POLICY PROCESS AND LIVESTOCK DEVELOPMENT IN PASTORAL COMMUNITIES OF NORTHERN TANZANIA: A FOCUS ON CATTLE BREEDS IMPROVEMENT.

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LIST OF ACRONYMS

ASDS-Agriculture Sector Development Strategy

AI-Artificial Insemination

FAO-Food and Agriculture Organization

HBU-Heifer Breeding Units

IFAD-International Fund for Agricultural Development

LMU-Livestock Multiplication unit

MAC- Ministry of Agriculture and Cooperatives

MLD- Ministry of Livestock Development

NBS-National Bureau of Statistics

NALP-National Agriculture and Livestock Policy

NAIC- National Artificial Insemination Centre

NLP-National Livestock Policy

NGO- Non-Governmental Organization

UN- United Nations

URT-United Republic of Tanzania

ABSTRACT

This report applies McGee's and Keeley and Scoones' theories of policy process. The theories criticize the linear model approach applied in policy making. They show how knowledge is an essential tool in policy process. It provides insights as to how knowledge manifestation and contestations may arise as due to imbalance on the use of scientific knowledge and local knowledge in livestock policy. The focus of study is in cattle crossbreeding programmes in pastoral communities of Northern Tanzania. Knowledge bases from both experts and pastoralists seem valuable in improving cattle production. However, policy makers value scientific knowledge over the pastoralists' knowledge in designing and implementing their breeding interventions. The case study analysis signifies such knowledge differences where pastoralists stand on their local zebu breeds contrary to the improved breeds introduced. Such outcomes indicate failure on the experts' perspectives. Thus, the knowledge paradox is discussed under contextual bases and dynamics that exist between experts and pastoralists. Such contexts (culture and environment) are behind the mentioned knowledge difference. Therefore, incorporating both two knowledge bases seems to be the best option for better policy outcome in livestock sector development.

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CHAPTER ONE

1.0 INTRODUCTION

This report presents the findings from analysis of the policy study in Tanzanian livestock sector. The focus is on knowledge contestation and manifestation that arise between experts (policy makers) and pastoralists', concerning the use of improved cattle breeds in Tanzania. It seeks to identify how the difference in knowledge bases between different potential actors in policy process can lead to misunderstandings, contestations and end up in poor policies. In this case the experts' knowledge relies on science (animal science knowledge), while pastoralists rely on local knowledge. Thus experts' base of scientific knowledge seems to overlap and ignore the existing local knowledge (from pastoralists) mainly due to the tendency of these experts to apply generalised assumptions and linear approach in identification, planning and implementation of the policy problems. Such a tendency is due to their thoughts that they understand the local situations better than pastoralists themselves.

This report has applied the McGee (2004) model approach of studying policy and its processes, but specifically concentrates on knowledge aspect. Also applied the theory based on Keeley and Scoones (1999) analysis of the policy process. Arguments from both (McGee and Keeley and Scoones) formed the basis for this study. Such arguments revealed on the linear model as the still popular approach applied for policy making in developing countries. Their critics point out on the continuous lack of understanding by experts about local environments where pastoralists live and breed their cattle. Furthermore, inability to appreciate the value of these pastoralists' cattle breeds. This value has been built on the basis of their culture and environment which have shaped them over a period of time.

Basing on the theory, arguments and critiques from the policy study, this report further presents the related case material about Tarime zebu cattle. Such a case material indicates that preference of the Kurya pastoralists towards their zebu cattle prevails over the exotic breeds. The pastoralists prefer these zebu cattle due to the multipurpose roles they play within their communities. Such purposes involve not only meat and milk, but also the cultural aspects of

marriage, sacrifice, wealth and prestige. Furthermore, their preference based on the genetic attributes of their cattle as in disease resistance and tolerance to droughts and food shortages. All these views of pastoralists provide insight of how their contextual dynamics influence development of their knowledge and have shaped their practices such as breeding. The policy documents still don't make use of this side of knowledge. This brings a detailed discussion on the knowledge paradox existing among the two groups and furthermore explores the ways in which their knowledge bases and practices are contextualized.

Therefore, the accounts from theory and findings provided the need for reviewing and analysing the policy process. Lastly, the report gives suggestion for the possible co-existence of knowledge bases from both science (experts' side) and local (pastoralists' side) in policy process for better outcome.

1.1 Background Information

Tanzania is one of the developing countries with a large population of people engaging in agricultural activities. Tanzania counts more than 35 million people of which about 70% engage in agriculture, that is keeping livestock and producing crops and harvesting natural resources form the wild, as their main source of livelihood (FAO, 2009). The rural economy thus largely revolves around agricultural activities. Statistics show that some 75 % of rural people are still poor and despite that they own and keep relatively large herds the contribution of livestock to the national economy is a little less than 5 % (NBS, 2008). This is an indication of stagnancy rather than growth

Improvement of rural livelihoods in developing countries is mainly associated with livestock. Such focus is legitimized by the fact that seven out of ten of the rural poor in developing countries are depending on livestock for their livelihoods (FAO 2010). In rural Tanzania one finds a similar picture.

Livestock production in Tanzania falls under three land use categories: commercial ranching, pastoralism and agro-pastoralism. Commercial ranching constitutes around 2% of all livestock activities in Tanzania (Tanzania National Website). The remaining portion of land is used for

either pastoralism or agro-pastoralism. These are the two pre-dominant forms of land use. Livestock are mainly kept for subsistence, storage of wealth and cash earnings. The most popular livestock species are cattle, goat, sheep, poultry and pigs.

Livestock production in Tanzania is constrained by many factors such as livestock diseases, lack of farmers' knowledge and skills and poor marketing and processing of livestock products because of lack of investment and credit facilities, the availability of land, water and pastures (MLD, 2006). IFAD (http://www.ifad.org/lrkm/theme/husbandry/pf/pf_3.htm#policy) reports that, until recently, national policies have normally been less sensitive to the priorities of the livestock subsector. Enabling policies and legislation favoring smallholder livestock-production systems are rather absent in turn negatively affecting the livelihood of many rural families. The poor performance of projects, particularly those devised at the national level (for example, the livestock development projects in Ethiopia and Kenya) is also an indication a lack of 'good' policies. However, most governments in Africa are progressively showing a commitment to indeed take steps to reform the agricultural sector as a whole.

The current Tanzanian Government livestock policy aims to transform the sector into one being more commercial, modern and sustainable by 2025. However, the policy makers are still blamed for ignoring traditional agro-pastoral and pastoral farming practices (Sendalo, 2009b). As a result pastoralists continue to be poor, landless, victims of conflicts and resistant to modern farming methods. Sendalo (2009a) insists to review the new laws and policies so as to bring out more understanding and acceptance of these traditional livestock farming practices as profitable and viable systems. The focus on breeding is a case in point to underline such a statement.

Improvement of livestock production has been for long one of the foci of agricultural policies. Genetic improvement of indigenous breeds has largely taken place through crossbreeding with exotics and has found substantial support from donor and extension agencies to date (Mwacharo *et al.,* 2005). Indigenous breeds are important qualitatively as well as quantitatively. Indigenous breeds have adaptive traits which permit survival and reproduction under the harsh climatic, nutritional and management conditions that typically are associated with resource-

poor livestock keepers have shown. Indigenous breeds are capable of outperform crossbreeds under similar circumstances (for example, see Ayalew *et al.*, 2003). Statistics shows that Tanzania has a large livestock resource of about 19 million cattle of which 95% are indigenous breeds; the remaining are improved dairy (3%) and beef (2%) breeds (MLD 2007). These statistics show that indigenous cattle breeds are still pre-dominant despite the efforts of the government and other non-governmental organizations to formulate policies that promote use of improved breeds.

The current national livestock policy aims to commercialize livestock production. Improving local breeds and to create a highly productive livestock. This will ensure food security and improved rural livelihoods. The objective of this study is to elaborate the dynamics of livestock policies in Tanzania and to explore how and why such policies are designed.

CHAPTER TWO

2.0 Research Framework

2.1 Theoretical Framework.

This section describes the idea behind policy study. The theory behind relies on the difference of knowledge bases existing between the experts (breeders and policy makers) and the pastoralists. The McGee (2004) and Keeley and Scoones (1999) views on policy process, their critics and alternatives towards better policy making are explained. Furthermore, the focus on policy study centring on Tanzanian livestock policy is explained. All these at the end reveal a situation and justification for this study, whereby aspect of knowledge will be looked at, contextualized on the basis of how the experts and pastoralists knowledge on cattle breeds and their breeding practices are developed; and under which contexts they are embedded. Experts use their knowledge to design interventions and strategies trying to shape the pastoral production systems in such a way that they change and operate within the domains of modern and commercial livestock system. On the other hand, pastoralists try to change while sticking to their culture, history and micro environment that have played role in shaping their livestock keeping practices.

2.2 The Study of Policy

Theory behind the Study of Policy

This study provides the basic theories behind what constitutes the policy process in Tanzania as pointing to livestock sector. The focus on policy here accounts to the process and approaches applied and their critiques. The theory about the policy process discussed here relies on the studies done by McGee (2004) and Keeley and Scoones (1999).Policy is defined as a product of a linear process moving through stages of agenda-setting, decision making and finally implementation (Keeley and Scoones, 1999). It's also summarized by McGee (2004), as a smooth, linear, top down or rational process that involves two phases, namely; formulation and implementation.

Both authors (McGee and Keeley and Scoones) recognize the predominance of linear model approach in the policy process, particularly in developing poor countries. Such a linear model approach involves the assumptions that are rational based with an instrumental behaviour where the experts' role plays major part in the whole process, from formulation to implementation of policy. This linear approach has been predominant over a period of time despite the critics against it as pointed out by McGee. Thus the authors attempt to analyze this kind of approach and try to give critics and alternative approaches towards better policy.

Focusing on poor developing countries policy systems, both authors place the power relations as central towards operation of policy. Indeed, they reveal the political will as behind control of poverty reduction policy. They insist the whole process is being entangled in power relations between experts, citizens and political authority and their transformation being facilitated through the direction of formulation and implementation. However, the political will tends to rely much on experts power and authority in facilitation of policy design and implementation. This tendency ignores dynamics in power relations that exist among the citizens/ lay public as they are the main target group.

Also, recent development policies gained influence towards the idea of using evidence based policy within the policy cycles in order to reinforce the policy formulation (Stone *et al*, 2001). But under the reliance of expert power, the authors caution on the legitimacy of such evidence based policies as they see them to continue being applied under the tools of external conditionality that pursue the governments in adapting their policies. As a result, such an outcome will not be sustainable. Furthermore, such a tendency continues to support knowledge base that has been developed from the realm of science. In this case scientists tend to establish the facts which are taken up by the policy makers who eventually make use of such facts to develop policy options, a scenario termed by Keeley and Scoones as mutual construction of science and policy. This mutual construction is challenged as due to the fact that scientific knowledge development and policy are made out of the unresolved

uncertainities and debates, as a result the assumptions, plans and implementations continue to operate under the shadow of uncertainities.

Apart from the issues of uncertainities existing on the knowledge base of science, the tendency of these scientists to universalize the specific local knowledge by taking advantages of their established knowledge networks and political support is criticized (Latour, 1987). As a result Keeley and Scoones propose the approaches that can allow interfaces to emerge between potential actors of policy process. These interfaces can eventually facilitate knowledge interactions and at the end, provide insights and better directions in the policy process. Same argument is proposed by McGee who insists on the need for policy process to be considered as a dynamic process that involves key actors and provide space through which knowledge interactions from such elements can take place. Those proposed alternatives for policy study will facilitate the understanding of the policy process that is required to enhance a relief on recognizing both potential roles played by the people and also those defending them; and the dynamics and relationship that are needed to be negotiated to achieve better end (McGee, 2004).

Rationale of the theory to Livestock policy

Taking the situation of Tanzania, it's revealed that success of the livestock will depend much on better policy plans, strategies and implementation. This can be even much better when social processes that involve the target group or actors are put in place. However, like in many developing countries from Africa the whole setting up of these policies has been so linear that doesn't really take complete view of existing situations, in this case the pastoralists. As Hadju (2006) says that these have resulted into creating gaps in experience, opinions and unbalanced power relations that make people to feel as they can't control their own destiny from the wave of these policy makers (experts).

Thus looking at particular case, there are many factors that contribute to poor livestock development among the pastoral communities in Tanzania. The interest of this study is on the type of animals owned by pastoralists. The experts introduced an intervention of using the improved cattle breeds to replace the local zebu cattle kept by pastoralists. They expect that

these improved cattle will help to maximize production of milk and meat and change pastoralists' way of life towards commercial way of livestock keeping

From such accounts, the difference existing between policy makers and these pastoralists can be identified during the policy process. It is where the differences arise between the policy makers and pastoralists who keep cattle, mainly on the basis of their knowledge context, views and perceptions. As a result, contestations of knowledge between the two groups emanate. It is due to the fact that designed interventions and strategies from experts in Tanzania are developed through the base of knowledge contextualized on the roots of macro environmental scope. As a result, they are much influenced by global development policies such as trade liberalization, globalization, demographic growth, privatization and advances in science and technology. On the other hand, pastoralists rely much on the knowledge developed under their context of culture, history and specific environments on which they and their local cattle have been subjected and adapted to. Thus their strategies, ways and goals of keeping cattle don't fall in the same line as experts' objectives. So such dynamics from particular pastoral social groups alert for the need to be taken into account in policy design and implementation.

Arguments from the theory

The above discussion is based on the following critiques as concerning the policy making. Firstly, the generalised nature of the assumptions made by the experts in policy making that seem not to reflect actual reality of the local situations. This is due to the linear approach the experts normally use in identification, formulation and implementation of the policy problem.

Secondly, the body of knowledge where such assumptions are generated mainly rely on science. Also such scientific knowledge bodies seem to ignore the indigenous knowledge and practices as they are embodied on the realm of modernization. This realm advocates that generation of development and high production are achieved through modernizing, commercialisation, privatisation, globalisation and use of high technology, which are in contrary to local knowledge base.

2.2 Research Problem

The Tanzanian policies on livestock are majoring on the vision and mission of modernizing livestock production. Cross breeding is one of many priority areas that were identified towards attaining the goal. As indicated from various statistics, studies and ministerial reports (NBS, 2008; MLD; and Njombe et al, 2008) large percent of traditional livestock keepers are poor, contribution of the indigenous sector to the economy is low despite large number of cattle and also low production pronounced from these indigenous cattle as due to their poor genetic potential. Crossbreeding with exotic cattle breeds was the intervention or policy introduced that seems to fit in within modern and commercial livestock keeping. It seemed as the best option for improvement of traditional livestock keeping (pastoralists included) and of local zebu cattle.

This intervention was then followed by various projects and programmes supported by government and donors. However, under the pastoral production systems such technologies or forms of knowledge are contested and ignored. Use of these exotics discourages the practices of keeping large number of cattle and grazing behaviour. Furthermore, pastoralists doubt the ability of exotic cattle to resist diseases and harsh environments. Also, further contestation based on the experts' reliance on production aspects (meat and milk) and ignoring the multipurpose roles possessed by local zebu cattle. The proof on rejection of such projects and programmes by pastoralists is supported by current indigenous cattle population as compared to exotics or improved breeds (MLD, 2007) that is in hand with the pronounced failure of many livestock projects for many years (Nin *et al,* 2007). Such insights argue on the need to look on the process and see how knowledge from both (experts and pastoralists) is manifested and can be incorporated into policy making.

2.2.1 General Objective.

To give analytical overview on the influence of policy process to livestock development and how the breeding interventions have impacted the perceptions of pastoralists in Northern Tanzania.

2.2.2 Research Questions

- What assumptions are applied in livestock policy process?
- What is the rationale of Tanzania's livestock policy?
- What knowledge contestations emerge during the implementation of the livestock policy and how do they manifest?

2.3 Methodological Approach

Location of Study

Arusha is one of the regions in Northern Tanzania and has a population of about 1.3 million people (NBS, 2009). The region has largely inhabited by Maasai and Meru. The Maasai are the renowned pastoralists and the most influential tribe within this region in Tanzania due to their unique culture and outstanding way of livestock keeping. This study focussed on the Maasai and other pastoralists and their ways of livestock rearing.

Research Method

This study design is derived from a case study approach. A case study is a research strategy in the social sciences which is an empirical inquiry that investigates a phenomenon within its real-life context (Robert, 2009). Livestock keeping of the Maasai and their breeding practices provide the real-life context for our purpose. Case study research means single and multiple case studies, can include quantitative evidence, relies on multiple sources of evidence and benefits from the prior development of theoretical propositions. Case studies should thus not be confused with only qualitative research and they can be based on any mix of quantitative and qualitative evidence. A case study stands for exploratory research that lends itself to both generating and testing hypotheses.

Sources of data

This study based on secondary data sources. Such sources include published articles, books, reports from trusted links (NGO's, UN organizations, Ministries etc), policy documents and also available media information. However, Sarantakos (1998) argued that one of the limitations of using documents, as a source of data is the difficulty involved in accessing them. As regarding the kind of study and the place to seek these documents, accessibility was difficult as much information are locally documented, not electronically accessible and not legally published. To overcome this situation, data used were from studies done before or some very closely related case studies done in Tanzania and were from the legal and accessible databases.

The documents and articles were to expose the theoretical assumptions about the nature of the problem and how (e.g. in what language) these are framed by experts and policy makers (Gasper 1996). Analysis of the content of policy documents will also show the kind of resources that are required to deal with the identified problems and how to deploy them.

CHAPTER THREE

3. 0 Livestock Development in Tanzania and its State

3.1 Introduction

The idea that African pastoralists did not consider cattle to be commodities, but cultural objects, for example as signs of wealth, status, prestige or piety, was prominent in explanations of overstocking in colonial Africa in the 1960s. Kuper (1992) coined the expression 'cattle complex' to describe this phenomenon. As it relates to environmental degradation, the cattle complex argument explained that because of the animals' high cultural value, the management objective was to maximize the number of cattle by minimizing the consumption and sale of cattle. Hoarding cattle resulted in a cattle population explosion and overgrazing and desertification. The theory suggested that if livestock managers were to behave 'rationally' that is, respond to market opportunities and employ modern cattle management practices the overstocking-degradation cycle would be broken because 'surplus' cattle could be sold and consumed.

This image of the cattle complex has shaped most of colonial and post colonial state policies for long and continues to do so. This is a basic assumption behind these policies. Breaking the cattle cult was the policy objective and would solve a number of problems at the same time: overstocking, transforming the service or by introducing new, modern ways of management which would commoditize the sector and also bring more milk and more meat to the market.

This chapter gives the general overview of the relevant livestock policies and the policy processes in Tanzania. The section describes the historical contexts of livestock developments and the early organised attempts of the colonial and post colonial state to design and implement policies. In line with the objective of the study we largely focus on breeding policies and the introduction of improved breeds. This will unearth the basic assumptions that drive the policy process and the role and knowledge inputs of experts regarding these policies.

3.2 Colonial Livestock Breeding Policy.

The literatures show that colonialism has had a major impact on trends and changes of livestock sector in Tanzania. Many of the policies that the colonial state policies designed and implemented continue to play a role today.

During the nineteenth century, the territory that is Tanzania was largely inhabited by pastoralists; agriculturalists were few in numbers (Fratkin, 2001) but the situation began to change in the colonial and post colonial era as state policies and politics became dominated by institutions and networks that hardly prioritized pastoralists concerns. Furthermore, in the early twentieth century, the Maasai pastoralists were pushed off 60 percent of their lands by British and German settlers. During the colonial period (1900-1963), pastoralists in Kenya, Tanganyika, and Uganda were bounded in administrative districts that restricted their movements**.**

The origins of indigenous cattle of Africa still remain uncertain despite available archaeological, anthropological and historical evidence (Epstein and Mason, 1984; Blench, 1993). It is generally accepted that the African cattle populations arose from three main phases of introduction from Asia through the Nile valley in Egypt or via the Horn of Africa. Since their arrival in Africa, extensive crossbreeding has evidently occurred between Zebu and Taurine cattle populations (Payne 1964). For example, the Sanga breeds of East and Southern Africa are classified as *Bos Taurus´*and *Bos indicus* crossbreeds on the basis of the situation or size of hump, the horn size, the cranial or body conformation (Epstein 1957, 1971; Manwell and Baker 1980).

During the pre and colonial era, the dominant breeds that existed in the east African zone were the *Bos Indicus* species namely; Boran, Zebu and the long horned Ankole. These breeds provided pastoralists a source of food, insurance and socio-cultural values. Moreover, they possessed distinctive characteristics of surviving harsh conditions and resistance to diseases, but low production of milk and also meat. According to Mwenya (1993), colonial powers decided to introduce exotic breeds for the purposes of increasing meat and milk production. He further says that, the origin of exotic cattle is generally traced back to Europe where the most common exotic dairy breeds in the region were Friesian, Holstein, Ayrshire, Jersey, Guernsey

and Sahiwal; and the common exotic beef breeds were Hereford, Brahman, Sussex, Charolais, South Devon, Afrikaander and Simmental (dual purpose). However, Friesian breed was the most dominant exotic cattle.

Connelly (1998) argues that the policies of the colonial state had ignored the existing agricultural systems and values. He further said, they based on the assumption that modern agricultural technology was always better in all cases but actually the missing important aspect was that these policies lacked appreciation of human relations in aspects of development. Raikes (1981) supports this by saying that the major problem by then and still is lack of proper information of the existing realities and incorrect assumptions made by the policy makers. Among the livestock policies that were approved was legislation that allowed the importation of exotic breeds. On the other hand, policy allowed the crossing of local with exotic breeds as a part of improving genetic potential of local cattle breeds. These initiatives did not prove to be successful among the colonialists' goals as they were designed out of the understanding of local environments as claimed by Connelly. Important issues of diseases, availability of feeds, costs of veterinary services were not fully considered by colonial states before introducing their breeds.

3.3 Post-Colonial Livestock Breeding Policy

These colonial policies were supposed to be critically reviewed after independence by the post colonial state but yet, some or most of the assumptions underlying livestock policies still exist and still shape policy orientations and decisions

In most cases the livestock policies that were in favour of modern technology continued to be applied since then. Many programmes were introduced during 1960's and 1970's by international development agencies with the main goal of improving livestock production and market integration of livestock farmers (Fratkin, 2001). With reference to Garret Hardin's (1968) "tragedy of the commons" they encouraged local governments to curtail pastoral livestock production on communally held lands and promote private ranching of beef and dairy resources, as private landowners were assumed to better conserve their resources**.**

Therefore, the designed breeding interventions developed by colonialists kept on being applied after independence by the government. With the saga of modernization, this time much support from international donors was directed towards such projects and programmes. Thus the following section discusses about dimensions that exist in livestock policy, trying to focus on the main actors and how they play their roles in the policy process.

3.4. General Dimensions of Livestock Policies in Tanzania

3.4.1 Actors Involvement

Scientists/ Researchers

These are the main actors in livestock policy. They are mostly from the research institutes, government authorities and universities. They are grouped together as analysts from think tanks due to the roles they can play in policy making process. These experts are believed to be the major providers of reasonable and practical policy ideas that help in expressing the scientific facts which can influence attention and decision making process of the ruling power in a form of policy making. Examples can be traced from many developed countries that have been making use of scientific reports from research institutes (Environmental issues as example) to develop policies and undergo political decisions basing on these reports.

These researchers or scientists usually apply their knowledge in developing some basic facts that are in turn politicised by the decision makers in form of policy options (Keeley and Scoones, 1999). Such facts are said to be logical and rational, based on tested or studied theories. As it was explained in previous section, the policy process has delegated more power to the knowledge from scientists as most of the facts rely on science (McGee, 2004 and Keeley and Scoones, 1999) despite the possibility of revising knowledge from other actors. Also these scientists tend to ignore local contexts in their studies and thus come up with facts that are under uncertainities when revealed under real situations. Furthermore, Keeley and Scoones term the so called “mutual construction” of science and policy existing due to established network among them, as behind poor designing and implementation of policies.

These policy makers who take responsibility from problem identification, knowledge application and decision making are criticised for being too much relied on rational or technocratic knowledge and ignore the local; that is based on the understandings of the particular pastoral conditions. Thus based on McGee (2004) study on policy in poor countries like Tanzania, policy process that recognizes the open and accountability in which poor have a voice will stand the chance of being sustainable. Thus policy makers in this case are referred to as too linear, relying on rational and logic scientific facts and applying top down approach in the whole formulation and implementation of the policies. Next section discusses the other potential actors in policies of Tanzania (the pastoralists).

Pastoralists

These are also potential actors to be involved in the policy process. The pastoralists' ways of life and livestock keeping and the related problems form a major basis towards designing of such policies. Therefore policies try to provide alternative means for these people to adopt and improve their livelihoods and at the same time cope with the changing development policies. However, pastoralists have been reluctant to such new knowledge imposed on policies and instead make use of their knowledge through which they and their cattle have been shaped.

Pastoralists are attached to their cattle in a way that they give more value to them apart from just milk and meat production. Such an attachment is due to multipurpose roles played by cattle in their daily life practices. As claimed by Raikes (1981), such reasons are behind the character of pastoralists to accumulate many cattle, their unwillingness to sell and unresponsiveness to price incentives; and furthermore unwilling to accept or keep exotic cattle breeds. Thus, culturally these pastoralists value cattle as a sign of wealth, prestige, means of dowry payments (marriage) and used for sacrifice during the traditional or ethical events. Other attributes valued by the pastoralists from these cattle include the genetic related and adapted traits like tolerance to droughts and food shortage, draught power and disease tolerance. These are the basics towards the knowledge the pastoralists have.

Among the reasons mentioned behind the failure for many of the cattle improvement programmes is for not involving the main actors (pastoralists for this case) during planning and

implementation. As Fratkin (2001) says, the failure of many development projects within pastoral societies like Maasai for example, was mainly due to the donors' ignoring the knowledge's and practices of these pastoralists, also the notion developed that these societies are monolithic in cultural aspects. As a result these Maasai have been kept away from the national government support and are also lacking supportive agency to help them in expressing their goals. Also Philipsson *et al* (2006) insists on the need for programmes to be developed in the context of prevailing cultural and socio-economic conditions due to the complexity of breeds' improvement in tropical countries like in Africa.

3.4.2 Commercialization of Livestock Production

One of the world's challenges is to match the demand for food with supply and this against reasonable prices to allow the poor to pay for the food they cannot produce themselves. This matching is threatened by increased population growth, urbanization, processes of de-agrarianization (Rewe *et al.,* 2009; Tambi and Maina, 2003; Delgado, 2003). Delgado (2003) reported an increase of 70 million tonnes in the demand for meat in developing countries from the 1970s to the mid-1990s, more or less tripling the demand levels in developed countries.

The projected demand for meat from 1997 to 2020 is expected to be even higher (65%) in developing (mainly Sub-Saharan) countries. The demand for more protein has caused the need for more livestock products, specifically meat and milk. As a result more emphasis is put on increasing or improving livestock production to meet this demand of meat and milk. One way to achieve that is to encourage farmers and pastoralists to make use of highly efficient and productive breeds. One other strategy would be to increase the numbers of cattle. Tanzania's livestock policies are proof of the fact that the first strategy is seen as the most relevant.

The livestock policy of Tanzania has been reviewed and redocumented several times during post colonial era. This was due to changes in ministerial structure, situation of the livestock sector growth and world economy. According to the Ministry of Livestock Development policy

document (2006), the Tanzanian economy has been undergoing since mid 1980's a gradual but fundamental transformations towards a market-based economy. This has resulted to reformulation of several policies including a review and redefining of the roles of public and private sectors in livestock development. Furthermore, the government withdrew its direct involvement in much production, processing and marketing activities as to allow private sectors to take over.

The recent livestock policy document (MLD, 2006) has also set the vision concerning livestock production that intends to make the sector more commercial, modernized and use of highly improved livestock for satisfying food demand and also increasing the income of farmers. With such vision, the government recommends farmers to use improved breeds which they insist that exotic cattle from west are the best breeds.

Since the postcolonial era, the livestock industry has produced three policy documents. The first policy was launched in 1983 with the aim of stimulating livestock development in the centralized economy on which emphasis was put on large-scale parastatal institutions for production, processing and marketing. Another policy document was Agricultural and Livestock Policy of 1997. This was the second policy to be formulated that focused on the ongoing reforms and redefined roles of public and private sectors. However, during implementation of this Policy other reforms emerged thus gave a need for further review and formulation of a new policy.

Thereafter, the new policy was documented in 2005-2006. It has a vision stating that **"**By year 2025, there should be a livestock sector, which to a large extent shall be commercially run, modern and sustainable, using improved and highly productive livestock to ensure food security, improved income for the household and the nation while conserving the environment**"** (MLD, 2006). The policy seeks to address specific key issues including animal identification, registration and traceability, animal welfare, indigenous technical knowledge, biotechnology and bio-safety, organic livestock farming, food safety, emerging diseases, livestock products regulatory institutions, professional regulatory institutions, animal genetic

resource conservation, livestock stocking, veterinary laboratory system, livestock related disasters and pet animals (MLD, 2006).

CHAPTER FOUR

4.0 Outcomes and Policy Assumptions

The modernisation paradigm initiated the design and implementation of many programmes promoting crossbreeding. Generally, the literature agrees that these have rendered disappointing outcomes as in below what was expected by experts. Among the projects that have existed for so long implementing the crossbreeding programme is the Heifer Project that is funded by Heifer International. The programme introduced heifer in trust schemes which involves loaning a pregnant heifer to a recipient who in turn is required to pay back to the scheme a pregnant heifer born on his/her farm (Kurwijila, 2002). Despite some positive impacts of the project as pointed out by Njombe *et al.* (MLD, 2008), this project had some negative impacts as there are no exact data to indicate their implementation and success in pastoralists societies.

This section attempts to explain these disappointing outcomes. We will have a look at the dynamics of the why's and how's of improving cattle breeds by exploring the assumptions that underlie the decisions made to act in a specific way. A closer look at the assumptions aims to show what Keeley and Scoones (2003) have pointed out that the framing of problems is derived from a distinct body of knowledge. In addition that the policy process is rather linear in nature (McGee 2004).A linear approach tends to favour the elements of technocracy as highly valued as compared to local/traditional environments' knowledge; as a result the involvement and use of knowledge from pastoralists are ignored.

Animal Breeding Policy

We have earlier indicated that since the colonial era till today, improving local animal breeds has been a major instrument to achieve the larger objective to modernise and transform Tanzania's livestock sector. The disappointing outcomes of this policies can be related to a general ignoring and lack of understanding of the local environments, particularly the agricultural systems and not appreciating what Kuper (1982) has referred to as the ' cattle complex': the human-cattle relationships that exist in the localities of pastoralists (see also Conelly (1998); Kreike (2009)).

The same notation applies as supported by unsuccessful livestock projects as reported by Nin *et al* (2007). Policy makers are still insisting on use of improved breeds without considering the best options that could avoid contestations between the livestock keepers' knowledge and practices; and their designed interventions and strategies. The assumptions and plans of action (policy statements) as outlined in the policy documents (1997 and 2006) are described below.

Assumption

"Improvement of breeds to increase beef and milk production" (MAC, 1997) NALP, pp 142-143

Policy Statements

In order to fulfil such assumption, the policy makers outlined the means through which they could attain such assumption based objectives.

Firstly, the importation of exotic breeds with high milk production and meat quality traits. Such breeds, either bulls or heifers and are mainly exported from South Africa and European countries.

Lastly, is to promote the use of artificial insemination methods among the local farming societies. This involves the use of stored semen of bulls. Such could facilitate in a fastest and less expensive means of improving breeds. Also through that many centres were to be established in order to facilitate accessibility and availability of semen.

This policy document was reviewed and recommendations were outlined. The study involved livestock keepers and other farmers, and the comments based on the policy statements and institutional structures on which the policy process was involved. According to the policy document reviewed by Mbilinyi (2000), the following recommendations were listed below specifically on livestock policy process;

Firstly, he recommended the "creation of two separate policies for agriculture [farming] and livestock-keeping, with an emphasis on the needs of the smallholder peasant livestock-keeping sector" (Mbilinyi, 2000. pp 13, recommendation 2). This recommendation was raised by

opinions from the pastoralists from Ngorongoro, Tanzania; who had expressed their doubts towards this policy, as it tends to marginalize the livestock keeping from crop farming.

Secondly, his review (pp 15, recommendation 3) proposed that efforts should be made to chart out concrete strategies for policy implementation, with full participation of all key stakeholders, including grassroots communities, the poor, women and youth. The strategy or plan of action should indicate concrete objectives and not mere listing of intentions. For each of the objectives there should be a set of activities to be performed, a list of actors and stakeholders, resource requirements and a statement of when to start and complete the given activities. The strategy should also list the expected output for each of the activity and provide a list of measurable indicators for monitoring and evaluation purposes.

Lastly, the author recommended (pp 19, recommendation 9) that the policy making process should involve the participation of all stakeholders including the grassroots and smallholder farmers and livestock keepers. This is important since the successful implementation of the policy involves everyone and requires everyone to have a sense of "ownership" of the policy. Furthermore, he insisted that participation in the policy making process can be facilitated by the use of participatory research approaches and/or participatory poverty assessments.
The recent policy document also outlines the following assumption and policy statements on breeding policy.

Assumption

"Genetic improvement of livestock increases production and productivity", (MLD, 2006) NLP, pp 22.

Policy Statements

Firstly, the Government will promote livestock breeds inventory, characterization, evaluation and genetic potential improvement.

Secondly, the Government will strengthen technical support services in animal breeding. By technical support it implies facilitate availability of expertise like extension officers and breeders who will be responsible to provide training to the livestock keepers.

Finally, efforts will be undertaken to promote Breeders Association, Clubs and Breed Societies for sustainable conservation and breeding. Experts believe that presence of these associations and clubs will enhance development and recognition of the breeding activities and also systemise the breeds and breeding practices.

Followed such policy statements Sendalo (2009b) says, the 2006 livestock policy continued to reflect the top down approach used by policy makers in the process as it didn't provide better solutions for pastoral production systems. Instead, the policy emphasizes more on commoditization of livestock production through modern practices assuming that pastoralists will be able to cope with such plans.

4.1. Knowledge Paradox as a Policy Outcome.

This section describes how policy process is connected to knowledge development among the major actors; in this case the experts responsible for policy making and pastoralists who are the concerned group for this livestock policy. As argued, the linear approach is still dominating policy process up to recent times in most poor countries (McGee, 2004). The dominance of linear approach creates a paradox; in which knowledge base from science facts (applied by policy makers) is contested by pastoralists' knowledge base that guides their breeds and breeding practices (as way of life). On the other hand, knowledge base from experts views contests on pastoralists' knowledge about breeds and breeding practices. This paradox is continuously creating contestations when it comes to the implementation of policies, as the two sides (policy makers and pastoralists) tend to stand on their basis of knowledge through which they have been contextualized. Therefore, the following section describes such

knowledge developments and contexts through which the experts and pastoralists have been shaped to as regarding to the situation of the Tanzania livestock policy processes.

4.1.1 Experts' Knowledge

The experts in this study include the breeders/ scientists (expert researchers) and planners (expert policy makers). These are all housed and responsible to or under the government institutions as in universities, research centres and ministries. The breeders or scientists, being categorised as expert researchers(McGee, 2004), are responsible for gathering and applying knowledge (based on the problem at hand) that is statistically representative, generalised, technical and quantified. While the expert policy makers playing roles of identifying a problem and at the end make a policy decision using or basing on expert researchers outputs**.**

Scientific knowledge plays major role in policy making, as it provides foundational options that are used by policy makers to point out facts. Similarly, in livestock policy making, the same notion applies. According to Keeley and Scoones (1999), this positivist conceptualization of the relationship between science and policy is often applied to the practice of technical - not necessarily scientific - policy analysis. Furthermore, they insist that, these rational and technical policy analyses are in most cases delivered by experts in think tanks and from research institutes. These notions have led to ignoring of the lay public during policy process and in many cases ending up on failures to implementation, taking example on livestock policies in Tanzania.

When referring to the policy documents produced in Tanzania, the experts' ideas or knowledge rely much on the existing broad environment that is influenced by developments in trade liberalization, globalization, privatization, science and technology advancements and demographic growth. According to McGee (2004), such a kind of knowledge arising from such aspects can be termed as '*Produced knowledge'* that is usually referred to as being made by certain actors for attaining their certain purposes. Experts, under such broad environmental context use such knowledge to design the intervening and strategic policies to the target group

whom they tend to have a complete understanding of their behaviour, characteristics and welfare status.

Looking at the rationale behind making the livestock policy (MAC/NALP (1997) AND MLD (2006)), it's seen that major influential driver for change was the macro environmental context in which these experts are embedded. As a result, any fundamental changes occurring pushed them towards modifying and realigning their strategies as to take advantage of the opportunities created by such context. However, these strategies are still following top down approach and eventually don't go into same line with pastoral strategies as Sendalo (2009b) pointed out on the case of policies and strategies to improve livelihoods of Maasai pastoralists.

From such arguments, knowledge development of experts is shaped and being embedded within the history, in which the changes in environment are influencing their policies and strategies reform; and also their power which permits them to exert execution of such policies and strategies to the target groups. As an outcome, local cattle breeds and pastoral ways of keeping livestock are seen as unfit to cope with these changes, instead the need for modernization livestock production prevails from the experts' point of view. Therefore, the next section describes the knowledge development on the side of these pastoralists being as the potential target group and actors of the experts' interventions and strategies.

4.1.2 Pastoralists' Knowledge

Pastoralists' practices and ways of life are in the eyes of experts as too traditional, unproductive and not environmentally friendly (Sendalo, 2009a). Pastoralists and the local cattle they keep seem to be not compatible to the existing development changes that emphasize on commercialization of livestock production.

However, looking on the basis of knowledge and practices executed under the pastoral communities it's realized that, they are an outcome of the contextual dynamics (particularly historical, environmental and cultural contexts) which have been shaping the pastoralists and

the local breeds over a period of time. Simply, this kind is termed as experiential knowledge (McGee, 2004) that is not always evident, visible and explicit. As revealed by many sociological studies, knowledge possessed by pastoralists as part of traditional knowledge, is regularly based on experiences attained in periods of time, encompassing the cultural practices, history and environment; that has been passed through generations but lacking some documentation to assure its feasibility.

The pastoralists such as Maasai and Kurya keep these local cattle for major purposes; among others being for socio cultural practices such as dowry payments, sacrifice, prestige, skin and other traditional ceremonies (Tale (1999); Fratkin (2003) and Ngowi *et al* (2008)). Thus pastoralists believe that cattle are part and parcel of their daily practices, as in, being embedded within their way of life from historical and cultural points of view. This notion brings an insight that, for the pastoral communities that are still reliant to modern ways of life, their knowledge base should be considered.

Furthermore, other attributes of local cattle breeds such as diseases resistance, coping with droughts and food shortages are said to be an outcome of these cattle being exposed over a period of time and through a series of natural selections that made them to adapt such environments. In other words, the pastoralists and their local cattle have been shaped in the environments that they have survived and adapted, making them really attached to the kind of breeds and environment. Thus the pastoralists use this knowledge experienced from particular environmental context to make a selection within their herds and mate the cattle to get best breeds as they prefer Maeda-Machang'u *et al* (2009).

Therefore, knowledge development from the two classes (experts and pastoralists) seems to originate from different contexts. Although the environmental context is revealed from both but the former is more about the global circumstances that are influenced by changes in economic, political and technological policies that push them to design interventions and strategies for coping with while the later is about the natural environment in which they have survived and adapted with their cattle that has created a kind of attachment between pastoralists and their local cattle.

Having described the knowledge development above, the next section discusses about the related case material. It describes the situation of pastoralists in Tarime and their preference for the Tarime zebu cattle over exotic cattle and their reasons for such preferences.

CHAPTER FIVE

5.0 The Case Material: Local Cattle Breeds, Pastoralism and Experts Interventions in the Policy Process

This section discusses the breeds and general breeding practices of pastoralists in Tanzania's rural areas and those by experts. Their breeding practices are quite different and both have added in many different ways to the currently existing genetic variation in cattle breeds. The focus of pastoral breeding is on what we will characterize as local cattle breeds also referred to as zebu species. Pastoralists attach and attribute a range of values to Zebu species. Experts (breeders with support from policy makers) on the other hand argue that the current Zebu cattle have problems of low genetic potential basically on production aspects of milk and meat. These can in their view only be tackled by improving local cattle breeds. Their breeding practices are, as we will see in the paper, based on introducing improved breeds. The paper will elaborate how some of the interventions designed to deal with this situation work out under the pastoralists' contexts.

The findings from different case materials revealed that the policy process is influenced by the knowledge discourse that has been differently emerging from experts and the pastoralists in contrary, as regarding their views and interpretations on local breeds and the breeding practices. Therefore, this chapter is divided into two sections; firstly, a discussion on the local cattle breed kept by pastoralists in Tanzania as in this case the Zebu cattle, whereby a case study example of the Tarime zebu cattle is discussed. Secondly, the experts' views on the typical breed and the pastoralists that lead to their designed interventions; and lastly their strategies to implement their designed interventions are discussed. In the next section, I will start with the discussion of the former.

5.1 Local Cattle Breeds in Pastoral Communities of Tanzania.

The small east African zebu is the predominant cattle breed in indigenous pastoral societies of Tanzania. The Tanzanian shorthorn zebu cattle are named as such because of their small size

and short horns. The Zebu is well distributed over mainland Tanzania. The Zebu breeds, however, are genetically very diverse and many breeds or strains exist (Rege *et al*., 1999). These Zebu breeds have been given various names (or strains) - by the different local farming societies. These strains exist or have been developed over time through a wide range of breeding practices by pastoralists.

According to Rege *et al.* (1999) and Maeda-Machang'u *et al* (2009) such practices revolve around selection of cattle within their herds for particular traits such as skin colour and others and mate them to give the best breeds based on their preferences. Pastoral societies had over time developed their own specific breeding priorities and gradually a range of strains of the so-called Zebu cattle emerged. Traditional leaders (like chiefs in Iringa) played an important role in this process as they are mentioned to be behind development of those zebu strains, in order to show their identity that helped to differentiate one society from other another (Rege *et al, 1999*).

They further insist that strains of zebu cattle were based on phenotypic and physical characteristics, and primarily on skin colour, but the genetic evidence to differentiate them is not outlined yet. As a result many breeds of small shorthorn zebu today exist in Tanzania, namely; Maasai, Tarime, Iringa red, Singida white etc. Most of these breeds are said to be small in number. This is partly due to interbreeding that is taking place with other breeds. This in turn can be explained by the process that tribes in Tanzania are mixing because of inter-marriages that have advanced over the years

5.2 Case Study: The Tarime Zebu Cattle

The purpose of the case study is to describe the multiple functions and desirable attributes of Tarime zebu cattle and assess farmers' breed preferences. The Tarime zebu cattle are kept by the Kurya tribe, most of them being agro-pastoralists. The Kurya keep their Tarime zebu despite the introduced high producing exotic breeds in the area by the government and donor agencies through development projects. Tarime district is among the first districts where breed improvement programmes were introduced. Pastoralists and other farmers were encouraged to keep the improved cattle especially for dairy purposes, instead of keeping large numbers of

local cattle. Research has shown that the agro-pastoralists were not very keen to adopt these improved breeds (Chenyambuga, *et al, 2008b).* Ngowi *et al.* (2008) conducted a socio economic study in the district which will be summarized below.

Why do they keep Tarime Zebu Cattle?

The case study indicates that agro-pastoralists in Tarime keep cattle for the following major purposes as ranked from the findings; draught power, dowry payments (marriage), milk for home consumption, saving and insurance, meat for home consumption, store of wealth and prestige. Then by grouping them we find out that socio cultural and socio economic uses are the main purposes for keeping the Tarime zebu cattle. Maintaining culture has been the basis of many pastoralists' societies in Tanzania. The Maasai people for example, are known for sticking to their culture and cattle keeping are basically for cultural uses plus meeting other household basic needs.

By looking at the cultural aspect, we can reveal that Tarime people have been embedded into the context of cultural practices in their daily life with respect to their cattle in such a way that they developed a certain attachment with the Tarime zebu cattle. Such attachments are a result of the continuous knowledge development over a period of time, being experienced and passed through generations. Thus cultural practices within this community pave way to the shaping of these pastoralists towards recognizing the value of Tarime zebu cattle.

What are Pastoralists' Preferences?

It was found out that an average of 85 percent of farmers from both highland and lowland areas preferred keeping their local zebu breed against the exotic breeds. Ngowi et al. argue that the pastoralists claim that their Tarime zebu out performs the exotic breeds. The major reasons behind such preferences as mentioned from results were; Tarime cattle have good tolerance to diseases, survive in harsh environments and food shortages, are good draught animals and have well and tasty meat. The preference of pastoralists on Tarime zebu cattle is a result of the experience they have acquired through living with these cattle and trying to create some interventions that could fit within such environment over a period of time. This kind of

knowledge enables them to express what they know about these cattle as regarding to the type of environment they have been subjected to.

Furthermore, we find another crucial note from this aspect of knowledge they have, as results showed some specific preferences of cattle for draught power of which they "despite having mixed types of colour in their herds, the majority of farmers prefer Tarime cattle with brown colour or mixture of brown and white colour, but they do not prefer cattle with black colour due to the reasons that they easily get tired when used as draught animals and succumb to ticks". Such a finding indicates the form of knowledge these farmers have acquired through.

Furthermore, we can derive such contextual dynamics of knowledge concerning the Tarime zebu cattle as a result of long term exposure within the particular environment as being behind the development of knowledge among these people. Within such context, these agro-pastoralists have acquired some experiential knowledge through daily practices of farming that enables them to identify and understand some attributes or characteristics of their cattle

Tarime Zebu Cattle under the Environmental Context

These cattle possess some exceptional attributes as other zebu strains. As pointed out from the case material, their good tolerance to diseases, ability to survive in harsh environments and during food shortages and being good draught animals shows how these cattle are well suited within particular environment. This indicates that the Tarime cattle have been shaped by the existing environmental conditions which made them well adapted and to be able to cope and thrive. Such an attachment of these Tarime zebu cattle to the kind of environment can be attributed by a series of natural selection and breeding done by pastoralists so as to get the best breed which could fit into the environment. In other words, we can say the environment has played a role in shaping these pastoralists and their cattle towards becoming the masters of their particular context through adaptation and natural selection. The ideology behind can be technically termed as co-production of co-evolution.

This argument goes hand in hand with what is said by Epstein *et al* (1984) *and* Syrstad *et al* (1998), that such long exposures to a particular environments plays a role to the adaptability of

the cattle by building resistance to diseases and other harsh situations within such area. Thus we see the context of environment as being behind the development and adaptability of the Tarime zebu cattle, going hand in hand with a series of interventions (breeding or selection) done the pastoralists in order for them and their cattle to survive.

Consumers' Preferences in Tarime

Also, during group discussions with key informants the study found out those consumers in Tarime district prefer meat and milk from Tarime zebu cattle as compared to products from improved dairy cattle. Such a point can be explained as a result of these people being embedded within their daily life experiences and practices which have developed a trust or belief among them, as on what they have been used to. Tarime zebu cattle have been part and parcel of their daily life and their culture, so under such context it is expected that consumers of the particular place to prefer their products.

The account above shows the knowledge experiences of the pastoral communities with Tarime zebu cattle. The accounts provide an insight how such practices are embedded in the cultural context, the history of the cattle and the environment. According to Ngowi *et al* (2008) the traditional knowledge and local customs of the Kurya people in Tarime has been the basis for shaping the adaptive characteristics of Tarime cattle, as a result, these pastoralists have developed some knowledge contextualized within their history and cultural contexts that makes them proud to appreciate the values and attributes of Tarime zebu cattle.

As referring to other policy cases that have exempted the roles of these pastoralists, we can see that lack of representation or participation within the whole processes is the main cause. Philipsson *et al* (2006), says that many improvements programmes have been neglecting values of indigenous breeds to farmers, as they only base on technical aspects of exotic breeds. The same case applies to Maasai pastoralists where cattle in their societies have outstanding social value, such as prestige, wealth, traditional purposes and the like, while meat and milk are only for satisfying the family needs. Social status of the animal matters a lot to them, as they are among the leading tribes in Africa maintaining their cultural values until this time. This and Tarime case discussion reveal that pastoral communities not only look towards producing more

and quality meat and milk as the assumptions from experts point out; but also consider other attributes as based on their traditional and cultural purposes that seem valuable to them apart from just milk and meat. This notion is supported by Kosgey *et al* (2006), that the breeders should try to make sure the breeds introduced to particular localities are able to fulfill both the traditional roles of the farmer as well as productivity so as to be acceptable to the farmers and eventually be able to cope with the production circumstances.

Furthermore, in relating the case of Tarime with Maasai situation the studies indicate that the pastoral livestock production continues to be resilient and the main important livelihood assets among these Maasai farmers despite the push towards modernization of livestock economy (Homewood *et al,* 2009). The author keeps on insisting the need for livestock policies in Tanzania to appreciate the vitality and resilience of livestock production and also to embrace and foster pastoral production by giving all the support to these farming societies. Philipsson *et al*, (2006) says that there is much more than scientific theories of genetics and improved productivity in designing a breeding programme, thus other aspects like of infrastructure, community development and an opportunity for improved livelihood of livestock owners. Thus an argument arises on the importance of involving these pastoralists within the process so as to understand their real needs and problems.

Therefore, the case study has indicated some basic traits that are possessed by zebu cattle (Tarime cattle being a typical zebu strain). More elaboration of zebu cattle is given by Syrstad and Ruane (1998) who say that zebu and similar 'African' breeds are adapted to the existing tropical climatological conditions. Zebu breeds as a result, can easily tolerate heat stress, are resistant to many tropical diseases and can survive long periods of drought and food shortage. Zebu cattle are the result of processes of natural selection that has taken place over hundreds of years. Syrstad and Ruane (1998) insist , however, that their dairy potential is poorly developed as most zebu breeds have low milk yields, are late maturing, and usually do not give milk unless they are stimulated by the sucking of the calf. Such characteristics led breeders with support from policy makers to raise the need for improving zebu breed.

Therefore, due to the raised need of improving zebu breed and introduce them to pastoralists for the sake of improving productivity and their livelihoods, the next section describes how experts view the zebu breed and pastoralism, formulated interventions and also mention the strategies they undertake to address the issue.

5.3 Expert Views on Zebu Cattle Breed

Genetic improvement of cattle breeds was one of the optional solutions designed by the livestock breeders and policy makers to tackle the problem of poor genetic potential of local cattle breeds in Tanzania. As pointed out by Homewood (1995), the experts' views were pushed by continuous changes in development policies taking place since Tanzanian independence. As a result, influences of government policies, monetization of traditional economy, land tenure changes and demographic factors played major role on the need to shape socio-economic situation of these pastoral communities, Sendalo (2009b).

We first discuss on the views articulated by experts basing on local zebu breeds and pastoral production systems (pastoralism) under circumstances that led to designed intervention of promoting the use of improved breeds among pastoralists.

1. **Experts' Views on Zebu Cattle Breed.**

Tanzania is mainly dominated by indigenous zebu breed with its different strains. Moreover, most of the pastoralists keep zebu cattle breeds. When looking at the characteristics of these zebu cattle, experts describe them below.

"Are believed to possess innate resistance to many parasites and to extremes of climate (Epstein and Mason, 1984), their ability to tolerate high degree of heat stress, resistant to many tropical diseases and survival of long periods of drought and food shortage (Syrstad and Ruane, 1998) are their main positive attributes. However, they have small body size, poor meat quality; their dairy potential is poorly developed, low milk yields and they are late maturing, low

reproductive rate, high calf mortality, long generation interval (Syrstad and Ruane (1998), MLD (2008) and Njombe *et al* (2008))".

Furthermore, the experts see the cattle as the commodity that can be used as a good source of income for the pastoralists' livelihoods, through selling of milk, meat or as a live animal. Such a notion pushes them to promote modern livestock keeping practices that might help to improve production of milk and meat. However, this modernization is not the same as improvement of their livelihoods as it also leads to the change of pastoral way of life and their culture which won't be acceptable to pastoralists (Sendalo, 2009b).

These experts' views on the local zebu cattle have led to them to design the interventions which they believe will cope with the changing global development policies and other driving forces. Still, it's seen as their designed intervention to tackle such problem relied much on one productivity aspect (meat and milk) of the breed while ignoring other potentials (resistance to diseases, long drought and food shortage).

2. Experts Views on Pastoralism

Among the drivers of change that have directly influenced pastoralism in Tanzania, is the change of policies. Policy makers have shown inadequate recognition of the pastoralism and their way of life, advocating that it is unfit with the ongoing changes on land tenure, population growth and the most pronounced modernized economy (Sendalo, 2009b). They insist that, due to such changes pastoralism is seen as a traditional way of livestock keeping that can't cope with existing limited access to natural resources, as a result they are supposed to adapt to a modernized system.

We look at some of the positive and negative statements delivered by experts in policy making authorities on pastoralism.

Positive Policy Statements on Pastoralism

Pastoralism has some potential in most of the societies as it has been major supporter to most household families in ensuring their livelihoods security. Sendalo (2009b) supports this argument on Maasai pastoral communities. As pointed out Rass (2006), pastoralism has shown to outperform the modern systems in production per unit of land, though the yields per animal are lower. Thus other positive statements are mentioned below according to Mattee and Shem (2006);

- An alternative option of managing risk by escaping drought and diseases or pest outbreaks and situations.
- Allows best possible utilization of the existing natural resources by taking advantage of temporal and spatial variations in the distribution and quantity of rainfall and forage, as well as the best nutritional status of the forage.
- Evades over utilization of the natural resources by reducing concentration of livestock in one place, as a good means of biodiversity conservation.

Despite all these positive notions, pastoralism is been subjected under pressure in Tanzania. Among the reasons pointed out, are; little understanding of the ecological significance plus the common desire for modernizing livestock production and pastoralists which exert the policy makers, development planners and governments to interfere (Mattee and Shem 2006). Therefore, the effect of such interference has made policy makers to promote the negative side of pastoralism and try to influence their alternative interventions thus exerting much pressure on the future of pastoralism, as we see in the next section.

Negative Policy Statements on Pastoralism

Experts are driven by the existing changes on land tenure, demography and economic development policies on exerting interventions that discourage the practice of pastoralism in Tanzania. Pastoralism on the scope of experts is seen as too traditional, environmental unfriendly and against the existing commoditization of livestock economy, Fratkin (1997) and Sendalo (2009a). Thus Maasai people, being the major pastoral society in Tanzania are

pressured by these challenges that seem obviously to be not complying with their livelihoods strategies. The following are some negative statements on pastoralism which base on views of experts in policy making authorities in Tanzania (Mattee and Shem 2006);

- Statement from the National land policy (1995) clearly stated that pastoralism has created the land use conflicts after invading in areas that had few herds of livestock, and also resulted to soil erosion due to overgrazing.
- While seasonal migration of livestock helps as a coping strategy during drought, but still, their lack of sense of ownership of grazing lands and occasional crop-livestock farmers conflicts might lead to problems of diseases control and land degradation (URT, ASDS, 2001).
- Also the ruling government stressed on the need to change pastoralists from being nomadic to being modern livestock keepers as addressed by Hon. President Mr. Jakaya Kikwete when addressing the parliament in 2005. Furthermore, the president kept on insisting by saying " We are producing little milk, export very little beef and our livestock keepers roam throughout the country with their animals in search for grazing grounds, we have to do away with archaic ways of livestock farming, I therefore create a separate Ministry of Livestock Development"

Such statements from the experts (with support from the ruling government) led to the establishment of interventions, of which some had been introduced before but gained more support and influence towards their promotion among pastoralists.

5.4 Expert's Designed Intervention

Thus breed improvement programme was among the expert interventions which they designed as to cope with such influences. Therefore, experts formulated several strategies to make sure that pastoralists get well acquainted with and eventually adopt the practice of keeping improved cattle instead of local breeds. The following strategies were introduced in order to attain the use of improved breeds in pastoral communities.

5.4.1 Strategies to Improve Zebu Cattle Breed

Pastoralists are discouraged to keep large number of local cattle; instead they should sell them and keep few improved (mainly exotic) cattle breeds (MLD, Tanzania).

*"*Kuwaelimisha wafugaji umuhimu wa kuuza sehemu ya mifugo yao ili wajipatie mapato" (To educate livestock keepers on the need to sale part of their herds for income generation). MLD (2006), pp 5.

The pastoralists own large herds of cattle to signify their identity and wealth. According to the Ministry reports (MLD), these people still live under poverty line and the reason mentioned is that, they don't make use of what they have to improve their life standards. Furthermore, experts' believe that having few numbers of improved cattle breeds is better than large herd of local breeds (Zebu cattle in this case) as they can produce the same or even many more than local cattle. Thus one of the strategies of the government through the ministry of livestock development was to encourage these pastoralists to sell that large number of cattle they own and keep few but improved cattle. Thus various measures were undertaken as to conduct studies, workshops and trainings in order to promote and convene the information to the pastoralists and other farmers to adopt such modern practices of keeping cattle.

Furthermore, the government stresses on the needs for farmers to recognize the modern livestock keeping practices by keeping few, productive and environmental friendly improved cattle breeds which will help them improve their livelihoods and stop moving around to look for land and pasture. As quoting the speech by Tanzanian President (MLD, 2006);

"Kutoka kwenye uchungaji wa kuhamahama na kwenda kwenye ufugaji wa kisasa na kibiashara" (the need to switch from shifting livestock farming practices to modern and commercial farming). MLD (2006), pp 7.

Therefore this intervention mainly targeted to influence the pastoral societies (Maasai included) and to convince them to change their shifting practices, with their large number of animals into modern ways whereby they are supposed to keep few cattle within an affordable

size of land, friendly environment and that can produce more milk and meat in order to help them improving livelihoods.

Use of Improved Bulls and Cows

The first strategy of using improved cattle breeds was aiming at improving the milk potential of the local cattle breeds. Also, improved bulls were seen as part of the strategy to introduce new genetic material to upgrade Zebu local cattle. The most used methods of acquiring these bulls, according to Mpofu (2002) were

- Heifer breeding units (HBU) or livestock multiplication units (LMU) which were either privately or publicly owned and were set up to produce crossbred heifers for distribution to farmers.
- Purchase of livestock from large-scale farms (including pure bred bulls) and other smallholder farmers (mainly females).
- Import of live animals (males and females) from other countries.

The introducing of these improved bulls and cows was usually in the form of development projects. Most of these exotic breeds were Friesian, Holstein, Ayrshire, Jersey, Guernsey and Sahiwal. However, at the end these crossbred cattle appeared not be well adapted to the often harsh environments and therefore not acceptable to pastoralists. Their introduction eventually proved unsuccessful. Famous are the Heifer-In trust projects where heifers were provided through loans to farmers and also through purchase of bulls from the multiplication centers in affordable prices. This project succeeded according to Ministry report (MLD, 2008) mostly to smallholder farmers located in and around urban areas. There is little or no data to indicate its success in rural areas, particularly to the pastoral communities.

Use of Artificial Insemination (AI)

This was another strategy undertaken in Tanzania, and has been in use since the 1950's. According to a Ministry of Livestock Development report (MLD, 2008), during colonial era semen was already imported from Kenya. The use of AI services only expanded which led the

establishment of the National Artificial Insemination Centre (NAIC) which became fully operational in 1982. Government policy shifted in the 1990's toward privatization also of the AI field services. The government however retained control over management of the NAIC. The NAIC is still the spearhead of AI policy and more recently various regional centers were established to increase the efficiency of AI services in the country. The common methods applied include the following Mpofu (2002);

- Inseminations were carried out by inseminators who were employed by the governments. Farmers would report their cows that were on heat and then inseminators would come to inseminate them.
- Cows were taken to road-side crushes. Inseminators would come to these crushes at designated times in order to inseminate the cows.
- There were AI centers where farmers took their cows and collected them after they were diagnosed pregnant.

Therefore, after looking at these expert interventions that were undertaken in order to solve the problems of low production which seem to be due to poor genetic potential of these local cattle breeds, the next section discusses on the related case study and review how some of those interventions worked out under the pastoralists contexts. Furthermore, looking on how such interventions were perceived by these pastoralists and lastly analyze the contestations and other gaps existing between these experts knowledge and the pastoralists on the aspect of breeds' improvement.

CHAPTER SIX

6.0 Discussion and Conclusion

6.1 Analysis of Contestations Arising from the Findings

The findings show that there are considerable knowledge differences between pastoralists and experts concerning cattle breeds as knowledge from both are contested. This section analyses what constitutes the forms of knowledge that seem to be contested among the experts and pastoralists. Before going into details on what is behind such knowledge contestations, I first point out the issues of question from the case material of Tarime zebu cattle that indicate existence of different bodies of knowledge among the experts and pastoralists. These issues question on experts' strategies or ways of addressing pastoralists problems.

1. Where do experts get their information to recommend use of or crossbreeding with exotic breeds in pastoral communities? Under which reference of knowledge contexts was such intervention designed?

It's clearly posing doubts on what are the exact goals of the experts about the issue of breeds or crossbreeds. Most findings indicate the failures of the livestock projects (including breeding projects) for decades since post-independence despite different approaches being applied; example from Homewood (1995) shows no outstanding changes in livestock keeping practices among the Maasai communities despite all development projects that were implemented including the Maasai Development Plan (MDP), and the reasons were outlined behind such failures. Still, the same strategies are being repeatedly documented by these policy makers as to be approached within the same particular groups of farmers with no special action plans as seen from Tanzanian livestock policy document.

2. Were the contexts of knowledge under which the pastoralists' practices and Tarime cattle rely considered when designing such intervention?

Contestations of knowledge arise when some projects that have new technologies developed outside the context of particular societies are introduced. These contestations happen as

people of the particular societies disagree with such technologies and show their positive attitude towards their existing local practices; example of many cases of the continuous use of local breeds in favour of exotic breeds. As McGee (2004) points out, most of the local social groups' daily life practices (e.g. livestock keeping) are embedded and shaped within their particular historical, cultural, political and power contexts, then to go in same line with them it's better to involve them within the process or make use their concerns. Therefore, it's expected that experts (breeders and policy makers in this case) take into account of such primaries, but the opposite way prevails that's why contestations of knowledge are prominent in most projects.

3. Are the pastoralists considered/ involved as potential actors within the whole policy processes?
4. Are there any social analyses considered when these pure scientific technicalities and interventions are designed or applied"?

Social analyses help in getting to understand various limits or boundaries of the pastoral farmers, their priorities and the like. But the notion that scientific facts are universally valid have blinded these experts including the policy makers who are delegated into working for these facts from science, as Keeley and Scoones (1999) call "truth speaking to power" system. Thus we see such effect existing among these experts has caused them ignoring the social content of these pastoral people as the case of Tarime zebu cattle provides evidence for the need to consider the social content.

The accounts above give an indication that contexts within which the knowledge is developed among the experts and pastoralists are different. From the breed's perspective, environmental context seem to have much effect on both, but different in the way of viewing it. While on the livestock keeping practices (including the pastoral way of life) the cultural and historical context seem to effect much among pastoralists contrary to the experts who are much concerned with power (political, economic) and partly on history. The following part will discuss about the environmental and cultural context influence on knowledge difference between the two groups.

6.2 Knowledge Encounters between Experts and Pastoralists: Aspects and Manifestations of Contestation

Experts' Assumptions and Objectives

From the findings of this study, it is seen that assumptions and objectives developed out by experts are not addressing the existing realities under pastoralists' situation. As found out by Faku (2009) most of these experts develop such assumptions on the basis of their institutional and organizational policies. As a result they don't comply with pastoralists' needs, as noted from the impact study conducted in Tarime where they assumed that introducing the exotic cattle breeds among farmers and pastoralists could give better solutions to them, and eventually farmers get to keep these cattle instead of their Tarime zebu. But the case was different.

From the livestock policy document we see that the basis for promoting improvement of breeds relies mainly in improving production of milk and meat (MLD, 2006). Anthropologists have been critical on this aspect as they insist on the consideration of other social aspects of the cattle breed basing on pastoralists perception. As to most of the pastoralists, having local cattle meets their needs of both milk and meat as a production aspect and cultural/ ritual purposes which is even important like those production aspects. However, experts ignore this other side of the pastoralists needs. Hadju (2006) says that the tendency of these experts (breeders with support from policy makers) to think they have much more knowledge and understanding about rural communities than local people has blinded them from appreciating the pastoralists' knowledge and eventually not consulting them.

In other way this tendency of the experts to understand rural communities than local people leads to linear approach of policy making process that gives assumptions which are far from reality. The same is argued by Sutton (1999) who says that policy makers approach the issues rationally, going through each logical stage of the process, and carefully considering all relevant information but at the end, there is much proof showing the failure of such an approach as it's far from reality.

Experts' Interventions and their Strategies

As noticed from the findings section, the scope of environmental context seems to differ between the experts and pastoralists' views. The experts' views seem to be influenced by this aspect but from the broad perspective that involves the global circumstances surrounding the situation. Such global circumstances have been given much attention by these experts and their supporting authorities (governments, donors etc) in such a way that they don't take account of the prevailing local situations as pertained under pastoralists' contexts. Such global circumstances involve the ecological, climate, advances in science and technology, trade liberalisation and demographic growth. Under such circumstances, much influence has been directed towards the experts as to design interventions that will fit in within these aspects. As pointed by Sendalo (2009b), it has resulted into top down ways of approaching the situation, where by the target groups (pastoralists in this case) are not involved at all in the whole process. Thus experts apply their knowledge which is surrounded within the scope of such global circumstances in designing the interventions and strategies.

Keeping the local zebu cattle in pastoral societies has been seen as too traditional, environmental destructive and unproductive practice according to these experts. The reason behind such notion is that, currently the world is on attention to climate change situation, limited natural resources and demographic growth that push the need to efficient and highly productive livestock with less effect to environmental pollution and optimal use of resources thus the best option is to commercialize of livestock economy in which pastoralism cannot sustain to the system. This led to policies which negatively impact pastoralism, by discouraging all the practices of these pastoralists.

Moreover, these universal facts relied by scientists with help of some political and global influences existing currently are put into policies within many countries. Such situation as mentioned by Keeley and Scoones (1999) as "truth speaking to power" makes scientific facts to be directly documented and worked out in the policy making authorities, resulting into disappointments. Furthermore, Scoones and Graham (1994) argued that, this view of local

situation as perceived by the development experts or policy makers has led them into planning or formulating wrong solutions and strategies;

“The more they see that local situations are hard to predict, the more they try to impose plans which rely on a generalized 'big picture'. This is known as 'blueprint planning'. It is not only inappropriate: but it leads to solutions being applied which have little to do with the problem at hand (Prior, 1994)”.

The experts’ knowledge being relied so much on the global context plus being based on their tendency to think they understand the rural situation much more than the local people have been behind bad policies. These are termed as bad policies because they have not shown positive impacts on improvement of livestock development as much is still coming from the traditional production systems and the value of these local zebu cattle is still outstanding. The statement is supported by studies from Ngowi *et al* (2008), Sendalo (2009b) and livestock statistics (MLD, 2008) that shows how dominant the indigenous system (pastoralism included) is compared to modern systems.

Therefore such explanations above provide the insights as to how interventions from experts rely much on their own knowledge under the broad context while not considering the knowledge from pastoral situations. This argument is supported by Weinberg (1972) who said that most of the policies are built up and established from scientific facts that are even yet verified, as it seems to most of the cases science and policy interact in the context of continuing uncertainty and unresolved debates. Such interventions basing on the facts evolved from science as in livestock breeding for example are drawn from the universalized contexts of knowledge to such an extent that they are uncertainly valid and applicable to some other contexts like here in pastoral societies.

6.3 Cultural context and Knowledge Development among Pastoralists

As revealed from the findings, pastoralists' ways of cattle keeping and their attachment to local zebu cattle has been much influenced by the cultural purposes. It is seen that, the cultural context has been the cornerstone towards creation of knowledge and as a means of attachment on how pastoralist keep these local cattle and value their attributes or characteristics, respectively. The notion goes in hand with Hebinck and Van der Ploeg (1997) who argues on the important role that culture plays in shaping the farming practices, as regards to it being the part of a complex set of social relations of production in most of the third world countries. The various cultural practices that are behind shaping the knowledge and practices on cattle keeping among these pastoralists are discussed below.

Zebu Cattle for Prestige, Wealth and Traditional Ceremonies

This is the common cultural practice among pastoralists, whereby, the possession of large number of cattle within their herds represents the richness and pride of a particular family of household. The wealth relies on their aspect of keeping cattle as a means of saving and insurance on future and also for emergent needs of money or increasing the size of their herds. This kind of culture has been a major identification that differentiates pastoralists from other groups of people. A good example is of Maasai people, as Tale (1999) noted that within their community, the man without cattle as the man with no words, indeed, a failure for him to handle cattle shows his/her inability to advice himself and eventually can't be able to advise others. Such an example signifies how important it is for these pastoralists to fulfil a particular culture/norm in their daily life.

Furthermore, to signify their attachment to cultural practices, these pastoralists diversify into other income generating activities, like crops farming. Their major purposes, apart from income and family livelihood; is to maintain their cattle resources (McCabe, 2003). The author further insists by referring to Maasai, that they clearly said that the need for money is a threat to their livestock holdings thus they were ready to cut back on food expenditures to preserve their livestock. Also other supportive finding was pointed out by O'Malley (2000) who also found out that both the richest and poor pastoralists are cultivating crops to avoid selling their cattle. The

same notion applies in the case, where the pastoralists use their cattle for traditional ceremonies like dowry payments and sacrifices. As pointed out on the Tarime case, the pastoralists use to keep Tarime zebu for such purposes (Ngowi *et al*, 2008). They usually give a number of cattle to the bride family as for the purpose of marriage and the cattle should have certain characteristics to meet such requirements, mainly colour and size. Also sacrifices are done during their local religious or ethnical events based on beliefs of particular pastoralist societies.

Therefore, pastoralists apply their knowledge by making sure that their breeds and breeding practices are not skipping their cultural way of life and continue to develop new interventions that fit in depending on situations. Under such cultural implants (act of being embedded) of pastoralists and their zebu cattle, the expert intervention that insists on keeping few improved cattle breeds instead of large number as outlined in the ministry of livestock development policy (2006) can't work out.

6.4 Environmental Context and Knowledge Development among Pastoralists and Experts

Pastoralists and their Zebu Cattle

The findings indicate that environment has influenced much on the adaptability of the local zebu cattle and the pastoral ways of keeping them. The pastoralists refer to the particular natural environment in which they and their zebu cattle have been subjected to for a period of time. By looking on the attributes of the zebu cattle, it's seen that their resistance to diseases, harsh conditions (food shortages and droughts) and being used for draught power are a result of long time exposure to particular environment that enabled them to adopt and thrive (Syrstad *et al,* 1998). Similarly, it's not only the zebu cattle but also the pastoralists that have been shaped within such environment. Through such long exposure, they experienced, tried to develop and apply interventions (selection or breeding) that enabled the adaptability and survival of their zebu cattle and themselves within particular environments. Such experiential and developed knowledge has remained their basis towards preference of keeping these cattle until now, as observed in livestock statistics (MLD, 2008).

Furthermore, through such contextual embodiment, the pastoralists have developed knowledge on the strategies to maintain their cattle production. Important to note here is that, these pastoralists production objectives are satisfactory basing on their own needs and criteria, but different from the standards required and measured by the experts. Thus according to Galvin (2009) among their strategies for maintaining production include; moving livestock according to vegetation needs and water availability, keeping species-specific herds to take advantage of the heterogeneous nature of the environment, and diversifying economic strategies to include agriculture cultivation. Although such movements are being limited recently in Tanzania, due to land and other natural resources scarcity, but still such a coping mechanism has been the basis for pastoralists in maintaining cattle production.

Therefore, from this discussion It can be seen that knowledge base of these pastoralists seems to rely much on the nature of particular environments they have been subjected to. Thus all their interventions and strategies to adapt and thrive were done on reference to the nature of their particular environment.

6.5 Conclusion and Summary of Main Arguments

The study used McGee (2004) and Keeley and Scoones' theories and analysis of the policy process, where by their arguments and critiques were the central points for my analysis. The main arguments raised from this study relied on the difference of knowledge bases developed and applied by experts and pastoralists, concerning cattle breeds and breeding practices. As a result both knowledge bases are contested, thus ending up with disappointing results of the experts' expectations on their interventions (through projects and programmes); and on the other hand pastoralists keep sticking to their preferred breeds and breeding practices. This act of pastoralists to ignore experts' interventions (in this case breeds and breeding practices) is caused by following reasons.

Firstly, the linear approach applied in the policy process whereby policy makers acknowledge much the knowledge from animal science (scientific knowledge) that makes them also to underlie assumptions which are of generalised nature. In other way these assumptions are developed in the wave of animal science knowledge which tends to ignore the traditional (pastoralists) knowledge and it's mainly enforced by their tendency to think they understand pastoral situations than the pastoralists themselves.

Secondly, in a way described as continuous lack of understanding of local environments, the experts' generalised nature of knowledge base has made them unable to realise the important role of context in enforcing knowledge development within particular local communities. As in pastoralists societies, their particular environment and cultural contexts have shaped their way of life basically livestock keeping practices. The attributes and multipurpose roles of their zebu cattle breed are a result of the contextual dynamics that have shaped them over and their pastoral practices over a period of time. Thus cattle to them is more than a milk and meat asset as implied by experts, but a multipurpose animal that stands for their identity(colour, horn, size), culture (prestige, marriage, sacrifice), livelihood (insurance, milk and meat); and a master of that particular environment (disease resistance, draught power, tolerance to drought and food shortage).

Finally, there are continuous breeding programmes and projects going on in Tanzania. It's unlikely for them to succeed under the tendency of ignoring the local breeding practices. It's

not about the matter of ignoring the animal science principles (scientific knowledge) and value the other (pastoralist's knowledge), no, but it's a creation of the situation whereby such regimes and practices of breeding weigh together, allow their knowledge interfaces to interact and at the end come up with better strategies.

CHAPTER SEVEN

7.0 References

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