centrality since it directly affects culture, organization, population, environment, and technology. Although all the other elements in the COPETT framework are subject to change with time, not all aspects of culture, organization, environment, and technology undergo change. Further, the occurrence of cultural, organizational, environmental, and technological change vary in different communities at different points in time. Thus it is important for development practitioners to put into consideration possible outcomes of the application of different development strategies in diverse communities and especially the so-called "primitive"
societies such as the Turkana people of northern Kenya. While such a community may support development that would jeopardize some aspects of their culture such as the practice of herding many cattle, they may not want to give up their nomadic way of life or even the practice of polygamy. The question of right timing on the side of development agencies for the initiation of development projects and programs and the expected project duration is equally important. Where possible this should be compatible with the culture, environment, organization, and the environmental guidelines of the community whose development is sought.

Figure 6 illustrates the proposed COPETT model. The modified COPETT framework is a human social-ecological model, which brings in the concept of human beings living together in a group in a situation where their dealings with each other affect their common welfare. Further, it involves the interactions and relationships between human beings and their environment.

**Indigenous Knowledge, Science, and Development**

The value of indigenous knowledge and its use in development is imbedded in the debate over the constituents of science. This debate is between positivists and non-positivists. Thus, it is a debate among the holders of restricted views and conceptualization of rationality and reason; those who look to general laws as the goal of their scientific inquiry, versus those who would embrace a broader notion of science, rationality, and reason; whose articulation can be differentiated by social group and culture. Many scientists reject indigenous knowledge because it does not fit into formal western models, it challenges their own theories, or it seems to defy “scientific” explanation. Indeed indigenous knowledge is based on unique epistemologies, philosophies, institutions, and principles which differ from the tenets of modern science. The value for a redefinition of science in this debate is the view that the examination of human thought and human existence is complementary and not contradictory. As the social scientist Karl Mannheim said in arguing against an individualistic approach in
Figure 6: Proposed COPETT model
modern thought: "it is much more correct to say that knowledge is from the very beginning a co-operative process of group life" (Quoted in Hekman 1986, p. 81). Thus, the knowledge that human beings generate and its value rely on, and is embedded in the social groups they associate with. In other words, this knowledge does not stand apart from the cultural, historical and social relations contexts which affects the process of development.

In this seventh decade of international development, it is hard to discern the extent to which hunger, suffering, and lack of progress in developing countries is an internal phenomenon, a phenomenon determined by factors which either remain invisible or are perpetuated by developed country’s selfish motives and interests, misguided and ill-conceived development projects and programs, or greedy heads of state. Probably it is a combination of all. However, lessons from the field and images of rusting water pumps and large dams alongside dry river beds serve as constant reminders of the mistakes made in the past by development professionals and investors. Consequently, the problems of rural development are blamed on different factors. Marsden (1990) contends that;

"The problems of rural development no longer reside in the traditional’ culture of underdeveloped people, but rather in the partial and biased understandings that have emanated from unreflective application of western scientific rationality" (Marsden 1990, p.267).

Contrary to Marsden’s contention, all the problems of rural development can not be blamed on western methods and biases in scientific practice. However, this is one of the contributing factors. According to western positivistic science, there is nothing social about what science finds. It is what happens afterwards to that knowledge, scientific or otherwise, that is social. Decisions regarding the plight of what science finds are controlled by sponsoring institutions and politicians. However, one would argue that scientists have a choice in what they study and how they study it, thereby partially
controlling the ends. Harding (1991) claims it is almost irresistible to regard contemporary science as basically a social problem from a sociological perspective.

Harding (1991) continues to argue that western science bears progressive as well as regressive tendencies. Thus western science is not value-neutral. Individual scientist’s personal values shape the way in which she/he observes the world, the independent variable for which she/he chooses to control, what she/he chooses to measure and even the uses to which the results will be put. Nevertheless, the “scientific method” does not necessarily guarantee empirically objective results. Furthermore, science can not necessarily be equated to progress. In developing countries, for example, the introduction of tree and crop monocropping frequently results in more pesticide use, a situation which is accompanied by health risks, and an actual increase in pest population with any economic gain of crop yields reaching only a segment of the rural population such as male farmers.

Harding’s (1991) response is that we should recognize the dual nature of science and advance the progressive tendencies while avoiding the regressive ones. Indigenous and diverse epistemologies must then enter this debate. It is important to acknowledge that there is not one view on what is progressive and what is regressive. This depends largely on the context and should be openly debated as part of the development process. Scientists from different disciplines working in international development have used indigenous knowledge in their prescriptions for progress. However, as Thrupp (1989) argues, indigenous knowledge must frequently be legitimized by western science before it is adopted. Despite the fact that agroforestry, for example, in parts of West Africa has been practiced literally for centuries, it has only been recently accepted as a legitimate practice among western scientists working in improving agricultural yields in African countries. In the early 1970’s deforestation was recognized as a widespread concern especially in the Sahelian zone where the desert creeps forward daily. At about the same time agroforestry as a strategy to combat massive soil nutrient loss began to appear in recommendations, papers and reports put out by major development institutions (Thrupp,
1989). Thrupp suggests that as a strategy, agroforestry was in fact appropriated and legitimized at this time by the scientific community.

Development that appreciates all of the actors and their knowledge; from the local people to the researchers can not be wholly objective as positivists would have it. Through entering into the social reality of their subjects, development researchers become a subject themselves whose knowledge, actions, attitudes, and behaviors intermingles to some extent with their subject's knowledge, behavior, and attitudes (Chambers, 1983). It is important to recognize that science is inseparable from state and industrial goals which determine scientific funding. In turn, science shapes what makers of development policy value in their investments. Harding (1991, p.4) points out that “Scientific research is an important part of the economic base of modern Western societies.” More often than not financial aid is readily available through institutions which incorporate the principles of “scientific method,” to members of scientific organizations who are capable of quantifying their results, and whose research is predicted through finding law-like generalizations or definitive truths. For many decades, institutions such as the World Bank and the International Monetary Fund have dominated the field of development.

From historical experience, such institutions which incorporate scientific method, treat economic principles as mathematically grounded abstracts rather than culturally, socially, and politically determined observable ways through which communities organize their resources. Ironically, it is impossible to conceptualize Western Science as an institution out of its context. Development planning must be approached from the cultural, organizational, environmental, and technological contexts of any people whose development is in question. Development that aims at achieving sustainability has to build on a peoples past, present and the future (time). Such aspects of a community as gender and gender roles, knowledge systems, and relations of power are of outmost significance in the planning and achievement of sustainable development. This is especially so for “primitive” communities who live in marginal areas such as the Turkana of Kenya.
Gender, knowledge systems and power relations

Knowledge is power, the means through which social stratification in societies take place. Western Science could be representative of ways in which developed world asserts its dominance, but rural population can not be homogeneously conceptualized in terms of their adaptive responses to survival and change. Social groups within communities use and attribute value to indigenous knowledge differently. Power relations within different communities, and whether or not development professionals understand how that power is organized, may explain some of the reasons why Western technology and ideologies meet with little apparent resistance at the onset, only for sustainable adaptability to fail later. Among members of the same community, knowledge is a source of privilege which can contribute to stratification and disparities within such communities (Thorup, 1989). Such a situation could have two consequences for development in cases where the traditional “holders” of indigenous knowledge are marginalized. First, more powerful community members may appropriate and use such knowledge for their own benefit. Secondly, such knowledge could be undervalued by those with more status who endorse the hegemony of Western science: a situation which is most often the case.

In many rural regions of the developing world, knowledge systems are highly gendered. Consequently, the organization and transmission of knowledge, the use of specialized skills, practices, and technology is associated with gender roles (Chambers et al., 1989; Thorup, 1989; McCorkle, 1989; Rocheleau, 1992; Mosse, 1993). Thorup (1989) argues that knowledge is often culturally bound to women’s roles and is typically not known by men and vice versa. The difference in men’s and women’s roles is the fundamental aspect for understanding how knowledge systems in a community are gendered.

Jane Flax, cited in Harding (1991) posits that gender is a relation; a social construct which determines in part the relations between men and women in society. According to Glazer (1993), gender implies discriminatory practices and relations of domination. The
ideology of differences that justifies domination is embedded in society’s social values which are defended as natural (Cockburn, 1991). As a concept, gender recognizes biological differences between human beings, based on classification of social values. Although Glazer agrees with Flax that gender is socially constructed, she goes on to contend that gender does not suggest any particular social theory but it recognizes universal and social differences. Using social construction theory, Connell and Dowsett (1992) contend that “society does not simply construct sexuality, society is constructed sexually.” In the same direction, I posit that gender is not simply constructed by society, but that society is constructed through gender, which is one domain that ordinates and constitutes history. Thus gender is an organizing principle in the same line as race, class, and culture which renders the behavior and circumstances of distinct social groups.

Moser (1993) points that women have at least three clearly defined roles that structure their labor contributions to the family and community. These roles include productive labor which results in a direct and usually measurable economic contribution to the household; reproductive work which entails childbearing as well as the daily caring and maintenance of children and the home; and community management work which involves contributions (usually voluntary, unpaid labor) to the community’s survival infrastructure and well-being. While it is true that some men either play similar roles or take part in related activities, majority of women in many parts of the world learn these roles as a part of what is socially expected of them. Although men learn social roles, they are qualitatively and quantitatively different from women’s roles; they are more closely associated with productive work and they are performed in the public sphere (Ammott and Mathaei, 1991; Barbara and Padavic, 1994). Historically, biological determinism has been frequently used as a justification for the labor that women undertake and which keeps them close to home. This is basically a gendered social division of labor that constrains women from participating in economic and social development.

Studies have shown that women living in rural communities that still operate partially on subsistence market tend to possess crucial information and knowledge about
their natural environments. This information and knowledge has largely not been derived from foreign influence, but rather have been passed on from mother to daughter. However, this knowledge is grounded upon socially ascribed gender roles (Thrupp, 1989; Chambers et al, 1989; Rocheleau, 1992). Indigenous technical knowledge, which is generally appropriated by Western science in development endeavors, is simply overlooked or understood as a system with social and economic connectedness with regard to gender roles in different societies. In rural Kenya, for example, hierarchies of class and gender significantly interact in regard to resource issues (Thomas-Slayter, 1992). Sociologists working in Kenya have established that men who are highly educated and earn higher income in a village have considerably more leverage than women, low-income men, and the elderly (Dankelman and Davidson, 1988; Hyma and Nyamwange, 1993). As village chiefs and spokesmen, these people have more access to external resources like fertilizers and new varieties of seeds. Decisions such as the introduction of cash crop farming or income generating schemes as proposed by development professionals is usually left in their hands. The incorporation of indigenous knowledge into development activities ends up being a decision made exclusively by official representatives of the community, regardless of their possessing or using such knowledge. Such a situation arises due to theoretical bias among many researchers who look towards land-owning men of high status in rural communities for any source of knowledge.

As tenets of developmental science and its models, it is critical that development professionals and scientists alike ask themselves whether their ideologies make all groups, especially the marginalized, gain control over their own lives and circumstances. Does such science undermine individual and communities autonomy and agency through the imposed prediction of future change? This issue, crucial to the alternative development framework proposed in this study, is neglected in Western Science rationale; a situation which implies that perhaps such science is most interested in asserting its hegemony than assisting rural people in the achievement of self-defined
sustainable solutions to development. The implication made here does not mean that all development scientists practicing in Western tradition assert their power consciously. Rather, it is the long reign of Western Science as an institution, as manifested in Western educational system, sources of development funding, and political structures that dominate other visions or empirically-based practice and inquiry.

Jürgen Habermas (1968), a contemporary sociologist, envisions that it is the imperious power base of modern capitalist world which is predicated on a static conception of legitimate knowledge that will eventually dissolve into an acceptance of multiple ways of the perception of ways of knowing. Such a premise will legitimize diverse processes of understanding. Habermas (1968) continues to argue that there is more potential in reason than its predominant use in positivist thought and practice. Consequently, reason does not belong to the exclusive domain of positivistic science for the purposes of arbitrary power base that favors one kind of knowledge over another; they belong to the actor. Thus Habermas is of the view that it does not take the elite to induce or trigger social change, and advocates a process of learning encouragement through communicative interaction. He asserts that

"a philosophically informed and methodologically self-conscious social science must give up the illusion that we can enjoy some vantage point that is somehow outside society, history, culture and the individual" (Pusey 1987, p. 57).

Viewing knowledge systems as socially embedded institutions implies that while westerners put their faith in scientific rationality, the same knowledge systems could be perceived as irrational by those outside the West who possess other honored traditions and "true and tried" practices. For Western Science the big question remains; is there only one type of experimentation, one scientific method, or does "empirically-tested" refer only to the measurement with scientific tools acceptable to the dominant scientific custom? It is important to inquire whether it is more sensible to think of natural sciences
as a subfield of critical sciences (Harding, 1991). In the next section I will discuss the methodology used for analysis in this study.
Chapter IV

METHODS

This research employs thematic content analysis as a research technique. Using this research technique I do a comparative sociological analysis of two development projects in arid and semi-arid Turkana districts of Kenya. Further, I use a modified COPETT (culture, organization, population, environment, technology, time) framework to analyze Turkana Rural Development Project and Lokitaung pastoral development projects in Turkana district in Kenya. North et al (1963) posits that there are two types of content analysis; quantitative and qualitative. While the former method makes an attempt to assess the number of times that specific words or phrases appear in the document in question, the latter type seeks to get the meaning and implication or symbolic meaning of the document under study. As a technique, qualitative content analysis enables one to use the elements of the proposed COPETT human social-ecological framework as separate and yet interacting categories in development. The study draws from the initial work done by Barrow (1990, 1991) on agroforestry among pastoral Turkana people in Kenya, dryland farming in Turkana by Ngunjiri (1987), a survey of Turkana of Turkana rural development project by Kerkhof (1990), and a case study of Lokitaung Pastoral development project in Turkana district by Hogg (1992).

Based on the content of these documents, this study assesses the extent to which the international development agencies involved in the initiation, planning, design and implementation of the two projects under study took the time to understand the culture, organization, environment, population and the technology of the Turkana people. The evidence in this research is based on a thorough review of the two primary evaluations of the Lokitaung pastoral development project and Turkana rural development project.

These two case studies were selected because they were more extensively documented than other development project cases in arid and semi-arid areas of Kenya.
Available evidence on these cases include scholarly analysis by development professionals who have long been interested in the development of the inhabitants of dry Turkana district since the 1970s.

Although generalization in case studies is often questionable, case studies are valid research designs due to the fact that they contribute in unique ways "to the knowledge of the individual, organizational, social, and political phenomena" (Yin, 1989:14). In addition, the case study strategy is an empirical inquiries that investigates a phenomena within specific social structures emerging from the larger whole and provide systematic examination of data. Case studies also possess the ability to bring new ideas and perceptions to the study of development. Finally, the case study strategy to research in development gives allowance for analytical generalization for comparative purposes of empirical results between and within case studies which allow investigations to retain integrated real life experiences (Vaughan, 1983; Yin, 1989).

Further, comparative studies are important in that they assist researchers to transcend the limitations set by the circumstances within which the phenomenon under investigation exists. Consequently, this characteristic raises the awareness of the existence of a wide variety of patterns that do exist in social interactions. Comparative analysis also enables researchers to expose the contrasting characteristics within the phenomenon under scrutiny, thereby uncovering the structural interrelatedness of case characteristics (Kronenburg, 1986).

The COPETT framework is adapted from Hodge's (1994, lecture notes) model COPET (culture, organization, population, environment, technology) which originated from POET (population, organization, environment, technology); a human ecological model formulated by Otis Dudley Duncan (1959, 1973). Further, I use an expanded definition of the elements that form the COPET framework to include indigenous knowledge, gender, and power relations with regard to the development of arid and semi-arid lands. In order to do an analysis I will: (1) give a descriptive account of the project's history; (2) present the formal development objectives as set by the international

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development agencies, (NORAD and OXFAM), involved in Turkana rural development project and Lokitaung Pastoral Development project in Kenya; and (3) examine the project management and the interaction effects with the population in question, their environment, organization, technology. In addition, NORAD’s and OXFAM’s perception of the concept of time and its effects on the development projects in question with regard to the Turkana people, their culture, organization, technology and environment is examined.
Figure 7: Turkana district, Kenya

Source: Kerkhof (1990)
Chapter V

ANALYSIS

5.1 Overview

Located in northern Kenya, Turkana district (fig. 7), is the driest arid and semiarid area in Eastern Africa. Bordering Ugandan escarpment to the West, Sudan and Ethiopia to the North, Lake Turkana to the east, West Pokot and Baringo districts of Kenya in the south. Turkana district covers an area of 72,000 square kilometers (Kerkhof, 1990; Barrow, 1991). According to Barrow (1991), Turkana district has a human population of about 225,000 people and a low variable rainfall of 150 to 200mm in the dry areas to over 400mm in the south per year. On average, rainfall varies from 180mm to 400mm per annum, which is far less than the required amount of rainfall for sedentary rainfed agriculture (Kerkhof, 1990).

The topography in Turkana consists of low icing plains almost as high as hills and mountains varying from 600 meters to 3100 meters. The vegetation availability is relative to that of moisture availability that is linked to the elevation and proximity of ground moisture from the rivers. The rivers in Turkana district are small and seasonal with the exception of Turkwell and Kerio, the two most important rivers (Barrow, 1991).

Turkana district is inhabited by the Turkana, a pastoral nomadic and sedentary agricultural people who possess rich indigenous knowledge and experience of their environment (Kerkhof, 1990; Barrow, 1991). The Turkana people are part of the Hamitic peoples of the Northern desert whose livelihood has traditionally revolved around herds of cattle, sheep, goats, donkeys, and camels. They are tough and sinewy according to Ngunjiri (1987), getting by on a diet of meat, milk, and blood to follow their livestock across enormous distances in search of water and grazing land. Sometimes they also eat fruit, vegetables and fish from Lake Turkana. The Turkana people’s living conditions unalleviated by modern amenities are well below those found elsewhere in Kenya. The poor living conditions of the Turkana people date back to the colonial period. Due to
Turkana district’s desert conditions, the colonial government did not wish to spend money for the development of Turkana district. The Turkana people have very strong family bonds. They walk great distances in clusters of wives, husband, and children across the rugged landscape.

In 1979 and 1980, the Turkana people experienced a drought that indicated their vulnerability by leaving almost half of the population nearly destitute. Their livestock has been periodically depleted through frequent conflicts with their neighbors in Marsabit district (on the other side of Lake Turkana) who are cattle rustlers. The Turkana people have not been able to resolve these conflicts with their neighbors. Consequently, they have had to look to the Kenyan government for support and sustenance. However, all the government has been able to do is to set up famine relief camps where the displaced and malnourished Turkana have continued to find a sanctuary (Ngunjiri, 1987). The Turkana people settle temporarily along the seasonal rivers and move on with their livestock after the rains in search of water and new pastures. The women, older people and children are left behind and if conditions are favorable, they may engage in some farming.

5.2 Rural development in Turkana

When Kenya attained her independence from Britain in 1963, Turkana district was among the so called “closed districts”, which fell victim of Kenya’s development imbalance which emerged during the colonial era and continued after independence. The Turkana people had been excluded from access to social and educational facilities which the colonial government had made accessible to the rest of the country. Although the Kenyan government was concerned with the plight of Turkana people, there was little to be done with only meager development finances which were made available for the more productive districts (Ngunjiri, 1987). Hence Turkana district lagged behind in development.
5.3 Foreign development intervention in Turkana

After Kenya became independent from Britain, the Turkana people continued to suffer famine, disease and drought which killed large numbers of livestock (Hogg, 1992). This situation attracted the interest and sympathy of foreign development agencies. United Nation (UN) agencies, bilateral donors and non-governmental organizations such as: UN Food and Agricultural Organization (FAO); the World Food Program, the United Nations Development Program, the aid agencies of Netherlands, West Germany, Canada and the European Community; Oxfam, Redd Barna, the order of the Knights of Malta, the Catholic Church, the African inland Church, and Tenrikyo, a Japanese religious organization (Ngunjiri, 1987).

Foreign concern over the plight of the Turkana people dates back to the 1960s. Faced with serious drought and livestock losses, the Food and Agricultural Organization (FAO) embarked on a program to develop irrigated agriculture along Turkana’s largest river, with an objective of providing an alternative livelihood for Turkana pastoralists who had lost their herds. Through the FAO program canals, pumps, airstrips and other structures were built and a variety of crops introduced. However, the program came to a standstill after assistance was withdrawn in the 1970’s (Ngunjiri, 1987; Kerkhof, 1990).

Although FAO’s program failure was blamed on lack of cooperation of Turkana people, FAO later acknowledged that it was their approach which had been wrong. The attempt to provide tree growing, for example, was done on a food-for-work basis. As a result about 500,000 micro-catchments were dug all over the district and trees were planted. However, the results were far below expectations despite the fact that a few number of tree survived. The program’s failure was blamed on lack of experience of arid lands afforestation among the project staff. Further, there was little consultation with local people on whether they wanted trees and which species they preferred. In many cases the elders were not involved in decision making. Some trees were planted in livestock routes and could not survive. Moreover, the food for work incentive encouraged the local people to carry out the work without real interest for the trees.
Although a large number of development agencies responded to the plight of the Turkana people, there has been little success. The UN Food and Agricultural Organization, for instance, had to pull out of Turkana district after little success, though the organization later acknowledged that the development approach used was inappropriate. Nevertheless, development agencies such as the Norwegian Agency for International Development (NORAD), have realized some success from their involvement with development among the Turkana people since 1970, a situation which has been attributed to the use of a good development approach. In the 1970s the government of Norway through NORAD assisted the Turkana people through the construction of roads, fisheries, and the practice of irrigation agriculture (Ngunjiri, 1987).

As mentioned earlier, this study is intended to illuminate the understanding of development professionals on the subject of development of rural arid and semi-arid lands. In order to do this I use the COPET framework to analyze two development project case studies; the Turkana rural development project (TRDP) and Lokitaung pastoral development project (LPDP) in the arid and semi-arid Turkana district of Kenya.

5.4 Case Studies Historical Context

The Turkana rural development project and Lokitaung pastoral development project came about as a response to the plight of Turkana people which by 1970's had attracted the interest and sympathy of international development agencies.

5.4.1 Lokitaung Pastoral Development Project

The 1979 to 1980 drought and disease killed a large number of livestock in Turkana district. In response, the Kenya government with the support of the European Economic Commission (EEC) and the United Nations World Food Program (WFP) established the Turkana Rehabilitation Program (TRP), to try and rehabilitate the Turkana people. Food relief camps were set up, supporting about 80,000 people by 1982. With
the improvement of conditions, donor emphasis shifted from emergency relief to rehabilitation of the pastoralists population. This was achieved through long term food for work and development program (Hogg, 1992).

In 1983 Oxford Committee for Famine Relief (OXFAM) financed a livestock consultant to prepare a Turkana District Livestock Plan (TDLP). The plan recognized the dangers of an indiscriminate use of food-for-work in the construction of water harvesting site and micro-catchment in the district and gave two recommendations. First, a more coordinated approach to water harvesting was necessary. Second, OXFAM should finance a small-scale animal draught and spate irrigation demonstration project; based on the pre-existing Salvation Army Lokitaung water harvesting project. A project proposal was written early 1984. OXFAM granted $ 85,000 while the Turkana Rehabilitation Program (TRP) provided a $ 20,000. The project objectives were as follows: (1) to demonstrate water management, crop production, and a range of agricultural improvement methods applicable to Turkana district. (2) to investigate the socio-economic aspects, particularly land tenure and management of water harvesting, and (3) to demonstrate animal draught and transport systems.

As the project implementation went on, the project manager who had been seconded to OXFAM from the intermediate technology group (ITDG) became increasingly convinced that the project should take sufficient account of indigenous organization and management capacities. The manager proposed that the project should only move at the pace of the local population. Consequently, after October 1985 project objectives were revised and emphasis shifted from demonstration of foreign technologies, to working with local Turkana to strengthen and improve existing skills and institutional arrangements.

During the same period, the project manager became concerned that water harvesting should be seen as a supplement rather than an alternative to pastoralism. Also, the project target population shifted from destitute to poor pastoralism.
In mid 1988, project management was handed over to a local management board, and OXFAM/ITDG stepped back from day to day project management. The project continued to set up improved gardens, and draught animal training centers. Local community food stores hide and skin trading, and animal health were added. In 1989 the project was renamed Lekitaung pastoral development project (LPDP) (Hogg, 1992).

5.4.2 Components of Lekitaung Pastoral Development Project (LPDP)

1. Water harvesting and settled farming.
2. Animal draught (provision of cheap reliable labor) and animal health.
3. Marketing hides and skins.

5.4.3 Objectives

The long term objectives were to strengthen the capacity of traditional pastoral institutions, to sustain and increase local food production, and to reduce household vulnerability to seasonal food shortages. The short term objectives were to strengthen the capacity of appropriate pastoral institutions; to initiate, manage, and develop responsive food security projects, to develop a range of sustainable technologies which would increase food production at household level, to contribute information and experience gained to district policy makers, and to encourage greater recognition of pastoral institutions as appropriate vehicles for development (Hogg, 1992).

5.5 The Turkana Rural Development Project (TRDP)

The project was funded by Norway through the Norwegian Agency for International Development (NORAD), which had been involved in Turkana since 1970s. NORAD came to Northern Kenya to bring relief to thousands of Turkana stranded in relief camps after prolonged periods of drought (Ngunjiri, 1987). According to Ngunjiri (1987) NORAD has been considered the first agency to approach the Turkana problem systematically. During the 1970’s, NORAD channelled assistance to Turkana district into
fishing, road construction and irrigated agriculture. Since 1980, NORAD has cooperated with the Kenyan government in implementing the multi-sectoral Turkana Rural Development Program within the framework of national arid and semi-arid lands program. Initially development in Turkana had a heavy emphasis on encouraging settled farming. Although the Turkana people had previously engaged in growing sorghum and maize on a sporadic basis, when FAO came to the district it plunged them into a whole new world of agriculture with technical aspects that were wholly unrelated to Turkana agriculture. In FAO projects, agricultural machinery tended to do the work. The equipment played a central role, proved to be very expensive, and never enabled the Turkana people to have a “feel” for the soil and for the practices of farming. Consequently, when NORAD joined the Turkana agricultural project in 1982, a step was taken to switch from tractor-farming to hoe-farming so as to encourage people’s participation.

5.5.1 Components for The Turkana Rural Development Project
1. Involving farmers in forest and rangeland management.
2. Irrigation for settled agriculture.
3. Fish factory.

5.5.2 Objectives
The long term objectives were to improve the living conditions of the Turkana people and to begin putting them at par with the general living standards in other parts of Kenya. The short term objectives were to strengthen the capacity of appropriate settled agricultural institutions, to strengthen appropriate food technology productive systems at community and household levels, and to promote participatory management of natural vegetation.
5.6 COPETT Human-Social Ecological Framework as a Tool for LPD and TRD Project Component Analysis

In this section I will examine how OXFAM and NORAD dealt with the elements of the COPETT framework in the planning and management of the two projects case studies. Since each project had different components, I will look at each component at a time. In order to do this, I will examine the development strategies used and the results since the success or failure of these project components directly or indirectly indicate whether or not the development agencies concerned took time to learn the Turkana population, their culture, organization, technology and environment. I will indicate where the elements of COPETT framework are involved in the projects component analysis with the letters C (culture), O (organization), P (population), E (environment), T (technology), and Tm (time) in brackets.

5.7 Lokitaung Pastoral Development Project (LPDP) 1988-1991

OXFAM’s first involvement in the Lokitaung pastoral development project was founded on the projects philosophy that was based on the view that “development is essentially about developing people’s capacities to solve their own problems through organization, training and extension of appropriate and sustainable technologies” (Hogg, 1992 p. 135). It is against this view that I examine how OXFAM viewed and related to the target population, their culture, organization, environment, technology, and how the element of time played in the project design and management.

Funded by OXFAM (with a budget of 80,000 US dollars) the Lokitaung Pastoral Development Project initially had two components; water harvesting and animal draught. However, new components evolved as the project developed. These components included the improvement of crop yields, marketing of hides and skins, construction of food stores, improvement of animal health, and institutional development. These components were based upon the evolution of the technical element of the project (Hogg, 1992).
5.7.1 Water Harvesting and Settled Farming

The water harvesting project was geared towards the establishment of settled agriculture among the Turkana pastoralists. As noted earlier having come to Turkana district to bring food for famine relief OXFAM had realized that the Turkana people needed long lasting solutions to their problems. Consequently, there was need to shift from nomadic pastoralism to settled farming. This kind of agriculture therefore required the availability of water since settled farming could not be done without water. With the absence of piped water in Turkana district, OXFAM decided to use technical approach in order to improve the existing traditional water harvesting methods. Traditionally the Turkana used to construct earthworks systems along the river beds during the rainy season as water catchments. This water was used in the dry season for animal and household use (Barrow, 1991). OXFAM’s technical intervention involved training the Turkana in appropriate techniques such as “site survey methods, the design of water harvesting systems... specially earthworks, and leveling and construction methods”. (Hogg p. 132). As a result 215 gardens had been set up and improved in 1990 (Martin, 1990 in Hogg, 1992). Although according to Hogg (1992) the establishment of new gardens had declined by 1991, the approach taken by OXFAM in the improvement of settled agriculture indicated some success. This success could be attributed to the fact that OXFAM incorporated the local population in the project management. Consequently, these people offered their traditional management skills(C, T) to the foreign staff who used the opportunity to learn the Turkana traditional technology in the management of their environment(E) for survival(O). Equipped with this knowledge OXFAM managed to incorporate their foreign technology into existing Turkana technology with the long term objective of achieving sustainable development among the pastoral Turkana people. This fact is supported by Hogg (1992 p.131); “... project objectives were revised and emphasis shifted from a demonstration of foreign technologies, many of which were imported from Yemen, to working with local Turkana to strengthen and improve existing gardening skills and institutional arrangements.”

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5.7.2 Animal Draught and Health

Animal draught was one of the technical intervention components of the LPDP. Traditionally (C), the Turkana people did not (and most still do not) use animal power as a source for the provision of labor (O) (Hogg, 1992). With this in mind, OXFAM aimed at showing that animal draught can significantly reduce the need for manual labor especially in the construction of otherwise labor-intensive water harvesting sites. As this project component advanced, OXFAM learnt that the Turkana people were reluctant to use their own animals for draught. Consequently, OXFAM began to use the project animals instead. As a result, 15 percent of the dry unproductive land had been improved into agricultural productive gardens most of which were constructed by moving non-rocky soil from the hilly areas to the flat areas using animal power. With this success, more Turkana people became interested in animal draught training. By the beginning of 1989, over 50 Turkana people had been trained in animal draught techniques. In order to achieve success in the use of animal draught, OXFAM realized the need to improve the health of the Turkana people’s livestock. As in other marginal environments, Turkana livestock’s health is nutritionally related to high-stress levels. As a result, OXFAM had to set up a project which would give the Turkana people access to animal drugs and animal health training (Hogg, 1992). In March 1990 an animal health worker was recruited to act as a livestock team leader. Before the project implementation began, OXFAM proposed a baseline livestock survey. Although at this point I don’t have the report on the development of this endeavor, it is clear that OXFAM took the initiative to learn about some aspects of the Turkana people’s life.

The account given above (Hogg, 1992) implies that OXFAM had at least some knowledge on the Turkana environment (E), the traditional (C) technology (T) they used to exploit this environment (E) for sustenance (O). However, if used, the COPETT framework which is proposed in this study would provide a foundation for the formulation of better strategies for development project planning. This framework sets

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the stage for development agencies to seek cultural, organizational, technical, and environmental knowledge of the people they seek to assist before engaging in any development planning. For "primitive" communities such as the Turkana people of Kenya, it is important to know that they have for years managed to survive in a harsh environment. According to Brainard (1981 in Barrow, 1990) the Turkana people have evolved well-managed and basically sound ecological strategies that enable them to utilize the vegetation on a sustainable basis through exploiting different economic niches and diversified food sources. The Turkana for instance raise grazers which include cattle, sheep, and donkeys, and browsers including camels, and goats. They use the following strategies: use of large diverse ranges, access to productive dry season ranges, including trees, high mobility and low to moderate stocking rates, high to moderate stock units per person, use of wild fruits and tree foods, and low labor input rainfed or flood sorghum gardening.

5.7.3 Marketing hides and skins

This component of the LPDP was a later addition as an attempt to shift the project focus from gardening to mainstream pastoralism. Sale of hides and skins caught the attention of OXFAM through women's concern over the low prices offered by the traders. Since the hides and skins offer important source of income for Turkana women OXFAM provided initial capital for a project which would offer high prices for hides and skins. Project stores were set up where women would sell hides and skins at a high price and in return the project store keepers would sell to hides and skins traders in Lokitaung. Although this was the first time women's concerns are addressed in the LPDP, it is still an implication that OXFAM attempted to listen to the voices of women who are an indispensable force in Turkana development. The proposed COPETT social-ecological model lays out indigenous knowledge, gender and gender relations of power as important aspects in development. When used as a tool for laying development strategies in development projects, a high level of sustainability in development could be achieved.

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Gender relations of power and knowledge are elements that are rooted in culture and which are reflected in a community’s technology, organization, use of environment and resources. In return the interaction of these elements affect the population in question in the course of time in aspects such as its health, wealth, size of population and the general well being.

5.8 The Turkana Rural Development Project (TRDP) Component Analysis

Like OXFAM, NORAD based its development plan on the philosophy that there was need to develop peoples capacities through better organization and training in the use of appropriate technologies for sustainable development. This implies that the two development organizations intended to put into consideration the needs of the Turkana people as dictated by their culture, organization, technology, and environment.

5.8.1 Forest and Rangeland Management

The first phase started in 1981 when NORAD introduced tree growing for pay. An incentive scheme was set-up under which families were given charge of tree planted areas and were obliged to water and protect trees. They were paid Ksh. 1.00 (US$ 0.05) per surviving tree per month. However, people turned out to be more interested in money than trees, they could neglect watering and replace dead trees with others from the nurseries to get money. By the end of phase one only 20 hectares were planted. It became clear that arid land tree planting is a cumbersome, time consuming, and costly activity with a limited role to play in a vast region like Turkana. Hence the first phase of the forest and rangeland management component of the TRDP did not succeed as NORAD had intended.

“The second phase focused on working with rural people to identify their problems and trying to find ways of solving them. Research was concentrated on the development of technical expertise specifically suited to the area and on locally relevant issues such as species which provide browse” (Kerkhof 1990 p.165).
The implication that comes up from the above content in the explanation of the shift of goals between the first phase and the second phase is that the local people were not consulted at first about their needs, their preferences on the tree species to be planted and the reasons for their preferences. During the first phase, there was little consultation with the local people about whether they wanted trees and which species they preferred. “In many cases the elders were not involved in decision making.” Further, “some trees were in livestock routes and could not survive.” This is also an indication that initially NORAD did not take time to learn the Turkana culture, organization, and the technology they used to exploit the resources available in their environment. The proposed COPETT framework would serve as a tool for gaining such knowledge because it puts forth the notion of interaction between its elements; Culture (C), Organization (O), Population (P), Environment (E), Technology (T) and Time (Tm) and the effects of these interactions on the population in question.

However, the crucial necessity of creating a strong extension, able to understand and actively involve the local people was later accepted by NORAD in conjunction with the forest department in Turkana. This acceptance was catalyzed by NORAD’s realization of the need to change their development strategies in the forestry component of the Turkana rural development project as reflected by the comment that follows;

“The Turkana people are very knowledgeable about conservation of trees and other vegetation. They generally manage the area’s riverine forests quite well, since they place a great value on trees, especially as a provider of food, and for building materials, fuel and medicine. They very rarely cut down valuable trees-branches. Except around the settlement areas, dry wood for fuel presents no major problem” (Comment from NORAD in Ngunjiri, 1987)

A content analysis of the above comment implies that NORAD learned from the negative results of the first phase of the forest and rangeland management project. NORAD had finally learnt that the Turkana people knew their environment (E) well enough such that they devised the technology (T) of using it to meet their sustenance
needs (O). According to Kerkhof (1990 p. 165), NORAD “had previously believed that the Turkana were solely interested in livestock and not in trees. NORAD also knew nothing about the “ekwar” system and had assumed that the riverine forests were communally owned. The Turkana were not consulted when the forest department imposed regulations on the use of the riverine forest.” This assumption suggests that NORAD did not really seek to understand the Turkana culture, their knowledge in the management of forests and forest resources.

Barrow (1990) notes that while most of the land in Turkana district is considered communal, (O,C) Some of the forest areas (E) along the rivers (E) are divided into plots called “ekwar” which are traditionally (C) owned by individual families (P). These plots (E) produce fruits, construction material, medicine and most importantly browse for livestock (O).

The third phase emphasized more on training and more participation. Bringing the local people into discussions was an eye-opening experience for the project foresters. Moreover, the foresters also discovered that the Turkana, while seemingly uninterested in planting trees, have many traditional rules (C) affecting the use of trees and shrubs (E,O). It became increasingly obvious that the Turkana do have strong interests in forest that they have a lot of knowledge about the trees, and that traditional management systems exist. Consequently, in the third phase, forest department organized seminars at district and divisional level which aimed at getting people to define their own development needs and development goals, strategies, problems and solutions. The following is an example of a typical day long seminar questions:

“Why are there no young trees in this forest?”
“Will happen if acacia tortilis continues to be cut for charcoal?”
“Can the owner of this ekwar take any action to prevent further destruction of the plot?”
“How can we promote the valuable species?” (Kerkhof 1990 p.167).

The above questions imply that NORAD had changed its development approach in the rangeland management component of the TRDP. The willingness of the donor-
agency to re-evaluate the program and change direction after the relatively poor results of the first phase was crucially important. These seminars dealt with issues which are specific to the location (E) and tries to find out ways to tackle them. The questions were a way of involving the Turkana in their own development, a forum for partnership in development with NORAD and a strategy of learning about the Turkana culture (C), how they (P) managed and used their natural resources (T,E) for sustenance (O).

5.8.2 Irrigation for Settled Farming

Upon joining the Turkana agricultural projects in 1982, NORAD decided to switch from tractor farming which was practiced by FAO to hoe-farming so as to encourage peoples’ participation; an indication that NORAD had taken time to learn the technology (T) used by the Turkana people.

By sinking bore holes (T), the Turkana people got enough water to grow reliable crops, including fruit (O), something they had never dreamt was possible in their area (E). Although they used to cultivate during the rainy season (E), the Turkana people never practiced sedentary agriculture. NORAD’s use of appropriate technology to sunken boreholes instead of embarking on the costly provision of piped water indicates they were conversant with the environmental aspects of this area. NORAD, for example, commented that “settled agriculture is not entirely new to the Turkana: they have traditionally used riverbanks for subsistence agriculture” (Ngunjiri 1987 p.8). This comment implies that NORAD had some knowledge about the Turkana’s traditional ways of using their environment (E) for sustenance (O). However, there were problems of silt with NORAD’s basin irrigation system which, unlike furrow system practiced earlier by FAO, was not mechanized but directed water to plots manually. The silt problem was corrected through the introduction of silt traps (T).

It is worthwhile to note that when NORAD joined the Turkana agricultural projects, in 1982, FAO which had been working with the Turkana had constructed Katilu irrigation scheme which was used for mechanized irrigation. However, since FAO used
mechanized strategies the Turkana people did not get a chance to learn how to use irrigation water using appropriate technology (Ngunjiri 1987). The fact that NORAD took time to look into the effectiveness of the technology (T) introduced to the Turkana agriculture by FAO, opened a way of using a better method which proved to be more productive in agriculture. Consequently, NORAD embarked on training the Turkana people how to use the water to irrigate their plots, to enable them to grow their own food. As a result, after the wrong approach to farming pursued by FAO, the Turkana people, who by nature can not be made to do things they do not regard as necessary, have found that NORAD's practical approach suited them better. Basically, this approach took into consideration some aspects of the Turkana people's culture, organization, environment, and the technology they used for survival.

5.8.3 Fish Factory

When NORAD came to Turkana to bring famine relief, it considered that the development of lake fishing would be a better long-term solution to food shortages than continual provision of relief food (sustainability). However, NORAD had the knowledge that the Turkana people had long practiced fishing (O)before their involvement in Turkana fishing. NORAD commented that "The fish resources in Lake Turkana have been exploited by at least some of the nomads since before the Norwegian support to the Turkana" (Ngunjiri, 1987 pp. 11).

New fishing technology had in fact been introduced to the Turkana before NORAD arrived on the scene. However, the Turkana's move from subsistence fishing to commercial fishing was hampered by the absence of an organized marketing system. There were no cold-storage facilities and roads were bad. With financial grants totaling Ksh. 46 M (US$ 2.9 M), NORAD helped to establish a marketing organization and build a huge cold-storage plant situated at Kalakol. The fish project component was one of the largest in the entire NORAD supported Turkana project, and one that caused quite a stir among the local people. It was, to them, a savior in the making. And although it never
really worked properly and ended up being a nightmare for the planners, it demonstrated that well-intended development projects can have useful effects on the peoples attitudes and behavior.

For the first time, in Turkana, the fishermen were organized into marketing groups and provided with outside markets for their produce. As they made use of improved equipment, their catches also improved and they begun to earn money. Word spread that fishing was a lucrative trade.

In order to regulate the price of fish, NORAD conducted a study in 1976 on the feasibility of a fish-freezing and storage plant. The study concluded that such a factory would be viable, and would enable the fishermen to store and release fish in accordance with demand fluctuations. The building of the fish factory began at Kalakol at a cost of US$ 2 M. It was an ice-making and cold storage plant which was never completed according to NORAD’s plan. Although by 1986, NORAD had spent $2.9 M on the fisheries project at Kalakol the uncompleted project never worked properly. According to Ngunjiri (1987) the failure was attributed to NORAD’s lack of enough knowledge concerning the environment (E), and its provision of energy for sustenance (O) to the Turkana people (P). As a result, NORAD used foreign technology (T) in the construction of the fish factory. Outside temperatures in Turkana district for instance, are usually 38 degrees centigrade (E) which demanded more electricity than was available in the whole district (Kerkhof, 1990). According to Mr. Lef Amili, NORAD’s NGO adviser at Lodwar, the Turkana traditionally dry their fish (T, O), and therefore the idea of freezing (T) was new to them. Although traditionally the Turkana used to dry and smoke fish; a process that consumed a lot of fuelwood which the district did not have, once completed the factory proved to be too big. Moreover, to make it work more diesel that was first thought unnecessary was needed. Further, the district did not have this resource (Ngungiri 1987).

The implication here is that NORAD never conducted extensive research before implementing the fish project. The study of the physical environment, relief,

Chapter 5
temperature, rainfall, the knowledge of economic status-infrastructure, and energy source would have helped in the planning and decision making before the project initiation. Consequently, the COPETT model proposed in this study poses an important tool for the formulation of strategies for planning in development projects such as the Turkana Rural Development Project. The COPETT human social-ecological framework puts emphasis on the interrelatedness of its elements; Culture (C), Organization (O), Population (P), Environment (E), and Technology (T). Further, all these elements are affected, shaped, and changed by the element of Time (Tm). In the course of every day life, human beings (P) rely on the exploitation of their environment for survival (O). In order to exploit their environment they have to use some kind of technology (T), primitive, modern or otherwise, which is determined by their culture (C). It is the interaction of these elements in the course of time (Tm) that shape the quality of life of a given population as well as their numbers. The past life of a community, especially those communities which form the so called “primitive” societies shapes their present and their future as dictated upon by their culture, organization, technology, environment, population. In return culture, organization, population, technology, and environment change with time (Tm).

It is important for development agencies to grasp the interrelatedness and interaction of the elements of the COPETT framework and its implication in any development work especially in arid and semiarid lands which are occupied by the so called “primitive” communities. Understanding such society’s culture (C), organization (O), population (P), environment (E) and technology and how these elements have changed with time (Tm) would be a headstart into planning successful development projects. Such a move would avoid unnecessary spending of development agencies capital as well as the resources of the development target population and their governments. Further, such understanding would be a step towards the attainment of sustainable development.
Table 1 illustrates a comparative summary of the development agencies (OXFAM and NORAD) perception of the Turkana people during and after project initiation. The summary draws from the preceding analysis. The elements of the COPETT human social-ecological framework are used as terms of reference for the development agencies, that is:

1. Attitude towards Turkana culture (C),
2. Organization (O),
3. Attitude towards Turkana (P),
4. Environment (E),
5. Technology (T), and
6. Time (Tm).
Table 1: Main characteristics of Lokitaung pastoral development project and Turkana rural development project.

<table>
<thead>
<tr>
<th>Elements of COPETT</th>
<th>Dimensions</th>
<th>Lokitaung pastoral project (Agency: OXFAM)</th>
<th>Turkana development project (Agency: NORAD)</th>
<th>Turkana people's feelings</th>
</tr>
</thead>
</table>
| C and O            | Knowledge of gender roles, gendered power and knowledge systems | • Assumed that gender issues are not important in project development.  
• Ignorance of gendered needs until women voiced their concerns. | • Theoretically acknowledged the importance of gender issues in development.  
• In practice little recognition of gendered needs. | • NORAD and OXFAM cared less to inquire on their culture. |
| C                  | Valuation of knowledge            | • Western knowledge is superior during the first phase of project development.  
• More practical than NORAD on recognition of the relevancy of traditional knowledge and technical skills for development. | • Western knowledge is superior during the first phase of project development.  
• Later, traditional knowledge is relevant for development and survival though mostly theoretical | • OXFAM and NORAD intended to impose their alien culture on Turkana people. |
| P                  | Assumption about people's potential | • They lack the abilities and the resources to help themselves (during the first phase of project development).  
• Later people have the potential to develop themselves and are given a chance to do so. | • They lack the abilities and the resources to help themselves (during the first phase of project development).  
• Recognition of people's potential for their own development though fairly given the chance. | • OXFAM and NORAD doubted and ignored Turkana people's ability to exploit their environment. |
Table 1: Continued

<table>
<thead>
<tr>
<th>C</th>
<th>Place of values</th>
<th>• Although western values dominate in the first phase of project OXFAM recognized later the importance of Turkana cultural values and identity as the core of partnership in development.</th>
<th>• Western values dominate in the first phase of project. • In later phases cultural identity and people’s values are the starting point of co-operation though not practiced</th>
<th>• NORAD and OXFAM failed to acknowledge the importance of Turkana cultural values in change.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C and T</td>
<td>Role of development agency</td>
<td>• Agency acts as expert: source of knowledge and skills at first. Later plays the role of facilitator; enabling people to discover their potential.</td>
<td>• For the most part agency acts as expert: source of knowledge and skills. at first.</td>
<td>• Viewed NORAD and OXFAM as outsiders who acted superior than the Turkana.</td>
</tr>
<tr>
<td>T</td>
<td>Valuation of technology</td>
<td>• Initially western technology is superior and better at solving people’s problems. • Later improvement of appropriate traditional technology is emphasized.</td>
<td>• Initially western technology is superior and better at solving people’s problems. • Use of appropriate traditional technology after project failure in first phases.</td>
<td>• Turkana technology was perceived as primitive and outdated for development.</td>
</tr>
<tr>
<td>P</td>
<td>People seen as</td>
<td>• Though targets of development people seen as possessing capabilities to build partnerships in development.</td>
<td>• targets, objects of development; • later people seen as subjects of development.</td>
<td>• Felt that they were treated as objects throughout the project cycle.</td>
</tr>
</tbody>
</table>
| C | Learning relationship | • Agency knows people’s problems and how to solve them at first development project stage.  
• In later stages all are learners and contributors. | • Agency knows people’s problems and how to solve them at first development project stage.  
• However, in later stages agency still knows better. | • OXFAM and NORAD assumed Turkana people lacked the ability to identify and solve their needs. |
|---|---|---|---|---|
| O and E | Assumption about people’s environmental resource exploitation and management. | • They lack the abilities and knowledge to exploit their environment in a sustainable way. They over-exploit their environment.  
• Later the Turkana have the abilities and the knowledge to manage the environmental resources in a sustainable manner. | • They lack the abilities and knowledge to exploit their environment in a sustainable way. They over-exploit their environment. | • NORAD and OXFAM ignored that the Turkana people had survived on the exploitation of their environment for generations. |
| Tm | Time perspective | • Short term at first with sequence of separate project phases;  
• Long term later with project historical development as an evolving process | • Short term at first with sequence of separate project phases;  
• Long term later with project historical development as an evolving process | • OXFAM and NORAD did not consider cultural influence on environmental exploitation in project time perspective. |
Chapter VI

DISCUSSION AND CONCLUSION

The application of the COPETT human social-ecological framework as a tool for the formulation of development strategies has posed an interesting and challenging task since all the elements interact, relate, affect and/or influence each other in some way. As noted throughout this study, it is important for development agencies to first gain the knowledge of the culture, organization, technology, and the environment of the people they seek to assist in development. Equipped with this knowledge it becomes easier to lay development strategies for project design, planning, and implementation. For the case of the Turkana people, for example, their standard of living does not measure to the formally defined development in comparison to other areas in Kenya. However, their use of indigenous knowledge over the years for the management of a fragile resource base reflects the development of an important science of survival. This science of survival proves to be exceptionally useful to a development that is defined by social, cultural, and historical contexts with the goal of bringing self-determination and equitable benefits to different social groups within a community. Consequently, the use of the COPETT framework could help reshape the development paradigm so that perceived scientific and technical problems are not without their socio-cultural and ecological framework. Participation is a key to such an approach. The use of the COPETT as a tool for the formulation of development strategies calls for participation of the people that development agencies seek to assist in the development research. In order for development practitioners to know the development needs of a community, there has to be interaction between the members of the community in question and development agencies. It is through such interaction that developments agencies learn about the
culture, organization, environment, and technology of the people they seek to develop. Such an operation requires local peoples participation. It is rather a give and take thing which bears more fruit with time. In the two development project case studies used in this study, it is evident that with the project success improved with the involvement of the local people in the identification of needs and project management. This view is supported by Thrupp (1989, p.20) who notes: “Local knowledge and culture-based capacities are a means of power, and can therefore be a source of empowerment.”

The rationale for local peoples participation in development research is embedded in the fact that the social constructions of any community are a network of affiliations, relationships, and interactions in culturally-specific contexts. The task of identification of the complexities and distinctions in the social constructions of communities is tough. Such a task cannot be thoroughly carried out through conventional sociological methods of observation and questionnaires. Neither can this be adequately done through quantitative methods, one reason being that communities in rural societies literacy rates are typically low, making the administration of surveys and questionnaires inefficient. However, participatory approach to development research is one alternative.

A review of the literature on the constitution of participatory approach to development research reveals a wide range of interpretations. In his research work on pedagogy, Freire (1970) set the foundation of participation in development. Freire contends that valid social change (development), in any community involves not only the peoples liberation from hunger but that such transformation should enable the people and provide them with freedom of construction, production, and creation. The most critical factor on the subject of participatory approach to development research is the means-end dilemma (Oakley and Marsden, 1984). As a means, participation calls for the involvement of the local communities so as to achieve those development goals which are usually set by development agencies. Such goals like tapping indigenous ecological knowledge to assist in development research design is an example. As an end, participation seeks to build and strengthen those resources that are strategic to a
community; aiming at enabling all members of the community in question to make decisions concerning their development democratically, by creating room for a shift in social-cultural attitudes and institutions. Rocheleau (1992) argues that the most recent trend in participatory approach to research in development combines both means and ends defining participation as a process of development which aims at the fulfillment of society’s practical needs. The provision of such needs as literacy, access to healthcare, food and fuelwood leads to the empowerment of community members especially the disadvantaged. This process draws the community into the on-going process of defining and carrying out development goals on a permanent basis leading to the achievement of sustainable development.

In a nutshell, participation means forming partnerships. In development, participation calls for the building of partnerships between development practitioners, development researchers and local community members whose development is the goal. Consequently, participation involves negotiation toward agreed upon outcomes. Hence, development agencies do not know the answers to community development needs until they get in touch with the community whose development they intend to carry out. This is the stage where I have argued in this study that the use of a framework such as the proposed COPETT human social-ecological model as a tool for acquiring information on such a community could prove to be a resource base for laying development strategies. Once this initial but important stage in development practice is accomplished, the foundation is set for the next stages in development.

It is important to note that it is not easy to form partnerships in the presence of absolute inequality of power between parties. In order to overcome this barrier, there is need for development researchers to put into consideration the existence of power differentials not only among the community members whose development they seek to achieve but also in their interaction with the community members in the process of participatory research. Historically the development researcher owns the tools, funding, ideas, and therefore the power. For the purpose of diffusing such preconceived

Chapter 6
expectations of such a partnership, it is important to initiate and work towards the establishment of participation in all stages of development research, design, testing, evaluation, and implementation. Using the COPETT as a framework for development planning opens up a forum where people can air their own perceptions of the causes, needs and consequences of social change which is a primary factor in the achievement of sustainable development. By analyzing their own situations, the subjects of development practice own the information and possess the potential solution to their needs and problems. Through diverse exercises that require social group interaction this information is disclosed analytically, a situation that gives the development researchers and practitioners a build-in mechanism for ensuring that their perception of the problem is not divorced from its social-cultural context (Chambers, 1992; Freire, 1970). The community whose development is sought acts as the motor of analysis and benefits from the new knowledge and awareness generated. The role of the development agency then is that of a listener and a jump starter, while the participatory development research is mainly driven by the skills and knowledge of the development community in question. The use of COPETT framework in development research enhances community participation which introduces the notion of process to the necessary research. It can also bring immediate rewards, lessons and skills development to the community in question. Further, it is a necessary methodological risk as both economic and anthropological research in development to date have in many cases led to the identification of problems and solutions which have little meaning for the people themselves, resulting in poorly designed and maintained projects.

Although the use of the COPETT framework in the plan and design of development projects enhances participation in development research it is not an automatic safeguard for maldevelopment or the initiation of misguided programs and projects. The fruits of participatory research can be used in many ways and does not intrinsically safeguard against exploitative development. What is important is to ensure that new knowledge and awareness generated from the research stays in the community.
and can be synthesized and used by the community members thereby reducing
dependency on outside “experts.” However, the elements of the COPETT framework I
argue serves as a point of departure for planning for a development which emphasizes
partnership. Rahman 1994 notes;

“people’s behavior is governed both by rationality of individual interest
and the rationality of solidarity with ... ‘social neighborhoods’ -- family,
kingship group, community, etc. This is not only a means of distribution
of resources but is also a resource itself which ‘arguments’ the totality of
resources by putting individual resources, talents, ideas, at the service of a
collective as well as by stimulating in a synergic way its creative energy.
If grassroots groups are exhibiting this value, it is the responsibility of
economics to redefine itself to recognize, and serve, this value” (Rahman
1994, P. 224).

International development that seeks to build the capacity for local people’s self
determination working with and within the indigenous knowledge systems is an approach
that values and emphasizes process as a means and an end. However, as a field,
international development has traditionally featured the product in its methods,
indicators, and evaluations. Crop yields and earned income take precedence over how
labor is organized and harvest distributed. High contraceptive prevalence rates are
rewarded by further funding instead of an increase in women’s autonomy in making
decisions about their reproductive health. If development practitioners invest in the
process, they invest in a greater potential for long-term sustainable changes in a
community. They invest in a participatory process in which community members debate
and come to consensus about the product of development. They acknowledge other
cultures’ and communities’ knowledge systems and social relations as an important fiber
in the fabric of development. For many scientists, economists, and policy makers such
development will involve some sort of a conceptual and theoretical leap. Traditional indicators of progress and prosperity such as the size of forested area, birth rates, rate of privatization, increase in household income etc., will have to be supplemented and in some cases abandoned. New indicators will have to be found. How does one, for example, measure self-determination, the leveling of power relations in the household, stronger social networks and knowledge systems as resources -- in short -- the multiple facets and diverse definitions of improved quality of life?

Focusing on participation as a fundamental process in development calls for the identification of the short-term or practical needs of a community through learning about the cultural, organizational, environmental, and technical aspects of such a population whose development is the objective. Health care, safe drinking water, access to land, soil depletion and other needs must be addressed before the community in question can invest time and creative energy into the transformation of their cultural, organizational, environmental and technical circumstances and combat the more deep-seated constraints which prevent their full participation in decisions concerning community development. Consequently, all community members get an opportunity to take part in identification of their needs and the appropriate resources and tools to meet them. Prioritizing needs and listening to different voices in their own communities is the first step in a continuing process that can contribute to long-term or strategic needs such as greater self-determination and social infrastructure.

"Social and cultural change and knowledge production are ongoing and fluid struggles involving all actors. The important thing is to acknowledge the different positions: it is not just a question of the West versus the others; we will have to negotiate through a far more complex and difficult process if we are to confront and try to resolve social inequalities" (Harcourt 1994, p. 20).
International development agencies do still have a place in international development although it must be restructured. In order for sustainable development to be achieved in developing and underdeveloped world, foreign international development practitioners must play the role of partners, listeners, learners, facilitators and teachers. I posit that there is need for development organizations to seek and develop cooperation not only amongst and between the organization but also with the governments whose population's development they seek to achieve. The first step towards successful development is to change the nature of the relationship between the development practitioner and the community member which must be horizontally organized and based on humility and participation. In other words, the practitioner must enter into a relationship willing to listen, and hear the sounds of cultural, organizational, technical, and environmental diversity within and across different communities within different points in time. The product of such a relation I posit is better development planning which would realize more successful or sustainable development. By proposing the use of COPETT framework as a tool for formulating development strategies this study attempts to order further debate, investigation, and policy formulation in planning, implementation, and evaluation of development projects in rural marginal areas.
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