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Miriam Ebner

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List of Acronyms

ABC	Animal Breeding Centre
ADB	African Development Bank
AI	Artificial Insemination
CGIAR	Consultative Group on International Agricultural Research
CSO	Civil Society Organization
DANIDA	Danish Development Agency
DDA	Dairy Development Authorative
DFID	Department for International Development
DVO	District Veterinary Officer
EADD	East African Dairy Development
EU	European Union
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GoU	Government of Uganda
HDR	Human Development Report
HIPC	Highly Indebted Poor Country
IFPRI	International Food Policy Research
ILRI	International Livestock Research Institute
IMF	International Monetary Fund
LC	Local Council
LGA	Local Government Act
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MBADIFA	Mbarara District Farmers Association
MFPED	Ministry of Finance, Planning and Economic Development
MTEF	Medium-Term Expenditure Framework
NAADS	National Agricultural Advisory Service
NAGCO	Medium-Term Expenditure Framework
NAGRC&DB	National Animal Genetic Resources Centre and Databank
NARO	National Agriculture Research Organization
NGO	Non-governmental Organization
NRM	National Resistance Movement
ODA	Overseas Development Administration

PAF	Poverty Action Fund
PEAP	Poverty Eradication Action Plan
PEC	Parish Executive Committee
PMA	Plan for Modernization of Agriculture
PRA	Participatory Rural Appraisal
PRSP	Poverty Reduction Strategy Paper
RAPID	Research and Policy in Development
UBOS	Uganda Bureau of Statistics
UDC	Uganda Dairy Corporation
UNFFED	Uganda National Farmers Federation
UNDP	United Nations Development Program
USAID	United States Agency for International Development
WB	World Bank
WTO	World Trade Organization

Preface

My theoretical background was shaped by a broad trans-disciplinary course offer at the department at International Development in Vienna, which provoked intense discussions and reflections on causes, aspects, conditions and opportunities of developments. In search of ethically methods for development I gathered additional practical experience through internships: At the *Centre for Social Innovation* I gained insights into the field of Science and Technology Projects (S&T), which focus on higher education and training as necessary preconditions for development. While some fascinating arguments on how biotechnology could save the world and end enduring social inequalities are dominant, I kept wondering what constitutes the longevity on essential problems like hunger, access to medical treatment and drinking water etc.. Beyond the attractive promises of the interplay between science and development, the essential question to ask is: who profits? Do the world's newest technological developments neglect the world's “poorest” people's needs?

With those insights in mind, I planned to focus on the overall structure of Science and Technology projects in my thesis: the global architecture of Science - regarding the interplay of knowledge and power, which takes place simultaneously in theory (by means and representations) and practice (by shaping concrete devices). In search of a more specific case study, I met Mrs. Birgit Habermann who introduced me to the research project “*Ways of Knowing. When Local and Scientific Epistemologies Meet in Rural Development*“, which is funded by the Austrian Science Fund (FWF). The project team (Prof. Christian Vogl¹, Birgit Habermann², Frederik Oberthür^{1,3} and Ulrike Felt³) called for further support by a student to write their thesis within the research project. The scope of the research project is the nature of interfaces when farmers and scientists meet, in order to understand more about the different social worlds (cf. Research Outline in Annex 8.3). It looks at case studies regarding trees and soil management in the Ethiopian highlands, as well as livestock development projects in Ethiopia and Uganda.

¹ University of Natural Resources and Applied Life Sciences (BOKU), Vienna.

² Institute for Development Studies (IDS), Sussex University.

³ University of Vienna.

The contribution of my thesis to the overall research project *Ways of Knowing* consists on an analysis of the policy context, the situation and dynamics in which animal breeders, and also processors, traders, and policymakers (state and non-state, national and international actors) operate. It contributes, therefore, to a deeper understanding of the divergent *Lebenswelten*⁴ of different actors and provides further explanations of certain *Ways of Knowing* and the impacts of policies on it.

Writing my thesis within the project *Ways of Knowing* was a great opportunity, which enabled me to work with an experienced team and to gain interesting insights on how a so called “developing country” handles political and ecological challenges of the acquaintance with biodiversity.

⁴ The term *Lebenswelt*, according to Habermas (1987) is used as the sphere of “everyday life” including stocks and interpretation of previous knowledge.

1 INTRODUCTION

In cinema, a *making-of*, also known as behind-the-scenes, features the production of a film. I borrowed the term to emphasize the elements of *production* of the Animal Breeding Policy through a lens from behind the scenes in order to explore how certain ways of knowing, and the interests they reflect, find expression as a policy. This link to the cinema and the comparison of policies with films connotes a discursive nature, including the fine art of compilation of language, narratives, and actresses/actors. Especially every single actress/actor has a significant influence on the making-of a film, considering the mechanisms of exclusion/inclusion, which determine who is working on it and to which extent. Besides actresses/actors, structures and processes of the production of a film, i.e. where, when and how it was developed, are key for analyzing the making-of. Furthermore, the script, including style, form and language, which enact as part of a genre, the *grand narrative* or larger social context, shapes the film profoundly.

By seeing policy as a discourse, analytical attention of my thesis is turned to the underlying webs of power and the relationship between knowledge, power and policy. Consequently, in order to understand such policy processes, my thesis aims to find out how the Animal Breeding Policy was framed, concerning *Actors*, *Knowledge* and *Policy Space*: Which ways of knowing became dominant and therefore manifested in policies, what are the key events and influences for the development of the Animal Breeding Policy, and how did policy change over time? By answering these questions, this thesis tells the story of the making-of animal breeding policies and its crucial determinants and external influences. Furthermore, it leads to understanding on how animal breeding policies are made by examining the structures of policy formulation and the problems deriving from divergent priorities.

The thesis' findings regarding the overall research question about the making-of Animal Breeding Policies in Uganda, are structured in five chapters: The first chapter introduces this thesis *The Making-of Animal Breeding Policies in Uganda* by providing information about the *Relevance of the Research*, about the background concerning the intersection of *Livestock and Development*, *Animal Breeding in Uganda* and *Biotechnology in Animal Breeding*, and outlines the *Research Questions*. Chapter 2 *Methodology* demonstrates how I gathered the information in order to answer the overarching question. The following chapter frames this thesis' theoretical approach and exposes its underlying school of thoughts. Chapter 4 *Results: Background, Narratives and Actors of Animal Breeding* summarizes the findings in three overlapping descriptions encompassing the historical and policy context and the key actors relevant for the policy process. Finally, chapter 5 *Analysis* interprets the results from chapter 4.

1.1 Relevance of the Research

An extensive body of literature addresses the complex linkage of knowledge, power and policies in the policy-making processes in Africa.⁵ One explanation for this scientific interest refers to the occurring acknowledgment of the importance of policies especially in development circles, which might have far-reaching impacts on program design and budget allocations, with tangible impacts for the “poor” and “marginalized” (cf. Jones et al. 2009, 3). Even though there exists a vast body of literature on agricultural policies in Africa (Hajer 1995) on Poverty Reduction Policies in Uganda (Brock et al.), and on colonial environmental policies in Uganda (Carswell 2007), research on livestock development and policies is rather rare (Batz et al. 2003), and a study on animal breeding policies in Uganda does not exist so far, as I know. Therefore, the aim of this study is to occupy this niche and to contribute to the analysis of the tendencies and trajectories of contemporary and historical

⁵ See Bassett 1988, Hajer 1995, Agrawal 1997, Apthorpe and Gasper 1996, Keeley and Scoones 1997, Ashley and Nanyeenya 2002, Brock et al 2004, Turner 2005, Carswell 2007, Pallottino 2007, Hooton et al. 2007, Jones et al. 2009 etc.

environmental policies in Uganda. The case study provides, furthermore, valuable insights of controversial issues about challenges, potentials and options regarding sustainable acquaintance with natural resources in the context of economical and social development efforts. Background information about animal breeding and its surrounding debate is outlined in the following sub-chapter.

1.2 Background Information

Following a clarification of the thesis' relevance and an identification of a lack of research, this chapter seeks to present background information and to introduce the debate surrounding animal breeding policies. This debate on animal breeding policies comprises several discourses in itself: first, the overall field of livestock and its potentials and challenges for development. The imperative of livestock genetic improvement is located within this discourse and leads to the debates on biotechnology for animal breeding. The third section aims at introducing the contemporary situation of animal breeding in Uganda. This is done very briefly, since it will be elaborated in-depth on a later stage of the thesis in chapter 4.1 *Historical Context*.

1.2.1 Livestock and Development

During the next two decades, the livestock sector is projected among several organizations and researchers to become the worlds' most important agricultural sub-sector (cf. Delgado et al. 1999). In 1999, a discussion paper published by the International Food Policy Research (IFPRI) together with the Food and Agriculture Organization of the United Nations (FAO) and the International Livestock Research Institute (ILRI), predicted a substantial increase in the consumption of livestock products in developing countries by 2020 (cf. Delgado et al. 1999). *Development countries* are simultaneously the most important suppliers of this growing market and could benefit profoundly in economical terms, under certain circumstances (ibid). The claimed *Livestock Revolution* requires an accumulated expansion of large-scale, high-input

animal production, which is also a necessary response to the increasing *Population Growth* and the aim of *Food Security*.⁶ This suggestion triggered an intense debate among development actors about its likely impact on *poor* livestock keepers (see for example Ashley and Nanyeenya 2002, Loquang and Köehler-Rollefson 2005). The assumed causal link between increasing production and productivity and poverty reduction was criticized by many as over-simplification.

It is noteworthy that the emphasis on livestock development is a rather new phenomenon and an interesting shift in perception. However, since colonial times greater assistance has been given to crop farming rather to the livestock sector. The reason, given by the director of NAGRC, is that animal breeding is a longterm indenture, more expensive compared to crop farming and the results are visible in shorter time. Batz et al. state that nowadays financial resources are also rather declining for livestock research due to the limited ability in attaining impact and success in livestock research and development (cf. Batz et al. 2003, 24).

In principle, the interface between livestock and development opens up a complex and broad field of development theory and practice combining a wide range of scientific disciplines and actors. This chapter aims to point out promises, i.e. livestock revolution, and limits of livestock for pursuing development goals. Promises and limits are outlined by scanning the mainstream discourse in an introductory manner. The promises and limits emerging from the livestock and development interface are concluded with a more specific focus on dairy cows.

The implicitness of the two variables is an improvement of livestock, in the sense of intensification of production⁷ through genetic improvement. The need for improvement rests on the old belief that indigenous tropical animal genetic resources are un-

⁶ The World Food Summit of 1996 defined food security as existing “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life” (WHO 2010).

⁷ Agricultural intensification has been defined as “increased average inputs of labour or capital on a smallholding [...] for the purpose of increasing the value of output per hectare.” (Tiffen et al. 1994, 39).

productive and inferior to exotic breeds and, as a consequence, crossbreeding and replacement were always strongly promoted (cf. Köhler-Rollefson 2001).

Let me briefly elucidate those buzzwords, livestock and development, or *Plastikwörter* (Pörksen 1988) on the basis of scientific argumentation:

- Livestock contributes to sustainability of smallholder's crop-livestock systems by recycling nutrients, by increasing the availability of existing nutrients (with manure) and by enabling the storing of nutrients until needed through the storing and composting of manure (cf. Nicholson et al. 1998).
- Animals are used as saving accounts (cf. Fafchamps et al. 1999). This function of livestock as an insurance substitute is reflected by a profound scientific debate.⁸ Furthermore, livestock improvement can increase farmers' income and might have a positive effect on rural capital accumulation. This perspective of genetic improvement is supported by prospects for a sustained demand for milk as the *livestock revolution* states (cf. Delgado et al. 1999). An increase in demand is promised through rapid population growth linked to urbanization (cf. Staal and Mullins 1996). It is further argued that income elasticity⁹ of demand for milk is high (higher than traditional food crops), so that there is a potentiality towards an increase of demand and real prices (ibid).
- Livestock enables people to live in large parts of the world that are not suitable for crop cultivation (cf. Köhler-Rollefson 2007, 4).
- Livestock is an essential source of employment for family members. Moreover, the increased labor demand on dairy farms might be satisfied by hiring

⁸ There has been an extensive debate within development studies on whether households keep livestock as a buffer stock to insulate their consumption from income fluctuations. Various scientists tested this hypothesis: see for example Fafchamps et al. 1999..

⁹ The positive effects of income elasticity of demand in the context of animal breeding pose that an increase in income leads to a rise of the demand of milk.

external laborers and the increased demand for livestock inputs might be beneficial to the whole rural community (cf. Baltenwick 2000, 13).

- Livestock is a vital component of many cultures. It provides dowries and religious sacrifices; it provides entertainment (e.g. in racing) and enables people to show hospitality (e.g. gifts) (cf. Wurzinger et al. 2008).
- The livestock's grazing prevents meadows and steppes from reverting to scrubland, which is vital for the germination of various grassland species, and fertilizes impoverished soils (cf. Ashley and Nanyeenya 2002, 4).

Besides the above mentioned positive impacts of dairying on farmers' and communities' welfare, the possible effects on the *poorest* farmers are ambivalent. The constraints for farmers to benefit from livestock improvement are discussed below:

Some dairy activities require collective organizations that coordinate milk marketing and delivery of livestock services, which might exclude farmers who do not have access (cf. Staal et al. 1998). Living in a remote area, bad or no infrastructure, lack of knowledge of these dairy activities etc. can be exclusive mechanisms. Furthermore, the impacts of dairying on women are miscellaneous, since it is vague how they benefit from increased income. Baltenwick e. g. expressed her doubts about the common argument that especially women benefit from the income increase and promotes a more particular approach including divergent social structures (cf. 2000, 23). In a broader perception, promoted by Köhler-Rollefson, several constraints caused by industrialized animal production need to be mentioned: the above mentioned argument of employment is not valid, at least not in a highly industrialized production system, since it aims at creating high labor productivity and therefore tends to low employment. Köhler-Rollefson argues that policies in this regard are an inappropriate means of pro-poor livestock development, since they contribute to unemployment in areas where no job alternatives exist (cf. 2007, 7). Additionally, industrialized animal production usually requires large amounts of feed concentrate, while wastes are afterwards deposited on nearby land, leading to groundwater, soil and air pollution in

many cases (ibid). Another problem associated with industrialized livestock production is its huge consumption of water. Finally, concentrating huge numbers of animals brings with it the risk of disease outbreaks with the consequence of high amounts of drugs routinely used in industrial livestock production (ibid).

It is important to keep in mind these above mentioned constraints, which can result from industrial livestock production, when looking at Uganda's case. Even though Uganda's animal production system is scarcely industrialized or commercialized in Western terms, its approach towards livestock development is based on the belief in development through modernization.¹⁰

Concerning the knowledge of animal breeding and the adoption of breeding practices, there are various factors which have an important impact going beyond the simplistic logic of population and land pressures, as it is argued by many authors (for example Delgado et al. 1999). One major factor consists of national and international policies and programs, which are the main focus of this research, since I argue in this work that agricultural practice is a product of the political context.

The next section provides a general introduction to animal breeding in Uganda and frames the context of the study area.

1.2.2 Animal Breeding in Uganda

Uganda is a landlocked country (Figure 1) with a total land area of 241,038 sq km, of which 43,941 sq km is under permanent water and swamp (FAO 2004, 7). Most of Uganda's population is supported by agriculture, consisting of crop, livestock and fisheries production accounting for about 39.8% of the Gross Domestic Product (GDP); almost 90% of the country's export; and employed 80% to 85% of the working population (FAO 2004, 8). Especially livestock is an integral part of the agricultural production system, because 70% of all households own cattle, goats, pigs or

¹⁰ Hereby I am referring to modernization as a belief in progress through technological innovation.

poultry (cf. MAAIF 2009, 23). However, crop-based agriculture is dominant and cash crops, such as coffee, cotton, tobacco and tea are the primary sources of export earning, whereas and livestock production is solely an important contributor to subsistence livelihoods (cf. Turner 2005, 2). It is argued that for most households livestock is not an important source of cash incomes (cf. Ashley and Nanyeenya 2002, Turner 2005, Köhler-Rollefson 2007). Livestock is rather important because it serves as a source of food, as a store of wealth and as a status symbol, was argued in the previous chapter. These uses of livestock are not displayed in the GDP figures provided from the government.

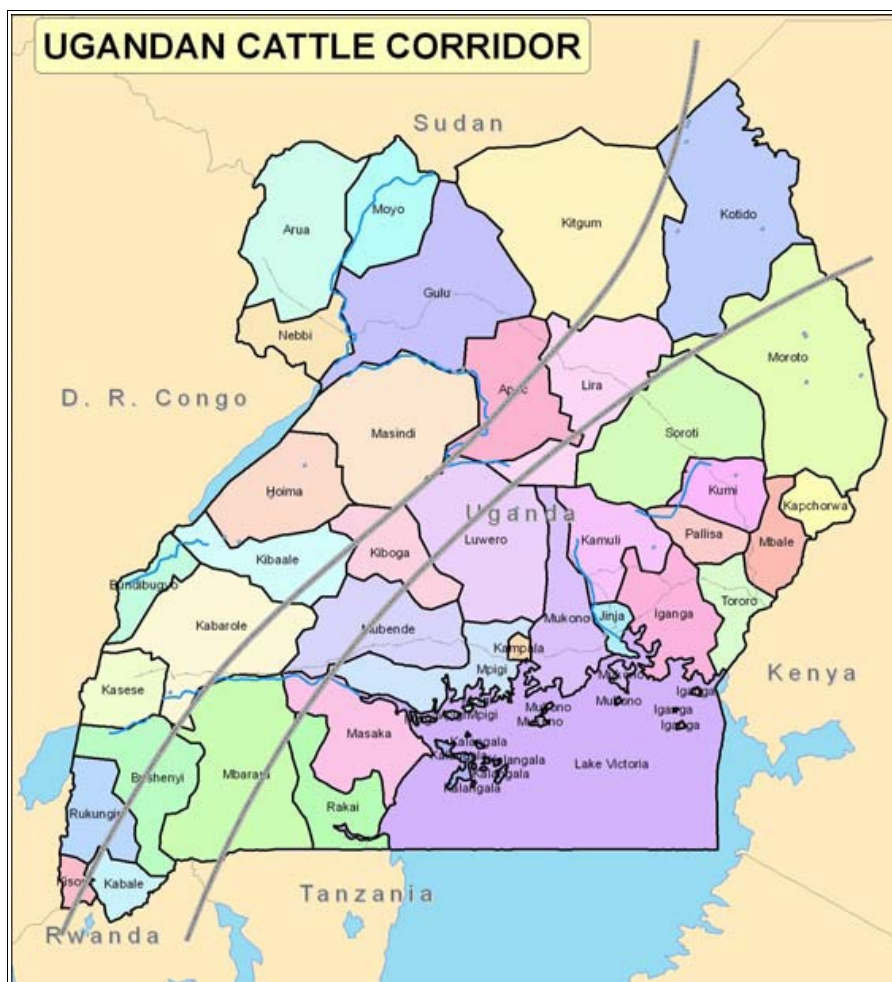


Figure 1: Ugandan Cattle Corridor (source: IFPRI 2006)

However, several development actors including the Government of Uganda, are more and more realizing the highly important contribution of livestock to the general aim of poverty reduction. Smallholders and pastoralists are the largest group of stakeholders in livestock development. Therefore, Köhler-Rollefson pointed out that livestock keeping and aquaculture are the only significant economic activities in which poor people have a major share and which are growing rapidly (cf. 2007, 4).

Livestock production is mostly important in the *cattle corridor*, covering areas having low potential for crops, as shown in Figure 1. The cattle corridor stretches from Ntungamao district in southwestern Uganda to Kotido district in the northeast.

In Uganda, the majority of livestock is raised in one of the following three production systems: mixed crop and livestock production, pastoral production and commercial ranching. Mixed farming is the mostly practiced form of husbandry where crop and livestock are maintained complimentary (cf. MAAIF 2009, 20). In this system dairy production is predominant. In semi-intensive and intensive dairy farming the farms are fenced and farmers use most of their land for growing fodder to sustain their mainly high-grade cattle (ibid.). In pastoral production systems, livestock is the central component of a livelihood strategy in which producers move with their livestock in search of water and grazing (cf. Wurzinger et al. 2008, 2). Although, most of the Ugandan pastoralists have a land base, and are therefore not purely nomadic, seasonal movements of cattle occur throughout the corridor (ibid.). This is called a “low input production system” by the government, where output of milk and off take are low, while large herds are maintained as a symbol of wealth (cf. Agricultural Policy Committee 1998, 166). There are just a few commercial ranchers who depend on extensive grazing in fenced areas (ibid.).

At present the overwhelming majority of cattle households (93.6%) own indigenous cattle, which are Ankole longhorn (Figure 2) in the west (50%), East African Zebu in the north (Figure 2) and east (30%) and Ngada (Figure 3) in southern and central Uganda (16%) (cf. MAAIF 2009, 135).



Figure 2: Ankole (own source)



Figure 3: Zebu (FAO 2004)



Figure 4: Nganda (FAO 2004)

The GoU comments this fact by claiming that only 5.5% of the cattle-owning households own exotic-dairy or cross-breed cattle, “as a reflection of the low level of modernization in the Livestock Sector (MAAIF 2009, 30).” The multiple breeding trait preferences, developed over centuries, range from cultural heritage symbol, fitness traits and marketability of livestock products to the ability of coping with the rough environmental conditions (cf. Ndumu et al. 2008). The improvement of indigenous cattle by within-breed selection has been an important breeding practice ever since and is still prevalent. Later efforts involved the introduction of more exotic breeds, partly to replace the local cattle and partly for crossbreeding with them (cf. Hashakimana 1996, 11). In Uganda various actors, policies and programs bank heavily on biotechnology as a solution for livestock development and poverty reduction. The pros and cons of biotechnology in animal breeding are elaborated in the next chapter, since it is important for the elaboration of the scientific discourse.

1.2.3 Biotechnology for Animal Breeding

In this chapter I seek to dwell on the role of biotechnologies in animal breeding in Uganda and further to summarize the potentials and challenges of biotechnology, especially regarding Artificial Insemination (AI).

The complex relation between science, technology and development is embedded and exposed within a rich academic discourse (see for example Rosenberg 1982). The current debate on agricultural biotechnology is a complex set of issues where ethical, moral, socio-economical, political, philosophical and other scientific points of view have to be considered. While some biotechnology advocates provide fascinating arguments on how biotechnology could save the world from poverty and hunger, opponents deride it as the “doomsday devil of agriculture” (Rege and Sendalo 2005, vii).

Biotechnology in animal breeding includes a) Artificial Insemination (AI), b) Embryo Transfer (ET) in practical breeding and c) DNA-level analyses for breed characterization. In this study I exclusively focus on the AI method, since it is mainly in practice in Uganda currently. It describes the process by which sperm is collected from the male, processed, stored and artificially introduced into the female reproductive tract. Initially, AI was developed to reduce the incidence of reproductive disease in animals, but currently it permits the use of superior male animals on a larger scale than possible by natural service (cf. Bayer and Wanyama 2005, 21). Thus, smallholders are no longer allowed to keep male animals, if breeding or AI centers are available.

Potentials of Artificial Insemination

There are several advantages of AI, which are generally conceived as the most efficient and cost-effective innovation. As a matter of course livestock-keepers would appreciate improved returns from their cattle. The fact that indigenous Ankole cattle produce one liter milk per day and an exotic high yield breed in comparison to more than 30 liter is very conclusive (cf. Staal et al. 2003, 14). In addition to improved productivity, AI can lead to improved product quality. The method promises a prevention of reproductive diseases that might be spread by natural mating. AI allows the use of several superior breeds within a herd which is not possible through natural

service. Additionally, AI avoids in-breeding and replacing the bull after every two years (cf. Bayer and Wanyama 2005, 24).

Challenges of Artificial Insemination

Factors influencing adoption and impact of AI are, first of all, the suitability of the technology in the social and cultural context and, second, the availability of input, services and credit required for using new technology (cf. Batz et al. 2003). Furthermore, there is a number of prerequisites necessary for a successful use of AI: farmers need to identify when a cow is in heat, the insemination technicians must be available in short time, as well as liquid nitrogen (cf. Bayer and Wanyama 2005, 21). However, this infrastructure is missing in large parts of Uganda (Figure 5) and experience with AI has often been disappointing. As the Figure shows, there are only three communities (Kampala, Kabale and Jinja) with a higher reported access to AI services.

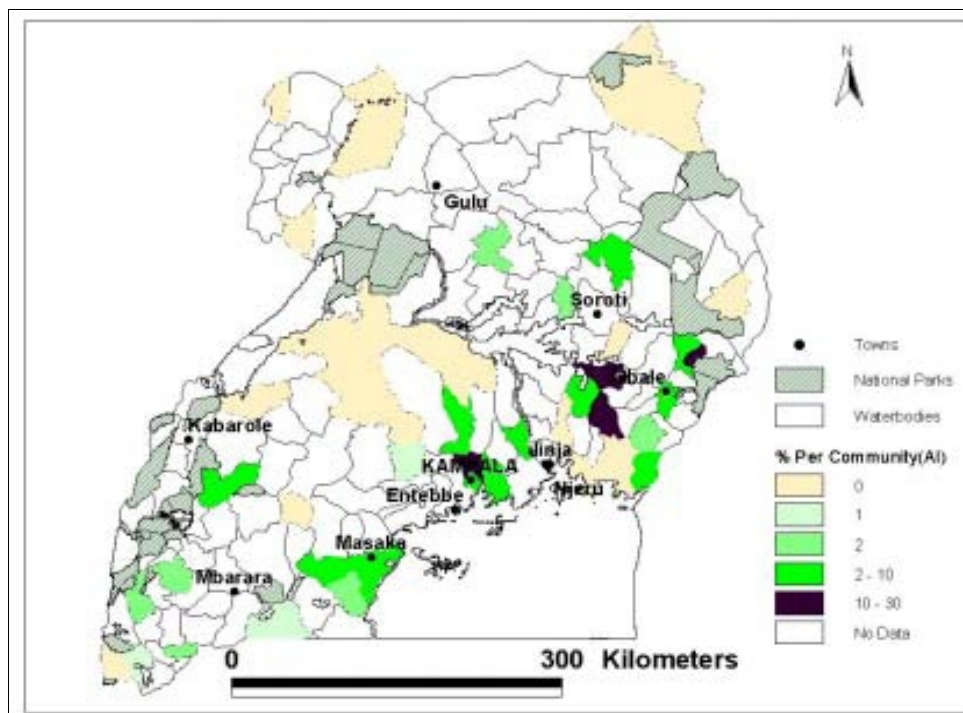


Figure 5: proportion of communities with reported access to artificial insemination (AI) services by district. (Source: DDA 2010)

Even where those prerequisites are available, there are some dangers and challenges which have to be considered. First, animals that are highly productive are more sensitive to stress. Thus, the survival of exotic breeds in often harsh environments is a difficult task and needs additional requirements, e.g. health care, which are costly and often not affordable (cf. Loquang and Köehler-Rollefson 2005, 110). Second, the exotic breeds are less resistant to diseases, more prone to heat stress, require more water than indigenous breeds and need good-quality feed to achieve their production potential (cf. Bayer and Wanyama 2005, 21). Third, AI can lead to a loss in biodiversity, because only very few breeds would be used for production. Bayer et al. state that the push for maximum production means that many bulls are closely related and that would lead to an international uniformity among dairy cattle (cf. 2005, 22). Fourth, Uganda is not self-sufficient in materials required for AI services and has to import more than 50 % of needed semen requirements. Furthermore, farmers are asked to pay for AI services, which does not always meet the prospected results.

1.3 Research Questions

The overarching research question prepares the foundation for the following sub-questions.

What is the making-of animal breeding policies in Uganda?

I am asking for the general policy environment of animal breeding policies and for its historical meaning. What were the determining factors of the making-of animal breeding policies? How and to which extent do they impact on animal breeding policies? The term *making-of* connotes a procedural manner regarding on the one hand, structures of policy formulation and on the other hand, the impact of knowledge in the sense of scientific evidence, regarding discourses and narratives. The research on the status quo of animal breeding policies, i.e. the current state of affairs, should pro-

vide valuable information about Uganda's current position within the broad debate of livestock and development and its suggested policy imperatives in general.

Among the main research question three further questions are posed to guide an in-depth analysis:

- *What are the policy-making structures and processes?*
- *Who shapes the aims and outputs of animal breeding policies in Uganda?*
- *What are the prevailing priorities and narratives, and how do they influence the policy-making?*

2 METHODOLOGY

This thesis uses a set of social methods of qualitative social research in order to gather, structure and analyze relevant information for answering its guiding questions. According to the research purpose as well as to its adopted conceptual framework and theoretical approach, the focus is necessarily on qualitative data. Therefore, the primary data for the core task of this paper is gathered through applied qualitative methods, such as ethnographic field research, document analysis, semi-structural interviews, participant observation and participation in social life. The following chapter outlines the methods used for field research, why they were used and how they were adapted.

2.1 Fieldwork

A field visit was for the research purpose necessary, since important policy documents, inter alia, were only locally accessible. During the four-month stay I traveled for one week to Nairobi to visit the *International Livestock Research Institute* (ILRI). At ILRI I conducted four interviews and attended the *Central Artificial Insemination Service – Day* (CAIS Day). The CAIS Day is an annual event in which breeding bulls, served by Artificial Insemination, were presented to farmers in order to show the results. After the return from Kenya, Birgit Habermann, Frederik Oberthür and myself went to Mbarara district in the very west of Uganda to visit a state farm, farmer's associations, veterinarians, and a national research organization. Again five interviews were conducted and observations were written down during this trip, which took about two weeks. After that I settled down in Kampala to contact ministries, parastatal institutions, non-governmental organizations, research institutions, university scholars, and private persons. Sixteen out of a total of 25 interviews were

conducted in Kampala and surroundings, like Entebbe and Mpigi district. In Mpigi, I visited the farmers who participated in the consultation process of the animal breeding policy. Besides interviewing, I spent most of the time in archives, as the library of Makerere University, House of Statistics, and several archives of parastatal, non-governmental and private organizations.

How I gathered the data and why I used certain methods will be explained in the following chapters.

2.2 Literature Review

In September 2009, I started an encompassing literature research from a variety of disciplines in order to get an overview of what is available for contributing to an initial conceptualization, further to enhance the comprehensiveness of data collection and to understand results. Archival and secondary data was collected by using a variety of databases of library catalogs, simple internet search machines and by researching in archives in Austria and Uganda. The accumulation of local archival data through institutions and organizations in Uganda was a major effort, which required a significant amount of time. Data were often stored, sometimes in disorganized ways, in filing cabinets and folders and must have to be collected, coded and even computerized to be useful. The collection of data took most of the time, since I had to copy them usually by hand or by taking pictures to copy it afterwards.

How I analyzed the gathered material is elaborated in the next section.

2.3 Content and Discourse Analysis

The study of discourses is an essential part of this thesis, because language does not refer to a stable reality but *produces* multiple possible understandings of the *real* and

ways of knowing. The point of this study is to show, through my analysis and writing, how specific truths are produced by discourses, policy networks or epistemic communities (see definitions in chapter 3.1.2 *Actor-Oriented Approach*). However, I claim that my interpretations are both credible and plausible, and that my argument is based on the material collected in my archive.

Following the literature research, a meta-analysis, i.e. an adapted qualitative document analysis, prepared the foundation for further argumentation and was the prearrangement and triangulation for semi-structured interviews and their outcomes and furthermore, to filter, summarize, and to combine certain themes, contents or aspects from the material (cf. Mayring 2003, 58). The meta-analysis started with an investigation, selection and focused reading of a wide range of texts. The criteria used for these processes (investigation, selection and reading) were:

- the degree of relevance for the concrete field of research;
- the identification of unknown indicators of the impact of certain policies;
- and a certain argumentation, which gives important information about a perspective on the research topic, the author or group of actors.

A useful way to code and analyze the archive (literature, documents, brochures, newspaper, transcripts of interviews, fieldnotes, etc.) was to note down themes, ideas and key words during reading. By re-reading the material I applied the constant comparison method (Glaser 1965), where, for each piece of new data, I constantly compared it with my existing themes and so I started to refine the codes and created indicators.

In order to examine the policy process, I looked at how particular types of knowledge became dominant and expressed as policies. By arguing that knowledge is produced discursively, I examined how discourses are created and upheld: where are they con-

tested, open to change, and where are alternative discourses emerging? (cf. Keeley and Scoones, 3). I focused on *what* was said – and *how* a specific argument, idea or concept is developed – as well as on *what was not* said – the silence, gaps or omissions. Further, I focused on how the different elements of the text combined to consolidate (or disrupt) meanings alongside the assumptions in the text. When having finished with studying a text, I was also interested in how the specific issues were structured and organized and how they sought to persuade me about the authority of its understanding of the issue. The range of sources of knowledge and evidence, alongside forms and modes of knowledge and evidence employed, were crucially important for the scope of this study. How language and styles of argumentation – how metaphors, symbols, sayings, references etc. were used, was also critical for understanding the policy process (cf. Jäger 2001, 175).

2.4 Observation

Participant and non-participant observation was used for collecting data in order to get intuitive and intellectual insights of the way things are organized and prioritized, how people relate to one another, and the ways in which social and physical boundaries are defined (cf. Schensul 1999, 2:91). The challenge of this method was the transformation of observations into fieldnotes. Having this in mind, behaviors should be explained technically, rather than in terms of what they means. Further, the physical state of the environment should be described as through a lens of a camera (ibid, 115).

Such descriptions of environments and situations are also a necessary tool for a deeper understanding of interview results, which is explained in the following chapter.

2.5 Interviews

To further improve the quality and range of my thesis' data base and to gather new indicators, 25 semi-structural interviews were conducted with international, national and local organizations, government representatives, students, researcher, and private farmers. In addition to these 25 semi-structural interviews several informal interviews which were recorded in my diary were conducted during the four-months stay in Uganda. The reason why I chose the semi-structured form of interviewing was the possibility to further clarify central factors in the study (cf. Schensul et al. 1999, 150). On the one hand semi-structured interviews provide flexibility to adapt question to the concrete situation, and on the other hand it reminds you of the scope of question for avoiding to miss important ones and also to keep you on track.

The following three types of interviews distinguished by Bogner and Menz (cf. 2001, 479) were used as guiding principles for the formulation of questions:

- The *explorative expert interview* serves to get orientation in an unknown field. The goal is to structure the research area and to elaborate hypotheses (ibid).
- The *systematizing expert interview* is used for getting access to exclusive knowledge. The focus is on reflexively available and spontaneously communicable experience and knowledge of action and the goal is to gain systematic and consistent information (ibid).
- In the *theory generating expert interview*, the expert is more than a source of information. Therefore, the subjective dimension of the expert knowledge is approached and analytically reconstructed, here. The subjective orientations of an expert's actions and implicit maxims of decision-making form the starting point of theory construction (ibid).

Asking questions

I formulated the questions in accordance to Schensul's guideline on the construction of good semi-structured interview questions (cf. Schensul 1999, 2:154):

- Terms and phrases must be understandable and appropriate to and for respondents.
- The length of the questions should be as short as possible. Furthermore, it is important not to pack two questions into one.
- Questions which lead the respondent to a certain answer need to be avoided. Therefore, questions with either positive or negative associations should be avoided.
- Finally, questions that can be answered with a “yes” or “no” should be avoided as well.

There is also a need to consider the order and sequence of questions (cf. Schensul 1999, 2:155). Questions should be ordered chronologically; from simpler topics to more complex ones; from the most concrete to the most abstract issues; and finally from the least sensitive to the most sensitive topics (*ibid*).

Reflections on Interviews

What is important especially for asking questions is to avoid seeming to know too much about the topic. I agree with LeCompte, who states that researchers must be learners, and as such they must position themselves so that people feel comfortable teaching them (cf. Weeks and Singer 1999, 6:21). This was a crucial point in the interaction situation of the interview itself.

During the interviews it was indispensable to use an interview guideline and a voice recorder because of following reasons: entering an often completely unknown context, guiding the conversation, reacting quickly, and being aware of one's own and the vis-à-vis' body language complicates any writing during the interview unnecessarily. All interview participants did not have a problem with the recording and did not seem challenged by it, with one exception.

2.6 Forms of Records

During the field research, I stored the data by writing fieldnotes, a reflective diary, tapes, transcriptions, information material or brochures from institutions, copies of secondary sources and photographs. One notebook served as my official field book for primary data, containing all my field jottings, diagrams, informal interviews, general observations etc. and another one, the reflective diary, more as a personal memo containing any peculiar observations and off-the-record contemplations.

2.7 Triangulation

The multiple sources of data should serve as sources of confirmation for each other (cf. LeCompte 1999, 1:131). Therefore, I tried to ensure that each question asked is answered by more than just one data source. For example, data collected from documents such as project proposals were cross-checked by interviews with participants.

2.8 Role of Reflection

A systematic self-reflection was applied before, during, and after the fieldwork. Fieldwork requires what theorists call *disciplined subjectivity* (Erickson, 1985) or the practice of self-reflection about one's own preferences, prejudices, hopes, and con-

cerns to check on misinterpretations. Before I came to Uganda, I learned as much as possible about the country. Through this process, I thought I was able to identify certain cultural practices and values that could be discomforting or that might challenge my values and ways of viewing the world. However, I simultaneously identified biases, prejudices, and patterns of thought, which needed to be considered and reflected upon. Otherwise, these ways of knowing might have jeopardized my ability to see *clearly* within the field. Furthermore, self-reflection also helped me to identify certain commitments to specific research topics and outcomes, as well as potential biases or negative influences on research results due to patterns of behavior. During the field research I steadily kept in mind what is most important regarding the research, what I hoped (rather than hypothesized) to find, and what I believed is wrong about the setting or the behavior of the people in it. These questions facilitated me to identify personal viewpoints and at the same time helped me countering these prejudices and expanded my database. For this purpose, maintaining the *disciplined subjectivity* throughout my study, I have adapted several strategies, as promoted by LeCompte et al. (1999, 66): I created a checklist of my theoretical biases and examined them regularly to see if they are leading the data collection and analysis in ways not warranted by what actually occurred in the field. Furthermore, I kept a reflexive diary to record all observations, thoughts and reactions to observations. This reflective diary was written in an affective, subjective and emotional way. For simple recordings about what happened I used another diary.

2.9 Analyzing and Interpreting

In-the-field analysis can be categorized in *inscription*, *description* and *transcription* (cf. LeCompte and Schensul 1999, 5:13). Inscription describes the act of making mental notes prior to writing things down, meaning selective attention and translation. “Thus, the process of inscription involves learning to notice what is important to other people and what one has not been trained to see, and then to write it down (ibid.).” The writing down is called *description*, involving writing down in jottings,

diaries, logs, and fieldnotes (cf. Bernard 1995, 181). According to them, reflection, preliminary analysis, initial interpretations, and new questions follow. Third, audio recordings from interviews were fully transcribed during the fieldwork. I tried to capture both verbal and non-verbal utterances, as well as physical contextual features, by describing the interview-situation, the atmosphere, and important reactions of the participant and myself. In the aftermath of the fieldwork, I summarized the transcriptions of the interviews and collected important quotations. The collection of quotations is not only based on transcriptions but also on quotes from texts and documents. Furthermore, I looked through the collected data and ordered critical events of animal breeding in chronological order. Finally, I made a list of the most important empirical facts, already linked with the appropriate references.

These above mentioned steps for abstracting raw or unanalyzed information into summaries or results are very important preconditions for creating interpretations (cf. LeCompte and Schensul 1999, 5:213).

Strategies for initiating interpretations, as promoted by LeCompte and Schensul are, for example to discuss results with research partners, to review the research questions, to consider the audience and to contrast the results with other interpretations (cf. 1999, 5:216).

This chapter aimed to outline the used ethnographic methods in order to understand how information was gathered. To gain understanding, regarding the theoretical position, of this thesis the following chapter examines the theoretical approach.

3 Theoretical Approach and Key Terms

In order to understand how ways of knowing are expressed as policies, it is necessary to conceptualize how policies are made, and what a policy actually is. This conceptualization and a brief contextualization are the aims of this chapter.

3.1 Literature Review: Policy Process

A wide range of theoretical frameworks have attempted to understand and to explain policy processes, while being developed over time from a rather “linear”, mono-causal, approach to complex models, in which power and agency¹¹ are key dynamics to capture the more irrational elements (cf. Sutton 1999, 9-13). For long time there has been an ongoing debate within political science, whether policy-making is a rational, linear process or a more chaotic procedure, dominated by political, practical and socio-cultural forces. Various models have been developed to explain the process. The main three approaches will be explained in the following:

3.1.1 Linear Approach

Linear models, rooted in a positivist paradigm of rational decision-making, outline policy-making as a problem-solving process which is rational, balanced, objective, and analytical (cf. Sutton 1999, 9). This model, which has been prevalent in the rhetoric of public administration and development since the 1950s, is variously described as prescriptive, essentially top-down, and resting on the assumption that an optimal policy is possible (cf. Clay and Schaffer 1984). Further, it captures a series of

¹¹ *Agency vs Structures* form an enduring core debate in sociology. The term *Agency* is used here to refer to the capacity of individuals to act independently and to make their own free choices. The classical roots of agency theory are found in the work of Max Weber. The core of his political sociology is agency relations within the state (cf. Beckert and Zafirovsky 2006, 6).

steps that flow in a logical sequence: from identification of the problem to formulation and finally to implementation to evaluation (Brock et al. 2001, 2).

Importantly, Keeley and Scoones point out that such linear approaches, throughout social sciences, differentiate processes of decision and processes of execution (1999, 4). This distinction is rooted in an old theoretical debate in the social sciences. At least, it can be linked to Max Weber's writings on the inevitability, as societies became more complex and differentiated into specialist areas, of the spread of the "iron cage" of rationalization and bureaucratization (Weber 1991). Barker (1996) responds to this distinction, that the intended outputs and outcomes may not be those which result, and those who were intended to benefit are not always those who do benefit (quoted by Brock et al. 2001, 2). Lipsky (1980) deepened thoughts on bureaucracy with his work *street level bureaucrats*¹² and demonstrated the extent to which the discretion of those who implement policies influence the practical elaboration of a policy to produce an outcome which may be substantially different from that originally intended by a policy maker.

Another characteristic of such top-down models of policy is that they strongly emphasize technical expertise and the production of generalized, open-to-universalize statements. In other words:

"Knowledge in this model is seen as a resource, to be mobilised to influence policy debates about prescription and implementation – what ought to be done and how to do it (McGee and Brock 2001, 3)."

This understanding of knowledge as a resource is also rooted in a positivistic perspective, explains Gaventa (1993), in which science is perceived as superior, since it claims objectivity. However, the discussion on ways of knowing will be deepened in the chapter 3.4 *Knowledge*.

There is much evidence to suggest that this model is rather far from reality (see e.g. Weiss 1986, Brock et al. 2001, Clay and Schaffer 1984, Keeley and Scoones 1999).

¹² The concept refers to the role of actors, who implement policy changes. Street level bureaucracies are schools, welfare departments, lower courts, legal service offices, etc.

These authors argue that policy processes are influenced by an enormous range of different factors, and implementation can be as much about agenda-setting and decision-making as execution of decisions (cf. Keeley and Scoones 1999, Brock et al. 2001). Therefore, attributing causality to particular factors is problematic, as different approaches tend to emphasize different sets of factors. As Weiss observes, it is (almost) impossible to identify a clear-cut group of decision-makers or a particular event as the moment when decision were taken (1986, 222).

3.1.2 Actor-Oriented Approach

A second approach for the understanding of policies, which shifts the focus away from policy makers to a much broader constellation of actors who engage in various ways with the process of making and shaping policy, brings these dynamics into clearer light. It highlights the relational dimensions of policy making, focusing on processes of negotiation, contestation and on networks, alliances and coalitions through which policies are shaped.¹³ On that note, policies may not even be associated with specific decisions, and, in case they are, it should be acknowledged that they are almost always multiple and overlapping (cf. Dubozinskis 1992). Policy-making, for example, is famously described by Lindblom as the *science of muddling through* (1959), which focuses on the actions of actors and bureaucratic politics in the policy process. Keeley and Scoones describe such a perspective as a more *bottom up* view of policy, whereby the agency of different actors across multiple interfaces is emphasized (1999, 5). Within this approach, an analysis of actors and their day-to-day dealings with policy issues is the key to an insight of the role of actors in pushing policy discussions in new directions (ibid.). Colebatch, for instance, suggests that “a great deal of policy activity is concerned with creating and maintaining order among the diversity of participants in the policy process. It seems to be not so much about deciding, but more about negotiating [...] for a common ground (1998, 23).” This emphasis on negotiation, as well as on the agency of *street level bureaucrats* (cf. Lipsky

¹³ An extensive body of literature elaborated those alliances, from “policy networks” to “epistemic communities”. Sutton (1999) gives a well-argued overview of analysis of policy processes, including descriptions of conceptual approaches. See also: Clay and Schaffer 1984, Hajer 1995, Keeley and Scoones 1999.

1980), adds a perspective to the policy process that further disrupts the mechanistic model of a linear sequence. Understanding how particular actors are able to bring about changes in approaches can help to make sense of process of inclusion and exclusion, contestation and consensus, through which particular policy positions are shaped (cf. Brock et al. 2001, 4).

Policy Networks

The term *policy networks*, as it is used in this thesis, describes a group of individuals and institutions sharing “similar belief systems, codes of conduct and established patterns of behavior (Sutton 1999, 12).” Taking, for example, the communicative way NGOs or various research institutions internally, and probably externally, do operate. Policy network perspectives bear the advantage of moving debates beyond the opposition of state and society which have characterized long enduring debates concerning the question of what drives policy change further (cf. Keeley and Scoones 1999, 19). Moreover, it is important to look at the historical context of particular state formation, the lack of homogeneity in the state and bureaucracy, and the way networks of political patronage as well as lines of affiliation have been formed over time (cf. Keeley and Scoones 1999, 19). Furthermore, the reviewed literature suggests links between sets of interests and the actions of individuals and groups in networks. There is an explicit recognition that processes of interaction, bargaining and the forging of coalitions have a great impact on policy processes.

Finally, core beliefs and principles, seen as negotiating positions of different political actors offer one way of explaining how knowledge finds its way into policy (ibid.). In this concept, however, knowledge is not the prime driving force; understandings emerge as reflections of interests of individuals and groups of actors.

Epistemic Community

Conceptualizations of epistemic communities are similar to policy networks, as networks of individuals sharing core beliefs about the subject area (Keeley and Scoones 1999, 21). Nonetheless, epistemic communities emphasize common knowledge systems, and therefore can be defined as a type of knowledge elite (ibid.):

“An epistemic community is a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area (Haas 1992, 3)”

Haas' notion of epistemic community is similar to a *thought collective* – a sociological group with a common style of thinking, or to a *paradigm* – a constellation of beliefs, values and techniques shared by members of a community (cf. Haas 1992, 3). In other words, members of an epistemic community have a shared way of knowing and a policy drawing on shared discursive practice and a shared commitment to the application and production of certain ways of knowing.

To sum up the chapter *Actor-oriented Approach*, the linear and actor-oriented approach has dominated the policy science literature over several decades (see reviews in Keeley and Scoones 1999, Parsons 1995, Hill 1993). Keeley and Scoones claim, however, that these two approaches both neglect the issue of power and endorse a third approach to policy processes, which is outlined in the following chapter.

3.1.3 Post-Structuralist Approach

The third approach to policy processes focuses on the relationship between knowledge, power and policy (cf. Keeley and Scoones 1999, 5). Such alternative visions of policy processes which emphasize the importance of power balances can range from perspectives on political power relationships between different interests in a policy process (cf. Clay and Schaffer 1984), to relationships between power and knowledge as an integral part of policy processes (cf. Shore and Wright 1997), and even to

mechanisms through which certain versions of *reality* are filtered (cf. Chambers 1997). It is here that approaches to discourse, informed by the work of Foucault (cf. 1977; 1979), become particularly valuable for a meaningful understanding of policy. Foucault took operating policies as *political technologies*,¹⁴ deeply enmeshed in the (everlasting) relations of power among citizens, *experts* and political authorities (cf. Foucault 1991). This has important implications for the ways in which information and knowledge come to be represented in the policy process.

By construing policies as discourses, the analytical attention is drawn on the webs of power underlying the practices of different actors in the policy process, as well as on the discursive and non-discursive practices which are invested in policy negotiation and contestation (cf. Keeley and Scoones 1999, 5). By highlighting the style, form and language used in the construction of policy statements and in the interactions that shape policy processes, strategies such as deconstruction and narrative analysis can be deemed valuable for policy analysis.

Having these general features of knowledge, power and policy in mind, the following sections provide an overview of additional theoretical terms and notions applied in this thesis.

Power and Knowledge

As Foucault famously emphasized, the framing, communication and use of knowledge is heavily imbued with power relations, and therefore needs to be considered in any effort in order to shape the policy process through research-informed and other types of evidence (cf. Jones et al. 2009, 4).

Pallottino e.g., states that the interplay between power and knowledge takes simultaneously place in theory (through meanings and representations) and in practice (by shaping concrete device) (cf. 2007, 39). The practice intends to structure (e.g.

¹⁴ “Political Technology” is explained in more detail in chapter 2.4.5.

through certain scientific *standards*) in a view of *convenient* purposes, which themselves are in fact always composed of a plurality of purposes. Theory contributes exactly a) by reducing plurality to *manageable* dimensions, b) by representing reality and c) by this means it is constrained and *channeled* through the existing devices, forms of institutionalized power, and organizational arrangements. Hence, practice and theory produce together regulations that shape notions of *reality* (ibid.). In this view, certain assumptions become, first, normalized by virtue of identifiable processes and subsequently internalized by individuals through the power of scientific expertise,¹⁵ later channeled and mobilized by discourse and associated metaphors, labels and symbols of scientific authority (Keeley and Scoones 1999, 5). It can be argued that conceptions of the world, which become dominant in policy discussions, are reflections on the norms through which people are governed. Hence, power, according to Foucault, is immanent in all social relationships:¹⁶ its effects frame the boundaries for action through discursive processes of *subjection*, through which particular subject positions are made available for individuals to take up (cf. 1980; 2002). According to Foucault, as well as to several other constructionist views, the interface between knowledge and power is shaped within social discourses (see for example Aphorpe and Gasper 1996). A concept not easy to define,¹⁷ but often referred to the original ideas of Foucault himself.

Discourse

The concept of discourse is used in a range of different ways in the policy process literature (cf. Aphorpe and Gasper 1996, 1). This section sets out what is meant by the term discourse, where discourses originate from, and what the effects of discourse can potentially be.

¹⁵ The roles of different forms of expertise are well demonstrated by Holmes and Scoones (2000, 42) with an interesting discussion about an opening up of alternatives to scientific expertise.

¹⁶ More precisely, power means, regarding to Foucault, a neutral capacity which can at any time, or will even necessarily, be used as counter-strategy for resistance.

¹⁷ For a book-length discussion of the several meanings of “discourse” see e.g. Mills (2004)

One practical working definition of discourse is *language in use*, assuming that language is the primary practice through which meaning is created and assigned. By *in use*, I suggest that language is never used alone, but rather enacted as part of a larger social practice. In other words:

“Discourse is here defined as a specific ensemble of ideas, concepts, and categorizations that are produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities. (Hajer 1995, 44).”

A discourse can be best understood as a *Way of Talking*, which describes a certain (pre-structured and somehow accepted)¹⁸ way of thinking, and marginalizing at the same time other possible ways of thinking. Hajer identifies some prohibitions implied by discourses, since they make it impossible to raise certain questions or argue certain cases: “[T]hey imply exclusionary systems because they only authorize certain people to participate in a discourse [...] (Hajer 1995, 49).”

In this research, considering the overall research project *Ways of Knowing*, discourses can and shall be identified to understand why a particular understanding of animal breeding at some points gains dominance, while other understandings are discredited. Thus the interesting question is how the different actors involved find ways to communicate and how different ways of knowing come to form authoritative narratives on animal breeding.

An elaborated notion of discourse should be applied in conjunction with the following definitions, since the idea of discourse will to some extent be better understood by its manifestations.

Policy Narrative

(Scientific) Evidence and arguments are usually integrated in *narratives*, such as causal stories, which wrap up information and messages and convey plausibility (cf.

¹⁸ Hereby I refer to the above described concept of “subjection“.

Apthorpe and Gasper 1996, 8). But narratives are not based necessarily on evidence, they persist widely because they rest on a set of more or less naïve, unproven and simplifying assumptions about the problem to be addressed and the approach to be taken (cf. Haas 1992, 1008). Apthorpe and Gasper describe the story line of development narratives like the archetypal folktale:

“A problem (often a 'crisis') is encountered; it will be 'solved', through the epic endeavour of a hero (the project/policy), who faces and overcomes a series of trials (constraints), and then lives happily ever after (Apthorpe and Gasper 1996, 9)”

Keeley and Scoones emphasize the importance of the language, in which narratives are framed, as significant as the actual content (1999, 26).

Political Technology

Foucault introduced this term to point out the way a policy is often ‘depoliticized’, if such *depoliticization* is in the interest of a dominant group (Foucault 2002). A political problem is removed from the realm of political discourse and transformed into the supposedly *neutral* language of science. A political problem, then, is represented in the neutral language of science as objective, neutral, and free of bias. This neutralizing process reflects the *technology of politics*, the way various means are used to work within a political agenda. “This masking of the political under the cloak of neutrality is a key feature of modern power (Shore and Wright 1997, 11).”

Summing up the chapter *Literature Review: Policy Process*, these different approaches to policy processes assume different relationships between state authorities, bureaucrats, various forms of expertise and civil society, in short, variations on the idea of democracy.

“In the largely top-down, decision-oriented, linear model a privileged role for expertise is granted, and rational actions in the implementation process are assumed (Keeley and Scoones 1999, 6).”

Contrastingly, the bottom-up approach,¹⁹ and more implementation-oriented perspective, raises the issue of complex processes of policy formation and implementation to a far greater extent (ibid.). However, such standard models of democracy, whether liberal, pluralist or participatory, have been criticized by more post-structuralist ²⁰perspectives on politics and policy. The third approach, as a post-structuralist response, adopts a more fragmented view of the state and relationships with the multiple actors. How to use those conceptual lenses? While I try to avoid viewing policy process as linear, I simultaneously avoid the fatalistic view on policy process as simply chaotic and down due to chance and accident. How a combination of these analytical perspectives, by highlighting the continuous interplay of discourse, political interests and agency of multiple actors, can be framed, will be explained in the next chapter.

3.1.4 Agency and Structure

In this chapter I show ways in which the above mentioned different perspectives on policy process can be combined in order to understand complex animal breeding policy processes.

The underlying questions, pervading the literature of policy and deriving from old dichotomies²¹ in science, are: does knowledge follow from interests, or is knowledge socially constructed, the product of discourses? How much space, in the face of interests and discourses, do individuals have in order to make choices?

The actor-oriented approach taught us that what matters are the structures that enable and constrain individual behavior. Contrarily, viewing policies as discourses sets out

¹⁹ Houtzager's (2001) research demonstrates that policy change may in itself arise, and be driven, from "below" rather than through decisions made "from above".

²⁰ *Post-Structuralism* is defined by the online Encyclopedia Britannica as a "[M]ovement in literary criticism and philosophy begun in France in the late 1960s. Drawing upon the linguistic theories of Ferdinand de Saussure, the anthropology of Claude Lévi-Strauss, and the deconstructionist theories of Jacques Derrida, it held that language is not a transparent medium that connects one directly with a "truth" or "reality" outside it but rather a structure or code, whose parts derive their meaning from their contrast with one another and not from any connection with an outside world. Writers associated with the movement include Roland Barthes, Jacques Lacan, Julia Kristeva, and Michel Foucault."

²¹ See for example Wendt 1987: The Agent-Structure Problem.

that interests are socially constructed and actors' agencies make sense only within the context of broader narratives and frames of reference (cf. Hajer 1995, 59). I argue within this study that interests are shaped by larger discourses, but that these discourses are also shaped actively by political interests, in a sense that structure and agency continuously and recursively interact.

I understand the concept of *policy spaces* by Brock et al. as a multifaceted analysis of the knowledge-policy relationship, which links the three ways of understanding policies together. To understand better, how Brock et al. use the term *policy space*, the following section lays out related usages of the same and similar terms and defines my adaptation by referring to them.

Habermas (1987) contends that developing an autonomous public sphere outside the domain of the state is a precondition for citizen engagement. He conceptualizes public sphere, *Öffentlichkeit*, as a diffuse web of institutions that offer spaces for the public to voice, share and debate opinions. Habermas points out the relevant structures which, according to him, shape or influence human behavior. He states that individuals become part of a wider political community through such processes of deliberation,²² which become in themselves a means of realizing active citizenship. Cornwall argues that Habermas' term for public sphere has resonant spatial connotation: "it evokes idealised quality of public spaces and institutions, their capacity for openness, as well as referring to the public-at-large (Cornwall 2002, 4)."

Contrarily, French social theorists, such as Lefebvre, Foucault and Bourdieu, offer a more constructivist perspective on the politics of participation: they emphasize the interplay of power and difference in the making-of spaces and the micro-politics of interactions within them. Lefebvre (1991) perceives social space as produced space, one that is both the outcome of past actions which permits new action to occur, enabling some and blocking others.

²² A comprehensive body of literature exists dealing with *deliberative democracy*. For further discussion see e.g. Dryzek (1990) and Bohman and Rehg (1997).

“Space is a social product [...] it is not simply 'there', a neutral container waiting to be filled, but is a dynamic, humanly constructed means of control and hence of domination, of power (Lefebvre 1991, 24).”

On that note, Bourdieu (1977) concludes that patterns of interaction in social space are so ingrained and unquestioned that they become embodied in particular places. Furthermore, Foucault (1977) shows how architecture and the organization of physical space can serve as a means of domination and control.

More current conceptions of *policy space* and spatial metaphors²³ are widely used in the political science literature on political reform (Webster and Engberg-Pedersen 2002), policy change (Brock et al. 2001) and citizen participation (Jones et al. 2009). Webster and Engberg-Pederson use the concept *political space* as a central analytical tool to explore the role of the *poor* in poverty reduction. They define it as “the types and range of possibilities present for pursuing poverty reduction by the poor or on behalf of the poor by local organisations (2002, 8).” These possibilities are constituted by institutional channels through which policy processes can be accessed or controlled by the poor, political discourses, and social and political practices of the poor which serve to influence decision-making and policy agendas (ibid.). In comparison to Brock's et al. *policy spaces*, Webster and Engberg-Pedersen denote the existence of a single possibility within a given political and social context, whereas Brock's spaces are “multiple points in time or space in a policy process and, as well as sometimes signifying transformative potential, are actual observable opportunities, behaviors, actions and interactions (Brocks et al. 2004, 16).”

Another related concept, the *room for manoeuvre* of policy-makers, was introduced by Clay and Schaffer in (1984). They argue that the room where policy maker have to manoeuvre is shaped and framed by forces such as the opinions of a dominant epistemic community or narratives. Existing institutions and relations of power can be replicated within any newly created arena through the way in which spaces are

²³ Spatial terms that issue representation and power are listed by Cornwall: “positioned”, “located”, “situated”, “dissociated”, “displaced” (cf. 2002, 2). Further, “participation”, which is very prominent in the rhetoric of development institutions, also have a distinct spatial dimension (ibid.).

managed, through unspoken rules and norms (cf. Cornwall 2002, 7). Asking whether the processes or institutions, created to enhance participation, challenge or reproduce existing structures and meanings is thus crucially important with regard to assessment of policies.

In order to understand the animal breeding policy process, I combine essential, but conflicting approaches (structure and agency) and potentially assess a) the policy-making environment adequately, and to ask b) to which extent key actors played a role in bringing these policies about. This multifaceted analysis framework is presented in the next chapter.

3.2 Actors, Policy Spaces, and Knowledge

In order to conceptualize the three approaches, based on the discussion above, to understand policy processes, a dynamic conceptual framework, as developed by Brock et al. (2004), seems appropriate for the purpose of this research. Key elements of such a dynamic process are:

1. Actors (A) – the people involved in framing and implementing the policy.
2. Policy Spaces (S) – the spaces in which these actors interact.
3. Knowledge (K) – the actors' ways of arguing deriving from specific ways of knowing (cf. Brock et al. 2004, 21).

The interplay among these key elements is clearly dynamic and complex. It can be displayed in three interlocking circles, having the policy process (PP) at the intersection, as promoted by McGee (2004, 22). Moreover, interactions do not take place in a “vacuum” and therefore need to be carefully considered in a context constituted by history, culture, politics, environmental necessities and their specific underlying pow-

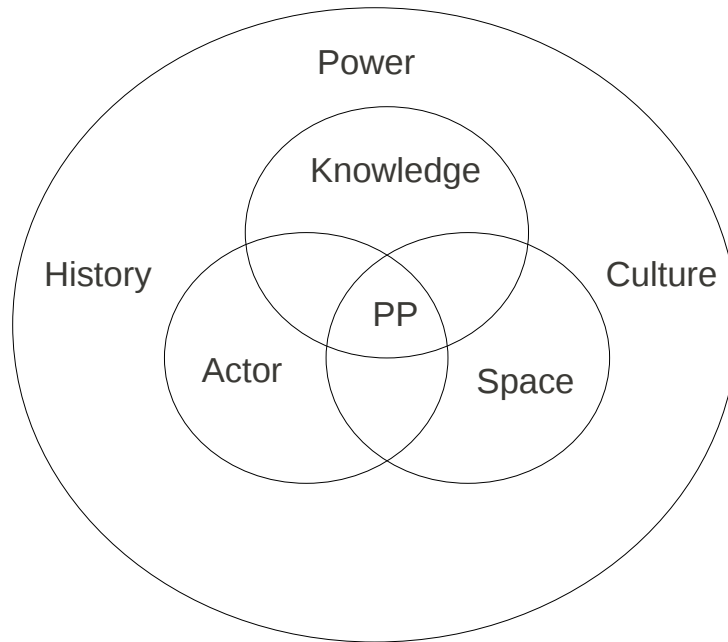


Figure 6: Actors-Knowledge-Spaces Diagram (Adapted from McGee 2004, 23).

3.3 Actors

²⁴ The term *institutions* is used in this study as structures and mechanisms of social order and cooperation governing the behavior of a set of individuals within a collectivity (cf. Chang 2007).

includes local government officers, central government officials, civil society organizations (non-governmental and community-based, trade unions, pressure groups, academics, researchers and technical *experts*), representatives of donors, private individuals (farmers) and others. I should like to point out, since I put them in certain categories, that all people combined in my actor cluster could probably be regarded as a collective and homogeneous unit, which in fact they are not, acting as such. Precisely, because of their various interests and needs, they should be recognized not as one collective actor but as many and diverse actors (cf. Long 1992, 23).

Several characteristics of actors allow a description of their ways of knowing in the policy process: first, as previously stated by McGee, concerning the duration of engagement within the policy processes (cf. McGee 2004, 10). This is particularly important in the case of animal breeding in Uganda, due to the tendency to open up the process to more and diverse policy actors since the late 1990s (cf. Mugenyi et al. 2005, 6). Second, another significant factor: expectations of the actors' behavior and contributions, which are possibly set up and perpetuated by longer-standing actors (McGee 2004, 10). Finally, McGee listed networks to which actors belong, including their narratives, discourses and knowledge they promote (ibid.).

These characteristics of actors guided importantly my scope of questions in the field. In discussions and interviews, I intended to gain insights concerning the impact on and the portfolio of policies, how my interlocutors perceive themselves and their roles in the policy making, where their knowledge derives from, and in which spaces they are interacting. More concretely, I partly adopted some questions of the *Research and Policy in Development Framework* (RAPID), developed by the Overseas Development Institute (ODI, 2004):

- Who are the key policy actors?
- Which actors have significant power to influence policy?

- What kind of links and networks exist between them?
- What are the aid priorities and policy agendas of international and regional actors in the policy process?

In this chapter, I attempted to introduce one key element of the actors-spaces-knowledge framework. The main question for my research deriving from theory is therefore: whose voice counts and whose not?

The question, targeting participation in the policy process, situates us also in the terrain of the second of the three key components regarding policy processes: knowledge.

3.4 Knowledge

For the purpose of this research I draw on a vague approach to knowledge, which includes the idea of *access* to information and knowledge. The issue of *access* to knowledge is based on the above formulated question about actors' participation in policy processes, but it goes beyond its merely structural meaning: *Access*, manifested in “who is allowed to say/write/hear/read what to/from whom, where, when, and how (Dijk 1998, 257)” forms an essential part of this research, as I will outline in this section.

I distinguish for this study two notions of knowledge as suggested by McGee (2004). The first type of knowledge is specially produced by certain actors for certain kinds of users. The so-called *industrially produced knowledge*²⁵ is traditionally considered as neutral, impartial and generally applicable for policy processes (cf. McGee 2004, 12). The second type of knowledge is knowledge that is constructed by a range of actors. This kind of knowledge is not always evident, visible or explicit. “One example

²⁵ For example household survey data or World Bank inter-country comparative data, etc.

of constructed knowledge is experiential knowledge [...] which has tended to be largely invisible to policy processes (McGee 2004, 13).”

Having McGee's suggested, produced and constructed ways of knowing in mind, I further stress three hypotheses that are fundamental for this research: first, ways of knowing are linked to ways of argumentation. Second, these ways may vary between disciplines and even between *Lebenswelten*. Third, certain ways may be privileged or excluded in debates, giving other modes of argument and knowledge more credibility. The three assumptions are embedded in the well-known statement by Foucault:

“Each society has its régime of truth, its 'general politics' of truth: that is, the types of discourse which it accepts and makes function as true; the mechanisms and instances which enable one to distinguish true and false statements, the means by which each is sanctioned; the techniques and procedures accorded value in acquisition of truth; the status of those who are charged with saying what counts as true (Foucault 1980, 131).”

Without delving too deep into philosophical reflections on *truth*, for my study it seems advisable to acknowledge that different societies in their different *Lebenswelten* act according to different rules for determining the validity of statements. Importantly for the purpose of this research, it must be accepted that in a multi-actors situation one can encounter different ways of knowing. Such interfaces e.g. between scientists and farmers, basically mean that different ways of arguing, based upon different ways of knowing, will be considered more or less convincing, acceptable, or legitimate. Such legitimacy is often defined by technical criteria: which ways of knowing can be generalized up to national scale? Which kind can be validated, and its confidence intervals established, by conventional statistical means (cf. McGee 2004)? Besides the technical criteria there are, of course, political criteria to mention: which ways of knowing count or do have influence?

This question for the *one and only way of thinking* frames an extensive body of literature in the field of Post-Development, which criticize the construction of superiority of scientific knowledge vs the inferiority of local or traditional knowledge (Shiva 1989, Ramonet 1997, Haraway 1988, Sillitoe 1998, Healy 2009 etc.).

“Modern science is projected as an universal, value-free system of knowledge which has displaced all other belief and knowledge systems by its universality and value-neutrality, and by the logic of its method arrived at objective claims about nature. Yet the dominant stream of modern science, the reductionist or mechanical paradigm, is a particular response of a particular group of people (Shiva 2006, 162).”

It is worth mentioning in this context Healy's (2009) article on the status of different epistemologies in environmental debates. He states that even in an ideal case where all actors are given equal *access* to debates, inherent power asymmetries remain unresolved. The reason is that scientific arguments as produced knowledge, based on *value-free facts*, are systematically privileged over lay arguments as constructed knowledge, which are commonly seen as value-laden. Nevertheless, scientific knowledge is just one of various ways of knowing and it is vice versa dependent on practices and contexts in which it is produced.

The chapter aims to identify an useful approach for my study, attempted to affirm that different stakeholders may use different ways of knowing in understanding and describing their environment. Having said this, they may use different ways of framing arguments and to discern their validity. What is also important is to recall the “access to-...” debate in order to extent the understanding of such processes with the question of *how*: how are specific arguments by certain actors expressed, and what *kind* of arguments are considered acceptable, pertinent, and valid?

Following questions, again partly adopted from RAPID framework, can facilitate analysis with the purpose of capturing these modes, respectively manifestations of knowledge and argumentation (cf. ODI 2010):

- How do prevailing narratives (which ones?) influence policy-making?
- In which way was the problem, i.e. the purpose of the policy, defined?
- How, and by whom, was the information gathered?

- Which information has been included and what has been left out?

3.5 Spaces

The element of *Space* of the framework provides an useful perspective for examining everyday politics and practice of actors and purpose of examining how their power to act is enabled and constrained (cf. McGee 2004, 16). It raises questions like: which actors gain access to which spaces, what do they do there, what constrains or facilitates their actions, and what potential arises as a result of these?

The guiding questions (cf. Overseas Development Institute (ODI) 2010) for analyzing policy spaces and its surrounding policy structures and processes are:

- Which actors had a voice in the making-of the Animal Breeding Policy? What freedom of action did they have? What could they achieve?
- What is the relevant legal/policy framework?
- What are the policy-making structures and processes?
- Are there any exogenous shocks or trends that affected the policy processes?

By framing and positioning my theoretical approach for the present study within the vast debates of policy, I mentioned the general context of debates in social science to which also my perspectives refer to: is knowledge socially constructed or does it follow from interest? Are individual choices possible? Through a combination of certain elements (actors, knowledge, spaces) deriving from those controversial approaches, I attempt to explain the animal breeding policy process thoroughly, while also fully acknowledging the fact that a final answer cannot be found (since it will always be part of ongoing discourses).

4 RESULTS: Background, Narratives and Actors of Animal Breeding

After outlining the instruments to gather information and the theoretical position of my thesis, this chapter summarizes the results in following descriptions:

- A description about the key influences and events of animal breeding since the colonial era.
- A description of policies surrounding and affecting animal breeding and animal breeding policies.
- A description of key policy actors relevant for framing and shaping the Animal Breeding Policy (cf. Leksmono et al. 2006, 37).

These three descriptions, concerning policy spaces, key policy actors and networks, and trends and changes in the external environment of animal breeding, provide essential information for capturing the key influences and events of the making-of the Animal Breeding Policy.

4.1 Historical Context

Heavy emphasis is put on this chapter, since I argue that the roots of current discourses of development theories lie in the past. It is difficult to understand the present state of animal breeding in any country without an awareness of its history. Backtracking histories, and in some cases her-stories, is to render a chain of arguments for a contextualization of the current ways of knowing of animal breeding and its policy environment. My attempt is to capture the prevailing narratives and policy-making structures by looking at their roots in (mainly) histories, in order to shed light at the making-of animal breeding policies.

4.1.1 Colonial Era (1900-1962)

Colonial development policy was dominated by the perceived need to transform and modernize African agriculture (cf. Carswell 2007, 3). The *modernization paradigm* is a holistic approach including the development imperative of productivity and it could be well argued that it is still dominant all over the current mainstream development discourse. The core perceptions underpinning modernization theories are summarized by Abrahamson:

“Before development, there is nothing but deficiencies. Underdeveloped areas have no history of their own, hardly any past worth recalling, and certainly none that's worth retaining. Everything before development can be abandoned, and third world countries emerge vessels waiting to be filled with the development from the first world (quoted by McEwan 2009, 94).”

This understanding of development is based on a dualistic world view, opposing *traditional* to *modern* lifestyles, *indigenous* to *westernized* ways of knowing where no one can belong to both (cf. McEwan 2009, 94). These assumptions of a dualistic world are very much linked to colonial motifs, as it is outlined in following writing of Albert Sarraut, former governor of French Indo-China:

“[...] the means of progress, and the dynamics of scientific advancement, the greatest accumulation of natural wealth is locked up in territories occupied by backward races who, not knowing how to profit by it themselves, are even less capable of releasing it to the greater circular current that nourishes the ever growing needs of humanity [...] (quoted in Agrawal 1997, 465).”

At the same time in the 1930s agricultural policies in Africa began to reflect concerns about the environment. Carswell argues that these concerns gave rise to a range of policies and schemes in which science and technology had a central role to play (cf. 2007, 3). Furthermore, the passage above reveals the deeply held belief that it was the West that stood at the helm of progress.

One of the most influential writer for African environmental policy thinking has been Malthus,²⁶ claiming that population growth rates are such that it would be impossible to maintain adequate food supplies, and environmental decline will result (cf.

²⁶ The most popular book which is influential in many disciplines until today: T.R. Malthus (1789): *An Essay on the Principle of Population*. London.

Malthus 2004, vii). Two narratives derive from this *overpopulation* discourse: a) overpopulation leads to severe land shortage, which emphasizes the idea of animal genetic improvement and productivity growth, and a reduction of the number of animals. b) the *failings* of local people are often implicit outlined Almost 200 years later, in the 1970s, writers such as Ehrlich and Ehrlich re-initiated the familiar debates on the dangers of overpopulation and suggests that the way development is sought today can only lead to unmitigated environmental disasters (Ehrlich and Ehrlich 1981, quoted by Agrawal 1997, 463).

Important for this study is that those policies which arose out of these concerns, as I already mentioned, strongly believed in the power of science and technology. In Carswell's words, "natural sciences were inextricably entwined with imperialism, and science was central to ideas about colonial environmental management." (2007, 4). Further, Carswell quotes Beinhard who noted that:

"[T]he social darwinist attitudes in which science came to be embedded made it difficult for outsiders to accept that local practice was also a form of science [...] (Beinard 1989, 156)."

Worthington's 1938 *Science in Africa* report is one example of colonial publication that stresses the importance of science to colonial development.²⁷ The colonial agricultural officers saw themselves, in Masefield's words, as "missionaries of science bringing hope and prospects of progress to underprivileged peoples (Masefield 1972, 6)." Carswell argues that the belief in the superiority of Western knowledge and its "tendency to take the technological high-ground (2007, 4)" had profound implications on colonial agricultural policy. In this sense, concepts for *development* through *betterment*, and technical solutions to environmental problems were conceived. As a supposition to this need of *development* and to help justifying involvement, the discourse about poor African agricultural methods was constructed. Roughly summarized, the problem was defined as "too many people ignorant of scientific farming (Carswell 2007, 5)" bearing the effect that *African knowledge* of farming was silenced and external knowledge, methods and technologies were privileged. This

²⁷ For a discussion about the role of science for colonial development see: W. Beinart and J. McGregor (2003): *Social History and African Environments*. Oxford.

resulted in technology transfers and a dependency on those countries with more sophisticated production systems, where the producer benefited much far more than the consumer.

One area of the dominant discourse about overpopulation within the paradigm of modernization was in relation to land tenure. In this sense the East African Royal Commission (EARC) of 1955 argued that efficient mixed farming was impossible under traditional systems of land tenure, therefore should be a move towards properly demarcated smallholdings, individualization of land ownership, mobility in the transfer of land and encouragement of progressive farmers (cf. Mugambwa 2007, 41). This represented a shift in colonial policy because it meant to encourage a selected group that was seen to make better use of the opportunity offered. The focus on the individualization of tenure land continues to be influential among policy makers today, as it is outlined in the chapter 4.2.6. *Land Tenure Policies*.

Animal Breeding

Generally it is to mention that the colonial and also the post-colonial governments gave greater assistance to crop farming than to the livestock sector, since they were more interested in cash crops export, which earned the country substantial foreign exchange (cf. Mbabazi 2005, 1). One interviewee from NAGRC & DB stated that the reason for this is the fact that animal breeding is a long-term indenture and the investment is much more expensive compared to crop: “Additionally, with crops you get faster results and it is easier to fund (Interview 21b).”

In Uganda until the 1940s, efforts to improve the dairy industry were almost entirely based on selective breeding within the indigenous cattle. This was believed to be the most effective and most sustainable long-term strategy that could be adapted to the tropical environment (cf. Hashakimana 1996, 1). Policies until the 1950s were mainly based on three assumptions, namely: too harsh climate for exotic cattle to survive, no sufficient disease control and no change was foreseeable in the traditional cattle

keeping habits (cf. FAO 2004, 41). This was supported by results from experimental stations, like the National Animal Health Research Center, suggesting that superior genotypes for milk production were difficult to obtain in this population (cf. Interview 14a). Even though research was initiated to improve the cattle stock based on selective breeding within the indigenous animals for resistance to tick borne diseases and increased milk yield (ibid). At the same time it was realized that selective breeding of the indigenous cattle would lead to very slow genetic progress which would not bring about the desired production levels in cattle for milk and beef, according to the interviewee from NAGRC&DB (cf. Interview 14a). Mostly influential studies by William and Bunge (1952), Mahadevan (1964), Marples (1962), Galukande (1962) and others contributed to the starting AI discourse by attempting to proof that it is impossible to effect a significant increase in milk yield within indigenous cattle through selection.

Since then, AI methods have been developed for breeding cattle, sheep, goats, swine, horses, dogs, cats and insects. In Uganda, the AI service started on experimental basis in 1953 to develop heat tolerant dairy cows capable of high production (cf. Hashakimana 1996, 1). The policy thereafter changed in favor of importation of exotic genes. In 1962, the Animal breeding Centre, Entebbe (ABC) was established to keep bulls and to collect, and to distribute the semen as well as to provide AI services to the farmers (cf. Kaaya 2000, 3). Conditions for farmers to receive those services were the removal or castration of the bulls, an intensive herd management, the fencing off of pastures and adequate tick control, and a personal supervision by the farmers (cf. Interview 14a).

At the same time the importation of exotic dairy stock including Friesian, Jersey, Guernsey and Ayreshire started and an experimental program began to investigate the performance of the indigenous cattle and their crosses with exotic dairy breeds (cf. FAO 2004, 41).

4.1.2 Post Independence Era (1962-1970)

During the post independence era government policy on livestock development under Milton Obote promoted cattle for both milk and meat. The emphasis was, as in the colonial era, on promoting transition to modern animal husbandry practices. Therefore, the development of commercial farms and state and parastatal ranches was established (cf. FAO 2004, 42). Further, organized milk collection and processing began and by an Act of Parliament the Uganda Dairy Corporation (UDC) was established in 1967. Prior to UDC, milk processing and distribution was operated by a private company, Uganda Milk Processing Limited, which imported pasteurized milk from Kenya (cf. Mbabazi 2005, 3). Therefore, farmers sold their milk individually to consumers, which were mostly Asians or Europeans in town (ibid.). Since then, milk consumption of the Ugandan population was very low to zero. In this era many Ugandans began to earn their living from milk, although this were rather large scale farmers. While all the milk processing technology during this period was imported (mostly from Britain) today the dairy industry relies on Swedish technology and packaging material from South Africa (ibid.).

On individual grounds, most influential to these processes was Dr. John Babiha, the Vice-President and Minister of Animal Industry and Fisheries, who took the lead in the establishment of the dairy sector during this period (cf. Mbabazi 2005, 3). As one interview partner at the ministerial level stated:

“I expect that the minister went abroad, with of course some of the technical staff, and see this animals giving 20 or maybe 30 liters of milk per day. So he said, we are going to introduce some of these animals into our country. And they did it, introducing that animals and using AI. That's how it happened (Interview 18).”

With his knowledge of the international research system and donors, he played a major role in enabling access to funding and increased the positive view on artificial insemination throughout all stakeholders.

Animal Breeding

At the time of independence in 1962, most cattle keepers still owned the Ankole long horn breed, which were kept on unfenced perimeter land (cf. Mbabazi 2005, 24). But in this phase of redirection of the milk sector a significant step was done: the first exotic breeds mostly from Britain and Kenya, paid by the Overseas Development Agency (ODA), were air-freighted to Entebbe (cf. Mbabazi 2005, 3), even though very unsuccessfully: the heifers died after a very short period of time. As a result, the government established breeding centers in order to reduce dependence on imported breeds by multiplying herds and crossbreeding Ankole cattle and also to provide farmers with better quality breeds to affordable prices. As a consequence exotic breeds were sold to local farmers at subsidized prices through the veterinary department, which was directly supported by the GoU under MAAIF. Additionally, district farm institutions were set up to serve as demonstration farms and to encourage farmers to adopt hybrid cattle (cf. Mbabazi 2005, 5).

4.1.3 Idi Amin Era (1971-1979)

Trends in economic growth, maintained during the 1960s, were interrupted following the military takeover of 1971 by the Idi Amin regime (cf. FAO 2004, 42). Summarized after the *Economic War*²⁸ declaration of 1972, gross mismanagement coupled with the rule of terror completely destroyed the productive base of the economy. There was no clear and coherent procedure for implementing development policy and the state's capacity to serve dairy farmers shrank considerably (cf. FAO 2004, 42). Interestingly, within this economic war where inflation rose constantly, the prices for milk and local foodstuff rose sharply as well and during the mid-1970s, it was more profitable to look after cattle than to grow coffee (cf. Mbabazi 2005, 6). As a matter of fact, more and more farmers adopted cattle for selling milk.

²⁸ The *Economic War*, under Idi Amin, included a set of policies, as the expropriation of properties owned by Asians and Europeans.

4.1.4 After the War 1979

After the 1979-1987 war the economy of Uganda under the Milton Obote II regime suffered further deterioration from the vagaries of war, and civil disturbances of interim governments (cf. FAO 2004, 42). Although the GoU made several attempts to revive the dairy sector at the farm level, for example by promoting cooperatives, providing subsidies or initiating training programs, achievements of these efforts were limited due to political instability (cf. Mbabazi 2005, 7). In this environment farmers were forced to form organizations and relied more on the market forces of supply and demand, as Kasfir put it (cf. Kasfir 1994, 25). For this period of time there is no reliable data about animal breeding available.

4.1.5 After 1987 to Date

After 1987 the government of the National Resistance Movement (NRM) with Yoweri Museveni on top issued the rehabilitation and development plan, 1987 - 1991, which had as a prime objective the restoration of productive capacity and liberalization of the economy in key sectors (cf. FAO 2004, 42). Priority areas for the animal industry emphasized disease control and increased animal production through adoption of biotechnology in animal breeding, like artificial insemination.

The GoU prepared the *Diary Master Plan* with the assistance from *Danish International Development Agency* (DANIDA) for the development of the sub-sector. Since then it became a major policy of the GoU to encourage increased productivity of livestock. Narratives on topics like national food security, better nutritional standards and increased income for socioeconomic development became very important to legitimize biotechnology for animal breeding at this time and were very dominant within this discourse.

Other policies like the PMA (1997) and the Animal Breeding Policy (2001) and Act (2001) were launched by the government to alleviate poverty and modernize agricul-

ture. Apart from government measures donor agencies, including the DANIDA, the *African Development Bank* (ADB), the *Food and Agriculture Organization* (FAO) and NGOs like *Land O'Lakes*, the *Heifer Project International* and *Send a Cow* contributed profoundly to the development of the dairy sector and animal breeding (cf. Mbabazi 2005, 14).

Overall, the research accomplished from the 1960s to 2001 from various actors built up a comprehensive body of scientific *evidence* that was used to support policy developments. Without the scientific *evidence* which provided the answers arguing for an Animal Breeding Policy would have been very difficult. Therefore, a wide range of organizations and individuals contributed to the increasing body of *evidence* of animal genetic improvement. It is noteworthy that several MSc theses on animal breeding issues such as artificial insemination, were written at the Makerere University.²⁹ Furthermore, study reports like *Livestock 2020 – The next Food Revolution* were essential, concerning scientific legitimization. The report was authored by Delgado et al. (1999) on behalf of IFPRI, FAO and ILRI. It predicts a *Livestock Revolution* in development countries and therefore opportunities for development, when certain framework requirements are introduced. One strategy for improve livestock's productivity is artificial insemination. The report *Livestock Development* authored by De Haan et al. in behalf of WB, further outlines these framework requirements and produces and reproduces the narratives on modernization of agriculture through science and technology.

In 1992 MAAIF together with DANIDA formulated and implemented the *Cattle Breeding Project* (CBP), whose overall objective was to increase the supply of milk through improved livestock breeding. The main activity was, therefore to raise awareness for the value of AI by the farmers as well as the privatization of AI services (MAAIF, 2000). Additional projects for the dairy rehabilitation from ADB, DANIDA, WGP and UNDP are to mention; although they did not directly address

²⁹ For example: Hashakimana (1996): The extend of Acceptability of Artificial Insemination among Ugandan Dairy Farmer. Kaaya (2000): Determinants of Utilization of Private Artificial Insemination (AI) Services among Ugandan Dairy Farmers etc.

animal breeding but increasing milk demand and build infrastructure. By the end of 1992, up to \$25.94 million out of a total external donor commitment of \$55.1 million had been disbursed through projects (cf. DANIDA 2006, 9). Land O' Lakes, Heifer and Send a Cow affected more directly animal breeding through distribution in-calf heifers and semen.

In this chapter *Historical Context* I attempted to capture key influences and events for the framing and shaping current ways of knowing of animal breeding by backtracking its underlying priorities, narratives and structural context. The major finding of this retrospection is that the direction of environment policies is strongly determined by colonial pre-settings. The myth of modernization and the narrative of *population surplus* derived, which still dominate profoundly development discourse. Further, I outlined that a strong belief in the power of science and technology was, and to large extent still is, dominant over local ways of knowing due to colonial oppression, which resulted in a superiority of *Western knowledge* and potentially silenced *African knowledge*. Another interesting finding is that the government gave greater assistance to cash crop farming than to the livestock sector since colonial times until today. According to the revised literature and interviews, Dr. John Babiha was a very influential person for the current animal breeding knowledge, and is supposed to have had a great impact on the approach to artificial insemination (cf. Interviews 9, 6, 15, 19). Additionally, the rise of milk prices during the Idi Amin era caused an increased adoption of cattle for selling milk, which means a shift of values in the direction of commercialization and productivity growth. Finally, the Cattle Breeding Project is to mention as a key event in shaping perceptions on animal breeding.

4.2 Policy and Context

This chapter provides essential information on the policy context surrounding animal breeding, in particular the Animal Breeding Policy (1997) and the status quo of policies related to animal breeding. It aims at answering one of the guiding questions:

What is the relevant legal framework of the policy process? This analysis of the policy context further aims at drawing a overall picture of prevailing policy narratives, aid priorities and agendas of the Government of Uganda. Consequently, this chapter sheds light on the making-of the Animal Breeding Policy and its Act by rooting the ideas within former policies and overall approaches.

In the late 1980s the GoU undertook a far-reaching economic recovery program embracing market liberalization through the removal of price controls, the privatization of state industries and the disbandment of agricultural parastatal boards (Dijkstra 2001, 841). An average GDP growth of 6.5% per year since 1990 is cited as proof of the success of these programs. There is evidence that the incidence of poverty has fallen from 56% in 1992–93 to 35% in 1992/3 (cf. World Bank Group 2010). Various development actors attribute this drop entirely to the growth of GDP, far less add a cautionary note that urban-rural inequality during the years 1992–2000 has increased simultaneously (cf. Vögel 2003, 6). Nevertheless, the role of agriculture is therefore complementary to the process of industrialization and approaches to live-stock development have conventionally aimed at increasing production in order to create a marketed surplus for consumption, trade, and especially export (cf. Ashley and Nanyeenya 2002, 1). The initial policy environment was shaped by two key policy shifts: first, decentralization which brought local accountability and, second, the Poverty Eradication Action Plan (PEAP) put poverty reduction in the focus of national and local policy. Having the broader policy framework in mind, this section describes the narrower policy environment surrounding animal breeding in Uganda. It will start with a glimpse on the development of policies and the underlying major trends and further points out relevant policies.

4.2.1 Animal Breeding Policy and Act

The Animal Breeding Policy and its legal conclusion, the Animal Breeding Act 2001, were the main objectives of the *Cattle Breeding Project* financed by DANIDA and the GoU, implemented 1994 - 2001:

“Establish a framework for decision making at the national level on Cattle Breeding Policy, through the preparation of the document outlining issues to be addressed; plans for future actions and resources required (Semambo and DANIDA 2001, 3).”

In order to achieve this aim, several studies were conducted, including consultations of stakeholders through questionnaires, workshops at sub-county and at national level in ten districts in Uganda (cf. Ibid.). These stakeholders included 82 farmers from 9 districts,³⁰ whereof half of them being located in Mbarara district. However, several interviewees stated that consultations of the farmers aimed rather on capturing their knowledge on their animals than on their priorities and problems in animal breeding (cf. Interview 9, 23, 5, 4). Furthermore, consultations were made in Kenya, Tanzania, Zimbabwe, Botswana and South Africa (cf. GoU and MAAIF 1997). The Breeding Policy and the implementation plan were completed in 1997 and both were finally approved by the Ugandan Cabinet in 1998. The Animal Breeding Bill was formulated and discussed at a national workshop to consider the draft. Various actors were invited to this workshop, according to certain criterion, like English skills and an *progressive attitude* (Interview 7): politicians from local and central government, scientists, veterinarians, NGOs and farmers. After debating, the draft bill was approved by the Parliament in 2001.

In the following I examine the content of the Animal Breeding Policy.

The introduction of the Breeding Policy legitimates the purpose:

“The human population is approximately 19 million. Per capita availability of the livestock products is still very low (22 l of milk and 3.6 kg of beef in 1996) as compared to the FAO recommendations of 200 litres of milk and 50 kg of meat annually (GoU and MAAIF 1997, 1).”

Subsequently, the overall objective is “to encourage and attain a sustainable increase in the productivity of farm animals to ensure national food security and socio-economic development (GOU/MAAIF 1997, 2).” Comparing the overall objective to the Cattle Breeding Project's objective, an interesting shift in termini appears, albeit

³⁰ These are Mubende, Bushenyi, Ntungamo, Apac, Kumi, Mbale, Mpigi, Kabarole, Mbarara.

the meaning might remain the same: To increase the supply of milk and beef in Uganda, thereby achieving national self-sufficiency and initiating export of livestock products.

In the first two chapters three prevailing discourses shape the means and ends of the policy: *Population Growth*, *Food Security*, and *Economic Development*. These three discourses may have, simply speaking, one cross-section: productivity growth. Through population growth land becomes scarce, more food is needed and the socio-economic development declines. Productivity growth through modernization of agriculture is therefore thought to be *the one and only way of thinking*. Productivity growth, as argued in this thesis, is not only the thread throughout the Animal Breeding Policy, but throughout all environmental policies since the colonial era.

However, the policy shows further the more subtle conflictive area of the three discourses: the conflicts between food security and socio-economic development or productivity growth.³¹ It opens up controversial issues about challenges, potentials and options regarding sustainable acquaintance with natural resources in the context of economical and social development efforts.

The primary aim of the national program for animal genetic improvement is to provide

“[G]uidelines to farmers, investors, researchers, extension workers, and civic leaders on suitable breeds for the various agro-ecological zones and production systems, alternative breeding programmes, import and export and trade in genetic materials, breeding and management systems for conservation and sustainable use of indigenous genetic resources and the use of modern breeding technologies in the country (GOU/ MAAIF 1997, 1).”

Therefore four components are installed:

³¹ The meaning of socio-economic development and productivity growth is in most part of the policy and its implementation equivalent. The “social” component of development is at least disputable in this context.

Component 1: *Livestock register* – in order to enable an organized breeding program national livestock inventory shall be carried out to document all the available genetic resources by species type. An animal identification system and an open computerized register shall be worked out to follow up on individual animals (cf. GoU/MAAIF 1997, 4).

Component 2: *Choice of breeds* – to emphasize the use of “appropriate animal breeds, especially those breeds (both indigenous and exotic) that are relatively more tolerant to disease, environmental stress and sub-optimal nutrition conditions [...]” (ibid. 3). The policy further underlines that indigenous breeds should be protected from all major threats to their existence, while promoting genetic improvement. Therefore tropicalized exotic breeds and crossbreeding should be promoted and guided. “Farmers shall be given freedom but advised on the most suitable breed choice depending on the long-term development needs and socio-economic and environmental trends in the country (ibid. 4).”

Component 3: *Breeding methods* – to encourage an “optimal utilization of indigenous, adapted and disease resistant breeds while recognizing the advantages of introducing potentially adapted breeds, having superior production traits, and emphasising the need for conservation of the indigenous breeds for genetic diversity (ibid. 3).” For this purpose, methods as selection,³² breed substitution,³³ crossbreeding³⁴ and breed synthesis are promoted to a) develop pure strains with higher productivity and b) to identify outstanding exotic germplasm for semen production, natural service, and female embryo donors.

Component 4: *Zoning* – to take into account the different agro-ecological zones for implementing in accordance with the economic and social determinants prevailing in the various farming systems. Also in order to match particular breeds to the available

³² Selective breeding means an artificial selection by intention (cf. Biology-Online 2010).

³³ Breed substitution means the replacement of indigenous breeds by exotic breeds (cf. Biology-Online 2010).

³⁴ Combining two breeds to produce a crossbreed exhibiting hybrid vigour for improved performance (cf. Biology-Online 2010).

feed resources, physical, biological and socio-economic conditions to optimize productivity. Accordingly, legislative restriction of certain breeds to particular agro-ecological zones is appropriate and should be put in place. However, producers should be left to make their own choice from the range of recommended breeds and production systems. For this purpose, four categories of zones should be recognized: Agro-ecological; Socio-economic; Geographical; Disease/Pest. By considering the conditions within these zones, producers will be guided to adopt appropriate production systems.

In order to ensure the effective implementation of these four components and the scientific capacity of *modern breeding* following inputs and services should be installed: a) the provision of adequate infrastructure; b) formal training for research scientists, technicians and extension workers; c) informal training for farmers; d) linkages and networks; e) documentation and dissemination of information. (cf. GoU/MAAIF 1997, 3).

Furthermore, the policy suggests guidelines on import/export and trade for animal genetic materials: all imports and exports should be sanctioned by the National Animal Resources Council (NAGCO) when diseases are in question. Before introduction of new genetic material, it must conform to the national bio-safety standards. A sample of all animal germplasm imported or exported has to be submitted to a national gene bank for examination and future reference.

Another important aspect of the policy is the promotion and use of new technologies which rely on research to generate technology, on transfer to producers and on training to develop the basic knowledge and technical skills needed to support the development of the industry.

“The research process shall adopt a participatory approach with all stakeholders getting involved in problem identification at the field level, the evaluation of biophysical and socioeconomic constraints and potentials, the establishment of research priorities, and on-farm technology development (GoU/MAAIF 1997, 3).”

In general it is to mention that the guidelines, as was explained in the introduction, are in line with the overall privatization, liberalization and decentralized democratic governance principles, which I will outline in several following chapters.

4.2.2 Decentralization

Since 1986, Uganda embraced fundamental economic and institutional reforms. One of the most ambitious has been its decentralization policy and the Local Government Act (1997), which was drafted as a document that forms the basic responsibilities of the central government and the relationships between the central and local governments (cf. Francis and James 2003, 325). The authors also call the decentralization policy “the most far reaching local government reform in the development world (cf. 2003, 325).” This section explains why:

The Local Government Decentralization Program was implemented in 1993, due to the National Resistance Movement's (NRM) earlier promise to democratize Ugandan society and to improve social service provision (cf. Hooton et al. 2007, 44). Responsibility for service delivery has been decentralized to local governments. The role of ministries in the central government is to inspect, monitor, offer technical advice, support supervision and training within their respective sectors to ensure the effective implementation of national standards by local governments (cf. Ssewakiryanga 2004, 87). These roles follow the supposedly logical linear sequence of policy-making from formulation, to implementation and evaluation.

The benefits of decentralization are considered to include improved efficiency of public service provision, more appropriate services, better governance, and the empowerment of local citizens (cf. Francis and James 2003, 326). In fact, the decentralization caused increased transfer of funds, financial and administrative power from the center to the districts (cf. Agricultural Policy Committee 1998, 2). Furthermore, the active participation of all citizens in governance became a crucial pillar of the present constitution, enacted in 1995.

While not directly affecting the practice of animal breeding, this decentralization process had two important impacts, at least on paper: citizens became more closely linked to their elected politicians and technical officers were relocated to be managed under the local government structures (cf. Agricultural Policy Committee 1998, 3). On the surface, the mechanisms of decentralization are established and functioning in Uganda, with a structure of local councils, deconcentrated staff, a bottom-up planning process, and powers to raise and spend local revenue (cf. Francis and James 2003, 334). However, Francis and James question that structures and processes constitute a genuinely participatory system of local governance in Uganda. A chronic lack of resources hinders participatory planning processes merely to move from a theoretical concept to reality and cause dependence on conditional central transfers (ibid.). Several interviewees claimed that the role and responsibilities of local and national authority is very unclear (cf. Interview 19, 5, 2). In terms of livestock development, national government is responsible for the provision of certain national public goods, but many functions and expenditures have been delegated to districts (cf. Ashley and Nanyeenya 2002, 15). The interpretation of policies at district level is therefore of great importance in determining approaches to livestock development in practice. An interviewee from an NGO summarized the decentralization reforms more critically:

“It is all intended that farmers get easily access to services. But again, decentralization is done by government, which might mean extending problems to farmers. [...] Most of the times the [farmers] are not able to afford the services (Interview 16).”

Interviewees described and condemned corruption among local politicians, where district officials were regarded as most corrupt (cf. Interview 12, 13). Corrupt activities included undermining service delivery and manipulation of the tendering process (cf. Turner 2005, 13). What seems clear from my research is that there is a series of disconnections between the various government actors both within and across different levels of decentralized government:

“There are many differences between how government actors see themselves and how they are viewed by others within government, often caused by

political positionings which remove actors from the idealised roles put forward by official policy models (Ssewakiryanga 2004, 88)."

It is, therefore, unclear what decentralization ultimately means for the policy process. It may be that it simply becomes an extension of technocracy, continuing to reinforce narratives on agricultural policy which have long been at the center, although now in a participatory guise, as Keeley and Scoones put it (cf. 2000, 33). Contrarily, it may be that there are really new opportunities for people to articulate their realities.

However, the decentralization policy provides the institutional framework for the implementation of key policies like the *Poverty Eradication Plan*, *Poverty Reduction Strategy Papers* and the *Plan for Modernization of Agriculture* outlined in the following sections.

4.2.3 Poverty Eradication Action Plan (PEAP) and Poverty Reduction Strategy Paper (PRSP)

The Poverty Eradication Action Plan constitutes the central policy framework for guiding public action, whereof all other development policies in Uganda derive from. The overarching goal is the reduction of poverty in Ugandan society to half of the 1997 level by 2017 (cf. GoU 2004, xv). It consists of a decentralized, sector-wide

strategy which provides a framework within sectors (health, education, water and agriculture) in order to develop detailed plans. The plan has five constituents:

1. economic management
2. enhancing production, competitiveness and incomes
3. security, conflict resolution and disaster management

4. good governance
5. human development (cf. IMF 2000)

Within these constituents, agriculture is seen as a pivotal component for economic development with poverty being eradicated through the generation of income and markets for industrial production. The second and fifth constituent of the PEAP focus on issues related to agriculture and health; *enhancing production, competitiveness and incomes* includes the modernization of agriculture, while *human development* includes the improvement of education, child and maternal health, nutrition, and the public health system. The PEAP emphasize the importance of agriculture because of following reasons, given by Potts et al.: a) although agriculture represents a declining share of the GDP, it employs the largest number of Ugandans in rural areas compared to other economic sectors; b) most of the non-agricultural goods and services produced in rural areas are sold locally, so their production cannot expand unless the demand generated by agricultural incomes also expands; and c) agriculture is particularly dependent on public goods, including research, extension and marketing support. Thus, agricultural growth is expected to generate benefits to non-agricultural sectors in rural areas and beyond through the consumption of non-farm products (cf. 2007, 9-10). The Government of Uganda seeks to accelerate agricultural growth by providing improved public goods, including research, extension and marketing support, with the goal of increasing agricultural production and incomes; especially of poor rural households to assist them to escape poverty by producing and selling goods (ibid.).

The formulating process of the PEAP started in 1995 and culminated two years later in the draft of the Poverty Eradication Plan. Since 1999 the GoU had revised the document and completed it in 2000 with major additions in the Health Sector, Modernization of Agriculture, Private Sector Competitiveness, Water and Sanitation and Justice, and Law and Order (Muduuli 2001, 2). The GoU and its donors decided that Uganda, as the first country, should submit the summary of the revised PEAP as a

Poverty Reduction Strategy Paper (PRSP)³⁵ to World Bank and International Monetary Fund (IMF), which was accepted in 2000. In this regard, the document serves as a prerequisite for debt reliefs and new credits.³⁶ Therefore, Uganda has pursued the development of sector-wide policies, investment plans and programs (Muduuli 2001, 2). The PEAP/PRSP constitutes the framework for sector and investment plans, which set together the framework for the preparation of district plans (GRIPS 2005). The Medium-Term Expenditure Framework (MTEF) was introduced in 1992/93 to guide all public expenditures including the use of resources committed by donors (ibid.). MTEF and the annual Budget Framework Paper (BFP) are the mechanisms through which the long-time goals are translated into actions over the medium-term, disciplined by the hard budget constraints (ibid.). In addition, since 1998 the Poverty Action Fund (PAF) has been used to ensure that the planned reallocation benefits the poor.

Although the initial PEAP “*There are many differences between how government actors see themselves and how they are viewed by others within government, often caused by political positionings which remove actors from the idealised roles put forward by official policy models*” was solely developed by a consultant of MFPED in consultation with the sector ministries and with little public participation, the process has become progressively more participatory in each subsequent round (cf. Turner 2005, 22). Civil society and private sector organizations were represented at the thematic diplomatic working groups, they also submitted policy documents (Private Sector Foundation Uganda 2003; Uganda National NGO Forum and CSO PEAP Revision Steering Committee 2003) and they reviewed the PEAP draft. Interviewees stated that public participation was taken seriously, but the basic framework was not open to question:

³⁵ The PRSP is supposed to demonstrate the strategic re-orientation of the Bretton Wood institutions (Worldbank and IMF) because it focuses on all phases on participation, ownership and empowerment. 1999 it was agreed upon a debt relief initiative for Highly Indebted Poor Countries (HIPC) at the G 7 summit in Cologne. In order to ensure that the money is channeled through modalities the countries need to write a strategy paper (PRSP); if it is not accepted by the Bretton Woods authority it needs to be re-written (Nuscheler 2005, 589-593).

³⁶ Until 2000 GoU received \$90 million of debt relief (GRIPS 2005).

“I think policy formulation has been opened up a while ago. The problem is the policy implementation. Most of the policies are just not effective and not implemented. And people are not able to challenge the macroeconomic framework. [...] That is something government will not question; it is just not something you raise. We are liberalizing and that is the way it is; we are privatizing and they think it is a good thing. Poor people will need to pay for services in agriculture (Interview 9).”

In the area of agriculture and animal breeding the PEAP/PRSP merely sets the overall framework, whereas the *Plan for Modernization of Agriculture*, as the name implies, is the decisive policy for the agricultural sector. Regarding the livestock sector the PEAP/PRSP proposes that disease control should be a key priority, in terms of fast response to disease outbreaks and control of livestock movement (cf. UPTOP 2006, 11). The PEAP recognizes that the cost of veterinary services for the poorest livestock keepers is still a crucial concern; however, the GoU identifies clinical health services as private goods. More precisely, several interviewees criticized these reforms (decentralization, privatization), since the role of the local authority is very unclear now.

“Although they are responsible for endemic diseases they are just displacing responsibility. For example, tick and tsetse fly diseases are considered to be local [responsibilities], but the farmers are held responsible for the infrastructure for controlling these diseases (Interview 8).”

4.2.4 *Plan for Modernization of Agriculture (PMA)*

In Uganda, the rules determining agricultural development strategy are found in the *Plan for Modernization of Agriculture* (PMA). It is a multi-sectoral and multi-ministerial initiative and the immediate livestock related policy from the PEAP/PRSP (cf. UPTOP 2006, 11). It constitutes the framework for eradicating poverty by “transforming subsistence agriculture to commercial agriculture (cf. GoU 2000, vi).” Therefore, the PMA seeks to “increase the productivity of factors of production in agriculture, to ensure food security, to create employment, to increase incomes, and to improve the quality of life of those engaged in the agriculture sector (GoU 2000, 1).” The underlying transformation process involves institutional and organizational reform, public sector policy adjustments, participatory planning and service delivery

in seven key priority areas: agricultural research and technology development; delivery of advisory services; rural financial services; promotion of agricultural marketing and processing; agricultural education; sustainable natural resource use and management and physical infrastructure (cf. GoU 2000, 48-81).

The very first sentence of the document states that “The over-arching goal of the Plan for the Modernization of Agriculture is poverty reduction (GoU 2000, 1) and the specific objectives are:

- “increase incomes and improve the quality of life of poor subsistence farmers through increased productivity and increased share of marketed production;
- improve household food security through the market rather than emphasizing self-sufficiency;
- provide gainful employment through the secondary benefits of PMA implementation such as agro-processing factories and services;
- promote sustainable use and management of natural resources by developing a land use and management policy and promotion of environmentally-friendly technologies (GoU 2000, 26).”

Although the PMA does not mention livestock explicitly, the proposed interventions correspond to all requirements that should increase socio-economic benefits to the livestock sector (cf. UPTOP 2006, 12). Additionally, a number of livestock related policies has been developed to respond to livestock sector policy issues. Under the PMA's main constituent, *Increasing Delivery of Services*, the National Agricultural Advisory Services (NAADS) was created and has started to provide private services on a demand-driven, contract-based approach in several districts (cf. Turner 2005, 19). The *National Animal Genetic Resources Centre and Databank* (NAGRC&DC)

was developed to commercialize provision of artificial insemination and breeding services. The *Dairy Development authority* (DDA) was also initiated by the PMA.

Critical voices among interviewees (Interview 3) and authors (e.g. Ashley and Nanyeenya 2002) state that the PMA sends the wrong messages to the livestock sector, since it solely focuses on production-, commercialization-, and intensification-led approach and pays insufficient attention to the wider roles of livestock and thereby misses opportunities to enhance the contribution of livestock to poverty reduction. One interviewee from Makerere University, who was also involved in the formulation of the PMA, acknowledges that the application of the PMA principles to the livestock sector may lead to policies and measures which are not pro poor and would be unlikely to contribute to the goal of poverty reduction (Interview 9).

4.2.5 Dairy Master Plan

As a result of the recommendations of the *Dairy Master Plan Study*, which was financed by DANIDA, the *Dairy Industry Act* (1998) was enacted and lead to the creation of the *Diary Development Authority* (DDA).

The main objective of this policy is to raise incomes and living standards of small- and medium-scale farmers, to achieve and maintain national self-sufficiency in milk and dairy products, to ensure that the increase in production is environmentally sustainable, to establish liberal dairy markets and to promote competition in processing and marketing (cf. Okwenye 1992). One of the government's strategies for the dairy sector are to improve productivity rather than to increase cattle population, which refers clearly to a preference of exotic breeds.

4.2.6 Land Tenure Policies

The conceptualization of land tenure is of great importance for this study, since the familiar argument of a series of policies is that individual tenure facilitates increase

investment and thus agricultural productivity, which is an essential element of the overall modernization project of colonialism. I argue that these policies had and still have a significant impact on animal breeding and its policies. But before I frame the possible impact on animal breeding, I will provide an overview of the nature of these land tenure policies.

From the early 1950s the most significant elements of colonial encounter were major changes to land tenure by the granting of titles, which is stated in the report of the East African Royal Commission (EARC) from 1955 (cf. Carswell 2007, 115). It argued that economic growth and the involvement of the market were key to the future of East Africa and suggested demarcated smallholdings, individualization of land ownership, mobility in the transfer of land and encouragement of *progressive farmers* (Report of the EARC, 428 quoted by Carswell 2007, 116). In 1960, immediately prior to independence, the World Bank Commission of Uganda endorsed the recommendations of the EARC and the popular argument that individualization lead to agricultural productivity, was even used in the post-independence period. Idi Amin gave this argumentation a break and declared all land in Uganda as public land (cf. Okuku 2005, 10). However, this 1975 Land Reform Decree may have had the potential for dramatically changing land tenure, but insecurity and a lack of capacity meant that the existing system continued (cf. Okuku 2005, 11). The more recent land reform began with the National Resistance Movement (NRM). The impetus to begin land reform came very much from external bodies such as the World Bank including similar narratives, as land marketability, like from the colonial era. In the late 1980s, shortly prior the Land Act of 1998, the World Bank and USAID funded a major study of land tenure and agricultural development carried out by the Makerere University. It concluded that land tenure policy should support a free land market to enable progressive farmers to gain access to land for development on a commercial basis (cf. McAuslan 2003, 3). The conclusions were again remarkably similar to those of the EARC. A few years later the Land Act 1998, known as the most far reaching legislation enacted by the National Resistance Movement (NRM), was passed (cf. Okuku 2005, 2). It grants tenure rights to customary holders of land, who are now

able to receive certificates and titles. The Act also permits holders of land in customary tenure to convert it to freehold tenure (cf. Rugadya 1999, 6). The Act's objectives are: providing security of tenure to all land users; resolving the land use impasse between the registered owners; recognizing customary tenure as legal tenure equal to other tenures; providing an institutional framework for the control and management of land under a decentralized system; and, finally, ensuring sustainable land use and development throughout the country to conserve the environment; redressing historical imbalances and injustices in the ownership and control of land (cf. GoU 1998).

Okuku (2005, 3-4) argues that secure property rights may have a positive impact on increased agricultural productivity, but are always attached to certain individuals or groups, which may have a negative impact on excluded people. These problems, the limited access to land and its unequal distribution are even considered in the PEAP as central constraints and causes for rural poverty:

“Historical evidence shows that political access to the institutions which allocate land title has led to the expropriation of the poor or the granting of large amounts of land to the politically powerful (MPFED 2001, 30).”

Various authors (Okuku 1998, Vögel 2003, Rugadya 1999, Turner 2005) draw a different picture about the impact of the Land Act 1998 and argue that the reform considers to envisage a better access to lease land, but does not consider an equal distribution of the land. A farmer, quoted in Bahiigwa, also tells the opposite of the designated impact of the Land Act 1998:

“In the subhumid areas, communal grazing land, once freely available, has diminished since the passage of the 1998 Land Act and access to grazing areas is now determined by wealth. [...] the richer pastoralists have leased and access to pasture and water has become a problem for the poorer pastoralists (Bahiigwa 2005, 493).”

This section aimed to outline that colonial land reform policies were being implemented as part of a greater modernizing project, which should have positive impacts on agricultural productivity. In a sense that they support a free land market to enable

progressive farmers to gain access to land for a development on a commercial basis, which are very familiar arguments in the current policies.

4.2.7 Participation in Policy Processes

This chapter aims at providing an insight into the policy space surrounding the Animal Breeding Policy by looking at the policy-making structures and processes. Following core questions of this thesis – which actors gain access to which spaces, what are they doing there and what constrains and facilitates their actions – frame this chapter.

Even though answering these questions is desired but, it cannot be fulfilled to a reliable extent. While I was able to gather information about the list of participants and hard facts about the consultation process, I was as a matter of course not present at these key events. Therefore, important data about implicit and explicit rules and norms, language used etc. at the workshops is missing, which would give an interesting insight on underlying power webs by which spaces in the policy process are governed. However, in this chapter I give a broader overview of opportunities and challenges for participation in policy processes in Uganda and how they have changed over time, which is based predominantly on literature review and interviews.

The post-1989 Ugandan state has been characterized by the expansion of spaces for participation, particularly since the formulation of Poverty Reduction Strategy Papers (PRSP) (cf. Brock 2004, 94). External donors and lending organizations have worked to open up spaces, which resulted in an increase in the range and variety of actors involved in the policy processes. Lower-level policy actors, such as farmers, field researchers and development practitioners, started to exercise agency.³⁷

³⁷ For further examination of the quality and effect of this participation, which is shaped by international development actors, as well by historically situated dynamics of politics and power, see Brock 2004.

The post-conflict state (following 1986) was especially instrumental in rallying donor support for the country. This brought much needed money to provide essential services, but it also brought increased power to donors. They are not just funders but actors who contribute to various policy processes and are also very aware of the power that they wield in shaping policy, as Ssewakiryanga argues in his study on representations of various actors in Ugandan policies:

“The relationship between donors and central government actors is now a very intimate one, to the extent that sometimes a distinction between donor and government positions on a policy become indistinguishable (Ssewakiryanga 2004, 79).”

Furthermore, this relationship has an impact on NGOs priorities and strategies: while networks between NGOs and the GoU may help encourage new ideas to blossom, on other occasion there is a tendency for NGOs to just implement government policy in their own program.

On civil society level there is also a sense of doubt concerning the impact that their participation has, as interviewees (cf. Interview 24) stated and Brock et al. (2004) analyzed, although the number of invited spaces for civil society engagement in planning and implementation increased. Brock argues that the extent to which civil society participation is positioned between government and international development actors is an important feature of invited spaces and the power dynamics that surround them (2004, 100). Such a positioning in turn results in civil society actors being largely reactive to resources offered for particular range of activities and functions. This raises questions about their autonomous agendas and accountability. However, Brock states that simultaneously it does create opportunities for participation which civil society actors can use to articulate their own agendas (ibid.).

In fact, all the policies outlined above were drafted before they were presented in a workshop, hence little was altered by the process of consultation (cf. Interview 19). The spaces in these policy processes where the basic decisions about policy direction and structure were made were in these a cases exclusive gathering of the more pow-

erful. Civil society actors were not part of those conversations about the draft documents. Interviewees argued that it is far easier to *contribute* to a policy than to *create* the more abstract work of provoking broader changes to a policy which is not always clearly articulated (cf. Interview 20). However, the use of such consultative processes to determine the needs and priorities of farmers has become increasingly common in Uganda since the early 1990s, as Cornwall argues (cf. 2002, 23). In such a context, particularly farmers have fairly limited opportunities to influence the framing of policies. Therefore, numerous farmer groups were formed to demand the opening of policy spaces so that they can participate and set the agenda, rather than only providing input for consultation processes where there is limited scope for debate. However, the challenges for representing the realities of farmers are again a) dependence on donors and b) adaption in order to get invited to the policy-making table. McGee concludes that a more politically astute and strategic role in constructing and using knowledge for the policy processes could ensure more space at the table (cf. 2004, 130). Necessarily, they need to reflect their own legitimacy as maybe *new experts* and representatives and addressing weakness in this regard (cf. *ibid.*).

Obviously, different kinds of actors have different opportunities for influencing and shaping processes as they position themselves, and are positioned by others. One interviewee from the Government noted, that it is not worth to visit farmers because they cannot remember anything about the consultation process and the workshop. “Farmers are coming to the workshop because they get UGX 10000.- and free food (Interview 22).”

The phenomenon of these invitations is relatively new and most of the farmers do not believe in their impact on policies. A shift, therefore, in the understanding of citizenship would be required by all actors, to transform *ordinary* people into active, engaged participants in policy processes.

4.3 Key Actors

In chapter 2 *Theoretical Approach* I argued that institutional arrangements are seen as pre-conditions both of the process of discourse-formation and policy formulation. Furthermore, actors need *discursive software* (Hajer 1995, 60) to operate and produce effects. However, the range of actors and their fluid roles on local, national and international level makes it difficult to identify a clear-cut group of decision-makers or a particular moment when the decision was made, as I also discussed in chapter 2 *Theoretical Approach*. Further, to gain reliable insights to certain constellation of actors, like policy networks or epistemic communities, a network analysis would be necessary, but is exceeding the scope of this thesis.

The key actors listed here are a combination of actors mentioned in policy documents relevant to animal breeding, and mentioned in interviews when asked to list who was crucial to the development of the Animal Breeding Policy. The following chapter gives an overview of these key actors to answer the research questions: who are the key policy actors? Which actors have significant power to influence policy? What kind of links and networks exist between them? What are the aid priorities and policy agendas of international and regional actors in the policy process?

4.3.1 Government Departments, Parastatals and Key Individuals³⁸

Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)

MAAIF is the leading public agent mandated for formulating and reviewing national policies, plans, legislation, standards and programs in the field of agriculture (MFPED 2008, 38). According to the constitution of Uganda (1995), MAAIF has the overall responsibility to supervise all developmental activities in the agricultural sector. Its mandate, as described in the post-constitutional restructuring of Government Ministries, is

³⁸ Parastatal is an agency wholly or partly owned by government. The parastatals described here are partly financed by government and partly by themselves.

“[T]o support, promote and guide the production of crops, livestock and fisheries so as to ensure quantitative and qualitative supply of these products for domestic consumption, food security and export (FAO 2004, 13).”

In accordance with the national macro-economic policies (privatization, liberalization, decentralization and democratization) the role of MAAIF is to facilitate. Furthermore, the Ministry’s responsibility to the livestock industry lies in policy analysis, planning, human resource development and information services (ibid).

As with other government ministries the role of MAAIF has changed substantially due to macro-economic reforms, according to an entomologist in the Department of Livestock at the MAAIF:

“The Ministry is no longer directly responsible for service delivery. Instead [...] it just seeks to play a facilitatory role and to create an enabling environment. Previously, we had a large staff of agricultural extension and animal health officers who were directly responsible for service provision. Now, many of them have been transferred to the districts and no longer report to MAAIF. And people complain that MAAIF has been slow to embrace its new role. So reformers have often chosen to work around existing government institutions. So while MAAIF seeks to reform itself, the government has created, and donors have funded, new organizations to implement the new policy approach. Well, we have been sidelined in the reform process. And we are not the policy engine, we do not set the direction of agriculture in Uganda. And the people you look at are the PMA and the Ministry of Finance [MPFED] and donors (Interview 18).”

The interviewee points at the powerful role of the Ministry of Finance, Planning and Economic Development, because this ministry develops overall spending targets and assigns a budget ceiling for each sector (cf. Turner 2005, 18).

National Animal Genetic Resource Conservation & Data Bank (NAGRC&DB)

The Animal Breeding Center, the predecessor of NAGRC&DB, was supported by public funds all along to engage in procurement and distribution of semen, to produce and distribute liquid nitrogen, which is necessary for Artificial Insemination, and to render animal breeding extension (cf. GoU and MAAIF 1997, 18). This was changed by the Animal Breeding Act 2001 in line with the liberalization program:

“In view of liberalization, and to ensure future sustainability, there is a justifiable need to introduce cost-sharing arrangements. Consequently, the activities of the centre shall be scaled down to focus on commercially-oriented operations and the centre designated as the National Animal Genetic Resource Centre and Data Bank (NAGRC&DB) (GoU and MAAIF 1997, 18).“

Since then, the Center has been semi-autonomous, being governed by a Board of Directors appointed by the MAAIF (cf. GoU 2001, 19) and consists of a headquarter in Entebbe and ten field stations (farms and ranches) in several parts of Uganda.

“It shall fund its activities from funds generated from routine commercial activities, appropriation-in-aid, grants, contractual payments, et cetera. The non-commercial development activities entrusted to the centre by government shall be fully funded by the government (GoU and MAAIF 1997, 18).”

The activities, as outlined in the Animal Breeding Policy, include:

- “Production, procurement and sale of semen, eggs, ova, embryos and their associated equipment;
- Production, procurement and sale of liquid nitrogen and associated equipments;
- Production, procurement and sale of other breeding reproductive equipment;
- Quarantine and evaluation of imported genetic material at cost to the importer;

- Rearing and performance/progeny testing of male stud for production and sale of semen; and
- Offering specialized training in animal breeding (GoU/ MAAIF 1997, 19).”

NAGRC&DB operates, therefore, several large cattle breeding stock farms, where superior animals are multiplied, distributed to farmers, and the best animals from farmers are brought back for further breeding (cf. Interview 15). In doing so, the best bulls are recruited for semen production, which itself is distributed via artificial insemination.

NAGRC&DB, at that time ABC, was the responsible institution for the consultation and formulation process of the Animal Breeding Act 2001. According to the policy, the center should be an affiliate research outpost for the components of NARO, which I will outline in the following.

National Agricultural Research Organization (NARO)

The National Agricultural Research Act 2005 reformed the national agricultural research system (NARS), which has been a new concept that gave semi-autonomy status to former institutes of the National Agricultural Research Organization (NARO), and brought on board other institutions engaged in agricultural research service provision such as universities, civil society, farmers groups, private sector, etc. (cf. NARO 2010). Under NARS, agricultural service providers must register with NARO, which is the coordinating body for agricultural research in Uganda (cf. Interview 6). The former NARO institutions became public agricultural research institutes. The overall objectives are:

- A transformation of agricultural production into a modern science-based market oriented agriculture (cf. NARO 2010).

- A promotion of agriculture and related industry for the purposes of contributing to the improvement of the quality of life and livelihoods of the people, having regard to the protection of the environment; and support the development and implementation of national policy with relevant information and knowledge (cf. NARO 2010).

National Agricultural Advisory Services (NAADS)

NAADS is also a semi-autonomous body that was formed under NAADS Act of June 2001. Its mandate is to develop a demand-driven, farmer-led agricultural service delivery system with the overarching goal to “enhance rural livelihoods by increasing agricultural productivity and profitability in a sustainable manner (NAADS 2010).” Therefore, NAADS' mission is to increase farmer's access to information, knowledge and technology (ibid). Moreover, a main role of NAADS is to facilitate formation of farmer groups at the local level and farmer forums at subcounty, district, and national levels in order to purchase public money for technical services from private service providers (cf. Bahiigwa 2005, 484). It is supervised by MAAIF and one of the seven components under the PMA. In the starting phase of the program NAADS worked in 6 districts and expanded up to 79 districts (cf. NAADS 2010).

Dairy Development Authority (DDA)

The DDA is another parastatal organization established to support the dairy sector by the Dairy Industry Act, 1998.

“The Mission of DDA is to provide development and regulatory services that will ensure increased production and consumption of milk, sustainable and profitable dairy industry sector that will contribute to economic development and improved nutritional standards in Uganda (DDA 2010).”

The 10-Member Board of Directors is constituted by representatives of dairy farmers, cooperatives, processing companies, Uganda Veterinary Association, traders, MAAIF and MFPD (cf. DDA 2010). DDA was responsible for the Dairy Master Plan Study,

financed by DANIDA, to raise income and living standards of farmers, through animals' genetic improvement (cf. Interview 11).

4.3.2 Research Organizations

Scientific knowledge, according to interviewees, has played a key role in the changes in attitude and behavior towards animal breeding, and the parallel development of the Animal Breeding Policy. From the early experiments and research of colonialism, to the *evidence* gained through NGOs and officers working on the ground, and the wide-range collaborative research since 1980s (both internationally and in Uganda), it is clear that the scientific knowledge has been very effective in stimulating interest and emphasizing practical experiences.

International Livestock Research Institute (ILRI)

ILRI belongs to the Consultative Group on International Agricultural Research (CGIAR).

“This association of 50 governments and public- and private institutions supports a network of 16 Future Harvest Agricultural Research Centres working to reduce poverty, hunger and environmental degradation in developing countries (ILRI 2006, 7).”

The overall aim is to transform poor people's subsistence livelihood into sustainable and market-oriented livestock enterprises (Interview 2). ILRI contributed effectively to the development of animal breeding policies by shaping its discourses:

“In order to meet the increased demands for food of animal origin, a livestock revolution has to take place. The productivity, rather than numbers of farm animals will have to increase to avoid overgrazing and subsequent degradation of natural resources (ILRI 2010).”

This concept of *Livestock Revolution* was firstly introduced in the very influential study paper *Livestock 2020 – The Next Food Revolution* (Delgado et al. 1999) was publicized together with FAO:

“Population growth, urbanization, and income growth in developing countries are fueling a massive global increase in demand for food of animal origin. [...] It is not inappropriate to use the term “Livestock Revolution” to describe the term of these events in world agriculture over the next 20 years. [...] And not unlike the Green Revolution, the “revolutionary” aspect comes from the participation from development countries on a large scale of transformation [...] (Delgado et al. 1999, 1).”

This paper certainly fed in the discourse of *Food Security, Population Growth, and Biotechnology* and influenced the World Bank document *Livestock Development - Implications for Rural Poverty, the Environment, and Global Food Security*, which had also a had major impact as scientific knowledge for confirming reform policies and biotechnology in animal breeding:

“The accelerated growth of livestock production and processing will require far-reaching changes in the roles of the public and private sectors in livestock development. This, in turn, warrants a reassessment of the role of international funding agencies that support livestock development (Haan et al. 2001, xii).”

Makerere University of Kampala

National university departments, especially at Makerere University, have for a long time carried out research into various aspects of animal breeding and artificial insemination. Research was done at Master's degree level, much of this by technical agricultural officers. Makerere's involvement, through the Department for Agricultural Extension, the Department of Veterinary Public Health and the Institute for Social Research, yielded both alleged credibility and local experience.

4.3.3 Civil Society Organizations (CSOs)

In many cases CSOs have experienced a gradual shift in their role from service delivery on behalf of the state towards advocacy and representation of civil society. In theory it is argued that CSOs often have good links to the grassroots and policy implementation processes and are therefore powerful actors that can play a key role in

giving voice to *marginalized groups* and generating new knowledge (cf. Jones et al. 2009, 21).

Farmer groups

Farmer advocacy groups exist, but many seem to have limited connection with the majority of smallholder farmers and are criticized for simply representing the interests of the farming elite. However, in recent years, some have developed, supported by NGOs, being to advocate more effectively for the real needs of smallholder farmers and address wider concerns (cf. Interview 5, 25).

The *Uganda National Farmers Federation* (UNFFE) is the largest non-governmental farmers' organization in Uganda, including 45 district associations (cf. Interview 25). It was founded in 1992 with the “objective to mobilize the farming community and voices under one independent umbrella organization (UNFFE 2010).” The mission is to promote favorable policies for farmer empowerment and to strengthen farmer organizations. The core program includes advocacy, training and agricultural advisory services, information and communication, monitoring and evaluation (ibid). These associations may provide an organized means for livestock keepers to influence district policies and to take advantage of demand-driven programs from parastatal organizations (cf. Interview 25).

The *Mbarara District Farmers' Association* (MBADIFA) is a non-governmental membership organization “belonging to the farmers and working with the farmers in the district of Mbarara (MBADIFA 2010).” The mission is to unite and improve the livelihood of farmers in Mbarara through efficient capacity building, lobby and advocacy and linkage to networks for food and income security (ibid). Therefore, individual farmers are organized in farmer groups at parishes, headed by Parish Executive Committees (PECs) (cf. Interview 5).

4.3.4 Donors and International Agencies

In Uganda the role of donors and international agencies at the intersection of policy and knowledge is a very powerful one. Through the building of research capacities and encouraging the development and implementation of certain priorities and strategies, these actors have the power of shaping and framing ways of knowing, like discourses and policies.

Danish International Development Agency (DANIDA)

DANIDA is a national organization within Denmark's Ministry of Foreign Affairs, responsible for providing humanitarian aid and assistance to other countries.³⁹ It contributed to the preparation of the Dairy Master Plan (DMP), to the rehabilitation of the Dairy Corporation's Kampala Dairy Plant, the Mbarara milk collection system, and the Animal Breeding Project (ABP) (cf. DANIDA 2006, 16). The ABP had a profound impact on the making-of animal breeding policies, as I have outlined in chapter 3.2. of historical context. Summarized, the project (1994-1996) aimed to increase the supply of milk through increased livestock breeding (cf. Interview 10). Subsequently, the development of a national cattle breeding policy and the provision of support to the rehabilitation of the Animal Breeding Centre and Artificial Insemination service are the planned output of the project (cf. DANIDA 2006, 12).

Furthermore, DANIDA was instrumental in providing assistance which made the setting up of Farmers' Associations in Uganda possible, and the Uganda National Farmers' Federation (UNFFED) in Kampala (ibid).

“For this task, DANIDA drew on experience from home and abroad. Denmark was already giving support to the dairy industry in Uganda at the end of the 1960s, but it wanted to be assured that its assistance would be an integral part of an up-to-date plan for the industry (DANIDA 2006, 12).”

³⁹ For further examination please also see DANIDA 2010 [last viewed 23.05.2010].

Strategies in animal breeding strongly prioritize crossbreeding with high yield animals through Artificial Insemination (DANIDA 2006). The overall financial aid flow for the Dairy Master Plan Study, the Dairy Development Project, the Animal Breeding Project and the initiation of UNFFED amounts to €11, 4 million (ibid.).

Land O' Lakes (LOL)

Land O' Lakes Inc. is an international NGO aimed at promoting the livestock (especially the dairy) industry worldwide.

“For more than 40 years, Land O' Lakes have been an effective partner with the US Agency for International Development and the US Department of agriculture applying free market cooperative systems to achieve sustainable rural development (Land O' Lakes 2010).”

It began its operations in Uganda in the early 1990s mainly for increasing awareness on the benefits of drinking milk, by carrying out activities like the June Dairy Month. This annual promotion event is conducted by the regional and national dairy associations. Further, Land O' Lakes organized 80 small scale farm producer cooperatives and helped establish seven processing plants (cf. Land O' Lakes 2010).

Heifer Project International

The Heifer Project International is another NGO that provides exotic breeds to farmers free of charge in order to promote people's income (cf. Interview 13). It mainly focuses on the low income households and, in particular, women who need an extra source of income to support their families (ibid.).

“As a result, many households have engaged in zero-grazing with the support of this NGO and are now producing milk which has become their main source of income (Heifer 2010).”

4.3.5 Relationship and Communication between Actors

As I already mentioned above, a profound network analysis could deliver more insights on flow of communication and ideas, about inclusion and exclusion mechanisms, creation of policy networks and in general power relation. However, by semi-structured interviews and literature review I gained understanding about the *policy space* wherein actors communicate in Uganda.

Probably the most important relationship to mention is between the GoU and foreign donors and lenders. The alliance between key actors in the Ugandan government and major multilateral and bilateral donors has assisted the government to implement major reforms, including economic liberalization and decentralization. This relationship evolved over time as Uganda moved from reluctant adherence, through structural adjustment conditionalities, to a working relationship based on ongoing consultation with its *development partners* (cf. Turner 2005, 16). Looking at relationships between *partners* it is noteworthy that Uganda is highly dependent on foreign donors and lenders. Since 1987, foreign aid has almost always exceeded exports and tax revenues (World Bank Group 2010). Many interviewees stated that this fact gives foreign donors disproportionate influence as they have greater access to the government than other actors (cf. Interview 9, 3, 12).

The relationship between DANIDA and the GoU with all its parastatal institutions, as it is reflected in project documents and as the interviewee of DANIDA approved, is based on shared commitment to a neoliberal framework (cf. Interview 10). This framework outlines the role of the government to provide an enabling environment for the market that service provision should be demand-driven, and that a transformation in the population from a subsistence orientation to a market orientation is necessary.

A shift of perspective on the national level shows strong institutional links between national level institutions, specifically between the ministries and PMA Secretary (cf.

MFPED 2008, 40). However, the Discussion Paper, formulated by MFPED, states further that other institutions involved in policy making such district and sub-county institutions are weakly linked to the national institutions (ibid.). Furthermore, the paper critiqued the absence of an institution in the districts which can coordinate agricultural policy making at the Local Government Level.

Another example of weak institutional linkages is exhibited by the relationship between private providers of agricultural services and national level institutions. Indeed, the discussion paper shows that the institutional linkages of private providers are stronger with Local Governments'. Interviewees revealed challenges deriving from this disconnection (cf. Interview 15, 9). For instance, it implies that MAAIF is unable to negotiate on behalf of farmer groups as a block with the various providers of agricultural services. Farmers could be in position to receive better borrowing terms if they negotiated with financial service providers as a block with the support of MAAIF or MFPED.

At the local government level, although the link between various institutions at the district appears strong, the strength of the relationship declines as one moves down the hierarchy of local governance (ibid.). On the very bottom of the hierarchy, the weakest link is found between the district institutions and farmer groups.

The grass-root level, e.g. the farmers, are hardly interlinked nor involved in any policy processes, as interviewees stated (cf. Interview 7). The strongest linkage, stated by interviewees of local farmers associations, exists to international NGOs. Theoretically, the farmers are represented by national and district farmers' organizations through a membership at an affordable basis. Nevertheless, one interview partner of the UNFFED reflected the relationship to district associations and individual farmers as insufficient, resulting from a lack of resources.

“It is very hard to communicate to them, when communication technology and time is restrictive. We come together once a year...but we need to improve to work together (Interview 25).”

NGOs and CSOs have played a formative part in promoting policy networks and epistemic communities and forged new *story lines* and discourse coalitions and sometimes even pushed through policy alternatives (cf. Brock et al. 2001, 24). Taking MBADIFA as an example, they actively encourage the formation of interest groups at the parish level to engage farmers in policy processes. However, many NGOs work closely with the state in service delivery. Interviewees mentioned a significant fluctuation of personnel between donors, government and NGOs (cf. Interview 19, 9). On the other hand, one interviewee stated that regional CSOs often have little or no connection with national NGOs or advocacy campaigns and the connectivity highly depends on positionings (cf. Interview 25). Brock (2004) argues also that social and ethnic positions are still important components of policy-making (cf. 99). Many of the leaders of CSOs who have been participating in policy processes are from Western Uganda, the ethno-geographic power base of the current regime (ibid.). Furthermore, while they are supposed to represent farmers, they depend on their set-up and mostly on donor organizations.

Finally, the institutional and operational linkages between research and development actors needs to be introduced and practiced, as Batz et al (2003) outline, in order to develop the livestock sector. In the context of the Animal Breeding Policy, the research findings were communicated through meetings (cf. Interview 7). Local meetings served the purpose of communicating findings to stakeholders and as well as bringing together stakeholders for discussions. This was especially done during the consultation process of the Animal Breeding Policy. The communication through written material was rather limited. Formal research reports were distributed to interested stakeholders, but often those did not turn into more *user-friendly* versions (cf. Interview 21b). Additionally, there was strategic use of the media to disseminate research findings and, generally, a positive view on animal genetic improvement. I have found numerous examples in archives where the media, particularly *The New Vision* and *Daily Monitor*, picked up on animal genetic improvement as an important story, often in response to a speech made by a Minister or Mayor.

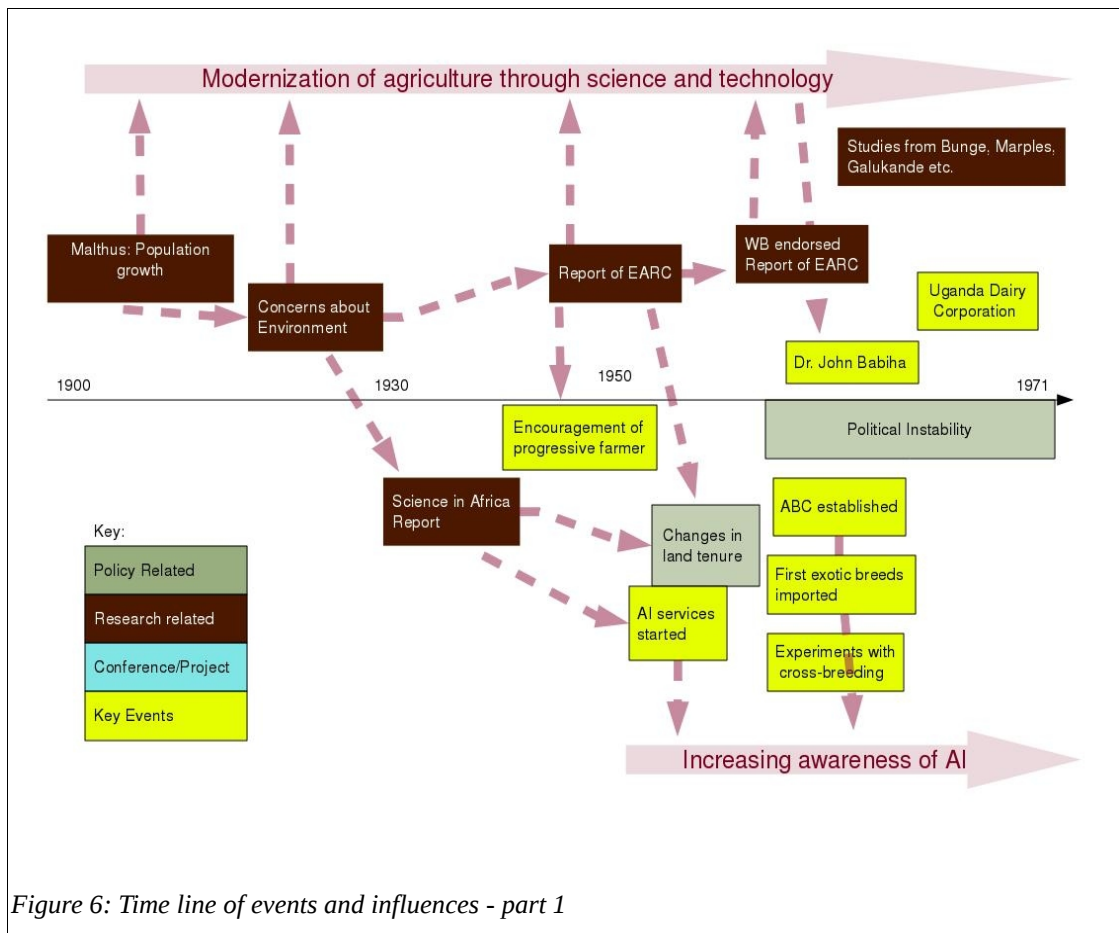
Moreover, linkages and inter-relations between disciplines to create an integrated approach in methods, processes and organizations are desirable: a collaboration between economists, livestock researchers and social scientists could improve understanding about livestock owners and their *Lebenswelten* as a prerequisite for sustainable development (cf. Batz et al. 2003, 5). In Uganda, however, it is common to have separated institutions for livestock, crops and veterinary services with hardly any linkage to ensure inter-relations and problem orientation.

In general, all actors complained about a lack of communication and coherence. A chronic lack of time and money are said to be the main reasons for disconnections and weak communication structures.

5 ANALYSIS

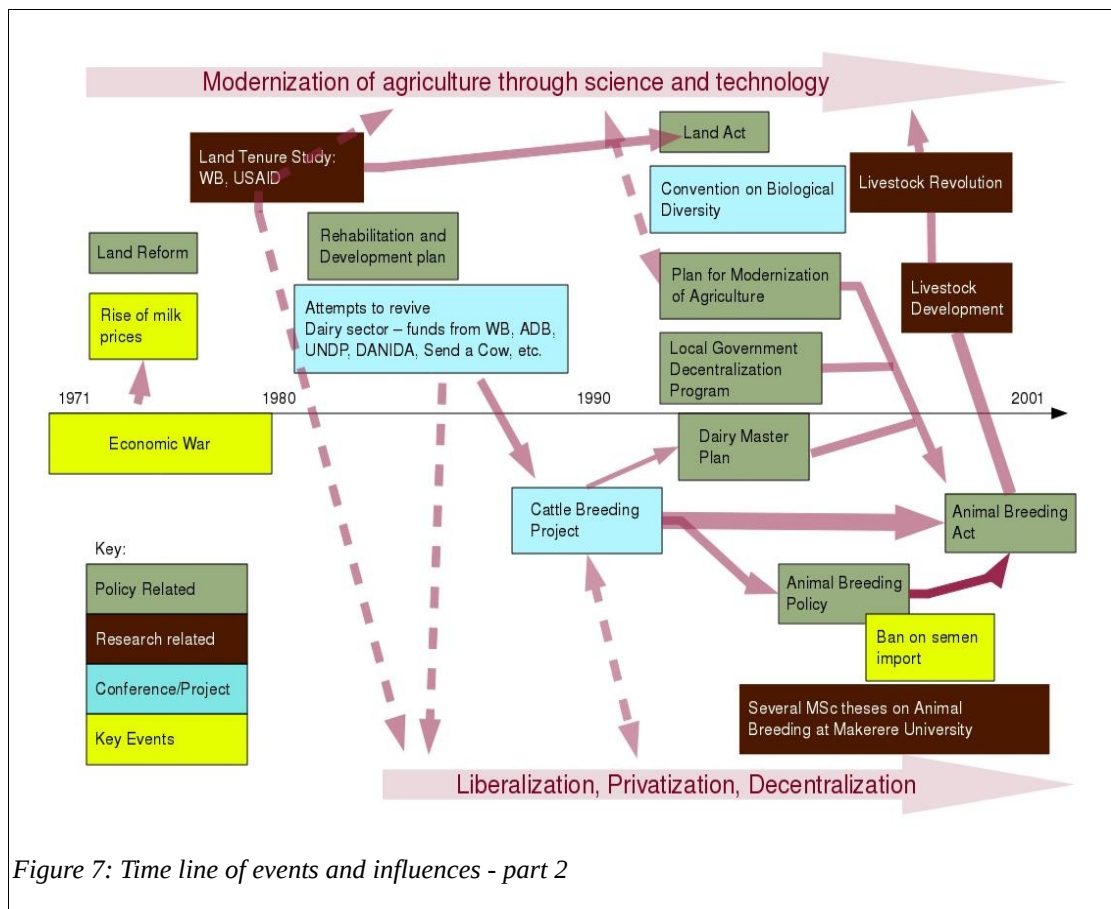
5.1 The making-of: Key influences and events

The initial analysis of the Animal Breeding Policy process and the key events associated with it were based on a literature review and interviews. Interviewees were asked to verify and enhance descriptions of the processes, events and influences. Based on those, Figures 5 and 6 depict a representation of the process leading to the Animal Breeding Act, 2001, highlighting those events and influences that the research identified as the most crucial.



This thesis gives evidence to argue that the framing of agricultural policies, in particular the Animal Breeding Policy, is strongly determined by colonial presetting. The report of the EARC was enormously influential and manifests the belief in industrialization through modernization. It argues that economic growth and the involvement of the market were key to the future of East Africa. The myth of modernization was essentially accompanied by the belief in science and technology. One example of colonial publication that stresses the importance of science to colonial development is Worthington's *Science in Africa* report (1938), which fed into the discourse of the superiority of Western knowledge (cf. Beinart and McGregor 2003). Furthermore, colonial land reform policies were implemented as part of the broader modernization project, since it was narrated that individualization leads to agricultural productivity (cf. Carswell 2007, 3). Malthus' discourse on population growth legitimated the policies through scientific knowledge, since it will be impossible to maintain food security and environmental decline will inevitably result (Malthus 2004). The British way of knowing was, furthermore, essentially important, since they started with animal breeding experiments and brought in the idea of productivity growth through genetic improvement.

During the Obote I government numerous effort were taken in the development of the milk industry. A key individual at that time was certainly Dr. John Bahiha, the Vice-President and Minister of MAAIF, who took the lead in the establishment of the dairy sector during the 1960s (cf. Mbabazi 2005, 3). It can be argued that he was actively part of an epistemic community, which created national and international policy networks, discourses and narratives. Furthermore, Dr. John Bahiha's knowledge of the international research system and donors he played a major role in enabling access to funding and increased the positive view on artificial insemination throughout all stakeholders (cf. Interview 9). These produced ideas, concepts and categorizations merging in a certain way of knowing of animal breeding in Uganda led to the key event that the first exotic breeds were air-freighted to Entebbe.



The disastrous time under Idi Amin (1971-1979) had a side effect on animal breeding: The increase of milk prices persuade more and more farmers to adopt cattle for selling milk. These commercialization tendencies forwarded the idea of artificial insemination, because it promises productivity growth (cf. Mbabazi 2005, 24). During Milton Obote II regime the political instability endured and limited several attempts to revive the dairy sector.

The policy network, including the NRM government under Museveni and international actors, contributed to the artificial insemination discourse through various projects, programs and policies. While Milton Obotes strategies to modernization of agriculture centered the government as key actor, Museveni shifted the focus on various actors through privatization and liberalization, in accordance to the doctrine of international actors. Noteworthy, here is the *Cattle Breeding Project*,

financed by DANIDA, which became an extremely credible and authoritative voice for changes in animal breeding.

On international level, two very influential study reports from ILRI and WB are remarkable: *Livestock 2020 – The Next Food Revolution* (ILRI, Delgado et al. 1999), and *Livestock Development* (WB, De Haan et al. 2001). These study reports, together with several MSc theses from Makerere University fed into the discourse of modernization through science and technology by promoting a decentralized and liberalized approach to the livestock sector. Linking all key actors, institutional arrangements and influences one can speak of a policy network which effectively created a discourse of production growth in animal breeding through biotechnology for development, which marginalized other possible ways of thinking. The *policy space* is shaped by this way of talking and thinking and silenced certain questions or critics. The one and only way of knowing is further contextualized in the next chapter.

5.2 The One and Only Way of Knowing?

“We must embark on a bold new program for making the benefit of our scientific advances and industrial progress available for the improvement and growth of underdeveloped ares. (Inaugural Address, quoted in Achren 2007, 39).

This famous speech of Harry S. Trueman, which is seen as the birth of *Development*, is a profound statement of faith in science and technology. This attitude or even ideology underlies the activities, reports, and the logic of existence of many aid agencies in the context of animal breeding in Uganda, as I argued throughout this thesis. Further, I stated that development is (about) ideology and the production and transmission of knowledge, manifested in policies and discourses. It is not simply about financial and material flows, such as aid and investment, but also about the flow of ideas, as I have outlined in chapter 2 *Theoretical Approach*. Acknowledging development as ideology – it is important to ask for the grand imperative, the one and only way of knowing or thinking underlying the assumed variety of knowing.

Looking at the animal breeding policies in Uganda and its colonial roots, three common themes, that are relevant to the argument in this thesis, appear: a) western countries possessed the necessary natural resources for progress; b) people in *developing* countries and rural areas were incapable of progressing on their own and need to be told how to manage natural resources and essentially to be instructed how to farm; c) therefore, people of *developed* countries had the duty to provide the necessary knowledge and techniques to emphasize progress or development (cf. Agrawal 1997, 466).

It can be argued that, with some variation, the same themes and narratives have powered most of the pronouncement of the aid business since the end of Second World War. The persisting will to *improve*, ignoring the underlying motivation, can be defined by the claim to know how others should live, to know what is best for them, and to know what they need (cf. Agrawal 1997). The claim to expertise in optimizing the lives of others is certainly a claim to power, as I argued in chapter 2. However, from the post-colonial period until today one essential continuity is evident in the context of animal breeding in Uganda: The same assumptions about the backwardness of rural natural resource management strategies and agricultural practices has continued in the activities of NAADS, NAGRC, NARO, DDA etc. As I tend to summarize my findings, there has been engagement with farmers' ways of knowing, however on a technical rather than a conceptual level. In addition, farmers were allowed to offer technical solutions only if they accorded with and not challenged the dominant scientific or developmental ways of knowing.

This way of thinking has a quite long history, which is exemplified through the words of the former World Bank chief economist and Noble price winner, Joseph Stiglitz:

“[A] transformation of society, a movement from traditional relations traditional ways of thinking, traditional ways of dealing with health and education, traditional methods of production to more modern ways (Stiglitz 1998, quoted in Achren 2007, 41).”

My thesis reveals that modernization theory and, more recently, *neoliberalist* framings have dominated ideas about agricultural development, e.g. transforming subsistence agriculture to commercial agriculture through productivity growth, in Uganda since the 1950s. Prevailing discourses and narratives like *Livestock Revolution*, *Food Security* and *Population Growth*, which were constructed and perpetuated by various actors, perfectly feed into this overall imperative of modernization, which relies on progress of science and technology: “Too many people ignorant of scientific farming (Carswell 2007, 5).” This overall imperative of modernization, and as I suggest the reasons behind the similarities of discourses, narratives and imperatives should be sought in the very logic of progress and a teleological understanding of history itself. In other words:

“The spirit of modernity is to be found most centrally in its commitment to continuous progress: to material, moral, physical, and political improvement and to the promotion and development of civilization (Goldberg 1993, 4).”

Such a position that equals domination of nature with the narrative of moral and material progress, reveals how the good ethico-political end can be identified with superior knowledge (cf. Agrawal 1997, 475).

Throughout my thesis I argue that the practice and theory of these discourses and narratives produce regulations that shape notions of *reality*, e.g. ways of knowing. Taking the assumptions of *Food Security* as an example, which developed certain recommendations for a balanced nutrition over time, such as how many liters milk a person should drink per year; which serves vice versa as a legitimation for policies and programs regarding animal genetic improvement, biotechnology, privatization etc. Apthorpe reveals that this is part of the trick of policy discourse to “present what is intended and then to be done as unavoidably and unobjectionably necessary and correct (1986, 382).”

5.3 Alternative Ways of Knowing?

“The problem of Eurocentrism⁴⁰ and hence the problem of development, is [...] the problem of knowledge. It is a problem of discovering Other ways of knowing, being and doing. It is a problem of how to be human in ways Other than those of Europe. It is also a problem of how the West could liberate its true self from its colonial history and moorings.

(President's foreword in World Commission on Culture and Development, 1996, quoted in Achren 2007, 43).”

This quote questions the hegemony of European knowledge defining under-development as a pathological condition in which the patient does not exercise any control, and s/he must wait for the appropriate medication, administered by the suitably trained physician (cf. Agrawal 1997, 471).

Furthermore, this thesis claims that when external narratives shape the design and implementation of animal breeding policies, contradictions between the ideal and real outcome appear. In the context of artificial insemination in Uganda the technology remains on the shelf, as I have outlined in chapter 1.2.3. *Biotechnology in Animal Breeding*. Does artificial insemination not fit into existing production systems due to a lack of concern for the local circumstances?

Alternative ways of knowing in animal breeding in Uganda (i.e. Kiyingi 2000, Ashley and Nanyeenya 2002, Loquang and Köehler-Rollefson 2005, Batz et al. 2003, etc.) criticize the one and only way of knowing as reflected in national policy documents, that it does not reflect the objectives and strategies of the majority of livestock-keeper. Their studies show that especially smallholders want to keep their animals alive and expand their numbers so that they can contribute most effectively to wider livelihood strategies (cf. Ashley and Nanyeenya 2002, 9). However, the prevailing approach to livestock development, as I have outlined in various chapters, focuses mainly on improving management, genetics of breeds and animal health ser-

⁴⁰ Ethnocentrism is the tendency to view the world from the perspective of one's own culture, or the inability to understand cultures that are different from one's own culture, no matter whether positively or negatively.

vices in order to enhance production and trade. This dichotomy results in the fact that many services being offered to farmers or being planned in their name are in fact inappropriate. Awareness-raising programs, which are essential parts of the policies outlined in this thesis, can hardly fill this gap. More and better participatory approaches and consultations, as was stated by many interviewees, are required to capture the various ways of knowing and notions of reality, which is the basis for developing technology relevant to farmers' needs (cf. Interview 1, 4, 10, 17). New technology of course creates important opportunities and benefits for livestock owners, but a deeper understanding of farmers diverse *Lebenswelten* is a necessary, but cost-intensive precondition. It requires integrated and trans-disciplinary approaches in methods, processes and organizations, in order to create stronger linkages between research, development and users.

6 CONCLUSION

This thesis seeks to outline the complex impact of key actors, events, discourses and narratives leading to the making-of animal breeding policies. Therefore, particular concerns of this thesis are considerations of how key actors acquire dominance for their ideologies, how alternatives are de-legitimized and filtered out by organizations and agencies, and how this is resisted.

Since an simple cause-and-effect approach would not capture the mentioned elements influencing the making-of, a broader approach is chosen as I have argued in chapter 2 *Theoretical Approach*. This thesis draws on theoretical accounts derived from Foucaultian thinking, which acknowledge the relationship between policy, knowledge and power. Therefore, I borrowed an analyzing tool from Brock et al. (2004) in order to gather information about the key influences on the Animal Breeding Policy: *Actors* (who?), *Knowledge* (what?) and *Policy Space* (how?). This analyzing tool bases on an understanding that comprises policies as manifestations of dominant ways of knowing, which are backed up by discourses and key actors and vice versa that policies execute power since they shape ways of knowing and doing.

I outlined in chapter 3 *Results: Background, Narratives and Actors of Animal Breeding* three descriptions: a) *Historical Context*: The findings can be summarized, that colonialism created a dichotomy between local and scientific knowledge, whereas the latter is located in the so called developed countries. b) *Policy Context*: This description outlines the greater policy framework and its dedication to modernization, liberalization, decentralization and privatization. c) *Key Actors*: The main findings of this chapter are that the imperative of genetic improvement of animals, manifested which is in the Animal Breeding Act, is mainly a product of greater knowledge and technology that few actors possess.

This thesis displays parallels to colonial policies and imperatives which are still governing the making-of and implementation of policies. Narratives like Food Security, Population Growth and Livestock Revolution remain persistent and strengthen the mainstream approach to livestock development: to create a marketed surplus for consumption, trade, and especially export or reduction of import (cf. Ashley and Nanyeenya 2002, 1). Arguably, to conduct a production system of a technical nature such as artificial insemination in a manner to contribute to economic development, the risk is high to perpetuate economic dependency. Currently, available capacity is severely limited and donor-dependent (cf. Interview 9). The dairy industry, e.g. relies on Swedish technology and packaging materials from South Africa (cf. Mbabazi 2005, 3).

Overall, the thesis highlights a) a historical legacy, b) a blindness to this legacy for the most part in research and development practice, c) an existing resistance to the Animal Breeding Policy's aims, and d) the limits of "expert" knowledge. It examined some of the specific ways in the acquaintance with natural resources, where key actors imagine solutions to problems. Solutions that usually envision an object of development who is backward and powerless, or strategies of animal breeding that grant control to specific actors over others.

Given the broad domain of arguments, it seems appropriate to end this thesis with one very short question, in memory of Schicho's *Machtfrage*: Why? (Who benefits and to whose advantage?). What constitutes the longevity over nearly two centuries of reflection and consideration on these issues? Considering that these narratives etc. have endured and reside still in discourses for such a long time, it seems obvious that one must search in a history that is not specific to development or animal breeding. This thesis outlined only one possible explanation of the logic of progress and its benefits for few people, where a provisional answer may lie.

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8 ANNEX

8.1 Abstract

Die vorliegende Diplomarbeit hat zum Ziel das *Making-of*, also Zustandekommen, zweier Policies im Bereich Viehzucht in Uganda zu analysieren. Die Haupteinflussfaktoren auf diese Policies werden aus einer historischen, politischen und zivilgesellschaftlichen Einbettung freigelegt. Die Forschungsfragen zielen daher auf die einschlägigen Strukturen, Prozesse, Schlüsselakteure und Diskurse des *Making-of* ab. Die Daten wurden im Rahmen eines viermonatigen Forschungs-aufenthaltes in Uganda mit Hilfe eines ethnographischen Methodensets gesammelt. Für Analyse-zwecke, wurde ein umfassender theoretischer Zugang gewählt, der die Beziehungen zwischen Policy, Wissen (*Ways of Knowing*) und Macht berücksichtigt. Die Analyseeinheiten stellen „Wissen“ (was?), „Akteure“ (wer?) und „Raum“ (wie?) dar. Diese entspringen dem Verständnis, dass Policies institutionell gefestigte *Ways of Knowing* sind, die von bestimmten Diskursen, SchlüsselakteurInnen und -ereignissen gestärkt wurden und im Gegenzug Macht ausüben, da sie Wissen transportieren und gleichzeitig sinnstiftend und handlungs-orientierend wirken. Die kritische Analyse von Policies zeigt deutlich eine Dichotomisierung von lokalen und wissenschaftlichen Wissen, einen *top-down* Policy-Zugang und einen Technikdeterminismus auf, die eine klare Parallele zum Kolonialismus ziehen. Diese Disqualifizierung von lokalem Wissen resultiert in einer *Animal Breeding Policy*, die fern von den Lebenswelten der Bauern und BäuerInnen sind und daher den gewünschten Effekt, nämlich die Adaptierung bestimmter Biotechnologien zur Produktivitätssteigerung, bislang nicht erzielen. Darüber hinaus wurde DANIDA als richtungsweisender Schlüsselakteur und Motor der *Animal Breeding Policy* identifiziert. Bestimmte politische Rahmenbedingungen, wie der Anstieg der Milchpreise oder Strukturanpassungsprogramme, begünstigten die Formulierung der *Animal Breeding Policy*. Insgesamt konnte eine Reihe von Einflussfaktoren identifiziert und Einblicke in das *Making-of* gewonnen und dadurch für einen inkludierenderen *bottom-up* Zugang argumentiert werden.

8.2 Interviews used for data analysis

<i>Number</i>	<i>Date</i>	<i>Location</i>	<i>Organization</i>
1	10.11.09	Nairobi	ILRI
2	10.11.09	Nairobi	ILRI
3	12.11.09	Nairobi	ILRI
4	13.11.09	Nairobi	ILRI
5	26.11.09	Mbarara	MBADIFA
6	26.11.09	Mbarara	NARO
7	27.11.09	Mbarara	DVO
8	28.11.09	Mbarara	NARO
9	10.12.09	Kampala	Makerere University
10	15.12.09	Kampala	DANIDA
11	16.12.09	Kampala	DDA
12	11.01.10	Kampala	Send a Cow
13	12.01.10	Kampala	Heifer Int.
14 a	13.01.10	Entebbe	NAGRC&DB
15	13.01.10	Entebbe	NAGRC&DB
16	20.01.10	Kampala	EADD
17	20.01.10	Kampala	EADD
18	03.02.10	Kampala	GoU
19	08.02.10	Entebbe	GoU
20	10.02.10	Kampala	UNFFE
21 b	22.02.10	Entebbe	NAGRC&DB
22	22.02.10	Entebbe	GoU
23	23.02.10	Mpigi	Farmer
24	23.02.10	Mpigi	Farmer
25	23.02.10	Mpigi	Farmer

8.3 Research Outline – Ways of Knowing

FWF-Research Project

Ways of Knowing **When Local and Scientific Epistemologies** **Meet in Rural Development**



A collaboration of:

University of Natural Resources and Applied Life Sciences, Vienna
Vienna Interdisciplinary Research Unit for the Study of (Techno)Science and Society
Institute for Development Studies, University of Sussex

Funding: Austrian Science Fund (FWF)
Period: 10/2008 – 03/2011

FWF

Project background

Farmers and scientists meet on many occasions, such as field visits, on-farm research activities, stakeholder workshops and farmer field schools. However, what exactly happens when people from such different lifeworlds meet? Scientists experience pressure from their research institutions, and they have to present results such as publications and new projects. Farmers have to make sure that the crops and the livestock thrive, and that their income will support their families. Yet, farmers and scientists seek a common interest when they work together: they meet as experts, but they also meet as human beings.

To better understand what happens when farmers and scientists meet in agricultural research projects, we look at case studies in tree and soil management in the Ethiopian highlands, as well as livestock breeding projects in Ethiopia and Uganda. We seek to understand more about the different social worlds of farmers and scientists, and the way they come to know or not know about certain aspects of tree, soil and livestock management.

We try to understand how different ways of knowing and doing influence the way farmers and scientists meet, and we hope to learn more about the way people communicate in agricultural research projects. What questions are asked, and by whom? Do people participating in agricultural research projects access each other's knowledge? Do they influence the way they know, and the way they do things?

Different groupings and networks develop when people meet in research projects. Some of them may exercise power and try to influence the outcomes. Other people may be silenced, or may decide to keep silent for unknown reasons. We would like to find out which stories are told, or remain untold, and why.

When farmers and scientist meet in research projects, it is a meeting of human beings, with shifting roles as experts, as teachers and as learners. It is also a meeting of diverse and multiple ways of knowing and doing, and sometimes very different ways of seeing the world around them.

The results will contribute to a better mutual understanding and appreciation between farmers and scientists. They will provide a useful basis for policy makers to improve research funding programmes, provided that they take into account that sometimes the meeting of farmers and scientists in research projects can be very complex.

Methodology

The researchers will apply a combination of qualitative social research methods:

- Review of research documentation and secondary sources
- Interviews with scientists, farmers and government representatives
- Participant and non-participant observation of ongoing research activities, and different lifeworlds of scientific and farmer communities
- Focus group discussions with/between stakeholders
- Participatory workshops in cooperation with local partners

The researchers have developed guidelines for scientific cooperation for the purpose of this project. Interviews will only take place if prior informed consent has been given.

Social Studies of Science and Technology

Social studies of science and technology (STS) is a rather young, interdisciplinary research field in the social sciences. It looks at how society shapes science and technology, and it tries to understand the impact of scientific and technological developments on the way citizens think and live. Historical studies as well as gender relevant issues play an important role in this research field.

Research Project Team

The project leader is **Prof. Christian R. Vogl**, leader of the Working Group on Knowledge Systems and Innovation, University of Natural Resources and Applied Life Sciences, Vienna.

The research will be performed by two PhD students:



Birgit Habermann (birgit.habermann@boku.ac.at), who holds an MSc in Ecology from Vienna University, and an MSc in Agroforestry from the University of Wales Bangor (UK). She has been working as team leader and coordinator of the Austrian Commission for Development Studies for 5 years in the field of research policy and research partnerships. Her research experience involves projects in parts of Asia and East Africa.



Frederik Oberthür (frederik.oberthuer@boku.ac.at), who holds an MSc in Crop Science and Rural Sociology from Wageningen University (NL), and has been working for five years as consultant and project manager for the Scandinavian consultancy firm NIRAS, performing short-term training and facilitation assignments for agricultural development projects in Eastern Europe, Central Asia and Africa.

PhD Supervisors

Ulrike Felt - Vienna Interdisciplinary Research Unit for the Study of (Techno) Science and Society VIRUSSS, Vienna, Austria (<http://www.univie.ac.at/virusss/>)

Melissa Leach and John Thompson - Institute for Development Studies at Sussex University, Brighton, UK (<http://www.ids.ac.uk/go/research-teams/knots-team>)

Local Partners

Abraham Abiyu Hailu - Amhara Regional Agricultural Research Institute, ARARI, Bahir Dar, Ethiopia

Gerald Eilu - Department of Forest Biology and Ecosystems Management, Faculty of Forestry and Nature Conservation, Makerere University, Uganda (<http://www.mak.ac.ug/>)

Partner Institutions:

Amhara Regional Agricultural Research Institute (ARARI), Ethiopia

Faculty of Forestry and Nature Conservation, Makerere University, Uganda

Holetta Agricultural Research Centre (HARC), Ethiopia

International Livestock Research Institute (ILRI)



Universität für Bodenkultur Wien
University of Natural Resources
and Applied Life Sciences, Vienna



Contact:

Prof. Dr. Christian R. Vogl (Project Leader)

Working Group on Knowledge Systems and Innovation
University of Natural Resources and Applied Life Sciences (BOKU)

Gregor Mendel Strasse 33
A-1180 Vienna, Austria
E-Mail: christian.vogl@boku.ac.at
T: +43 1 47654-3752

8.4 Curriculum Vitae

EDUCATION

- 2004- 2010 **Diploma Degree Course in International Development**, University of Vienna
- Thematic concentration on Cultural Studies, Science & Technology, and Rural Development.
- 2006-2010 **Bachelor Programme in Regional Planning and Development**, Technical University of Vienna
- Thematic concentration on Project- and Conflict Management , Negotiation Techniques, Communication Skills.
- 1998- 2004 Bildungsanstalt für Kindergartenpädagogik, Linz; College for the training of nursery school teachers, finishing with a diploma certificate.
- 1995- 1998 Realgymnasium, Hamerlingstraße/Linz; Secondary School

EXTRA- CURRICULAR ACTIVITIES

- 2010 Participated in the **Election Observation Course** at International Alert, London.
- 2009 Represented **Yemen** at the **Harvard World Model United Nations** conference, The Hague.
- 2008/09 **Tutor** of the course “Culture and Development” at the Institute for International Development, University of Vienna.
- 2008 Semester abroad in **Berlin, Humboldt University**; Erasmus programme.
- 2007 Module: “**Development Regulation with Projects**”, at the Technical University of Vienna.
- 2007 Filing the first degree of the Diploma Degree Programme “International Development“ within the minimum period required.
- 2007 Study tours to **Ukraine** and **Bosnia and Herzegovina**, organized by International Development, University of Vienna.
- Since 2006 **Spanish language courses** at the Romanistic Institute, University of Vienna.

PROFESSIONAL EXPERIENCE

- 2009 Internship at **Care Austria** (Vienna)
- 2009 Internship at **Centre for Social Innovation** (Vienna)
- 2008 Internship at FUNDECOIPA, an NGO in a community in Puyo, Ecuador.
- 2007/08 Internship at the **WIK-Wiener Integrationskonferenz-Vernetzungsbüro**
- 2004/05 AuPair in New York, United States of America.

