Revealing Complexities
Subsistence Sector Animal Farming, Animal Advocacy and Gender Analysis: Chances for Development in Northern Mozambique?

Stefanie Lenz and Halla Victorsdóttir
MSc Peace and Development Work
4FU41E

08 June 2014
Abstract in English
In Mozambique, 80 per cent of the people rely on farming for their livelihood. The majority of them are small-scale and subsistence farmers. In spite of high GDP and agricultural growth rates, the majority of Mozambicans in rural areas remain below the poverty line.

Even though many subsistence farmers in Ribáuè District own animals, programmes and policies for development are aimed at commercialization in medium- and large-scale sector animal farming. We found a lack of attention given to family sector animal breeding as a development factor in Ribáuè. Over the course of five weeks, we engaged in an ethnographically inspired, qualitative field study in Ribáuè District, the city of Nampula and the capital Maputo.

Our gender and animal advocacy viewpoints allowed us to look at development as a holistic concept and determine effects beyond the immediately visible. Applying the Sustainable Rural Livelihoods approach, we identified a serious threat to the farmers’ livelihoods both in the short- and long-term, which we believe needs to receive much greater attention in policy-making.

We found that animal breeding fulfils diverse functions, such as diversification of assets and diet, and generating and increasing resilience. It is crucial as mid-term investment and as a live bank. However, it is hugely insecure in all of these functions due to recurring shocks. Animal health issues are a major limitation for farmers. Therefore, animal breeding has little development scope for subsistence farmers at the moment, and is further diminished by commercialization plans for a minority of farmers, which overlook the complexity of the farming system and may negatively impact regional markets.

Development through intensive animal breeding reflects a dangerous short-term thinking. Sustainability and an important livelihood strategy for many are sacrificed for economic development of a few while exploitative systems are reproduced.

Keywords: animal breeding, animal rights, gender, Mozambique, subsistence farming

Resumo em Português
Em Moçambique, oitenta por cento da população depende da agricultura para a sua subsistência; sendo que a maioria desse montante é composto por pequenos agricultores. Apesar de altas no PIB e taxa de crescimento agrícola, a maioria dos moçambicanos em áreas rurais permanece abaixo da linha de pobreza.

Mesmo que muitos agricultores de subsistência no Distrito Ribeauè – localizada na cidade de Nampula, capital Maputo – possuam seus próprios animais e façam parte de programas de desenvolvimento, políticas de apoio e suporte à comercialização costumam ser destinadas a setores rurais de médio e grande porte. Durante o desenvolvimento deste trabalho, identificamos falta de assistência à criação familiar de animais para o desenvolvimento da região de Ribáuè. Ao longo de cinco semanas, estivemos envolvidos em um estudo de campo qualitativo – com inspiração etnográfica – nesta região.

Nossa tese, baseada na análise de políticas de questão de gênero e animais nos permitiu um olhar para o desenvolvimento desta população com um conceito holístico, determinando efeitos para além do imediatamente visível. Ao aplicar a “Abordagem Sustentável dos Modos de Vida Rurais”, identificamos uma séria ameaça para a subsistência dos agricultores em curto e longo prazo – o que acreditamos necessitar de maior atenção na formulação de políticas públicas.

Descobrimos que a criação de animais cumpre diversas funções sociais, tais como a diversificação de ativos financeiros e dieta, gerando e aumentando no poder de resiliência da população estudada. Para isso se manter, percebemos ser fundamental que a população invista em médio prazo, usando seus animais como recurso financeiro. Porém, recorrentes revezes costumam limitar essa iniciativa. Problemas de saúde em animais, por exemplo, são uma grande limitação para os agricultores. Por isso, criação de animais tem pouco espaço no desenvolvimento de agricultores de subsistência e é ainda mais reduzido por causa dos planos de comercialização de uma minoria de agricultores (por causa da complexidade do sistema de produção e a fragilidade dos mercados regionais).

Desenvolvimento através da criação intensiva de animais ainda reflete um pensamento perigoso em curto prazo. Sustentabilidade e importantes estratégias de sobrevivência são sacrificadas para o desenvolvimento de curto prazo de uma minoria, reproduzindo a exploração de sistemas.
Acknowledgements

We want to express our deep respect and thankfulness towards the farming families in Ribáuè, who took their time to talk to us and always received us with open doors and arms. With our work, we hope to be able to give something back to them.

The guidance, support and questioning of our tutors Gunilla Åkesson and Kajsa Johansson in the field were immensely valuable to our research. Anders Nilsson strongly encouraged us to take the path that was closer to our hearts, for which we are immeasurably thankful.

We also owe a big thank you to Felicidade Auxilio Muioch and UCODIN, who enabled this incredible experience, and to our friend and driver Luis Camilo, the wonderful staff at Residência de Salama in Ribáuè and everyone else who made our stay in Mozambique unforgettable. To our colleagues from the Peace & Development Master Programme we say thank you for inspiring and enduring discussions that contributed greatly to our work and to a wonderful time in Mozambique and Sweden.

Thank you to our family and friends for supporting us throughout this demanding and deeply enriching last year.

We acknowledge all those who were and are victims of others’ exploitation.
We live in a racist, patriarchal world in which men still have considerable power over women [...] [T]he way gender politics is structured into our world is related to how we view animals, especially animals who are consumed. Patriarchy is a gender system that is implicit in human/animal relationships.

Carol J. Adams, The sexual politics of meat
Contents

Abbreviations ........................................................................................................................................... viii
Currency .................................................................................................................................................... viii

I. Introduction ............................................................................................................................................... 1
  1.1 Research Topic and Relevance ...................................................................................................... 1
  1.2. Research Problem Formulation ................................................................................................. 2
  1.3. Research Objective and Research Questions .............................................................................. 3
  1.4. Analytical Framework .................................................................................................................. 3
  1.5. Methodology .................................................................................................................................. 4
  1.6. Delimitations .................................................................................................................................. 4
  1.7. Limitations ....................................................................................................................................... 4
  1.8. Ethical Issues ................................................................................................................................... 5
  1.9. Disposition ........................................................................................................................................ 5

2. Analytical Framework .......................................................................................................................... 7
  2.1. Epistemological perspective and Pre-Understandings ................................................................. 7
  2.2. The capability approach ............................................................................................................... 8
  2.3. Ethical standpoint ........................................................................................................................ 9
  2.4. The capability approach and animal ethics ................................................................................. 9
  2.5. The Sustainable Rural Livelihoods Approach (SRL) ................................................................. 11
  2.6. Gender Analysis ........................................................................................................................... 13
  2.7. Literature Review ........................................................................................................................ 14
    2.7.1. Global development trends in Mozambique ........................................................................... 14
    2.7.2. Gender and Agriculture ......................................................................................................... 15
    2.7.3. The Relationship between Human and Animal Well-Being .................................................... 16

3. Methodology ............................................................................................................................................. 18
  3.1. Study design .................................................................................................................................... 18
  3.2. Sampling ......................................................................................................................................... 19
  3.3. Data collection .............................................................................................................................. 19
  3.4. Validity ............................................................................................................................................ 20
  3.5. Reliability ....................................................................................................................................... 20

4. Findings .................................................................................................................................................. 21
  4.1. Division of tasks and ownership .................................................................................................. 21
    4.1.1. Property, Responsibility and Control .................................................................................... 21
    4.1.2. Chickens .................................................................................................................................... 22
    4.1.3. Goats ......................................................................................................................................... 24
    4.1.4. Fish ............................................................................................................................................ 25
    4.1.6. Constraints ............................................................................................................................. 26
    4.1.7. Construction work .................................................................................................................. 27
    4.1.8. Slaughtering ............................................................................................................................ 27
    4.1.9. Income .................................................................................................................................... 28
    4.1.10. Gender Roles ......................................................................................................................... 28
  4.2. Use and value of animals ............................................................................................................... 29
    4.2.1. Animals as a Wealth Ranking Instrument ............................................................................ 30
    4.2.2. Animals as Status Symbols .................................................................................................... 30
    4.2.3. Animals as Live Banks ............................................................................................................ 30
    4.2.4. Animals as Payment Method .................................................................................................. 31
4.2.5. Animals as Investment ........................................................................................................... 31
4.2.6. Animals as Diversification of Assets ...................................................................................... 32
4.2.7. Animals for Nutrition .............................................................................................................. 32
4.2.8. Livelihoods of family farmers in Ribué ................................................................................... 33
4.3. Systems of Knowledge Transfer ................................................................................................. 34
   4.3.1. Primary School....................................................................................................................... 34
   4.3.2. Secondary School .................................................................................................................. 34
   4.3.3. Adult Education .................................................................................................................... 35
   4.3.4. Knowledge Transfer within the Family .................................................................................. 35
   4.3.5. Knowledge Transfer through Governmental and Non-governmental Actors ....................... 35
4.4. Animal Health Care Services ...................................................................................................... 36
   4.4.1. Community Vaccinators ....................................................................................................... 37
   4.4.2. Veterinary Service ................................................................................................................ 37
   4.4.3. Animal health costs .............................................................................................................. 38
   4.4.4. Traditional Medicine .......................................................................................................... 38
4.5. The Role of Associations ............................................................................................................ 39
4.6. Policies and Programmes ........................................................................................................... 41
   4.6.1. Extension workers and the PITTA ......................................................................................... 41
   4.6.2. The District Development Fund (FDD) ............................................................................... 42
   4.6.3. ProSavana ........................................................................................................................... 44
4.7. Summary of Findings .................................................................................................................. 44
5. Analysis ........................................................................................................................................ 46
   5.1 Vulnerability context .................................................................................................................. 46
   5.2. Assets ...................................................................................................................................... 47
       5.2.1. Human Capital ................................................................................................................... 47
       5.2.2. Physical Capital ................................................................................................................. 48
       5.2.3. Social Capital ..................................................................................................................... 49
       5.2.4. Natural Capital .................................................................................................................. 50
       5.2.5 Financial Capital ................................................................................................................ 50
       5.2.6. Summary of Assets ........................................................................................................ 52
   5.3. Transforming structures and processes .................................................................................. 52
       5.3.1. Governmental and NGO Programmes and policies ........................................................... 52
       5.3.2. Private Sector .................................................................................................................... 55
       5.3.3. Legislation ........................................................................................................................ 56
   5.4. Livelihood Strategies ............................................................................................................... 56
   5.5. Livelihood Outcomes ............................................................................................................... 58
   5.6. Animal capabilities and human capabilities ............................................................................. 58
6. Conclusions .................................................................................................................................... 62
   6.1. What does the family sector animal farming system look like and what role does gender play in it? .............................................................................................................................................. 62
   6.2. What is the importance of family sector animal breeding for development on a family base and on district scale? .............................................................................................................. 62
   6.3. How do governmental and non-governmental programmes influence family sector animal breeding? .............................................................................................................................................. 63
   6.4. What are the main obstacles to improving family sector animal breeding towards more sustainability and bigger impact for development? ...................................................................................... 63
   6.5. What are the implications of animal breeding in Ribué from an animal advocacy viewpoint? .............................................................................................................................................. 63
6.6. Further Research .................................................................................................................. 64
7. Further Discussion ..................................................................................................................... 65
7.1 Refraining from Recommendations .................................................................................... 66
8. References ............................................................................................................................... 68

Annexes
Annex 1: Definitions .................................................................................................................. 74
Annex 2: List of interviewees ..................................................................................................... 77

List of images and figures
Figure 1: Sustainable Livelihoods Framework ............................................................................ 12
All images by Stefanie Lenz ........................................................................................................
Abbreviations

AENA  National Association of Rural Extension
AIDS  Acquired Immunodeficiency Syndrome
ASF  Animal Source Food
COCAMO  Cooperation Canada Mozambique
DFID  Department for International Development
FAO  Food and Agriculture Organization of the United Nations
FDD  District Development Fund
GDP  Gross Domestic Product
GNP  Gross National Product
HIV  Human Immunodeficiency Virus
IFPRI  International Food Policy Research Institute
INAS  National Institute of Social Action
MZN  Mozambican Metical
NDV  Newcastle Disease Virus
NGO  Non-Governmental Organisation
OIE  World Organisation for Animal Health
PITTA  Integrated Programme for the Transfer of Technology
SDAE  District Services of Economic Affairs
SRL  Sustainable Rural Livelihoods
UNAC  National Farmers Union of Mozambique
UNDP  United Nations Development Programme
WHO  World Health Organization

Currency

1 MZN = 0.03168 USD
1 USD = 31.5649 MZN

1 MZN = 0.02324 EUR
1 EUR = 43.0340 MZN

1 MZN = 0.21186 SEK
1 SEK = 4.72009 MZN

31 May 2014, http://www.xe.com
I. Introduction

1.1 Research Topic and Relevance

In Mozambique, 80 per cent of the people rely on farming for their livelihood. The majority of them are small-scale and subsistence farmers with less than 3 hectares of land, contributing most of the nation’s total agricultural production (World Bank, 2014) and bearing the high burden of supplying food for themselves, their families and livestock, while trying to create some profits in the face of poverty, poor health and education, food scarcity, volatile markets and increasingly unstable weather conditions due to climate change (IFPRI 2004). In spite of an expected GDP growth rate of 8.3 per cent in 2014 (Republic of Mozambique, 2014) agricultural growth rates are low (Pauw et. al., 2012) and roughly 55 per cent of Mozambicans remain below the poverty line (World Bank, 2009), 70 per cent of them in rural areas (IFAD, 2013) and Mozambique still ranks as one of the least developed countries in the world (UNDP, 2013).

Ribáuè District is located within Nampula Province in the north of Mozambique. Small animals such as chickens, goats and pigs are common among subsistence and quasi-subsistence farmers in this region as part of their livelihood strategies. It has been identified that animal breeding, health and welfare can be effective contributors to increased welfare of small-scale farming families (FAO, 2012q). With intensive animal farming on the rise, we aim to explore the chances for development of farmers through livestock particularly in the family sector, where inputs are low and constraints high.

Applying a more holistic perspective, we also wanted to understand the consequences of development in animal breeding for the concerned animals. Arguing that animals have an intrinsic value and that the way they are treated is closely connected to human development, we believe it is crucial to take into account their
capabilities in a development context, which is only starting to be recognized in the literature.

1.2. Research Problem Formulation

Initially, the aim of this research was to study the effects of gender roles on animal health and welfare in rural small-scale and subsistence agriculture in Nampula Province, Mozambique. Literature review disclosed that labour tasks within the small-scale farming society differ distinctly between female and male farmers, affecting knowledge distribution within the family and in the community (Miller, 2011).

However, during the first days in the field, we saw that the literature did not reflect the diversity which we met in Ribáuè. While one family may be a perfect example for the descriptions in the literature, the neighbouring family could make decisions together and share incomes and work. Although gender still plays a very important role, we found that there are more similarities than differences among men and women when it comes to the difficulties in animal farming. We therefore decided to adjust our topic towards the realities of the farming families in Ribáuè, looking at the importance of animal breeding within their livelihoods and for development, but maintaining a gender perspective throughout the research to not overlook where gender roles still influence animal farming.

We realized that, while animal farming is very common and seems to play a central role in livelihoods, farmers encounter many obstacles in breeding them. Furthermore, many public, private and non-governmental actors are engaged in animal breeding programmes. This motivated us to inquire on the obstacles and chances to animal breeding as a development factor for family farmers in the region.

Besides looking at development from the farmers’ perspective in terms of human development and increased capabilities, we extend the capabilities approach towards animals, as literature shows that animal and human capabilities are closely interconnected. In this way, we can observe how animal welfare and development in Ribáuè influence each other. Engaging with what appears to be the first study of this
kind, we aimed to explore family sector animal breeding in Ribáuè District in relation to human development that is not staged at the expense of animal welfare.

1.3. Research Objective and Research Questions
The aim of this research is to understand the importance, potentials and limitations of family sector animal breeding in Ribáuè District, Mozambique. This goal is operationalised by five research questions.

1. What does the family sector animal farming system look like and what role does gender play in it?
2. What is the importance of family sector animal breeding for development on a family base and on district scale?
3. How do governmental and non-governmental programmes influence family sector animal breeding?
4. What are the main obstacles to improving family sector animal breeding towards more sustainability and bigger impact for development?
5. What are the implications of animal breeding in Ribáuè from an animal advocacy viewpoint?

1.4. Analytical Framework
Our point of departure is hermeneutic, based on our pre-understandings of the current discourse about the impact of gender roles on agricultural development in Sub-Saharan Africa. Furthermore, we will argue from an ecocentric perspective for the intrinsic value of all life and that human development cannot and should not be happening at the expense of animal welfare, but is part of a complex whole. To this end, we use the capability approach and extend it to animals. We decided to reflect upon our pre-understandings and interpretations throughout the text for greatest possible transparency.

Additionally, we apply the Sustainable Rural Livelihoods approach (SRL) to our research. It is a holistic concept that puts people at the centre of analysis, trying to understand their strengths, weaknesses and ways of managing them within the contexts, structures and processes they appear. This approach is ideal for our research topic because it can guide us to an understanding of the complexities of life and work.
of small-scale and subsistence farmers. We further apply gender analysis to the SRL in order to examine the effects of gender within the system.

1.5. Methodology
Over the course of five weeks, we engaged in an ethnographically inspired, qualitative field study in Ribáuè District, the city of Nampula (Nampula Sede) and the capital Maputo. Ethnographic fieldwork methods allowed us to get the farmers’ perceptions and perspectives and to understand local farming systems, behaviours and livelihood strategies. Prior to the field work, we undertook a desk study on the situation of animal breeding in Nampula province today and in a historical context.

1.6. Delimitations
The thesis will focus on male and female small-scale and subsistence farmers who own, control or work with livestock in Ribáuè District. Subsistence farmers are those who grow crops and keep animals mainly to feed and sustain themselves and their households while trying to produce surplus to be able to afford basic necessities. These farmers rarely engage in economic activity and act mainly outside the monetary system. Livestock are the domesticated animals that farmers breed within their farming system. We will focus on chicken and goats, as they are the most common domestic animals in Ribáuè.

1.7. Limitations
We faced limitations due to our lack of knowledge of veterinary, agricultural and livestock farming issues, being no experts in the field. We tried to gain a good understanding on local animal diseases and related issues beforehand, and conducted interviews with different experts in these fields to be able to appropriately understand and systematize the problems described by the interviewees.

Since we conducted the study in a cultural area previously unknown to us, misunderstandings were inevitable and we had to be cautious to our own values, which we reflect on in the text. The language barrier was a major constraint, since we had to rely on translations during most of our interviews, sometimes among three languages, which took up a lot of interview time and formulations or expressions may have gotten lost or changed, which may have caused misunderstandings on both sides.
Moreover, many of the secondary sources are only available in Portuguese, limiting our access to information.

Due to time limitations, a participatory analysis of our findings was not possible to a sufficient extent, creating a risk of misinterpretations (Bergold and Thomas, 2012). We also consider that in mixed groups, some individuals may have been restrained to speak out, especially women and young people.

1.8. Ethical Issues
Considering the many tasks involved with livestock farming, in addition to household keeping and other aspects of everyday life, we could observe that many of the interviewees suffer from ‘poverty of time’ (Chambers, 2007). We therefore had to make sure to be very clear about our research topic and the meaning of our research for the interviewees to avoid wrong expectations and people sacrificing their time for the wrong reasons. Interviewees and their expressed views are respected and their personal integrity was not violated.

Since both researchers pursue a vegan life, we oppose the exploitation of animals in our own livelihood context. Yet, we are well aware of the different context and implications of animal use in the region of research. It is therefore not a goal of the research to promote a vegan life, but to understand the use of animals in the specific context and to contribute to the research on improved animal health and welfare, not just in favour of the people we will work with, but also for the animals themselves.

1.9. Disposition
In the second chapter we explain our analytical framework, including our epistemology, SRL, the Capabilities approach and our ethical standpoint. Following is a chapter on the methodology and methods used. In the findings chapter, we look at subsistence farming in Ribáuè District in a broader context, at animal breeding and the livelihoods of family farmers, describe the types of animals that are usually kept and the tasks involved, explore the use and value of animals, the division of tasks and ownership, describe the different policies and programmes aimed at animal breeding and look at knowledge transfer systems, access to knowledge and animal health services before putting a focus on the special role of associations. The analysis chapter is structured along the Sustainable Rural Livelihoods framework, with an
additional sub-chapter on animal and human capabilities. We will answer our research questions in the conclusion chapter and end the thesis with a discussion on more structural problems.
2. Analytical Framework

In this chapter we discuss our epistemological perspective and pre-understandings before explaining gender analysis and the capabilities approach, presenting our ethical standpoint, and extending the capabilities approach to animals. We will look at the SRL approach and, lastly, present our literature review.

2.1. Epistemological perspective and Pre-Understandings

After we shifted our topic towards what we perceived as meeting the farmers’ needs, we decided it was necessary to take on a hermeneutic epistemology that would allow us to reflect on this process, but also on our own pre-understandings regarding animal ethics and gender in particular, as these influence our research (Danemark et. al. 2002, p. 160). From a critical realist perspective, we look at truth as an ever-changing phenomenon based on an understanding which can only be reached through interpretation rather than looking at truth as an empirical phenomenon (ibid. p. 29-31). We thus acknowledge our pre-understandings and look at them as a step allowing us to gain new knowledge, with room for new interpretations and redefinitions.

Hence, these pre-understandings are our overarching theoretical points of departure; our ideas sprouting from a desk study of gender aspects in family sector farming systems conducted prior to the fieldwork. Deriving from our ideas and understandings of animal ethics in our own, high-income country worldview, we wanted to understand animal welfare issues in a low-income country context. The pre-understandings are as follows:

1 From our desk study prior to the research, we understood that gender roles in agriculture and animal farming are a crucial factor to examine, firstly to be able to understand the situation of family sector farmers, and secondly to contribute to farmers’ empowerment and human development within this sector. Our literature research gave us the impression of strict division of labour between men and women, and that this division markedly affects the development of family farming. Thus, we found it valuable to look at the effects of gender roles on animal breeding within a rural family farming context.
As both researchers favour a vegan lifestyle, we look at animal health and welfare as important factors for both human and animal well-being. Rather than distancing ourselves from these values, we accept our prejudices and embrace them as means to extend our own understanding of animal welfare and health by looking at them in a different context than our own. We further want to understand the value animal welfare is given in the context of family sector farmers in Ribáuè and the policies and plans committed to this sector.

This has some major implications on the way we perceive animal farming as such, but particularly in a development context. However, our intention is not to apply our own opinions and ideals to the reality of farmers in Ribáuè, but rather to be able to critically analyse these pre-understandings. Instead of engaging in consequential hermeneutic fieldwork, which would require a more open, or ‘naive’ approach to our topic, we use hermeneutics as a way to interpret ourselves within the text (Alvesson and Sköldberg, 2000). We realise that ideals may be far from reality and thus were prepared to see changes in our understanding of these concepts (Myrdal, 1970, p, 24-29).

2.2. The capability approach

We use the capability approach to advocate for the development of both subsistence farmers and their farming animals. The capability approach is an economic theory that looks at development beyond financial means and utility and focusses instead on a person’s (in our context: a being’s) functionings and capabilities. Functionings resemble the things a being is and can be, does and can do, for example health or happiness. Capabilities then constitute the freedoms and the ability to perform certain functionings that the individual holds valuable, with a special emphasis on freedom as a value in itself. Life is therefore a combination of functionings and poverty a deprivation of capabilities. Agency then refers to a person’s ability to advocate in her own interest and for her own functionings (Sen, 1999).

Focusing on mere GDP or GNP growth of a nation limits our understanding of the realities of a farming family. Especially in Mozambique, where the majority of the population acts mainly outside of the monetary system, a holistic approach to development is necessary, which reflects peoples’ access to health, education, food
and other necessities, their ability to participate in shaping their livelihoods and the freedoms to choose their functionings.

This approach will allow us to look at the well-being of the farming families and the animals they take care of and to understand development in a more adequate sense than economic growth or utility, and it also enables us to prove that the development of humans does not have to take place at the expense of animals, but that they are linked and can enrich each other.

2.3. Ethical standpoint
Accordingly, we argue from an ecocentric ethics perspective that the natural world has an intrinsic value, which means that we see humanity as part of the world we live in, not its centre. This allows us to argue not just for the importance of sustainable development, but go further in extending the capabilities approach towards animals, to let “each thing flourish as the sort of thing it is” (Nussbaum, 2004, p. 306).

Ecocentrism, or deep ecology, is a philosophical concept that has biospherical egalitarianism at its core, meaning the acceptance of the intrinsic value of every form of life. From this understanding, a normative value to the “the equal right to live and blossom” is derived that includes all organisms, sentient beings as well as plants (Naess, 1983). This value is however just valid in principle, as it is not feasible to live without harming other organisms, so we look at it as a guide, not a goal. The concept rejects the exploitation of resources, people and animals alike and can therefore help us identify and criticise patterns of exploitation. Diversity, cooperation, coexistence and symbiosis are seen as valuable tools, not just towards the environment, but also, especially relevant for our case, between people and towards animals. Within ecocentrism, local autonomy and decentralization can be answers to anthropocentric and unsustainable habits (Naess, 1983). This philosophical concept is particularly valuable to our research, as it takes into account the habitats of the farmers, which have a major influence on their lives, and values the preservation of resources in a sustainable manner and the development of the farmers as much as the right of animals to be free from suffering.

2.4. The capability approach and animal ethics
This right can be explained more precisely when we extend the capabilities approach towards animals. Nussbaum (2004) bases this extension on the understanding that
animals, too, have needs and abilities that need to be addressed for them to be able to flourish. Although she argues from an intuitive starting point, not an ecocentrism, the consequences remain the same: Human law and human behaviour must support the capabilities of animals and stop their exploitation. Species is thus seen merely as an indicator for the needs and abilities of the individual with respect for the diversity of life, which also means that sentient beings have significantly different needs from non-sentient beings. The challenge lies in evaluating the needs and abilities of beings that cannot communicate their demands towards us, so we will base our understanding on Nussbaum’s list of ten basic capabilities, although it may not be exhaustive, it appears as a good guide for us to judge the ability to flourish that the capabilities approach seeks for. We apply this list to analyse in how far animal capabilities are supported or violated in local farming systems. The capabilities for animals are:

1. life (not to be killed, which as such is the result or goal of livestock keeping, and therefore always violated),
2. bodily health,
3. bodily integrity,
4. senses, imagination, and thought (within the scopes of the respective species),
5. emotions,
6. practical reason (within the scopes of the respective species),
7. affiliation,
8. interaction with other species,
9. play, and
10. control over one’s environment.

Positive duties, such as enabling flourishing, must be taken into consideration when we talk about domestic and farming animals, over which farmers take control and therefore responsibility, but it logically and practically cannot apply towards wild animals, whereas negative duties, such as ‘do no harm’, apply universally (in principle). On this base, we can argue for a development process for the benefit of humans and animals alike, valuing their needs and abilities within their environments and as part of bigger ecological systems.
Although Nussbaum argues that the capability for life entitles animals to be free from being killed, she does not extend that for ‘food animals’. While we principally disagree with this part of the concept, we accept it for practical reasons. It becomes obvious that the ethical implications of this approach do not allow for the use of animals in the way pursued in Ribáuè (and practically everywhere else in the world), so we find ourselves in a moral dilemma while seeking to improve the capacities of subsistence farmers. The consequence we draw for ourselves is to argue for improving capabilities of both farmers and ‘their’ animals, which leads to improved health and welfare of farming animals and in this way increases the assets of farming families. We will show that these developments can go hand in hand, and although they still include the use and killing of animals, they mean a significant step forwards in increasing animal capabilities.

2.5. The Sustainable Rural Livelihoods Approach (SRL)
Chambers and Conway (1991) define sustainable livelihoods as a combination of the concepts of capabilities, equity and sustainability. In its simplest sense, livelihood is “a means of gaining a living”. Capabilities of a person, the ability to perform certain functionings can be enhanced by improved livelihoods, while capabilities, in turn, can enable livelihoods to develop. Equity, as defined by Chambers and Convey, implies a more equal distribution of assets, capabilities and opportunities, and enhancement of the ones most deprived. Equity includes a decent livelihood for all but is also a precondition for decent livelihoods by providing assets and access. Sustainability provides the conditions for preserving livelihoods for future generations. A sustainable livelihood can thus cope with shocks and stress, maintain and enhance assets and capabilities, provide opportunities of sustainable livelihood for the next generation and contribute net benefits to other livelihoods at a local and global level in the short and long term (ibid.)

SRL facilitates the process of understanding what role animal farming has for farming families in the context of the household and from a broader perspective, and how outside factors influence the life of family sector animal farmers.
The goal of applying SRL is to contribute towards maximizing long-lasting positive effects and to engage in a progress towards resilience, economical and institutional independence, maintenance of long-term productivity of natural resources and respect towards other livelihoods (DFID, 2000). The approach places people at the centre and stresses that success can only be achieved if the context of the household economy is well understood and put into perspective with the policy setting surrounding and affecting it. Thus, emphasis is put on livelihood strategies and priorities as they are defined by the people. External support should correspond to those strategies and priorities for sustainability of the people’s livelihoods (Ashley and Carney, 1999).

To understand these factors, an analysis on various livelihood components and factors is needed, namely the vulnerability context, the livelihood assets, transforming structures and processes, strategies and livelihood outcomes (Figure 1). The vulnerability context consists of the external environment in which people live. Serrat (2008, p. 3) claims that vulnerability has two faces, the external side of shocks, trends and seasonality, and the internal side of the defencelessness of people experiencing these external changes, due to lack of ability and means to cope with them. The five livelihood assets define the people’s ability to pursue different livelihood strategies. They are the different “resources” or capitals that people have in their possession.
These assets are interconnected, one asset can generate many benefits, and similarly, these assets can be simultaneously influenced. Being rich in one capital could also compensate poverty in another, thus, the asset pentagon is rarely equilateral. The *livelihood strategies* are then the activities and choices that people make in order to achieve their livelihood goals (DFID, 1999). *Transforming structures and processes* are the institutions, organisations, policies and legislation that shape people’s livelihoods (*ibid.*). By applying the framework to our topic, with the family sector farmers of Ribáuè as centre of the analysis, we will seek an understanding of animal breeding as a livelihood strategy, the value it has for farmers and the importance it has for development at household and district level. In our case, we will analyse those processes and structures that affect and are affected by the practice of subsistence animal farming for men and women in Ribáuè. The *livelihood outcomes* define the achievements or outputs people gain out of pursuing different *livelihood strategies*.

The approach will help us to understand what obstacles farmers meet when using animal breeding as a strategy to improve life, and how animals can work as an asset, influencing the different capitals of farmers within their context.

### 2.6. Gender Analysis

Due to the gender differences that both our desk research as well as our empirical data point to in varying degrees, and to take into account *equity* of men and women in our analysis, it is crucial to include gender analysis in order to examine the effects of gender within the system. Gender analysis within the sustainable livelihood framework is a tool to increase our understanding of the realities of the men, women, girls and boys that we interviewed, the different needs to reach a more sustainable animal farming, variations between the sexes in constraints to improving animal health and welfare, and different benefits and obstacles that women and men face (Pasteur, 2002).

Gender roles affect the different elements of SRL (Figure 1) and are therefore important to understand how livelihoods can be enhanced (DFID, 1999). Gender analysis will in this case be used on a family level with our primary stakeholders to better understand what lies behind different gender roles, to what extent they are practiced, if they are being addressed and if not, how they could be (Pasteur, 2002).
2.7. Literature Review

Here, we will present a short literature review, focusing on three topics: First, we look at Mozambique within global development trends to be able to put our research into a broader context. Later, we present a short introduction to how gender relations in a Sub-Saharan context are presented in the literature to show how they relate to the findings of this research. Lastly, we will shortly cover some literature about the relation between animal and human well-being.

2.7.1. Global development trends in Mozambique

For our research, we must take into consideration the broad situation of Mozambique as one of the poorest and least developed countries in the world, where corruption remains strong and with major dependency on donors. Direct budget support accounts for nearly half of the state budget (Manning and Malbrough, 2012), which, as we will show, influences policymaking, projects and programmes and therefore the lives of the people.

Critical literature points to the negative effects of globalisation trends in Mozambique. Scholtz and Mamabolo (2006) found that the global food system is dominated by a small number of multinational corporations who assert control over a large proportion of seeds, fertilizer, land machines, transport, processing, sale and trade of agricultural produce. They identified that trends to engage in African countries raise risks for farmers, e.g. through land-grabbing and patenting of seeds. Although Mozambique has remained largely unaffected by these trends, major Chinese investment in recent years and especially the ProSavana project bring uncertain prospects for the near future (Chaiken et. al., 2012). Crola (2009) pointed out that food prices have proven volatile on the global market, mainly affecting the poor who spend most of their income on food and have little access to information on market prices.

Hanlon and Cunguara (2012) argue that over the next decade, mineral and energy exports will provide an increasing share of government revenue, but foreign direct investment, focusing on mineral, land and energy megaprojects, often lacks linkages to local concerns and therefore creates few benefits for the affected population. Increasing GDP growth in Mozambique in the past decade was driven by foreign investment, but has created few jobs and has few local linkages.
In 2010, the government of Nampula Province introduced the provincial strategic plan, ‘Nampula 2020’, in which the development priorities for the province for the period 2010 - 2020 are defined (Government of Nampula Province, 2010?). According to the strategy, incentives for economic activities, especially entrepreneurship, should be created, good governance enabled, transparency improved, infrastructure expanded and social development supported. This development could notably influence small-scale family farmers in Ribáuè, as they are encouraged to engage in business generating activities. Very few programmes focus on development of livestock farming in the district, and those few that are present generally focus on commercialization and intensification of the livestock industry. But even if agricultural production in Mozambique raised significantly, export is limited due to subsidies which prevail in many other countries, and particularly food safety and animal welfare standards in animal production reduce exportability (Bonaglia et. al., 2008).

The literature review disclosed that there is a necessity to critically analyse development trends in Mozambique, as they are influenced by political and economic interests and may bear particular risks for the local population. We took this approach as a guide throughout our work.

2.7.2. Gender and Agriculture
According to the literature, male farmers in Sub-Saharan Africa are still very often treated as key decision-makers when it comes to interaction with banks, traders, government officials, development agencies and other actors, although women play a big role in management of the farm on a day-to-day basis (Workwoha, Reemer and Mayoux, 2013). Livestock labour is described to be traditionally divided along gender lines in the area, and while women seem to be generally the caregivers of smaller animals, they often lack access to knowledge on animal health and welfare and to veterinary services and medication. In households where risk of food insecurity is high, women are generally described to be more likely to suffer from malnutrition than men. In some cases priority is given to food for male members of the household, and even though women are often responsible for growing, purchasing, processing and preparing the food consumed in the home, they typically eat a lower quantity and variety of food than male family members. This issue is apparently present even
during breastfeeding and pregnancy, when women are in need of more dietary iron than men (FAO, 2010).

Literature indicated that Mozambican women face major restrictions carrying out tasks in agriculture and livestock production due to existing gender relations. They still have limited access to and control over land, credit, extension services, information, training and other resources and services. Supposedly, they take little part in decision making bodies regarding production and economic matters due to social and traditional roles (Ministry of Agriculture, 2010). Gender traditions are overall characterised by women’s subordinate status, and even in the matrilineal north, where our study took place, Sida (2007) found that social control prioritizes the collective over the individual and gives women clearly defined roles based on tradition and culture, placing them into a subordinate position.

While during the field study, we found that women generally still tend to be less empowered than men, the reality proved to be much less homogenous than the literature implied. The gap between our findings and the literature may be due to a lack of research that takes into account the great diversity between regions and tends to subsume Sub-Saharan Africa under one cultural and political unit. On the other hand, it is also possible that a greater diversity in gender roles is a very recent development that has not been fully acknowledged by the literature yet.

2.7.3. The Relationship between Human and Animal Well-Being

With this research field being relatively new, literature constantly emerges and insights into this distinct relationship grows. For example, Matsuoka and Sorenson (2013) pointed to the complex and close relation between animal and human welfare in a vast range of sectors. Adams (2000) has exhaustively explained how the consumption of animal source food (ASF) reinforces patriarchal systems and sexual oppression and Spiegel (1996) established the connection between animal exploitation and human slavery. Furthermore, de Pasillé and Rushen (2005) described the close link between animal welfare, animal health and food safety, while Grauerholz (2007)
showed the similarities in the objectification between animals and minorities. It is for these manifold reasons that the full social costs of exploitation need to be recognized.

However, the interconnectedness between human and animal livelihoods is only starting to be recognized in a development context. Studies then often look at market access for livestock farmers or animal health concerns (e.g. Bonaglia et. al., 2008; Marie, 2006; Chaiken et. al., 2012; Schnettler et. al., 2009). Currently, there seems to be no qualitative field study looking at development from a household level while taking into account animal advocacy concerns. We believe that this approach is crucial in order to understand the complexities of livelihoods and the implications of interventions for sustainability.
3. Methodology

In this chapter we describe our methodological framework and the methods we applied in order to gather a wide array of information to cover our topic and provide validity and reliability.

3.1. Study design

We engaged in a problem-oriented, ethnographically inspired, qualitative field study over the course of five weeks. “Ethnographically inspired” refers to the time we spent in the field, as ethnographic studies are expected to last ‘an extended period of time’ (Hammersley and Atkinson, 2007), and are generally not pursued in a period shorter than one year. Therefore, this study is not fully ethnographic. Moreover, traditional ethnographic research is inductive (o’Reilly, 2012). Our methodological approach is however abductive, referring to a research process where theory is used as an intrinsic part of the research process; “it is not invented at the beginning nor is it just produced at the end” (Blaikie, 2009, p. 156). Thus, we are neither proving a theory nor generating one, but assessing a research problem through an analytical framework, contributing with increased understanding of the problem area. Creswell (2014) describes qualitative studies as a way of “exploring and understanding the meaning individuals ascribe to social or human problems.” Qualitative methods are thus appropriate to approach our research topic from the perspective of the farmer.

Three weeks of our field work were spent in Ribáuè District where primary stakeholders were the main focus, that is, subsistence sector farming families, individual farmers and animal breeding associations. Two weeks were spent in Nampula Sede and Maputo to contact NGOs, government officials and other secondary stakeholders to broaden our understanding. As being relatively unaccustomed with the livelihoods in Nampula Province and Ribáuè District specifically, we started our research in Nampula Sede, where we were able to get a first overview. We returned to the city at the end of our stay in Ribáuè with information from the field that needed to be reviewed, verified and broadened. We ended our stay in Maputo with the intention to put our topic into a broader context, meeting UNAC (the National Farmers’ Union of Mozambique), scholars and researchers.
3.2. Sampling
The main strategy we used to reach stakeholders was snowball sampling, where initial contacts, provided by our tutor, were used to establish contact with and information about other relative stakeholders. Towards the end of the fieldwork, purposive sampling was used, meaning that the sample was chosen for the purpose of ensuring diversity of our sample, and to increase the validity of our research (O’Reilly, 2012, p, 44).

Ethnographic research is a continuous process, and being involved in an ethnographically inspired research, we never left our roles as researchers. Although convenience sampling is not always seen as a proper research strategy, as it is a matter of unavoidable incidents and daily life (ibid.), it needs to be mentioned here. When engaging with locals, comparing prices at the market, observing gender and age division in a general context, and being shown the living situation of farmers’ and their animals, we were increasing our understanding of the livelihood situations of our target group and the society and culture that they live in.

3.3. Data collection
To be able to get both a broad overview as well as in-depth understanding of the local animal farming system, we diversified our research in terms of methods, using semi-structured interviews with open-ended questions both in all-female and all-male groups as well as with mixed-gender groups and individuals, considering different age groups and the public and private sector. Observation allowed us to find issues related to livestock farming that were not explicitly expressed and group discussions focused on issues as perceived by the farmers themselves (Chambers, 2007). Interviews were conducted with small-scale farming families and individuals with and without animals, individuals within the agricultural education system in the province, agriculture technicians and the public and private sector for information on policies, programmes and regulations regarding our field of study and for analytical insights.

We had a guidance sheet prepared for each interview, leading us through the areas that needed to be discussed, with flexibility to add questions and change topics as all interviews were a learning process. To get background information on the livelihood situation of the farmers that we interviewed, we used prepared standardised questions in some interviews. This was done to ensure that structural information of livelihoods for the SRL approach could be collected. By using this method,
comparability of responses was increased and the effect of possible bias of the interviewers was reduced (Mikkelsen, 2005, p. 171).

Group interviews were conducted to get access to a greater pool of knowledge, and to create discussions between the interviewees for additional information and insight. A desk study was conducted prior to the fieldwork to get an initial understanding of our topic.

3.4. Validity

We used data triangulation to increase the validity of our research during the interviews by addressing the same issues with different groups and comparing reactions (Mikkelsen, 2005, p. 96-97). We thus talked to all-female and all-male groups as well as mixed-gender and mixed-age groups. This way, we also got a broad overview of our topic and farmers’ livelihoods as well as a good understanding of the local farming system. Furthermore, we as researchers interpret data in a different way, and by conducting interviews as a pair, we were able to compare our interpretations and use them during interviews by asking questions that the other oversees. This way, we were able to develop and broaden our understanding of our topic.

3.5. Reliability

To increase the reliability of our research, we conducted interviews with a broad range of secondary as well as primary stakeholders to look at our topic from a range of perspectives, and to be able to compare these different perspectives in order to verify and analyse the different levels of information that we obtained. Being researchers with different academic experiences and background facilitated cross-checking during the process.
4. Findings

In this chapter, we will present our findings structured along five themes we could identify during our research, namely (i) division of tasks and ownership, (ii) the use and value of animals, (iii) systems of knowledge transfer, (iv) access to animal health care services and (v) policies and programmes. Additionally, we will give a short overview over animal breeding in Ribáuè district.

4.1. Division of tasks and ownership

In Ribáuè, almost every household owns animals, especially chickens or goats, sometimes swine or ducks. Bovine are more demanding in terms of access, inputs and labour and therefore rare in family farming. Here, we will explain how animals are bred and kept, how tasks concerning animal keeping are commonly divided in the family and look at the structures of ownership and control before discussing the role of gender.

4.1.1. Property, Responsibility and Control

The concept of property in Ribáuè does not equal control over the animals, but rather seems to imply responsibility. When we asked who decided when an animal is sold or slaughtered, it was often the man or the couple together, but the decision, which animal of the group would be sold or slaughtered seems to be with the one who was identified as the owner to us, as this person knows the animals best due to working with them on a regular basis. In this sense, chickens and ducks are commonly owned by women or couples, goats are more often owned by men or couples, but not rare among women, either. Bovine were only found with men, except in associations. Fish are owned by men, women or couples. In some cases, men claimed ownership of all animals of the family. In these specific cases, gender roles were still traditional, disadvantaging the women.
4.1.2. Chickens

Generally, we could find two types of chickens that were common in the region. While family farmers keep the so-called galinha nativa, or just galinha, which is a colourful local species, the white-feathered frango was introduced in commercial breeding. Family farmers usually start chicken breeding by buying a galinha at the market, or more seldom through rotative systems\(^1\) or inheritance. Since the galinhas walk freely most of the day, they reproduce with other free-running chickens. They usually sleep in a specially built capoeira (cage), in the farmer’s house or in fewer cases in a tree. Taking care of chickens usually involves supplying water in the morning, which is commonly done by the woman after getting up. If the chickens spend the night in a capoeira, she will open the door and let them run freely. During the day, one of the family members brooms the capoeira, which is mostly done by a child or the woman. In the evening the chickens return to the capoeira by themselves, which the woman, man or a child will close and in some cases supply extra food, for example maize husk, dried cassava, sorghum or leftovers from their own food.

All of the farmers we met who had access to vaccinators and could afford vaccines of 0.5 – 1 MZN per chicken\(^2\) every three months invested in this, but not all had this option. Newcastle disease (NDV) reoccurs three times a year and causes huge losses among chickens. Where vaccination was not accessible, the virus sometimes killed almost the whole chicken population of a village.

Since there is basically no access to veterinary care, other than, in parts of the region, vaccinations, family farmers cannot offer the adequate health care to the chickens they take responsibility for. Overall, we could see that in family farming, chickens do not get much attention and are mostly left to themselves. This gives them significant freedom of choice, but it also means that they face nutritional issues and

---

\(^1\) See page 22 for rotative systems in goat breeding. They may be similarly applied in chicken breeding, but are even less common.

\(^2\) Vaccine prices are subsidized by the state. The 0.5 - 1 MZN per chicken is a direct payment to the extensionist, who gets the vaccine for free from SDAE.
run the risk of injuries, road accidents and illness. Another obstacle to breeding for many of the small-scale farmers is theft, which seems to become more common. Farmers said that people from outside the village steal the chickens at night and sell them in Nampula, which leads to the habit of keeping chickens inside the house, which poses health risks to humans. When being sold, the chickens are often taken hanging by their feet to the market (sometimes on motorbikes), where they are kept in small boxes or cages or may have their legs tied together so they cannot run, an obvious deprivation of basic capabilities.

On the other hand, the *frango* chicken is bred specifically for commercialization and consumption purposes and is distributed as chicks mainly through Novos Horizontes and the fast-food chain Frango King in Nampula, both offering different types of contract farming (Hanlon and Smart, 2014). Both commercial chicken breeding associations we met in Ribáuè got their *frango* chicks from the latter retailer, which is active in the whole value chain from producing feed to selling chicks. There is no contract that obliges all farmers to sell back to Frango King, and chickens can be sold at the closest market, at least partially due to transport costs to Nampula. Through monetary incentives in terms of reduced chick prices for long-term customers with monthly payments, Frango King encourages business planning, entering the banking system, but also binds customers to the company chain. In this way, human capacities could be built which can empower the members of the respective association sustainably, because knowledge can hardly be lost, even if the association fails. However, to get there, associations must have shown a positive business development for a longer period of time, so skills are actually gained somewhere else beforehand. We will look further into this in the chapters *Knowledge Transfer Systems* and *The Role of Associations*.

In spite of the great influence that Frango King could assert, farmers did not report any problems with the retailer towards us. Frango King only sells chicks to buyers who can prove they bought the adequate food, vitamins and vaccination from
Medimoc\textsuperscript{3}, the only retailer of veterinary medicine and vaccines in Nampula, therefore enabling at least basic animal health. This significantly contributes to the health of the chickens, but breeding conditions on the other hand violate animal well-being.

In commercial breeding, a coop is necessary with two different areas for younger and older chickens. The area where the chicks are kept is supplied with heat lamps and the water they receive contains vaccine against NDV. Both chicks and chickens are constantly kept inside in a darkened room on a sand and straw floor until sold. Since a big investment is necessary, commercial chicken breeding usually takes place in associations, and many times, the basic necessities, such as heat lamps, building material, vitamins, vaccination and fodder are supplied for free by a donor organization or by the state during the initiation phase. An organisation created by members of HIV and AIDS affected households told us that the biggest issue was transportation, as chicks, food and medicine need to be bought in Nampula. The chicks are carried in cardboard boxes and several may die during transport on a public bus, but renting a private car for faster and more secure transportation is very costly. Commonly, between 300 and 500 chickens are bought each time, accordingly up to a thousand chickens are kept in a commercial farming house at association level in Ribáuè. Just like galinhas, frangos are sold in cages or tied at the market or may be bought right from the coop.

4.1.3. Goats

Goat breeding could traditionally be started through rotative systems, where a pair of goats is borrowed from an owner in the community for a certain number of years. As a reward for taking care of the animals, the farmer can keep some of the offspring from that period, and then has to lend a pair of goats to another farmer. In this system, investment costs are kept relatively low and therefore create an opportunity for those with less access to finances. Currently, we found this system only installed through associations, projects and programmes from outside the rural communities. It does not seem to be used with local initiative anymore. Aside from the rotative system, goats may be inherited or are bought at feiras, livestock trade markets, to start breeding them, which then requires a financial investment that many farmers cannot make.

\textsuperscript{3} Also an importer and retailer of human medicine.
Goats are often taken care of by younger family members or paid shepherds. During our field work, many goats ran freely during the day, but farmers said this was usually not possible during crop growing season, as the goats would eat the plants from the machambas, fields, and cause conflict with the owners, which sometimes results in violence towards the animals. During this time, a family member, usually a child or an adult male, would take the goats to graze in safe distance from any machambas. Farmers who can afford it pay shepherds to watch the goats, or otherwise tie them to a flock, which then again increases the risk of theft. The animals are usually let out of their corrals, goat housing, in the morning, although we encountered several cases where the goats remained in the corral until noon because their owner did not have time to look after them. In the evening, goats are taken back to the corral by the shepherd or come by themselves. As with the chickens, any family member may close the corral and in some cases supply extra food, mainly grass, mango leaves, banana palm leaves or cassava peel, although coordination and responsibility for this lies with the owner.

Unfortunately we did not have a chance to visit a market for goats, but we could observe some animals being transported on motorbikes. The transport practices for animals, chickens and goats alike, are certainly not meeting animal capabilities, as they are deprived of their freedom to move and forced into unnatural and possibly injuring positions. However, they are within the limited scope of transport opportunities that are open to farmers, who often do not even own a bicycle, let alone a motorbike or car.

4.1.4. Fish
Farming fish was recently introduced in the region as an integrated farming technique. Since fish is mostly sold dried in Ribáuê due to the distance to the sea and bad infrastructure, the demand for fresh fish is high and buyers come directly to the fish ponds, so the farmers do not have to handle transport issues. Outputs are good and the fish is also eaten by the farming families themselves, therefore contributing to food
security and diet diversification. Furthermore, the integrated approach enables farmers to use the water from the ponds to irrigate and fertilize their fields, while the dung from other animals is used to darken the water, so birds do not see the potential prey.

Fish tanks need cleaning about once per month, which involves digging out the grass and mud and was explained to us as a very physical and hard work that some women “can’t” do themselves. Although we can assume that women are much more limited due to the many other tasks they are involved in, possibly lacking energy and time, the men in this group only pointed out physical factors. Here, again, gender roles limit women. While we see them perform extreme physical work on a day-to-day basis, men claim women were the weaker sex, neglecting other limiting factors. We were told that women then usually ask their husbands to help if possible, or otherwise pay another male person in fish for doing the work, if they can afford it. Putting in fish larvae is a male task, as is collecting manure to darken the water. Our male interviewees claimed that women are ‘better’ at pounding the food, so they usually feed the fish of their husbands, even when they are not members themselves. However, it remained unclear what exactly makes women better at the pounding. It can be assumed that it is merely the practice they have it due to traditional gender roles where women take care of food and the kitchen.

4.1.6. Constraints
In animal breeding, theft is a major constraint and road accidents occur regularly, which may not only harm the animals and therefore their owners, but also impairs health of the person involved in the accident, as one of our colleagues experienced himself. The biggest shock in terms of numbers for animal breeders are diseases, mainly NDV with chickens, but we also came across many deaths of goats and swine due to other diseases. The perseverance of animal diseases is mainly due to a lack of animal health services, which we will look at in chapter 4.4.
4.1.7. Construction work

Construction work is an exclusively male task in Ribáuè when it comes to building capoeiras, corrals, fish tanks and other kinds of animal housing. Female heads of households ask male family members, like a brother or father, to build cages for them and are therefore hugely dependent in their ability to breed animals. However, adult education in the area has been teaching construction work to women and therefore seems to have loosened up the traditions (see chapter 4.3).

A single mother of twelve children, who had recently lost her husband, became the main caregiver of their animals from what she had learned by observing her husband taking care of them. After all animals died, she felt restricted to start up animal breeding again, partly due to her inability to build up and maintain corrals and capoeiras. When asked about the reason for her inability to do this, as surely she had observed her husband doing construction work, she answered that earlier, she did not have the “spirit” to do this, “but now that you ask, maybe I do!” This indicates that indeed, the problem is not lack of physique or knowledge of women to construct. Women’s inability to do construction work seems to be a set of mind derived from traditions and social norms. These however seem to slowly disperse, as women start engaging in traditionally male tasks, which seems facilitated by associations and adult education. But breaking with traditions takes time.

4.1.8. Slaughtering

We also learned that slaughtering could only be done by men, but the reasons for this seem diverse. We met only one female head of household who slaughtered her
chickens herself. Members of an elder tribal council explained that restrictions were due to traditional reasons, but unfortunately it was not possible to get deeper information on what this means, as the members did not seem to know or were reluctant to explain. A group of women explained they could not take a live for emotional reasons, and this may also apply for men, but they would have to do it anyways or ask another man. Others said it was ‘not proper’ for women to kill animals, and the diversity and, in a sense, shallowness of answers hints to the lack of an actual reason, but a mere perseverance of a very strong tradition or social norm.

4.1.9. Income
The informal market remains at the centre of Mozambican trade, therefore animals, usually live, are commonly sold along the roads and on markets. We found many ways of dealing with money after selling an animal. The money could stay with the owner, but in many cases has to be ‘presented’ to the partner, most commonly by the woman to the man, for transparency. In some male headed households, the man spontaneously decides whether the woman can keep the income or what she should use it for, or would take it to buy something himself, while we found that in many families, investments are decided together. We also found that women are often understood as better managers of money, meaning they store it, but decisions often remain with the husband.

4.1.10. Gender Roles
Overall, we could see that gender roles were mostly not as strict as the literature implied, but this varied greatly among families. At the same time, many restrictions remain for women, while men start taking over women’s tasks. We could observe many men carrying tools, water and even children, which until recently were described as solely female tasks. In only one case did a women slaughter, a traditionally male task, but animal breeding through associations seems to be opening up gender roles significantly. This is where women take care of bovine and goats, have negotiation

While a man claimed that women weren’t able to pursue the very hard and physical work of cleaning a pond, a female fish farmer was pounding grain next to the pond with a very heavy wooden block. We have little doubt she could be cleaning the pond by herself.
power and make their own incomes. We assume that the slow dispersal of gender roles is related to gender training, especially in adult education and within the work of some NGOs. This would also explain the vast differences in gender perceptions between neighbouring families, as some may engage in e.g. adult education, while others do not. Also, sheer necessity may open up gender roles: the absence of a male family member to perform these tasks forces women to take over. However, necessity brings no promises for the future, but education may. It would be a study in its own to look at the effects of gender training in Ribáuè and is beyond the scope of this thesis, but we encourage others to engage in it to explore its chances and limitations.

A significant change in gender roles was apparent in men taking over tasks that were traditionally female, such as carrying water or firewood, carrying the tools home from the machamba, and in rarer cases childcare. Cooking still remained with women and we found that it is much less likely that women take over men’s tasks, as seen with construction and slaughtering, but not impossible, as seen in ownership of goats. Associations seem to play a significant role in empowering women and loosening gender roles (see below).

A group of women, several of them divorced, explained that their roles had not changed the least compared to their grandmothers’ and mothers’ times, and apparently all of them had experienced domestic violence. In this sense, traditions and culture influence gender roles and the abilities of women to participate in the community and apply livelihood strategies.

Domestic violence plays a special role in this context, which we heard is executed by both women and men towards their partners, and may be so severe that bodily and mental health are impaired in a way that working becomes impossible or particularly harder, and it may lead to divorce which then again limits women in particular, who are not able to perform certain ‘male’ tasks due to social norms.

4.2. Use and value of animals

In Ribáuè, we could find that there is a range of uses for the different kinds of animals we looked at, of which many are interconnected. Here we explain the use of livestock (i) as a wealth ranking instrument, (ii) as social status, (iii) as a live bank, (iv) as a payment method, (v) as an investment opportunity, (vi) as a diversification of assets, (vii) as a way to increase resilience against hunger periods and for nutrition. In this way, animals have much more than just a financial value, they are significant in
increasing human capital. Before, we look at animals as a wealth ranking instrument and as a status symbol.

4.2.1. Animals as a Wealth Ranking Instrument
Although possession of animals can be an indicator for the economic situation of a farmer, it is not a reliable wealth ranking instrument. For one part, that is due to the mechanisms to start breeding which may or may not require money to invest, and the low inputs required. The other reason is the highly volatile health of the animals, which includes seasonal deaths, so that one person could be ‘rich’ in chickens in March and have none in April because they all died of Newcastle disease. This furthermore proves how important it is to look at development in broader terms than economic wealth, because access to vaccination and other veterinary services can have an immense impact on the animals a farmer possess and the related capitals, as we explain below.

4.2.2. Animals as Status Symbols
While animal owners explained to us that others were jealous of them and therefore attacked their animals, a women without animals said how happy she would be ‘entering the house of someone who breeds animals, because they are truly producing’. It seems that both statements are pointing in the same direction, that producing animals is something to strive for, which is in line with our other findings. It may simply be that those, for various reasons unable to be breeders, project their frustrations on the other animals. Whatever the reasons, we cannot clearly say whether owning animals as such is a status symbol, because findings do not indicate a correlation between prestige and animals. However, we identified that successful breeding is understood as entrepreneurial spirit and achievement.

4.2.3. Animals as Live Banks
Especially chickens and goats serve as banco vivos, live banks, possibly due to a lack of commercial banks in the region. The animals are kept until an investment is necessary, for example when school starts and uniforms or notebooks for the children need to be bought. The market price for one chicken is between 150 and 200 MZN, and 800 to 1500 MZN for a live goat or 100 MZN per kilo goat meat. Accordingly, goats are used less often and for bigger investments like a radio or a bike. The animals
are usually sold at the market or to a trader and the money is then used for the corresponding purpose. However, due to diseases and theft, this is a very insecure system, especially with chickens, and its efficiency largely depends on access to vaccination, knowledge of animal husbandry and possibilities to make use of these.

4.2.4. Animals as Payment Method

But not always are animals exchanged for finances, they can also be used as a payment directly, especially when it comes to *ganho-ganho*, day labour. For a day on another family’s field, farmers sometimes get paid with a chicken, or, within mutual help schemes, are usually rewarded with a full dinner containing chicken. Farmers engage in *ganho-ganho* when in need of finances or food, but also as a way to diversify income. Most of the labour in Mozambique is in the informal sector and people remain largely outside the monetary system. This, for one part, is a livelihood strategy that allows those working in *ganho-ganho* to complement their income from their *machambas*, and for those employing day-labourers to efficiently harvest their fields. For another part, this shows the inadequacy of measuring poverty in financial terms when the reality of the farmers is mostly outside financial schemes.

4.2.5. Animals as Investment

For many of the farmers and farming families we met, breeding animals was understood as a chance to lift themselves out of poverty. We heard that, especially with chickens, input was minor, but returns were expected to be high and fast. Goats were said to require more input, but also offer more outcomes as they have a significantly higher market price. This was particularly surprising considering the great losses of animals that so many farmers experience, sometimes several times a year. Because although the farmers were aware of the high risks that diseases, theft, road accidents, beating and a lack of knowledge and access to animal health services posed, most were ambitious about engaging in animal breeding and showed confidence in high returns. It is true that, compared to other investments, like tobacco or cotton and other cash crops, livestock may bring faster results with minimal input. Especially chickens could easily be kept while working on the *machamba*, they do not
require much investment, attention and work, as compared to opening or renting and working on a field, harvesting and storing. However, tolerating the high risk may be more of a necessity than audacity, since there are few alternatives for investment and the many other purposes that keeping animals serves.

4.2.6. Animals as Diversification of Assets
Animal breeding proved also to be one of the few ways to effectively diversify the assets of the farmers. Whereas cash crops, just like food crops, depend on seasonality and rain, animals can be made use of whenever needed, independently of season, and breeding is applied as an active livelihood strategy to increase the resilience against hunger periods, which occur usually between December and April before harvest starts again. Moreover, we found a bigger inclination to take risks and try new strategies when it comes to animal breeding, for example in improved shelter or starting to breed another species, like fish, because results are immediate and not just visible at the next harvest, and there is less dependency on animals as compared to crops.

4.2.7. Animals for Nutrition
When the home-grown crops have run out and hunger strikes, many families sell chickens at the market or to traders to reinvest the money in basic foods, like cassava, maize and beans. However, animals are rarely eaten in most rural parts of Ribáuè. As described above, chickens can be offered for work in mutual help schemes, but apart from that, are mostly eaten during special occasions, such as weddings, graduations and funerals, which may occur less than once a year. Few of the farmers seem to consume eggs, and apparently never from their own chickens, and none seem to drink or use goats milk. We were told that eating livestock was only introduced recently, as animal breeding was only common for the demands of colonizers and had no tradition in the region. Furthermore, many myths exist around avoiding certain foods, especially animal products, although health and nutrition programmes try to combat them. We heard for example that eggs were unsuit for pregnant women, causing baldness of the child, sugarcane caused epilepsy in the baby and bananas caused problematic delivery. Health and nutrition services try to destroy these myths to improve overall nutrition, and many interviewees said they are aware they are untrue. That egg consumption remains very low may either point to the persistency of these
tales or, what seems more likely, people in Ribáuè lack access to and do not conceive eggs as part of their diet.

4.2.8. Livelihoods of family farmers in Ribáuè

Geographic location greatly influences infrastructure, as roads are better maintained in urban areas and electrification is less advanced in rural zones. During our field work, we could experience ourselves the advantages of a road being built from the coast all across Nampula Province to Malawi, which facilitates transport and trade. It passes through parts of rural Ribáuè and therefore creates a chance for the affected communities. Electricity is particularly important when it comes to working and studying in the evenings after the sun sets, but it also enables commercial chicken breeding, as chicks require heat lamps.

Farmers in Ribáuè are particularly vulnerable to shocks, as resilience is low and means of diversification and secure investment are scarce. Recurrent shocks are particularly too heavy rains or draughts and other reasons for crop failure that expose farming families and their animals to severe hunger. Bodily health is vital to be able to work on the machambas and sustain the family, therefore diseases and especially HIV/AIDS create severe vulnerability for a household. We also found that farmers, especially women, regularly need money to visit sick family members, but also for funerals, which cause them to travel and therefore refrain from work for this time.

Many of the factors within the vulnerability context, such as hunger periods, animals and crop yields and prices are linked to seasonality, as the farming system largely depends on rain. But also school fees are recurring and hit the farmers at their most vulnerable times before the harvest in April, when hunger is strong and income is scarce. Increasing resilience must therefore be a major goal for policymakers.
4.3. Systems of Knowledge Transfer

There is a variety of mechanisms through which knowledge regarding animal breeding is distributed. Here, we will look at formal education at school, adult education, knowledge transfer within the family, traditional knowledge and learning through public, private and NGO actors.

4.3.1. Primary School

Primary education was described as an important investment by all the farmers we interviewed, and animals, as bancos vivos, were commonly used to finance school equipment for children. Education was frequently said to be influential for the future of the farmers’ children, but also the farmers themselves, building on the tradition of strong family bonds where children care for their elders. However, dropout rates are high and the quality of primary education cannot meet the expectations it raises, as illiteracy remains high.

4.3.2. Secondary School

Secondary education was in all cases the goal of young people we met that were enrolled in primary education, but possibilities are scarce as only four schools exist and distance and accommodation costs exclude many young people from attending. Only the students at the Agricultural Institute in Ribáuè had future plans in agriculture, with the main reason being employment security and the ability to start an own business, which is fostered at the institute. Job security in the agriculture sector was later seconded by another youth group, although they saw more benefits from general secondary education. This preference of general education (and occupation) over agriculture hints to how unattractive agricultural work is for income generation. Subsistence farming was often described as ‘suffering’ to us by the farmers, which shows how deprived and hopeless family farmers in this sector are. A failure to guide attention towards improving agricultural work on a broad scale in policy-making goes along with a
growing group of educated but unemployed young people that thrive to escape the unprofitable and demanding farming sector.

4.3.3. Adult Education

Adult education was generally valued highly. The literacy classes, a project coordinated by the FELITAMO (Promoting Women’s Literacy in Angola and Mozambique) initiative and financed by the European Union⁴, include agricultural and livestock training, and everyone is taught the same content, regardless of age and gender. Therefore, women and men receive education on planting techniques and construction work, enabling empowerment for women and loosening up gender roles. Equality between men and women in work load and labour roles are promoted and seem to be more and more translated into practice.

Despite the importance of adult education for farmers, poorer (and more remote) farmers have less access to it, as their general struggle to sustain themselves and their family takes up substantial time and energy. Their field(s) might be small and far away, their children malnourished, and they are less likely to have livestock to diversify their assets. They therefore have less surplus time to use for knowledge gain, and naturally, prioritise survival over education.

4.3.4. Knowledge Transfer within the Family

Education within the household is generally said to be a female task. Since women are the ones most involved with childcare and spend more time with the offspring, women were described as the main educators at home. Women teach the children for example about cleaning, cooking and other household tasks. Regarding livestock however, most interviewees had learned how to care for animals by male figures, that is fathers, husbands or neighbours, indicating that gender roles remain quite strong in this regard.

4.3.5. Knowledge Transfer through Governmental and Non-governmental Actors

Besides formal education, governmental and nongovernmental actors apply other strategies for knowledge transfer. An effective way of distributing knowledge of animal farming to the rural population is to contact local authorities of the village in

⁴ For more information, see: http://www.unesco.org/uil/litbase/?menu=13&programme=111
question, who then organise a meeting for the population of the village. The local authorities are respected in the community, well known and listened to, and therefore good candidates for recruiting people to go to meetings. This method is for example used by the provincial department of agriculture to spread knowledge on animal diseases. Women are however said to be more limited to attend and be active in meetings than men due to traditional reasons. To our own understanding, division of labour plays a role, as women are more preoccupied in the home and have less surplus time, affecting their capability to attend the meetings. Women are also less likely to speak up at meetings, limiting their ability to actively participate. This was frequently seen in interviews where both men and women were present, women generally spoke less than men, and men tended to take over the discussion and answer on behalf of women when women are specifically addressed. However, women seem to have more influence on discussions than is visible to the observer and their silence must not be mistaken for complete powerlessness (Åkesson, 1996, pp. 57-59).

Information can be transmitted to rural populations according to the target group’s tasks in the current division of labour. As an example, women are taught about chicken vaccination and men are informed about pig and bovine health through meetings organised by local authorities. Even though this seems to be an effective way to distribute knowledge fast and efficiently, it may also maintain gender roles within the animal farming sector and limit women to breed other kinds of animals than chickens.

4.4. Animal Health Care Services

In this section we look at the issues regarding animal health services. We found that geographic location has a major influence on livelihood strategies, as it defines access to basic services. While in the urban areas access to vaccination for animals is comparably good, there are less services in rural zones, and much less in very remote areas, which can often not be reached during the rainy season because roads are destroyed. Although we found efforts are made to reach more rural zones, it is still not sufficient to supply basic services to all. By looking at NDV vaccinations, but also gender training in particular, findings indicate a peri-urban disadvantage, which
means that the focus of many programmes on rural areas seems to overlook areas that are very close to urban areas but lack access to urban services. Interviews we conducted right outside *Ribáuè Sede*, the city of Ribáuè, revealed that significantly fewer women decided to engage in chicken breeding because theft and diseases made it almost impossible, and the women said they had never seen or heard about vaccinators or gender training in their area, which would explain the absence of chickens.

4.4.1. Community Vaccinators
Community vaccinators are trained by extension workers to vaccinate chickens against NDV by dripping the vaccine into the eye of the chicken. Because of the comparably easy task, no further special education is required to become a chicken vaccinator. The small number of vaccinators, lack of transport and too little vaccines supplied by the Agricultural department hinder successful vaccination on a broad scale. Several officials interviewed found women to be more efficient as vaccinators than men, and an observation done by AENA (National Association of Rural Extension) showed that women vaccinate three times more than a man within the same time frame. While the AENA representative ascribed this phenomenon to the women’s ‘patience’, we assume it is more likely that women, having fewer income opportunities than men, are more engaged with this practice.

While farmers seem to understand this as a good investment, problems arise in relation to the foraging of chickens, which are not marked, so cannot always be clearly identified as belonging to a household and having or having not been vaccinated already.

4.4.2. Veterinary Service
There is only one active veterinarian in all three Northern provinces of Mozambique, situated in Nampula city and working in a shop as distributor and advisor for *Medimoc*, Mozambique’s medical products importer. As he only works part time “in the field”, very few farmers can be reached. Furthermore, his service is a costly business that only major breeders and some associations seem to afford.
4.4.3. Animal health costs

We have described that vaccination is not affordable for all farmers. The same goes for special animal fodder. A fish breeding association we met in Lapala mentioned that an extension worker in the area had advised the association to enlarge their fish breeding ponds, but as they did so, the already existing problem of lacking food for the fish grew bigger, and the enlargement of the ponds was judged inefficient in every way by the fish breeding farmers, causing problems rather than solutions. A suggestion from the farmers was that the extension worker should invest in a factory for the fodder, and/or provide the farmers with credit loans to buy fodder. As touched upon earlier, this example shows how plans to develop and expand the family farming sector in Ribáuë does not at all times go hand in hand with what the farmers need. While what the farmers need is to sustain their produce with better nutrition and fertilisers it seems as though development plans are one step ahead. Without considering the foundations needed to develop fish farming, the production is already enlarged to the extent where it makes it even harder for the farmers to sustain it.

4.4.4. Traditional Medicine

Traditional treatment and medicine for animals seems not to be very accessible to small-scale farmers. As said by a traditional healer in Matharya: “It’s harder to find traditional knowledge of animal care than vaccinators.” People usually rely on the work done by vaccinators and extensionists or have no means whatsoever to treat their animals.

However, after much inquiring and only reluctant answers hinting to “some kind of plant”, it was unveiled to us that the plant in question was suruma, marijuana, used in the animals’ water. Since the possession of this plant is illegal, its use was denied. The prevalence of suruma use could therefore not be identified. We also came across farmers that treated wounds on animals with ash and salt. We can conclude that there is comparably little knowledge about traditional livestock medicine persisting today, although it remains unclear if there was more knowledge that got lost or if, due to the lack of tradition in local animal breeding, there never was more.

“There are no traditional help systems anymore. Today, everyone works for themselves.”

A female farmer in Muhilyale
4.5. The Role of Associations

Associativismo plays a growing role in animal breeding in Ribáuè. What is called an association in Mozambique is often actually referring to a cooperative in legal terms, where people get together to gather their funds, time, skills and negotiation power to engage in an income-generating activity, but outputs are distributed and people often possess their own share.

Whereas in some cases, the clear goal of associations is animal breeding, or animal breeding constitutes a part of this goal, for example besides horticulture, we also came across an organisation that wanted oxen for traction, but ended up becoming breeders due to a lack of training for the oxen. The lack of training provided with animal breeding seems to not be unique in top-down interventions. Farmers are also not always provided with the information necessary to manage and sustain an association.

A goat breeding association in Matharya that had received support and training from several organisations for 6 years and has been growing with quite some success faced problems with finance and lack of vaccine and medicine when we visited them in April, as donor support had ceased a few months earlier. This example indicates that dependency on external support remained too high, possibly because management skills and a focus on sustainability were lacking. We came across this dependency or even passivity several times, both with farmers engaged in associations and those that explained their inability to develop without external help. While we try to understand the farmers’ situation of hardship, we saw a sign of disempowerment that might not only come from their difficult poverty situation, which we will look further into in the Vulnerability Context chapter.

A part of measures to increase agricultural extension services in 2003, a total of 1223 cattle were distributed around the country in 2003, thereof 100 cows and 70 goats in Nampula, to “repopulate” the cattle society (IMF, 2004). Accordingly, other similar measures have been conducted throughout the years. From what we can see, these measures were not sustainable in the case of Ribáuè, where there is no tradition of animal traction and breeding. This produces opportunity costs for the development
of the community in general, as whenever a development project fails, resources for further development are going to waste where they are most needed.

Even though we found many challenges regarding associations receiving donor support, we also met associations that were doing quite well. For example, an association working with orphaned children finances its activities with frango breeding initiated by the National Institute of Social Action (INAS). Another association working with HIV and Aids affected households in Ribáuè breeds frangos to generate income and to diversify the diet of the association’s members. The association got a fund from COCAMO (Cooperation Canada Mozambique) to start breeding and the money was used to buy the first 500 chicks, fodder and vaccination. However, due to the fact that no training was included, half of the chicks died. It was due to high engagement and an independent learning process that the association is economically successful today.

These two associations were both situated in central Ribáuè, close to the biggest market in the district, and have access to electricity for the chicken production. The ones starting the association for the support of orphans had employment when starting the association, and therefore resources to tackle a situation where they did not get the funding they expected. In the HIV and Aids association, the president had the initiative and opportunity to gain knowledge herself. We can therefore assume that living in an urban area may decrease dependency on external support. Despite these benefits, the cost of transport for picking up chicks and resources, which is only available in Nampula city, is the biggest investment for these associations, and apparently the only obstacle for continuous sustainability in the association with HIV and Aids affected members. Poor road systems and the cost of renting cars to go back and forth can run up to 20,000 MZN for each trip, which has to be taken up to 8 times a year.

These are clear examples of how commercialisation can actually increase the livelihoods of vulnerable groups, by benefitting them both financially and nutritionally. When put into perspective with the more remote population of Ribáuè, this solution however poses problems. Access to commercial chicken breeding is unlikely for rural subsistence farmers. Besides lacking the financial capital, electricity is lacking in many rural areas, access to transport is rare and road construction is in many cases bad for commuting to and from Nampula. So although it is expensive for urban associations to start up and maintain a chicken breeding on a commercial scale,
in the cases mentioned above, establishers of the associations had surplus finances and time to stabilize a destructive situation. However, the more rural population seems not to have the chance to establish chicken breeding on this scale, and chances to sell chickens to traders might decrease with this development, as demand might be covered by the frango chicken industry.

4.6. Policies and Programmes

A broad range of policies and programmes affects rural subsistence farmers. We will here discuss some of the most important ones for animal breeders.

4.6.1. Extension workers and the Integrated Programme for the Transfer of Technology (PITTA)

The PITTA programme is a recent governmental strategy by the Ministry of Agriculture. The programme was introduced in Nampula Province in 2010 and includes new working strategies for public extension workers. Prior to the implementation of the PITTA programme, extension workers would apply their approaches and new methods on farmers’ fields, where the farmer was the main actor implementing the methods, and the extension worker had the role of an instructor. Now, the extension worker produces on his own fields, having gone from instructing and observing the farmers’ work towards a show-and-tell approach.

Extension workers play a big role in knowledge distribution to rural areas. Currently, there are 4 extension workers and 3 agronomists from the public sector in Ribáuè, all male. The agronomists work as coordinators of the extension workers, but don’t interact with farmers directly. Two extension workers from NGO’s are said to be working in the district, and several private extension workers are working for the tobacco and cotton industry. Since no private extension workers are known to work within livestock, the public extension workers are the ones most valuable for animal breeders.

Only one of the public extension workers in Ribáuè has a motorcycle. Being their only means of transport, this creates a problem in reaching rural areas of the district. Many of the farmers interviewed had no access to technical help from extension workers or vaccinators, even in areas where those kinds of services are, according to farmers and officials, supposed to be provided.
Currently, an aviculture project within PITTA is being introduced in Ribáuè, where a large-scale chicken farm with 2000 animals is to be created, owned and managed by an extension worker. Trying to find benefits that farmers can gain out of this project, the extension worker mentioned the possibility for farmers to buy frango chicken from him, but farmers interviewed rarely consume meat, and have little surplus income that could be used to buy these chickens.

The PITTA programme is implemented to benefit the extension worker and, according to an extension worker, increase their low incomes, and local farmers are unlikely to benefit from the chicken breeding project, apart from the possibility of being seasonally employed in the construction process. Interestingly, none of the extension workers saw a substantial benefit with the chicken project for other farmers, and only little financial gain in the PITTA programme for themselves. At the time of the interview, none of the extension workers had benefitted from the PITTA programme in general, complaining about having to pay labourers to work on their fields, while they are busy with other assignments. They also criticised the lack of clarity of PITTA projects, and the top-down approaches that lack viability studies to verify their effectiveness. These approaches contradict the overall focus on decentralisation in public policies and strategies.

This strategy is, however, in line with the current development strategy of locating entrepreneurs to build up a community, for example shown in the Nampula Strategic Plan (Government of Nampula Province, 2010?). In this case, the extension workers are the entrepreneurs in-the-making, provided with chances to engage in income-generating activities while engaging with the local community, to inspire and encourage them. However, disadvantageous for both extension workers and farmers, it seems to be rather problematic than constructive. The opaque top-down approach, excluding extension workers from decision making processes, deprives them and the communities of impact and success.

4.6.2. The District Development Fund (FDD)

As mentioned before, governmental strategies focus to a large scale on decentralisation, which is a way to increase the independence of districts in the
country. In Ribáuè, one of the most visible measures toward increased decentralisation is the District Development Fund (FDD)\(^5\). Prior to the field work, we saw the FDD as an extensive contribution to the process of devolution of powers and decentralisation, through moving the decision-making power regarding funding and developing projects to the local population.

However, we found that people had various challenges regarding the FDD. Applicants mentioned that they couldn´t apply because of lack of ID or election card, or that they found the minimum amount to apply for (100,000 MT for individuals, 350,000 for associations) to be too high. We met people that had received less than they initially applied for from the fund, and when the Consultative council in Matharya was asked about this, they said this was problem of the past, which would not occur nowadays, because applicants do not receive funds when the FDD cannot provide. The minimum amount of money that can be applied for used to be 50,000, but was increased to make sure that the projects will be sustainable and help to “build up society”. Thus, the FDD requires farmers to apply for bigger projects in a group rather than individually, requiring risk taking behaviour and organized group initiative. This could work well if promoted accordingly, but trust in the fund from the farmers’ side is needed, requiring transparency and secure transfer of funds to accepted applicants.

An explanation of why people receive less than they applied for could be due to the payback rate of Ribáuè, meaning that the problem is structural, due to lack of organized management. Another reason could be lack of transparency in the levels that applications and funding goes to before reaching the recipients. Either way, only little of the funding money is paid back and we did not come across any successful projects. A lack of business training may, once again, play a crucial role. Female participation in FDD projects is low and a female farmer explained that women are afraid of starting their own business and lack initiative to coordinate themselves, form associations and apply together as a combined force. However, the chief of the FDD in Ribáuè argued that women are more credible than men.

\(^5\) See Annex 1
According to him, women think about development that benefits whole families, while men focus more on individual gain. He further claimed that it is more likely that men don’t use the fund as planned without valuing long term efficiency and sustainability. These discussions prove how much is still thought in terms of women and men and how differently their potentials are perceived. The FDD started to promote women’s participation in 2011, and it has grown substantially since then.

4.6.3. ProSavana
The ProSavana project is a cooperation of Brazil, Japan and Mozambique, and has the aim to “promote economic and social development through agricultural development in the Nacala Corridor” (PRONEA, 2007). It is based on promotion of commodities, inspired by a leading model used in the Brazilian region of Cerrado (Chichava, Duran, Cabral, Shankland, Buckley, Lixia and Yue, 2013?). The plan was initiated in Mozambique in the end of 2011 and has since been criticised by concerned researchers and the civil society. UNAC accuses key stakeholders of lack of transparency towards the civil society, condemns the programme for its top-down policy and expresses concern over land-grabbing (UNAC, 2012).

We include this section here due to the immense influence that ProSavana can have on the livelihood of family scale farmers in Ribáuè. So far, no ProSavana projects have a main focus on livestock, although some include it. Livestock industry is however a part of the long term goals of the ProSavana plan. According to the plan, surplus of major food crops should fulfill the demand for livestock industries between years 2026 and 2030 (PRONEA, 2007). Therefore, the ProSavana will, if implemented accordingly, significantly change the livestock industry in the country. Considering the lack of transparency and the top-down critique, it is questionable how much local farmers can and will gain out of this transformation. It is crucial to understand the implications that these projects have for subsistence farmers in order to increase their agency, but secrecy seems to be an inherent component of ProSavana.

4.7. Summary of Findings
We found a much greater variety in division of tasks and ownership than the literature implied. While keeping animals fulfils a range of purposes, they are an insecure asset, as animal health is low. Traditional knowledge and mutual help schemes tend to be replaced by associations and top-down interventions. These interventions however
overlook the complexity of animal breeding within the subsistence farmers’ livelihoods.
5. Analysis

In this chapter we analyse the findings by applying the SRL Framework in order to show the interconnectedness and influence of issues and context. The chapter will be structured accordingly, focusing on what we identified as the most important aspects for animal breeding in the local rural livelihoods.

5.1 Vulnerability context

We have seen above that geographic location of a farmer can have a major influence on his physical capitals, like road infrastructure, access to markets and electricity and therefore, too, access to health services, extension work and education. A deprivation of physical capital can in this way influence human capital (especially health and education and knowledge regarding animal health and welfare) which then impact on the ability to work and possibly the outputs achieved. The geographic location, as such, is of course not the problem of the farmer, but the inability of the state to supply all people with basic services, irrespective of how remote (or peri-urban) they live. While improving infrastructure is a long-term and capital intensive project, which we could see happening in Ribâuè but which will probably not be sufficient in a foreseeable future, there are other ways to reach a broad population on a regular basis. Additionally to a growing number of health posts in the region, a mobile health unit was installed that travels by motorbike, or when roads allow it by car, to supply vaccinations and at least basic health care to remote areas. While this is a human health project, in animal health, local vaccinators are bound to their specific areas, and of the 5 extension workers, only 1 seems to have a motorbike while covering a too large group of farmers already as it is. In spite of the crucial role that animal breeding plays, too little is being done to secure the assets that animals are.

Overall low resilience against the many shocks that farmers may face is a result of the lack in capitals. While livestock can increase the resilience as a banco vivo and through improved diet, it is itself tremendously vulnerable to shocks. Therefore, if it was possible to improve animal health, welfare and safety, overall resilience of the many livestock keepers can be directly improved. This goes as well
for seasonality, as shocks are often closely linked to it. In this way, animal breeding as a livelihood strategy could be more efficient and sustainable, if it was recognized and supported as the complex and important system it is. Due to its poverty and dependency on donor support, Mozambique is highly vulnerable to external influence. It is running the risk of increasing vulnerability through the planned mega projects and through entering the global market with its export goods, especially when it comes to livestock or ASF (Chaiken et. al, 2012), which face competition from different food safety and animal welfare standard products and subsidized producers (Upton 2004). It seems there is little scope for developing input (crops and land) intensive livestock farming for commercialization when 36 percent of the country's children are undernourished (FAO, 2012b). On the other hand, while family sector animal farming requires very little input, its prospects for development are low. The tendency to focus on low-areal intensive farming, as seen with chickens, only benefits a few and could satisfy the regional market, reducing development opportunities, but also saving and investment structures for the majority of subsistence and quasi-subsistence farmers.

5.2. Assets
In this sub-chapter, we discuss the five capitals of the SRL approach and show how animals contribute to and are influenced by them. We analyse the interconnectedness between the capitals, how they can be traded off and look at the interplay with their context.

5.2.1. Human Capital
The quality of labour that the household can perform is an important factor for the development of human capital. As the families mostly work on their own fields, their health, knowledge and skills are crucial for the overall increased livelihood quality of the household. Using animals as a direct and indirect nutritional benefit for the family can severely affect health.

Owning animals could increase consumption of ASF, especially where animals produce eggs and milk for human intake (Randolph et. al. 2007). However, in Ribáuè, where chickens are not kept for egg production, cattle does not produce surplus milk for human intake, and farmers generally don’t consume meat on a daily basis, this particular capital is rarely used by farming families. From an animal advocacy
perspective, this is favourable, if we hadn’t seen the positive impact of animal protein consumption for persons with HIV or AIDS, where high nutritional value and diversification of food severely affects the bodily well-being, and if malnutrition, especially among children, persists. Animal protein may not be the best source for nutrition, but one of the best available and one of the few possibilities to diversify the diet. As a mid-term investment, animals are, however, a major indirect contribution to the nutrition of the family when being used to purchase urgently needed grains and vegetables before harvest.

The great value of animals for formers does not fundamentally lie in increased meat production and consumption. The farmers’ understanding of what an animal is reflects much rather a form of savings account (with possible interest rate in the form of animal offspring), conflicting the understanding of government officials and project implementers, that seem to think of animal breeding as a contribution to meat production for middle- and large scale investment and consumption, an approach more related to the “western” (and therewith donor) understanding of animal breeding.

Whether animals are consumed, sold, or used as payment for day labourers, having livestock increases the quality and access to labour, leading to overall increased productivity and indirectly to the farmers’ increased health.

Improved knowledge on handling animals also affects the conditions of animals themselves through increased bodily health and bodily integrity. For women, to be able to construct corrals and capoeiras and start breeding, is mostly hindered by tradition and norms. A small conversation between a researcher and a farmer, between two worlds that have different views on gender, can already inspire greater independence for women. The knowledge of construction itself is not the most important part of education, but the support women (and men) get to realise their capabilities to live an independent life.

5.2.2. Physical Capital
Animals can also contribute to productivity of fields by being a part of the physical capital of the farmer. This is accomplished by, as an example, using fish ponds to irrigate fields, and using mammal manure to field fertilization and contribution to fish ponds. This is a clear example of how having a diversified production contributes to the physical capital of farmers, increases production and the overall quality of the
farmers’ livelihoods. Another reason for diversification on the farm is increased resilience against shocks, bringing us back to the benefit of livestock as a mid-term investment. When one production unit fails, another source of production can secure at least a bit of income and food until the next season.

Increased health, further than being a contributor to the family farmer’s labour force, may also give the members of the household increased physical energy to engage in education, both for children, who, when suffering from malnutrition are often absent from school, and their parents. Adult education was found by farmers to be valuable, influencing their livelihood in diverse ways, markedly improving their human capital. Knowledge on agricultural practices increases their productivity directly, and the information on animal breeding seems to be an improvement for both the animals and the farmer.

5.2.3. Social Capital
An important factor of the social capital is mutual trust, reciprocity and exchanges that provide the bases for informal safety nets among the poor (SL guidance sheets, 1999, sec. 2.3.2). Relying on neighbours for information on and help with animals was something we frequently found throughout the field work, but at the same time, issues such as theft, animals getting hurt by neighbours, and jealousy towards animal owners could be factors that decrease that sense of reciprocity, increasing isolation and thus ruining the bases for informal safety nets amongst rural societies.

Aligned with decreased exchanges between neighbours, dependency on other resources emerges. As creating an association for external funding is one way to get access to animal breeding, farmers take whatever chances they get, perhaps with the outlook to make more income than starting breeding alone through rotative systems. As discussed above, we argue that top-down external interventions seem to have been substituting traditional systems of exchange. Associations then are an unintentional instrument increasing this dependency, and could be one explanation for development away from traditional exchange systems, thus, in a way decreasing resilience and a society’s own, independent safety nets.

In this sense, animals are, or at least used to be, social capital in the way that they could help farmers to become part of a rotative exchange system, a network of connectedness between farmers. Now, as these systems are dissolving, *associativismo*
is taking over the use of animals as social capital, particularly for most vulnerable groups, while animals become a resource within it rather than the asset itself.

As a social capital, successful animal breeding seems also to be intertwined with the concept of entrepreneurial spirit, which is fostered strongly by the state and donors and seems to have been fully adopted as a value by farmers. This form of social capital can be used to participate in the society and access important positions within the community, for example as treasurer or president in an association or to receive district funding.

5.2.4. Natural Capital

Animals are natural capital themselves, but land as a capital is also needed for grazing when breeding goats. There are several ways in which natural capital can influence animal farming for subsistence farmers. Natural shocks, such as seasonal outbreaks of NDV and other animal diseases, affect farmers and their animals immensely, being one of the main obstacle to animal farming in rural areas. Additionally, as shown above, interventions and programmes, particularly ProSavana, may severely affect land rights in the region and therefore the ability to breed. Animals can however be a factor to improve aspects of natural capital as well. As shown in chapter 5.2.2 on physical capital, a closely related asset, having animals can be used to increase the quality of fields. Thus, animals can be of grave importance as natural capital, but are even more affected by it.

5.2.5 Financial Capital

We mentioned above that farmers see animals for savings and investment. Livestock used as banco vivo is more than a contribution to the financial capital; it is the financial capital of the owner. However, the reluctance to use or sell animals if not urgently necessary could be found in many families. This may be partially due to the high risks in breeding animals, which increases the value of a single animal for the breeder. However, it hinders the farmers from making use of the potentials of animals. For example, we came across families that could not afford to vaccinate their
chickens, therefore running the risk of losing them to NDV, although they could have sold one chicken to use some of the money to vaccinate the others. From a farmer’s point of view, this would create a situation where a significant amount of money would be available in the household without a possibility to store it safely and to keep it from being spent on less urgent needs.

Furthermore, the high value of each animal for a family that has a few creates a situation where deciding to sell a chicken is a decision which can have major consequences, as that chicken might be one of five, and all chicken are needed for important investments such as education and nutrition during hunger periods. In that sense, the mid-term planning of having one chicken more during the hunger period seemed more reasonable and ultimately a lower risk than spending one immediately. In this context, there seems to be no possibility to act risk-averse. Every decision contains significant risks, and a cost-benefit analysis seems to then be guided by optimism and whatever chances for development are in reach. In this way, risk-aversion, as discussed by Scott (1976) in Ribáuè seems limited to mere survival, and promising opportunities are taken when they can offer a lift out of poverty, no matter how risky. This then does not imply that people are risk-prone as such, but forced to take whatever chances they can to generate income. It proves the engagement, and maybe the despair of the farmers, but it also has bitter consequences for both humans, who lose their investment and animals, who lose their lives.

With the dispersal of traditional exchange systems, financial or social capital is already needed before animal farming is started. Thus, farmers need the resources to buy an animal and to avoid early deaths of the animals, the material for shelter and water resources all year round. Access to grazing land for cattle is important, and to be able to develop the breeding into an income generating activity, vaccination is needed. As the situation in Ribáuè is currently, to be able to access these resources without donor interventions or significant improvement in support from the public sector, seems at present time, unlikely to acquire for rural family sector farmers.
5.2.6. Summary of Assets
Despite these obstacles to animal farming, animals are seen by farmers as an important contributor to increased financial capabilities. Described by those that don’t have animals as a “far away dream”, animals are one of very few opportunities farmers have to increase financial capital, and moreover, an important asset for farmers’ increased human, social, physical and natural capital, all of which are closely interlinked and affecting each other. Thus, deprivation of the family sector farmers’ access to livestock and the marketability of animals in its current shape through intensification and commercialisation of the sector and focus solely on financial development will decrease the capabilities of farmers by depriving them of their assets. Possible GDP growth as a result of commercialization of the farming system could compensate for certain aspects of the capitals, but as recently increased GDP growth in Mozambique has proved to be unequal, there is a reason to believe that a focus towards increased food sovereignty, the freedom of farmers to determine the production of their food themselves⁶, and sustainability of agricultural production among smallholders would indeed be more beneficial for the majority of farmers of Mozambique.

5.3. Transforming structures and processes
In this sub-chapter, we analyse concerns regarding private, public and non-governmental interventions in animal breeding that affect rural livelihoods.

5.3.1. Governmental and NGO Programmes and policies
We have described before that many of the programmes focusing on income generation through animal breeding were lacking a training component, which often caused them to fail. When inquiring at INAS, we were informed that the tight budget does not allow for mostly expensive training measures.

Sacrificing quality (in the form of training and therefore sustainability) for quantity (a bigger number of animals distributed) points towards the results-based approaches of policy makers, assumingly based on pressure of donors who need to prove success. However, success is unfortunately not measured in sustainability, ownership, performance and empowerment (which, admittedly, are harder to

⁶ See for example: Forum for Food Sovereignty (2007).
measure), but in mere numbers, reflecting a blurred image of the effects of donor support and interventions.

The question remains why a social welfare organisation distributes animals, additionally without proper training, well aware of the fact that they very likely will die and not contribute to development of the region whatsoever.

Firstly, on the management level, there may be what Ika (2012) calls ‘a cultural trap’. This trap describes a lack of regard to local culture by international donors, implementing unfitting projects. We could see this clearly in the commercialization and intensification plans of livestock breeding in Ribáuè. While cattle distribution might work well in districts where cattle farming is a part of the culture and farmers have experience with it, a need for training and follow-up instruments to ensure sustainability is clearly present in Ribáuè. This once again proves why regional qualitative studies are so important for development work.

We found the hint to our second answer in the discussions with FDD applicants who ended up receiving much less money than they had applied for. Knowing that the investment would be too small to be successful, the money was then used for other concerns without much chance of paying it back. This needs to be understood from a poor person’s point of view: chances for investment and access to money are so scarce, that no one could say no when an opportunity appears. It may be much similar on a project scale: finances and input are scarce, so projects are implemented, no matter how hopeless their design. If nothing else, this proves the necessity for bottom-up approaches, ownership and a revision of evaluation factors in results-based management.

The overall focus on commercialization and entrepreneurship as a development factor that we found across Ribáuè, stemming from the structural adjustment programmes conditioned by IMF and World Bank in the eighties, includes animal breeding in theory and in practice. We have already pointed out that these programmes overlook the complexity of animal breeding as a livelihood strategy, and that consequences may be grave for all those excluded from commercialization.

While agricultural intensification, as currently promoted by governmental and non-governmental programmes, may create new dependencies and could exploit farmers, food sovereignty encourages sustainable low-input methods for increased agricultural production among small-holders. The great challenge then would be to increase food production beyond a subsistence level without creating new
dependencies, and foremost, against donor interests. It is not in our interest to argue against donor support, the positive impact of which has been shown in manifold studies, but we believe it is necessary to question current power relations and decision-making structures. Empowering farmers and increasing their agency will allow them to define their own livelihoods and functionings, rather than maintaining exploitative structures.

Furthermore, decentralization is only progressing in Ribáuè, the FDD being the most visible change, enabling communities to engage actively in decision making and the development process. However, aside from the lack of effectiveness of the fund, decentralization, too, is a top-down process through appointed officials. Accountability is low at all levels in the government apparatus, where FRELIMO interests strongly persist and which hinders consideration of public demands.

A further shortcoming of these structures and processes is their inability to reach those most deprived and vulnerable. Commercialization plans and institutions like the FDD require a certain level of education and capitals to be able to be accessed.

With this in mind, it would be interesting to understand why so many policies and programmes focus on intensive animal farming and overlook the consequences for the subsistence sector in spite of all the well-informed and engaged government officials and NGO workers we met at district and provincial levels. Miscommunication does not really seem to be the problem, as there are various channels for bottom-up feedback, but officials told us that their critique lacks consequences, “those at the top don’t care”.

While this would be an easy answer, we assume there may be some other underlying factors. There is a growing trend in agricultural production of interventions by donors, NGOs and private companies on African food production policies (Bonaglia et. al., 2008). Since Mozambique depends largely on donors, their possibilities to influence national policy-making are immense. Looking at the growing demand for meat and poultry in the ‘developed’ world and emerging economies, it would only make sense to start securing production now. Also, commercial agricultural production is largely controlled by a few major corporations, from seeds, pesticides and fertilizers to crop trade, who have a great interest in expanding their markets (Bonaglia et. al., 2008) but threaten local livelihoods (Scholtz and Mamabolo, 2006). But focusing on intensive and high-input farming and the
integration of a minority of farmers in the global food market violates food sovereignty.

This is where adult education comes in. It enables a minimum education in literacy and numbers and therefore supports empowerment and negotiation powers. Gender training is just one of its many valuable components, but it does not reach all communities and people and its impact on a farmer’s development capacity is limited. In this way it is one of the bases of development, but it cannot foster growth without other public and private instruments. The challenge then is to effectively combine these strategies to a holistic approach for rural subsistence farmers with a special focus on those who are most deprived, as they need support the most. Currently, development thinking in Ribáuè is reverse: focusing on those with more capabilities and capitals to foster their development, which then increases national wealth. This thinking however increases inequalities among people and further deprives those already poor. At the same time, it is a legitimate question whether development can be achieved (and financed) when focusing on those most deprived.

We have described the special role of associations above. Their impact on empowerment, income generation and dispersal of gender roles seems immense. At the same time, the negotiating power created within these groups could actively contribute to voicing demands towards the state, strengthening democracy and civil society. However, the associations in animal breeding we encountered were aimed at intensification and therefore violated animal capabilities. In line with our ethical viewpoint, this would lead us to argue against associativismo in animal breeding overall, but there may be a chance in more sustainable animal breeding where animal capabilities are respected similarly to subsistence farming systems, but with the advantages described and better opportunities for ensuring animal health.

5.3.2. Private Sector

While contract farming brings great chances for farmers, it may also increase vulnerability when diversification is sacrificed. In animal breeding, it also causes significant harm for animals. While Hanlon and Smart (2014) argue that private actors are concerned about long-term engagement and sustainability, we want to express our
significant concerns about what sustainability in this context really denotes. Whereas economic sustainability would commonly refer to the next fiscal year or possibly the next few fiscal years, environmental and developmental sustainability refer to longer time frames, as these issues cannot adapt as quickly to changes as company management can. The private sector has naturally the greatest interest in profit maximization, which can foster development, but only if other interests are not harmed. The state then faces the challenge of balancing the increasing influence of (foreign) private sector interests, donor conditionality and the demands of its vast rural farming population. The question then will be one of agency, and it currently does not seem in farmers’ favour.

5.3.3. Legislation
Animal health is hardly considered in laws and policies and there is virtually no animal welfare legislation. In 2009, there were as little as 46 veterinarians in the whole country (OIE. 2011). The general disregard for animal health and welfare issues is displayed in interventions that mindlessly put animal lives at risk. But without legislation it is harder to argue for these considerations in development. Awareness of the interconnectedness of animal and human well-being must be increased in order to enable considerations in policy-making.

We could clearly see some of the impacts of the transforming structures and processes. However, many of them seem to bring positive changes for a minority while risking deprivation for a majority. So instead of decreasing vulnerability, top-down approaches may after all foster what they are trying to eliminate because local concerns and realities are overlooked. At the same time, the influence of the household level on these structures, as indicated in the SRL model, is minimal, since farmers’ agency is weak and decentralization and accountability are only in their early stages while facing diverse difficulties.

5.4. Livelihood Strategies
We already described the risk in increasing dependency through top-down interventions in family farming. While Chaiken et. al. (2012) argue that traditional self-help systems were destroyed by the war, which then explained the passivity and dependency of farmers on programmes and interventions as being the only chances for development available to them, we believe it may be the other way around: top-
down approaches and donor initiatives create a passiveness among the citizens, which then lead to abandoning traditional systems, because initiative for development is perceived as something that comes from the state or donors, not from within communities. This would also explain why we still found some of these systems where they were not offered by donors. Although ‘ownership’ is a central concept in donor work, it seems to lack implementation in Ribáuè, endangering traditional self-help systems as livelihood strategies.

We saw that farmers accept taking risks that do not jeopardize their survival, like engaging in animal breeding in spite of recurrent diseases and deaths, because they have little alternatives that could help them escape poverty. This insecurity of investment is a major hindrance for development and it causes immense suffering among animals and humans alike. Whenever shocks hit, farmers are forced to sacrifice medium-term planning for immediate needs, what Del Ninno et. al. (2001) call ‘negative coping strategies’. Diversification itself is a livelihood strategy that growingly tends to be traded off against specialization (Randolph, et. al., 2007). While diversification is of great importance for the survival and development of the farmers, it is threatened by contract farming which focuses many resources of a farming family on a certain crop or animal. Simultaneously, this offers a chance for development and income generation, as it risks increasing poverty and hunger if the crop or breeding fails, lacking insurance mechanisms.

We have seen that animal farming is a complex livelihood strategy for subsistence farmers that is influenced and influences all capitals in diverse ways. This strategy is at risk when the regional market is flooded with commercially produced cheap meat. How can payments in the informal, non-monetary labour system be substituted? How can bank accounts and short-term investment opportunities even in the most remote areas be substituted? How can a diversification of nutrition be ensured? These are not just long-term questions for the development of Mozambique, these are issues which need to be dealt with immediately, if programmes and policies aim further at enabling commercialization in livestock breeding for a minority. These plans overlook the potentially devastating consequences for the family sector in Ribáuè, because they do not take into account the complex roles that animal breeding

---

7 Ownership is a concept aimed to increase aid effectiveness by supporting stronger leadership and engagement of recipient countries’ governments and civil society in development programmes and policies (Accra Agenda for Action, 2008)
plays. Randolph et. al. (2007) back our finding that it is misleading to view animal farming as a mere income generating activity, but that it is necessary to look at livestock as integrated within the livelihoods of farmers.

5.5. Livelihood Outcomes

In a context with so much poverty, before striving for development and wealth, subsistence farmers focus on making it through the next year while looking for pathways out of poverty through smaller investments (e.g. animals or a bicycle), cash crops, engaging in trade or opening up baraccas (tiny stores). The challenge for development planning is to find opportunities that can create financial security without jeopardizing to satisfy basic needs if investments fail or, if they work out well, jeopardizing the satisfaction of basic needs for so many others. These issues pose an example for how crucial it is to take into account livelihood strategies when designing policies and programmes, and how precarious top-down approaches can be.

5.6. Animal capabilities and human capabilities

If we look at our findings on animal welfare along the ten basic capabilities that Nussbaum outlines for animals, we can see that for galinha chickens, the capability of life is not just violated by the act of killing a chicken actively, but also through the deprivation of bodily health foremost by Newcastle, whereas bodily integrity, emotions, practical reason, affiliation, living with other species, play and control over the own environment appear not be harmed during the breeding time. Because they are allowed to forage freely, they are enabled to interact with their environment and other animals and therefore to enact natural behaviour. However, it is much less so when they are sold and in stark contrast to commercial breeding.
And although frangos in commercial breeding have better health related to vaccination and nutrition, they are deprived of all other basic capabilities in their short lives. There is little room to roam around, nothing to climb or sit on, the area is crowded and there is no possibility to interact with nature and animals other than chickens (and stinging ants and humans) in the coop. Family bonding is impossible. It becomes obvious that concerning chicken breeding in Ribáuè, like the rest of the world, human development is happening at the expense of animal welfare: the bigger the breeding-scale and profit, the less animal capabilities are respected\textsuperscript{8}.

While goats seem to face less health problems than chickens\textsuperscript{9}, they are not safe from fatal diseases and pests and are furthermore deprived of bodily integrity when beaten by upset neighbours. However, when their owners try to avoid this by keeping them inside the corral or tying them to a flock, the animals are deprived of the control over their environment, of their freedom of choice, and particularly when tied, are unable to follow their instinct to flee from perceived threats, e.g. dogs. When running freely during ‘safe’ seasons, in ‘safe’ areas or when watched by a shepherd, goats seem to have access to all basic capabilities, but this is closely linked to seasonality and/or geographic location and/or the capabilities of the owners. A possible lack of food or nutrition may occur when grazing and fodder cannot be provided.

The capabilities of farming fish seemed to be mostly respected, except if enough food could not be provided. We did not see how live fish is transported when

\textsuperscript{8} See also Masiga and Munuya, 2005.

\textsuperscript{9} Amiel Braza, currently the only veterinarian in all of the three Northern provinces, explained that local goat breeds are very robust against diseases.
sold, but we can assume that this causes immense stress for the animals due to suffocation and deprivation of freedom of choice.

We have seen that the greatest threats to animal welfare are diseases in subsistence-farming and overall breeding conditions in commercialized farming, which deprive animals of almost all capabilities. Human development seems to be happening at the expense of animal well-being, therefore creating another cycle of exploitation (Park and Singer, 2012). From an animal advocacy viewpoint, the use of animals should be opposed, but at the same time we cannot help but realize that livestock keeping is a survival strategy for many small-scale and subsistence farmers, and even for some of the most deprived, like orphans and HIV/AIDS affected households, if supported by associations.

Commercialization plans can only help a few but cause suffering for all concerned animals\textsuperscript{10}, while at the same time creating a risk of depriving the majority of animal farmers of their investment, bank, payment method, and diversification of diet and assets through satisfying the regional market with cheap frango. At the same time, there may be an opportunity in reversing this system: helping a majority through supporting sustainably bred, free-walking galinhas (and other animals) with better veterinary services and better access to markets, building on local habits and respecting the diverse reasons for which animals are kept.

In this way, even if animals are not freed from being used, their capabilities can be respected in a much better way than is currently happening in most parts of the world. This, in return, is not happening at the expense of human development, but in symbiosis with it, securing farmers’ investment and diversification.

We have shown that literature has discussed the complex and close relation between animal and human welfare and the similarities in exploitative systems in a vast range of sectors, and that for these manifold reasons the full social costs of animal breeding need to be recognized.

Development through commercialized animal breeding reflects a dangerous short-term thinking. Commercial farms are known to cause danger to their environment, animal breeding produces a large amount of global carbon dioxide

\textsuperscript{10} See also OIE (2011)
emissions and animals are inefficient for food security. By supporting this type of farming, sustainability and an important livelihood strategy for many are sacrificed for economic development of a few and exploitative systems are reproduced.
6. Conclusions

In this chapter, we will answer our research questions one by one and summarize our thoughts with a few concluding remarks.

6.1. What does the family sector animal farming system look like and what role does gender play in it?

We have shown that family sector animal breeding changed slowly over time for the majority of farmers in spite of a highly volatile and insecure environment, where gender roles still influence tasks and division of labour, although there is a tendency for these roles to disperse, mainly for men and more slowly for women. Gender training seems to play a crucial role in this process. Moreover, our research proves that gender roles should not be generalized and that the variety of relations is immense and needs greater attention.

We also found that associations play a major role in the farming system, as they open up traditional gender roles and offer significant chances for members to create income and diversify their assets, even for some of the most vulnerable, like HIV/AIDS affected households and orphans. However, this form of commercialization deprives animals of their capabilities and largely depends on long-term external input and support.

6.2. What is the importance of family sector animal breeding for development on a family base and on district scale?

Animal breeding is crucial for diversification of assets and diet, it generates income when needed and can sincerely contribute to increasing resilience of the family farmers. It is crucial as mid-term investment and as a live bank; however, it is hugely insecure in all of these functions due to recurring shocks. Due to high insecurity, animal breeding has little development scope for subsistence farmers at the moment, and is further diminished by commercialization plans for a minority of farmers.

Even if animal health services can be improved, animal breeding has more potential in its current scope, securing survival and enabling smaller savings than in actual and significant economic development. However, policies and programmes aimed at commercial animal breeding threaten the diverse functions of animal
breeding in subsistence farming and may actually oppose development of a majority of farmers, putting their livelihoods at risk.

6.3. How do governmental and non-governmental programmes influence family sector animal breeding?

There are many formidable ways of transferring knowledge, especially agricultural technologies, but unfortunately, they are not accessible by all farmers due to geographic location or, in rarer cases, gender. Not always can dependency on programmes be overcome, nor is training always pursued as intended. Commercialization programmes seem to overlook the implications for the bulk of local farmers by destroying the market for the animals on which they depend in various ways.

Besides the programmes that we found, we thought it was also interesting to look at initiatives we did not find, like programmes on breed improvement through selection in the communities, on reintroducing traditional rotative structures on a broad scale, or on improving nutrition for animals and therefore introducing the opportunity for the production and use of eggs and milk, all of which could easily be integrated with existing programmes, but could positively impact production and income of small-scale farmers. Rather than a recommendation or critique, this is intended to raise questions about alternative ways to secure food and nutrition as well as generate income for farmers.

6.4. What are the main obstacles to improving family sector animal breeding towards more sustainability and bigger impact for development?

For the majority of people, animal health and related recurrent deaths of the farming animals limit their possibilities to grow. Whereas demand from markets and access to them seem to be meeting the current supply, it is not given that it will remain this way when larger-scale animal breeding becomes more frequent in the region.

6.5. What are the implications of animal breeding in Ribáuè from an animal advocacy viewpoint?

Whereas our first reaction would be to argue against animal breeding as such, we quickly became aware that animal breeding is an important livelihood strategy for many farmers. While the animals’ capabilities seem much more respected in family
farming, commercialization deprives animals of their freedoms. We therefore believe that appropriate support to small-scale family farming (esp. relating to animal health services) can offer good capabilities for animals and improve security for farmers’ investments and diversification immensely. Commercialisation of few farmers will destroy this chance and limit the opportunity to escape poverty to a minority of farmers.

6.6. Further Research

Further research with an animal advocacy and gender approach on similar topics is still lacking in other regions. Furthermore, we had only limited opportunity to look into the implications of fish breeding, and due to its growth in Ribáuè, a comprehensive study would be valuable to further understand the development and possibilities of animal farming in the region.
7. Further Discussion

It is without a doubt that the so-called ‘developed world’ did and does exploit the ‘developing world’, while both worlds continue to exploit animals to a growing degree. There can only be a gain in disrupting this cycle of exploitation. Sustainability and thorough human development cannot evolve while maintaining and supporting systems of exploitation on a global scale. While animal advocacy movements in high-income countries fight their own fights and the vegetarian and vegan movements grow, there is a chance in taking animal welfare into account in developing countries and regions, and particularly in Mozambique, because on a broad scale, commercial animal exploitation is not (yet) institutionalized.

So if commercialised large-scale farming is not the answer to the pressing questions in Ribáuè, then what is? Webster (2005) explains that animal welfare may open up doors to the European market, where demand for sustainably produced meat grows. Even in developing countries, Schnettler et. al. (2009)11 found significant interest in animal welfare. This of course requires the readiness of customers to pay an appropriate price and other countries’ governments to open up their markets. Transaction costs are high and trade tariffs as well as subsidies further hinder market integration livestock producers from developing countries (Upton, 2004; Bonaglia et. al., 2008). Marie (2006) points out that product and production acceptability will become more important in the future, therefore ethical considerations in the production of ASF will be a prerequisite for their marketability. Animal welfare legislation, policies, implementation (Masiga and Munyua, 2005), good governance, efficient management, sufficient funding and transparent labelling (Thiermann and Babock, 2005) would be a pre-requisite and value chains need to be built up, but labour extensive work can be an asset due to the big labour force in the agricultural sector. However, accessing the global market and sustaining on it is a challenge which

11 See also: Seng and Laporte, 2005.
subsistence farmers are far from meeting (Chaiken et. al., 2012; Otte et. al., 2012), and, arguing for food sovereignty over food security, may not be the desired outcome. Regional trade seems a much more realistic scenario in a foreseeable future (Upton, 2004) but it, too, requires significant governmental and donor inputs and support.

Greater inputs, irrigation and subsidies (Crola, 2009), technical assistance, storage facilities, market access and financial services (IFAD, 2013) can have a great impact on subsistence farming productivity, but the long list once again proves the complexity of issues and the support and coordination necessary to sustainably and effectively tackle all bottlenecks of rural poverty simultaneously (Bonaglia et. al., 2008). An animal welfare network, if ownership is ensured, could provide agency for the farming animals and their caretakers in Ribáuè and beyond (OIE, 2011) and support urgently needed reporting of zoonotic diseases (SADC, 2012), improved veterinary services\textsuperscript{12} and more vaccinations\textsuperscript{13}.

It is beyond our scope to find the way out of poverty for Mozambican subsistence farmers, but we identified a serious threat to their livelihoods both in the short- and long-term, which we believe needs to receive much greater attention in policy-making. Our gender and animal advocacy viewpoints allowed us to look at development as a holistic concept and determine effects beyond the immediately visible.

And while Webster (2005) and Upton (2004) stress that there is little scope for development in subsistence farming overall, the agriculture sector still is the base for survival for many and improvements in productivity, sustainability, efficiency and marketability could offer chances to escape poverty for many.

7.1 Refraining from Recommendations

In spite of the many ideas for improvement we developed, we will conclude our research with only one recommendation. Applying a holistic approach allowed us to

\textsuperscript{12} For studies on the importance of veterinary services, see Bénet et. al., 2006 and Mkenzie and Hathaway, 2006.

\textsuperscript{13} For studies on cost-effective vaccinations, see McLeod and Rushton, 2007, O'Brian and Zanker, 2007 and Alleweldt et. al., 2012
understand the implications of trends, policies and programmes in development from a broader perspective. Realizing that current trends run counter what we understand as sustainable development, we herewith want to stress the importance of regional in-depth studies with holistic approaches that allow for these comprehensions.

It is beyond our scope to design fully appropriate policy recommendations for the development of Ribáuè, but we do however hope that our research shed light on the implications of current development for the majority of subsistence and quasi-subsistence farming families in the region, and that this new understanding will be taken into consideration to enable everyone and everything to flourish as the sort of thing he, she or it is.
8. References


Pasteur, K. (2002). Gender analysis for sustainable livelihoods: frameworks, tools and links to other sources. [Draft].


Annex 1

Definitions
Here, we will shortly describe some of the basic concepts of the terms that we apply in our thesis so as to avoid misunderstandings.

Animals and Humans
While humans biologically are animals, and other animals are commonly referred to as non-human animals in the animal-advocacy literature, we decided to stick with the terms humans and animals for readability and simplification. We do want to stress that the term animals encompasses several million different species and is a crude oversimplification of the world. Nonetheless, it reflects debates and policy-making around livestock.

Animal health and welfare
Whereas animal health relates merely to the absence of diseases (OIE, 1999), we also want to look further into issues of animal welfare, the ability of an animal to cope with the conditions in which it lives (OIE, 2013):

"[a]n animal is in a good state of welfare if (as indicated by scientific evidence) it is healthy, comfortable, well nourished, safe, able to express innate behaviour, and if it is not suffering from unpleasant states such as pain, fear, and distress. Good animal welfare requires disease prevention and appropriate veterinary treatment, shelter, management and nutrition, humane handling and humane slaughter or killing. Animal welfare refers to the state of the animal; the treatment that an animal receives is covered by other terms such as animal care, animal husbandry, and humane treatment."

Although, from our ethical point of departure, we oppose the use and killing of animals, we are also aware of the realities in which animal farming can contribute to the development of the poorest of the poor, while at the same time, potential for animals to flourish is much bigger in this sector than in commercialized farming.
Gender

Gender roles are defined as “the socially constructed roles, behaviours, activities, and attributes that a given society considers appropriate for men and women” (WHO, 2014). These roles have changed significantly in Mozambique throughout recent history, going from pre-colonial matrilineal systems, through colonial patrilineal family values to a socialist equality ideal, adding the burden of “men’s work” to women’s household chores (Arnfred, 2003). It is important to take into account local gender roles and traditions to be able to understand family farming issues. Furthermore, there is a research gap concerning the relation of animal farming and gender, as few reports with this topic are accessible. Those found focus almost solely on women, rather than gender, and largely concern agriculture more broadly.

Family Sector Animal Farming

The focus of this study is farmers who depend on agriculture with a small number of animals that are not considered commercial, although they may sell some of their produce. We use the terms family sector animal breeding and animal farming interchangeably, although family sector does not exclude single farmers, it merely refers to the subsistence aspect of farming.

Household

We want to clarify the term household, as it is a concept commonly used in development work, but tends to mean different things in different regions. When we use the term, we refer to those people living in the same house or hut and those under the direct responsibility of them. Often, farmers take care of orphans or elders they may or may not be related to, but a household could also refer to a single person, usually young, widowed or divorced. Families may not always live under one roof, because children stay at boarding schools or with relatives for education, or have already left the house to found their own families. Husbands may stay away for several months or years to work far away, but may contribute to the household income.
Development

As mentioned briefly above, we are focusing on sustainable and human development, not mere economic progress, unless otherwise stated, because we understand money as a means to an end, not an end in itself.

FDD

The FDD is financed by the state budget, and the amount given to each district is dependent on the “performance” of the district, allocated by the Ministry of Finance. The performance is measured by progress in production in the agricultural sectors, effort made by the district to combat climate change and environmental issues, level of and access to infrastructure in the district, and the payback rate of the loans distributed within the district. The payback rate of Ribáuè is very low, and affects the amount supplied to the district distinctively. Between years 2006 and 2013, the district got 74.590.000 MZM for 643 projects, but only 1.380.673 MT has been paid back so far. Accordingly, the district got 11 million MT last year, but this year it decreased to 1.3 million, due to this problem.

Farmers apply for developmental projects to the FDD, and should pay the loan back from the profit of the project. The application process starts with the Consultative Councils on a locality level. The consultative councils consist of people from different sectors of the society who are suggested by the community authorities, and then approved by the community; a process similar to the selection system of traditional leaders. The consultative council is a way to integrate traditional systems with the modern authority system, as members from both systems can be proposed to be a part of the council (Åkesson and Nilsson, 2006). Hence, the members of the locality apply for funds to the Consultative council, which then select candidates based on to what extent the project meets the criteria, to continue to the next level. This process continues through the Post Administrations and to the District level, where final approved applicants are selected.
## Annex 2

### List of Interviewees

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Institution</th>
<th>Place</th>
<th>Name</th>
<th>Position</th>
<th>Gender</th>
<th>Age</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thursday, 03.04.2014</td>
<td>08:30</td>
<td>UCODIN</td>
<td></td>
<td>Felicidade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pedro Zanella</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11:30</td>
<td>Serviço de Extensão Agrícola</td>
<td>DPA</td>
<td>Emerson José Paculo</td>
<td>Director</td>
<td>m</td>
<td>adult</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pedro Zanella</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13:30</td>
<td>Associacao Nacional do Extensão Rural (AENA)</td>
<td>AINA</td>
<td>Cecília Carcione</td>
<td></td>
<td>m</td>
<td>adult</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Josenio Maximiano</td>
<td></td>
<td>m</td>
<td>adult</td>
<td></td>
</tr>
<tr>
<td>Friday, 04.04.2014</td>
<td>10:30</td>
<td><strong>Sanidade Animal</strong></td>
<td>DPA</td>
<td>Joana Manuela</td>
<td>Tecnicia Pecuária</td>
<td>f</td>
<td>adult</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monday, 07.04.2014</td>
<td>11:00</td>
<td>group of friends</td>
<td></td>
<td>Inês in Ribáuè</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuesday, 08.04.2014</td>
<td>08:30</td>
<td>Mineland</td>
<td></td>
<td></td>
<td>Agricultor</td>
<td>m</td>
<td>adult</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15:00</td>
<td><strong>Instituto Agrario de Ribáuè</strong></td>
<td>DPA</td>
<td>Manuel Neife</td>
<td>Director e Coordenador</td>
<td>m</td>
<td>adult</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wednesday, 09.04.2014</td>
<td>08:30</td>
<td><strong>Administrador de Ribáuè</strong></td>
<td></td>
<td>Domingos Albino Morita</td>
<td>Journalista anf Camarera</td>
<td>m</td>
<td>adult</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thursday, 10.04.2014</td>
<td>14:00</td>
<td><strong>Escola Primaria</strong></td>
<td>EPC Iapala</td>
<td>Fernando Roja</td>
<td>Director</td>
<td>m</td>
<td>adult</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friday, 11.04.2014</td>
<td>14:00</td>
<td><strong>Farming families</strong></td>
<td></td>
<td>Marcos</td>
<td></td>
<td>m</td>
<td>adult</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturday, 12.04.2014</td>
<td>08:00</td>
<td><strong>Associacao Maria da Luz</strong></td>
<td>Iapala</td>
<td></td>
<td></td>
<td>m</td>
<td>adult</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunday, 13.04.14</td>
<td>10:30</td>
<td>OLAM</td>
<td></td>
<td>Anésio</td>
<td></td>
<td>m</td>
<td>adult</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monday, 14.04.14</td>
<td>08:30</td>
<td><strong>Hospital</strong></td>
<td></td>
<td>Cleva Daniel</td>
<td>Medical chefe</td>
<td>m</td>
<td>adult</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15:00</td>
<td><strong>Women's group</strong></td>
<td>Ribai sede</td>
<td></td>
<td></td>
<td>m</td>
<td>adult</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>