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Biodiversity in the Kitchen

Cooking and Caring for African Indigenous Vegetables in Kenya: A Feminist Approach to Food Sovereignty

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Summary

The role of biodiversity in shaping a sustainable future has never been clearer. Therefore, it is imperative to look at potential ways of preserving diversity on fields and plates. This PhD project illuminates how socio-ecological practices of cooking and caring for African Indigenous Vegetables (AIVs) in urban and rural Kenya contribute to biodiversity conservation and sustainable livelihoods. Kenya has a wealth of AIV varieties, and the indigenous vegetables have long been essential to people's agricultural and food practices. The purpose of this research is to illustrate how and why people consume AIVs, and thus how they put food sovereignty into practice. Despite the increasing advocacy for and research interest in AIVs, there has been relatively little attention paid explicitly to households' practices of cooking and caring. This research explores dynamics which revolve around the indigenous leafy vegetables — their journey from being first a forgotten, to a then underutilized and now commercialized crop.

In this thesis, I position AIVs within people's everyday food practices. In order to understand the past of the indigenous vegetable and to embed people's practices into a context, I explore the historical developments of colonialism and its effects on agriculture and food in Kenya. Turning to the present, I investigate today's policy-making and the trend of enhancing the value of biodiversity and indigenous crops. In an attempt to give an everyday account of the production and consumption of AIVs, I build theoretically on the approaches of food sovereignty and feminist political ecology. The core concept of my analysis is care: the care for food and the conservation of biodiversity and knowledge.

This thesis is based on fieldwork carried out in Nairobi and Kakamega. Within our research team, we developed a 'methodological toolbox' which consists of the following methods: cook-along interviews, semi-structured in-depth interviews, focus group discussions and meal cartographies. Through this qualitative-participatory approach, I aim to answer the following questions: What does the lived experience of providing, cooking and eating AIVs look like? How do participants shape their experience and enact agency? How do material and immaterial resources shape food provisioning?

A feminist analysis of the relations to and lived experiences of AIVs has been central to my work. Findings from the research show that the story of AIVs cannot be told without telling the story of women. Women are mainly responsible for food-related work and obtain, process and cook the leafy greens. They hold the knowledge about their nutritional value and about how to prepare a palatable meal. For the women, cooking AIVs is not only an act

of satisfying nutritional needs — it is an act of ecological preservation and social bonding. Furthermore, the women emphasized the pleasurable and joyous aspects of cooking and eating. They made clear that they, for example, prioritize pleasure and good taste over price and short cooking time. Due to socio-ecological awareness and responsibility, they opt for AIVs instead of choosing their exotic counterparts such as kale and cabbage, which are cheaper and quicker and easier to prepare.

In light of this, I argue, that cooking needs to be seen as a space for biodiversity conservation and as a space in which to disrupt narrow constructions of femininity and cooking. In this sense, my thesis reveals different forms of socio-ecological care enacted by women: care for biodiversity and a local food system, care for alternative food economies, self- and community care as well as ecological care. It further reveals the material (e.g. water, land, kitchen facilities) and immaterial resources (e.g. knowledge, time) necessary to enact these forms of care. It shows how the ability to access and control resources has a whole series of impacts, many of which have clear gender dimensions.

Finally, I propose and introduce the new framework of Meal Sovereignty. Meal sovereignty explores the lived experience, routines and practices of food and the agency of those who produce, cook and eat it. The framework critically assesses the role of agri-food politics and the effects of its regimes on everyday life. Furthermore, it conceptualizes production and consumption as being coupled and thereby links spheres which are usually considered to be opposing. Informed by the empirical study in Kenya, food sovereignty is approached through the practice of meals. With this, effort and resources needed to process raw agricultural produce for consumption and nutrition become visible. My argument in a nutshell is that the 'eater' is an integral part of the agri-food system who often goes unnoticed. With their socio-ecological practices, consumers bridge production and consumption. Thus, debates in the field of food and agriculture cannot only focus on production practices, but instead need to be better-linked to those of households and consumers. Based on such framing, suitable recommendations in the areas of food security and biodiversity conservation that are in line with the local context, ecology, livelihoods, needs and preferences can be developed.

With the intent of a sustainable path for AIVs and their producers and consumers in the future, the research identifies possible practical implementations and future research directions.

Zusammenfassung

Nie zuvor war es so deutlich wie heute: die Erhaltung von Biodiversität ist für die Gestaltung einer nachhaltigen Zukunft unabdingbar. Deshalb ist es unumgänglich, Möglichkeiten und Potenziale der Erhaltung von Vielfalt auf dem Acker als auch auf dem Teller aufzuzeigen. Das vorliegende Promotionsprojekt beleuchtet, wie sozio-ökologische Praktiken des Kochens und der Sorge für indigenes Blattgemüse (engl. African Indigenous Vegetables — AIVs) im urbanen und ruralen Raum Kenias zu Biodiversität und zu nachhaltigen Lebensgrundlagen beitragen. Kenia verfügt über eine große Vielfalt des indigenen Blattgemüses und es ist ein wesentlicher Bestandteil der agrarischen sowie der alltäglichen Ernährungspraktiken der Menschen. Übergeordnetes Ziel der vorliegenden Studie ist es zu veranschaulichen, wie und warum Menschen das indigene Blattgemüse essen und wie sie Ernährungssouveränität in die Praxis umsetzen. Trotz der zunehmenden Förderung und des steigenden Forschungsinteresses an AIVs wurden Haushaltspraktiken, also Praktiken des Kochens und der Fürsorge, bisher wenig untersucht. Die vorliegende Studie untersucht Dynamiken um jenes Blattgemüse: sein Weg von einem vergessenen, zu einem wenig genutzten und nun kommerzialisierten Gemüse.

In dieser Arbeit untersuche ich AIVs als eingebettet in die tägliche Ernährungspraxis von Menschen. Um die Praktiken zu kontextualisieren, untersuche ich die historischen Entwicklungen des Kolonialismus und seine Auswirkungen auf Landwirtschaft und Ernährung in Kenia. Des Weiteren hinterfrage ich gegenwärtige Policy-Ansätze sowie den Trend, den Wert von biologischer Vielfalt und indigenen Sorten zu steigern. Mit dem Ziel, das Alltägliche der Produktion und des Konsums des Blattgemüses abzubilden, beziehe ich mich theoretisch auf die Ansätze von Ernährungssouveränität und Feministischer Politischer Ökologie. Kernkonzept meiner Analyse ist die Sorge und Fürsorge (Care): die Sorge für traditionelle Sorten und lokale Ernährung, den Erhalt von Biodiversität und des Wissens, welches dafür notwendig ist.

Die Studie basiert auf Feldforschung in Nairobi und Kakamega. In unserem Forschungsteam haben wir eine "Methoden-Toolbox" entwickelt, die aus etablierten sowie neu konzipierten methodischen Herangehensweisen besteht: Koch-Interviews, Leitfadeninterviews, Fokusgruppendiskussionen und Mahlzeiten-Kartografien. Mit diesem qualitativ-

partizipativen Ansatz möchte ich folgende Fragen beantworten: Wie sehen die alltäglichen Praktiken und Erfahrungen bei Beschaffung, Zubereitung und Essen von Blattgemüse aus? Welche Handlungsspielräume werden aktiv von den Teilnehmer*innen entwickelt? Wie beeinflussen materielle und immaterielle Ressourcen alltägliche Ernährungspraktiken?

Eine feministische Analyse der Beziehungen zu und gelebten Erfahrungen von AIVs ist für die vorliegende Arbeit von zentraler Bedeutung. Die Ergebnisse zeigen, dass Frauen eine zentrale Rolle in Bezug auf Blattgemüse einnehmen. Sie sind hauptsächlich für die (Sorge-)Arbeit im Feld der Ernährung verantwortlich und besorgen, verarbeiten und kochen das Blattgemüse. Sie haben das Wissen über seine gesundheitlichen Vorteile und darüber, wie man sie zu einem schmackhaften Essen zubereitet. Für die Frauen ist das Kochen von AIVs nicht nur Mittel zur Befriedigung von Ernährungsbedürfnissen, sondern ein aktiver Beitrag zu einem sozio-ökologischen Agrar — und Ernährungssystem. Darüber hinaus betonen die Frauen die kreativen und freudvollen Aspekte des Kochens und der Mahlzeit. So verdeutlichen sie, dass ihnen beispielsweise Geschmack und Genuss wichtiger sind als Erschwinglichkeit oder eine kurze Zubereitungsdauer. Aufgrund ihres sozio-ökologischen Bewusstseins und ihrer Verantwortung entscheiden sie sich für das indigene statt für das exotische Blattgemüse, welches günstiger, und schneller und einfacher zuzubereiten wäre. Vor diesem Hintergrund argumentiere ich, dass Kochen als eine Aktivität gesehen werden muss, die zur Erhaltung von Biodiversität sowie zur Auflösung einer rigiden Konstruktion von Weiblichkeit und Kochen beitragen kann.

In diesem Sinne werden in meiner Doktorarbeit verschiedene Formen der sozial-ökologischen (Für-)Sorgepraktiken von Frauen aufgezeigt: Sorge für Biodiversität und ein lokales Ernährungssystem, Sorge für alternative Ernährungsökonomien, Selbst- und Communitysorge sowie Sorge für Ökologie und Umwelt. Darauf aufbauend untersuche ich, welche materiellen (z.B. Wasser, Landzugang, Kochinfrastruktur) und immateriellen Ressourcen (z.B. Wissen und Zeit) erforderlich sind, um diese Formen der Sorge umsetzen zu können. Die Analyse macht deutlich, dass der Zugang und die Kontrolle dieser Ressourcen stark vergeschlechtlicht sind.

Schließlich stelle ich den Ansatz der *Mahlzeitensouveränität* vor, welchen ich im Rahmen der vorliegenden Doktorarbeit entwickelt habe. Dieser rückt die Erfahrungen, Routinen, Praktiken und die Handlungsfähigkeit derer, die die Nahrungsmittel produzieren, kochen und essen, in den Mittelpunkt. Ebenso setzt sich der Ansatz kritisch mit der Rolle von Agrar- und Ernährungspolitik und deren Auswirkungen auf den Ernährungsalltag auseinander. Darüber hinaus verknüpft der Ansatz zwei oft als getrennt verstandene Sphären: Produktion und Konsum. Basierend auf den empirischen Ergebnissen wird Ernährungssouveränität durch Praktiken der Mahlzeiten verstanden und konzeptualisiert. Außerdem werden Aufwand und Ressourcen für die Zubereitung von landwirtschaftlichen Rohprodukten für den alltäglichen Konsum und somit reproduktive Tätigkeiten sichtbar. Mein Hauptargument ist, dass die "Essenden" ein wesentlicher Bestandteil des Agrar- und Ernährungssystems sind, der oft unbemerkt bleibt. Mit den sozio-ökologischen Praktiken

der Mahlzeit verbinden sie Produktion und Konsum. Deshalb können sich Debatten im Feld der Ernährung und Landwirtschaft nicht nur auf die Produktionspraktiken konzentrieren, sondern müssen besser an die der Haushalte und Konsument*innen geknüpft werden. Mit dem Ansatz der Mahlzeitensouveränität können geeignete Empfehlungen im Bereich Ernährungssicherheit und Biodiversität entwickelt werden, die dem sozialen und ökologischen Kontext entsprechen.

Abschließend werden praktische Umsetzungsmöglichkeiten und zukünftige Forschungsperspektiven herausgearbeitet, die zu einem nachhaltigen und sozial-ökologischen Umgang mit AIVs beitragen können und gleichwohl die Rolle derer stärken, die das Blattgemüse tagtäglich produzieren und weiterverarbeiten.

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Setting the table: Introduction

"Why do you study African Indigenous Vegetables?" This is a question I have heard frequently throughout the years of this PhD; it is a question which has many answers. The essential answer is that doing research about African Indigenous Vegetables (AIVs) is like leafing through old and new stories, exploring a complex food item in its dynamics and shifts. Studying the vegetables is like tasting a bit of the "bittersweet" history of the greens, while simultaneously tasting the (hopefully) promising role they will play in the future. In many parts of the world, meals are becoming ever less diverse, which has considerable consequences upon the ecosystem and meal cultures. AIVs embody these tensions: they stand between international efforts to globalize and upgrade the AIV value chain, and the local producers and consumers, who value and relate to AIVs as part of their lives. It is precisely this last part which often goes unnoticed. The results presented in this study help to take a first step in bringing the unnoticed to light.

In 2015, I traveled to Kenya for the first time to document the rich food practices of AIVs. It was fascinating because up until then, I had only read about the indigenous vegetables in Kenya, their history and their benefits in production and consumption. I learned their names enthusiastically — Mrenda, Mitoo, Sageti, Terere, Malenge, Enderema. With this first visit to Kenya, all the names came to life and with them so did the practices, recipes, ingredients, tastes and lives of the people who produced and ate them. As part of my learning process and orientation, my dear colleague Anne Aswani Musotsi and I went to different markets to familiarize ourselves with the varieties of AIVs: the different shapes, colors, smells but also the price, quantity and quality. In order to see the full range of varieties, we[1] visited many open-air markets in Nairobi, Nakuru and Kakamega in the very early hours of the morning. We went to supermarkets to see the vegetables on the shelves and in their prepared state — quite a recent development — ready to be

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[1] 'We' refers to the group of researchers that were part of the project HORTINLEA Subproject "Meal Cultures in Market Trends and Consumption Habits".

consumed. We visited urban and rural farms to see the vegetables growing in the soil and thus sustaining the household and community members. This was one important part of getting to know the indigenous leafy vegetables — but in order to understand the meaning and significance for the eaters, I needed to enter homes and kitchens, and thus enter people's realities of living.

The story of AIVs cannot be told without telling the story of women. I remember my first cook-along interview very vividly; it took place in Nairobi in Kariobangi South, with a woman named Wanjira[2]. Throughout the following years of research, I met with her several times. Wanjira, whose children are now grown, moved to Nairobi in the 70s. She is now retired and lives in a flat in the eastern part of the city. Wanjira tries to sustain herself; in her backyard just behind the kitchen, she has a henhouse. The chicken cackled while Wanjira cooked — the sun shone into the kitchen, and she explained the most basic steps on AIV preparation.

Wanjira is one of the most passionate cooks I have met. She has always eaten AIVs, and when she was diagnosed with arthritis, she took the initiative for the sake of her own health and learned more about the medicinal value of AIVs on the internet. She learned that it was possible to juice and drink the raw greens, which she did from then on. To further obtain new knowledge about varieties that are not yet known to her ethnic community, Wanjira also meets with her friends from church that live in the neighborhood. They meet in the home of one of the women or in their chamas (money saving groups) and exchange ideas and preparation methods. Wanjira's way of preparing AIVs is the result of a mix of knowledge from her family, but also from 'modern' sources. Wanjira was proud to tell us that she is a farmer; she has a field outside of Nairobi where she cultivates maize, beans and the AIVs when it rains. When she cannot harvest the greens from her own field, she prefers to buy them at the open-air market from her trusted mama mboga (Kiswahili for vegetables).

We started cooking Managu, also known as African Nightshade, which Wanjira learned to cook "at home". To start preparing the meal, Wanjira first plucked the leaves — an activity for which you not only need nimble fingers, but also knowledge about which parts of the vegetables are enjoyable. One also needs time, because each leaf needs to be separated from the stem. Wanjira then washed the vegetables several times before putting them into boiling water to cook, which she had already prepared on her gas stove. Only later did I learn that women use different cooking equipment: gas is the quickest option, however others use charcoal or firewood. Wanjira has access to piped water in her house, but the pipes in the city often run dry due to water rationing so there are days on which she must use her stored water, or buy water from a water kiosk. Next, she cut the onions and tomatoes, which were later fried with the cooked greens. She cut the onions and tomatoes by holding them in her hand, a technique with which I was not familiar. Once complete, Wanjira served the vegetables with uugali and meat. She served a generous

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[2] All names used in this text are pseudonyms.

portion, which I read as a welcoming gesture. As it is for many Kenyans, this dish is Wanjira's daily lunch. However, many consume it without meat. As always, we finished the interview with a cup of hot Kenyan tea. Wanjira told me warmly: "If you take a cup of tea together, then you are friends".

The three years of research opened up a completely new culinary world for me, a world which I tried to understand by listening, observing, documenting, mapping, cooking, tasting and eating together with the women. These women — and their stories and practice — have connected many dots in my understanding of AIV usage. Even though their practices are so inspiring, life-giving and enlightening, they are untold. This very first interview made it clear to me that AIVs are close to Wanjiras heart and health; however, it further triggered a number of my own internal thoughts regarding how women constantly struggle to put a meal on the table — but through this struggle, still exercise agency in a powerful way. I wanted to figure out: what are their stories? How did they begin to and why do they eat AIVs? As I observed and listened, I really just came to understand what a complex activity of cooking and providing food, thus care, is. At times, consumers have resources and a well-developed infrastructure available; at other times, they often lack the simplest essentials such as water, fuel or simply do not possess the knowledge about how to cook AIVs. Some do not even recognize the varieties in the markets. It is the day-to-day activity of cooking and eating — its practices and required resources, both tightly woven to the producers and the land where the food is cultivated — which inspired me to write the following dissertation on African Indigenous Vegetables, meal sovereignty and cooking as an act of resistance and how those issues vary by context. Here is some of what I observed, heard, tasted, documented and learned.

1.1 Relevance of the topic

Food — and, therefore, meals — is essential to human life. In Kenya, a meal is as important as it is in every other part of the world. The role it plays is as central to the body as it is in a greater socio-cultural context. Daily consumption can be a burden when necessary resources are lacking, but it can also be a pleasure in many ways: to prepare, feel, taste and eat a meal can evoke joy and wellbeing. Meals and food are generally used as entities which connect, create belonging or a sense of conviviality. Besides being a crucial symbolic resource, meals are made of environmental resources gained from fields, forests or water. When preparing and eating food, there is a direct connection to natural resources which is often hidden or undervalued in academic discussions. Revealing and telling stories through meals has been both the goal and the starting point of my research. While meals can be seen as a daily routine or as a mundane everyday activity, I am hoping to use them to make a larger point. I strongly believe that meals can help us to see the bigger picture. The meals which we ate during our field work are anchored in the changing agrarian political

economy of Kenya. The AIVs that were served to us symbolize continuity and change; inequality and injustice; and joy and pleasure as well as seasonality and agrarian practices. But how are meals, AIVs and their related practices relevant to scientific debates and concrete societal problems?

I see four reasons for why this thesis is relevant: (1) it adds to the discussion of food-related topics in Sub-Saharan Africa, which is primarily focused on narratives about malnutrition, insecurity and deficiencies; this thesis suggests that food is a complex issue, and that it can also be a site of power, agency and self-fulfillment; (2) with the approach of meal sovereignty, this thesis contributes to the debate on food sovereignty in two ways: first, it proposes ways to empirically examine sovereignty; second, it gives voice to the consumers. This thesis thus builds further upon the current approach, which has been extensively discussed theoretically, but has lacked empirical studies and has also only marginally included the role that consumers play in the discussion; (3) it broadens our perspective on biodiversity by studying concrete practices of AIVs through the lens of meals and by revealing consumers' day-to-day practices which contribute to biodiversity; (4) it is relevant to the field of feminist food studies by strengthening the argument that women's work, knowledge and capacity regarding food is valuable. It expands the discussion around care and food provisioning to ecological and environmental aspects. This will be further explained in the following paragraphs.

(1) The common discussion surrounding food-related topics in Sub-Saharan Africa is strongly dominated by the topics of food insecurity and malnutrition (Baro and Deubel, 2006; Devereux, Maxwell, et al., 2001; Ohna, Kaarhus, et al., 2012). Understanding the role of food does not end here. This can be shown by the rich body of anthropological studies which investigate the social practices and culinary worlds of food in Sub-Saharan Africa (Holtzman, 2009; Schmidt, 2018; Wane, 2014). With malnutrition and food insecurity as their main focus, many studies neglect the 'inside meanings' (Mintz, 1985) of consumers and eaters themselves, and the important pleasurable dimensions of food. Such a viewpoint not only truncates the complex issues of food — it also poses the risk of misleading policies and programs, which may not coincide with the preferences and practices which are actually in place. In line with this Ohna, Kaarhus, et al. argue that "the significance of food is *not* exhausted through analyses of structural marginalization and *food deficiencies*" (original emphasis, Ohna, Kaarhus, et al., 2012, p. 3). This understanding was essential to my study. I did not want to adopt a rose-colored view of reality, and wanted to understand what the challenges were; however, I was convinced that there was much to be gained from looking closely at the agency and intervention that people develop with AIVs and their preparation and consumption. There is a lack of evidence-based, location-specific research on this; thus, my study is relevant in contributing new knowledge, which is separate from the narrow and alarming narratives which surround food crisis. It highlights the visions of those who are deemed as marginalized and those whose voices are often drowned out. As there are hardly any studies exploring the vegetables from the side of consumption,

this is necessary. If a study does include consumption, it typically positions the consumer as a potential buyer and identifies consumption intensity and socio-economic variables with quantitative analysis (Gido, Ayuya, et al., 2017). Or, they identify areas where the AIVs are commonly consumed, and which preparation and preservation techniques are utilized within each ethnic community (Maundu, 1997; Maundu, Muiruri, et al., 2013). I do not mean to call into question the importance of this work — said studies are highly important in revealing consumers practices — yet, they act rather as a documentation of steps, methods and techniques of the preparation and preservation of AIVs. This study is therefore relevant in the absence of any empirical work on how this is embedded in everyday life and different local contexts in Kenya.

Furthermore, my thesis is relevant for the practical implementation of policies regarding food security. Food insecurity and nutritional deficiency continue to be a major problem in Kenya. AIVs are crops which are considered to be nutritious, especially due to their high level of micronutrients. International organizations have supported the production and consumption of the greens since the beginning of 1990s (Bioversity International and EIARD, 2013). However, there is a lack of attention to the preferences, needs and routines of consumers and communities and their rationalities. It is necessary to understand how consumers express their opinions and explain their points of view. This is something which international programs for food and nutrition security must more widely consider. The seclusion of consumers and their meal practices prevents progress; ideally, progress would be achieved by giving suitable recommendations in the areas of food and nutrition security that are in line with the local context, and can thus be successfully adopted.

(2) Food sovereignty is an umbrella term which describes that control and voice in decision-making should be given to those who are producing and consuming food, so that they are able to exercise their right to have access to culturally and ecologically sound food. Despite the concept's prominence in agri-food studies and growing use in the area, it has not yet been frequently applied to explicitly empirical case studies. As Schiavoni writes: "the [. . .] concept of food sovereignty and the movements connected to it are in a dynamic state of evolution" (Schiavoni, 2016, p. 25). As the concept evolves, there is uncertainty about what food sovereignty means in practice for the broad set of actors involved in the agri-food system. Consequently, the multiple facets and dimensions of food sovereignty have not yet been sufficiently studied and conceptualized. In light of this gap, this thesis adds to the emerging literature on empirical studies about food sovereignty (see section 3.1). I further argue that to only marginally consider consumers runs the risk of missing the deeper meaning of food sovereignty. As in the food security debate, the food sovereignty debate also deals inadequately with the consumers' role. The meal sovereignty framework, which will be proposed by this thesis, lays an important foundation for thinking of sovereignty beyond production by taking practices of care and resource as the starting point.

(3) Despite the technological and scientific advances which have been made throughout the last decades, societies did not manage to use resources sustainably. Many indigenous foods which were vital to biodiversity are diminishing, and with them so are the deep and enduring relationships which the people had to said foods. It is therefore highly relevant to bring practices of maintaining biodiversity to the forefront. Earlier this year, the FAO (2019) published the first worldwide assessment of biodiversity for food and agriculture (BFA). One of the key findings of this report is that "biodiversity for food and agriculture is indispensable to food security, sustainable development and the supply of many vital ecosystem services" (FAO, 2019, p. xxxvii). The report concludes that a huge knowledge gap exists concerning the use and important role of a diverse ecosystem. Likewise, a lack of policy and legal framework which address biodiversity was identified. These issues are not new: the first efforts to bring biodiversity-related topics to the international agenda started in the 1940s with the Fontainebleau Meeting, where the International Union for the Protection of Nature (IUPN) was initiated (Gasparatos and Stevens, 2015). Despite these urgent calls, we know little about the socio-ecological relations of biodiversity and how they could help to sustain it. At the same time, so-called heirloom varieties awaken which contribute to biodiversity; a greater interest in the Global North and South; and a rising consumer segment which is willing to pay more when they know about the food's origin and embeddedness (Parasecoli, 2017). Moreover, international food businesses recognize the potential of biodiversity and of economizing natural resources (Dempsey, 2016).

AIVs, as one example of the richness and diversity of natural resources, are intertwined in the lives and meal practices of the people interviewed. There is an effort to maintain the vegetables' diversity; however, certain type of crops have disappeared and become extinct, which can be traced back to the influence of colonial policies as well as to today's food securities policy, which is dominated by economic instead of ecological or social solutions. I heard story after story about how important the vegetables are for daily consumption. That importance is what drives the participants of the study to take action to preserve AIVs. Here, processes which are interrelated and closely knit are at work: over the last few years, there has been an increased interest in the vegetables. They have started to be grown for profit since they hold great potential for income generation and export. In contrast, the vegetables used to grow wildly before they were made accessible at the market. While biodiversity is often an abstract topic, especially in times of food surplus, one could wonder why we need a wider diversity of vegetables or fruits. Meals and their diversity of ecological, socio-cultural and political practices can provide a lens through which one can understand the important role of biodiversity. Through meals, biodiversity can be experienced.

(4) As shown in the story of Wanjira, and as the many other stories in this thesis will also demonstrate, the creators of AIV meals are women. Women take charge of preserving AIVs and lead environmental maintenance work through their cooking and care. This can be related to Helen Zweifel's claim that women are the "unacknowledged experts"

(Zweifel, 1997, p. 113) in biodiversity management. The meals are a result of their vital, practical knowledge about AIVs — the recipes, cooking techniques, and knowledge about their nutritional and ecological benefits — is held and shared by women. It is mainly women who are responsible for cooking the vegetables: for themselves, for others and with others. This knowledge and care has much to offer — for the women and their lives, but also for the discussion in feminist food studies. It can add to the field insofar as the results make knowledge and care more visible; furthermore, it helps to center women as powerful, agentive and skillful actors. Viewing knowledge and care from a feminist political ecology perspective, and thus integrating the embodied practices of natural resources and understanding women as environmental actors, is relevant for feminist food studies as it connects the field to other disciplines such as agricultural and environmental studies.

1.2 Research questions and terminologies

Drawing on qualitative-participatory research in urban and rural Kenya, my overall research objective of this thesis is to highlight how women's active engagement on the ground plays a central role in attaining meal sovereignty in the context of several struggles, constraints and changes. In particular, I focus on the practices surrounding AIVs: from provisioning to preparation, from cooking to sharing. I am interested in providing an intimate look at various forms of managing, preserving and making meaning of and with AIVs and how consumers interact with them as part of their meal cultures and everyday lives. I assess cooking and providing a meal as a form of care, agency and sovereignty — on different levels and scales, as this thesis will describe. Finally, the thesis aims to suggest the new concept of meal sovereignty and thus extend and add nuance to theoretical and conceptual discussions of food and agriculture.

Three main research questions guided the study. They are listed respectively below with sub-questions. In order to answer the main questions, the sub-questions (which are more specific) have been formulated to gain a more detailed understanding of the phenomenon under study.

1. What does the lived experience of providing, cooking and eating AIVs look like?

    How are AIVs put into practice, performed and perceived?

    How do participants care socio-ecologically for AIVs?

2. How do participants shape their experience and enact agency?

    What are the conditions, structures and practices that are enabling?

    Are they able to create spaces of meal sovereignty?

3. Are participants meal sovereign?

    How do material and immaterial resources shape care and meal sovereignty?

There are some terminologies which I use throughout this thesis, and therefore wish to briefly explain before introducing the outline. When this thesis uses the term *meal*, it includes all activities, working hands, minds, bodies and resources related and needed to put a meal together. Although various terms already exist to describe practices of food consumption — e.g. foodways, food habits, food choices, food behavior or food practices — I argue that the term 'meal practices' offers a more useful lens with which to analyze everyday practices around food, and the necessary material and immaterial resources required to prepare it as a meal. I have used this term in order to distinguish from the food security and food practices terms. When using it, I do not necessarily only relate to practices of eating, but also include practices of producing food in the field.

Gender orders, as they are lived and experienced in relation to AIVs, have been one of the core interests of my work. Gender has been used as a central category; it is an important part of the theoretical considerations as well as an important part of the analysis and discussion of the results. I use the term gender order to describe structures and processes which produce and reproduce gender inequality and differences in a society. Such processes are manifested in many ways, both through practices of inclusion and exclusion on the material as well as on the symbolic level. Young describes the gendered order as "social ordering principles" (Young, 2010, p. 265). Even though the term 'order' seems to refer to a static understanding of gender, I frame it dynamically and fluidly in order to be attentive towards changes within gender arrangements. Consequently, gender can be conceptualized as a process category. In my research, I focus mainly on women living in rural and urban areas who are shaped by many dimensions of identity. They are mothers, grandmothers, wives, widows, pensioners, farmers or businesswomen who are confronted with a rigid gender order, but who are also committed to eroding it — even if only a little — or to practicing it in their favor.

Another contested term which is regularly used in this thesis is the term *ecology*, as well as *environment*. Even though both terms are closely related and are often used interchangeably in the literature, I will try to distinguish between them and to make it clear where the topics overlap. When referring to ecology, I point to specific natural resources, species or organisms and the practices in which they are embedded — for example, with reference to specific plants such as AIVs. Relating this to the conceptual framework of feminist political ecology, ecology refers to all practices, institutions and power relations occurring around natural resources. Environment refers to a broader context. While environment can refer to political or social settings and the surrounding space, it can also refer to natural conditions. Therefore, environmental factors can, for example, have an influence on ecology. When thinking about ecology and environment together, one can study the interactions of natural resources / organisms with their environment and vice versa.

1.3   Thesis outline

The thesis is arranged into eight chapters. *Chapter one*, the introductory chapter, outlines the relevance of the topic under study. It introduces the different academic topics and issues upon which the thesis touches, and highlights the blind spots in current discussions. Based on this critique of missing links, I briefly explain how this thesis can address such gaps. The research questions are introduced and a short list is provided which defines the key terminologies which are used throughout the thesis.

In the following chapter, *chapter two*, I introduce AIVs themselves and the diversity thereof. This chapter draws on different sources, for example: scientific studies, colonial reports but also novels, cookbooks and social media. I discuss the trends and dynamics which revolve around AIVs, tracing their journey from a forgotten, then underutilized and now commercialized crop. I thusly position AIVs within a brief sketch of Kenyan history, and further situate them within current policy-making and the tendency of economizing indigenous crops. A historical reading and one that is attentive to power relations is important for this thesis to understand from where the current perceptions and narratives of the vegetables stem. In this sense, this chapter conceptualizes AIVs as carriers of history, colonialist logic and political decisions in the past which affect today's perception.

In *chapter three*, I review literature on food sovereignty and feminist political ecology and subsequently introduce the theoretical framework of the study. A combination of both approaches is used; I am convinced that they provide a sound basis for analyzing the questions raised by this thesis. I first discuss the shift from food security to sovereignty, then elaborate upon and critique the conceptualization of food sovereignty and finally relate it to the local context of Africa and Kenya. By drawing on the feminist approach of feminist political ecology, I will evaluate how food and providing meals are experienced, how gender and care are played out and how the relationship of care and natural resources — in this case, AIVs — unfolds.

The objective of *chapter four* is to present the case study and its methodological approach[3]. The chapter begins with examining how we, as a research team and I individually, 'entered' into and encountered the field and how we developed the qualitative-participatory methodological design. The chapter recounts the process of finding suitable methods for our endeavor, and finally introduces the newly developed methods of 'cook-along interviews' and 'meal cartographies'. Moreover, I reflect upon my own position in the field and role during the research: addressing fears and concerns, but also examining how said concerns disappeared as I found my way and voice throughout the process. The last part of this chapter introduces the applied analytical procedure.

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[3] This study was carried out within the framework of HORTINLEA research project Subproject "Meal Cultures in Market Trends and Consumption Habits". HORTINLEA is embedded in a funding initiative for global food security (GlobE) of the German Federal Ministry of Education and Research and the German Federal Ministry for Economic Cooperation and Development.

Chapter five presents the empirical material of the study. It begins by telling the story of two inspiring, outstanding women with whom we met several times throughout the research. The chapter continues with a rich, dense description of AIV and meal practices. This chapter and its detailed explanations are the heart of this thesis. It is derived from the people's narratives, from the observations we made in their kitchens and homes in Nairobi and Kakamega, and finally, from the many meals we ate. Thus, this chapter uncovers the lived experience of AIVs by drawing upon multiple influential aspects.

Chapter six is based upon the empirical material presented in the previous chapter. I will interpret and analyze said material in order to propose a new framework in the following chapter: meal sovereignty. Drawing on feminist political ecology and food sovereignty, I first look at the access to and control of resources which are necessary to put a meal on the table; secondly, I look at the diverse relationships of socio-ecological care. I demonstrate various examples of women's capacity and resistance, for example: participating in collective cooking sessions, by building alternative channels of food provisioning or by rejecting exotic vegetables. The chapter summarizes central findings and connects them to each other by linking them to the theoretical foundation of this thesis.

In *chapter seven*, I propose the new framework of meal sovereignty. After the introduction of a definition I present the goals which I intend to reach with the framework. The idea of the concept was born out of the search for a suitable framework in agri-food studies to analyze the practices which I observed in the field. The fact that none of the existing concepts seemed to be appropriate motivated me to develop a new framework. Meal sovereignty focuses on the sovereignty of the 'eater' as an integral part of an agri-food system. It conceptualizes production and consumption as coupled practices. Finally, I conclude that the capacity to enact socio-ecological care as an active actor in the agri-food system can translate into meal sovereignty.

Chapter eight concludes and gives suggestions about how to promote and secure the consumption of AIVs and indigenous crops more generally, i.e. in a context-based way. In the chapter the overall insights of the study and the contribution of my work are reflected upon. In this chapter, I also recommend directions and avenues for future research in the area of biodiversity, agri-food studies and sustainability from a feminist perspective.

7

Meal Sovereignty:
A new perspective

"Eating is an agricultural act."

<div style="text-align: right">Wendell Berry</div>

Despite the seemingly simple meal that forms the dish of AIVs — ugali and the greens mixed with some onions and tomatoes — it turned out that it held a lot of things to tell and which to analyze. Meal after meal, I learned a little more about AIVs and their lived experience. I learned not only about AIVs themselves and the women who provide them, but also about the agri-food system in which they are embedded and embodied. During the research process, many things were not as they appeared to be at first glance. The motivations and methods of use by the women who provided AIVs varied significantly. There was not a fixed pattern that could be easily detected; we had to dig deeper, to take time to understand the complex and often contradictory issues that surround AIVs. We had to develop new methods, talk to very different people and visit very different places and homes. What I want to say in stating this is: there is no simple, fixed way in which people consume the vegetables, nor in how they relate to them in a socio-ecological way.

The practical and empirical capture of such variation and diversity was difficult. During the research process, I tried to relate the results and experiences to different kinds of concepts or frameworks that exist in agricultural and food studies. I found many of the frameworks unsuitable for what I wanted to tell and depict — a complex, encompassing picture (as opposed to a narrow one,) which documents meal practices as being related and agentic. Further, I was looking for a framework that embeds such practices in resource access and control and thus considers wider structural and political factors. While I was inspired by approaches, there were none which truly convinced me as being entirely suitable for my endeavor.

By using an existing framework, I saw the risk of an oversimplification of food, practices and realities and consequently of drawing conclusions and giving recommendations that may not be suitable for people's needs and preferences and the environmental sustainability. With the results I have presented, it has become apparent that with a focus mainly on access, availability, economic parameters and nutritional deficiencies, as in 'mainstream' or 'conventional' understandings of securing food and nutrition, key factors will be left out. Thus, factors that are far from the logic of securing food and nutrition must be highlighted and conceptually captured. Such factors are, for example, the social relations and emotions that people build around food. Taste, texture and smell were other factors which proved to be highly important to people in terms of their feeling satisfied or dissatisfied. Another one was the historical embeddedness food and its influence on perception and acceptance.

Out of this search for a suitable framework emerged the idea of meal sovereignty. It arose from the necessity of finding a framework that fit to what I had observed in the field. More importantly, however, it arose from my wish to work with a framework that corresponded with and reflected the reality of the people whom I encountered in the field. Therefore, meal sovereignty draws on the theoretical bites introduced in chapter 3 and on the stories heard and meals eaten in order to unravel complex practices and contexts. Meal sovereignty provides a promising perspective as it relates food to the realities of those who provide and eat it through the lens of meals and care. In the next five subchapters, I want firstly to introduce the developed definition of meal sovereignty and secondly, discuss the framework in more detail by presenting core topics and (analytical) commitments of the meal sovereignty framework.

7.1   Introducing an innovative framework

In order to demonstrate how the framework of meal sovereignty could be used, a definition is given. To provide a definition may appear static and definite; however, in order to make the framework applicable, I think it is highly important to frame its multiple dimensions. The definition is neither set nor final, rather it is open for discussion and debate. In a paper for the conference "The Future of Food and Challenges for Agriculture in the 21st Century" my colleague Suse Brettin and myself defined the multi-layered nature of meal sovereignty as follows:

> "Meal sovereignty is the right of people to be able to prepare and eat a meal that serves their needs, preference and pleasure. Meal sovereignty is dependent on both material and immaterial resources. Those resources are shaped by power relations such as gender relations but also relations of class, race and ethnicity are coming to play.

Material resources contain of the physical and economic access/availability to healthy and affordable food, electricity, water, transport, to well -developed cooking equipment and storage facilities.

On a more immaterial note, meal sovereignty points to sociocultural resources of a meal such as the necessary time and knowledge on how to plan and prepare a meal, the pleasure of preparing, sharing, eating and tasting a meal.

Together, these resources are overlapping shaping the right to experience a meal in its material and immaterial sense." (Brückner and Brettin, 2017, p. 3).

Just like other conceptional approaches are developed through time and through the experience of the researcher, I also noticed some missing dimensions in said definition. Moreover, the analysis of the entire results made me realize that meal sovereignty is influenced by much more than the aforementioned facets. Therefore, the updated definition is based on the results of the research presented in this thesis. I added further resources (in bold letters) in order to make visible the fact that consumers are, in many cases, also producers of their own food; and meal sovereignty is more likely to be achieved when production and consumption are considered together. Further, I added other factors of inequality and specified the term food. Additionally, I have put greater emphasis on the aspect of socio-ecological care:

Definition 1 *Meal sovereignty is the right of people to be able to prepare and eat a meal that serves their needs, preference and pleasure.*

Meal sovereignty is dependent on both material and immaterial resources.

*Those resources are shaped by power relations such as gender relations but also relations of class, race, **age, locality** and ethnicity are coming to play.*

*Material resources contain of the physical and economic access to **and control** of healthy, affordable, **environmentally sound and socio-culturally appropriate** food, electricity, water, transport, to well-developed cooking equipment and storage facilities **as well as to land, seeds and other agricultural inputs**.*

On a more immaterial note, meal sovereignty points to resources such as the necessary time and knowledge on how to plan and prepare a meal, the pleasure of preparing, sharing, eating and tasting a meal. Knowledge also refers to the ability to know how and where the ingredients for a meal are produced.

Together, these resources are overlapping shaping the right to experience a meal in its material and immaterial sense.

One is meal sovereign, when being able to produce and care socio-ecologically for a meal with pleasure, according to one's preference and need.

This given definition centers on the individual and a person's ability to be meal sovereign. It envisions an agri-food system that gives power to the local communities, and that at the same time makes connections across multiple scales; an agri-food system in which consumers are seen as active members who are skillful and careful, and thus can actively participate in and initiate processes. This is what meal sovereignty points to: the conditions and resources required for one to be able to choose and opt for food according to his or her own preferences and needs. This is an important issue to consider in the case of AIVs, as, for example, colonizers imposed food upon the local people that was not part of their meal cultures nor of their ecosystem.

However, meal sovereignty should not only be understood as a concept that touches the individual; instead, it is purposefully linked to environment and ecology as something which is political. Therefore, on a much broader level, meal sovereignty represents a vision of an agri-food system which is good for both people and the environment. It puts eating well, and all activities that go along with it, to the forefront. However, it also embeds it into a bigger ecological system that has to be sustainably used. This is what I meant earlier by mentioning the ecologies of a meal. The ecological relations of a meal and their sustainability must be considered as being a critical determinant of meal sovereignty. Thus, the ecological impacts of certain meals must be well-considered.

This points to the macrolevel scale and politics necessary to enable meal sovereignty for people and the environment. The idea of meal sovereignty should also inform decision and policy making by suggesting a framework that is based on people's experiences and on environmental sustainability. An example of thinking of both together are AIVs: they are part of people's meal cultures, and they are also suited to the local ecology. Policies need to consider this, and thus also consider the importance of indigenous crops and diversity of crops for people and the environment. This needs to be done by being attentive towards the complexity of practices embedded in a particular historical and political context. In the next sections, I will highlight key issues and (analytical) commitments of the meal sovereignty framework: 1) the histories and politics; 2) connecting production and consumption; 3) the lived experience of meal sovereignty and methodologies; 4) consumers and women as environmental actors and 5) care as the basis of meal sovereignty.

7.1.1 The histories and politics of Meal Sovereignty

With the approach of meal sovereignty, I first seek to understand how history has played a key role in today's framing and positioning of food, and no less importantly, in its everyday practices and position in the agri-food system. Thus, the historical context needs to be seen as a reference which we can make a connection to today. In the case of AIVs, we knew little about how today's practices and processes were linked to past contexts. In chapter 2, I discovered how AIVs are — and how natural resource management more generally is —

bound up in historical relations, and how the regulations and norms which were introduced during the decades of colonial rule shape and influence current practices and policies. Past processes do matter in socio-cultural, economic and ecological terms, for instance: in questions of land access and control, resource commodification and individualization, the role of indigenous crops, knowledges and ways of caring, the gendered division of labour and, more generally, in terms of what is considered as having value. Such changes and interventions are inevitable in the stories of AIVs, but they are barely considered. The empirical findings in chapter 5 give a glimpse, for example, of how the feeling of ownership and commitment towards the AIVs comes into existence due to the long-term consumption of the leafy greens, and how the feeling of said ownership of and commitment to them thus develops. Hence, I argue that it is necessary to understand and study how things become and consequently, to cultivate a commitment to and consciousness of the past and its influences on the here and now. Attention needs to be paid to rationalities and to how things emerge processually. Looking back into the past can inform present reflections and research insofar as that it allows one to see possibilities for the future as being connected to the past, thus allowing us to acknowledge and learn from it. This historical understanding forms a critical and basic part of the meal sovereignty framework.

7.1.2 Connecting production and consumption

With meal sovereignty, I secondly want to intervene in the debate on food sovereignty in a fresh way: by linking it to the sphere of the consumer. It is not my intention to deepen the divide of production and consumption; rather I want to show the invisible links and relations between both and give consumers a voice. Neither can exist without the other: consumption depends on production, production is done for consumption, and both are based on productive and reproductive work. When separating the two, we risk missing out on an entire dimension of the reality of agricultural products, and also miss the relational characteristics that can support an agri-food system that is based on food and meal sovereignty. Therefore, it is time to unite production and consumption and to bridge the divide between the two spheres in order to move into new fields. As indicated in the quote at the beginning of this chapter by Wendell Berry, eating is closely connected to agriculture and both need to be understood as coupled practices. This can also be referred to the ecology of a meal and as the environmental care that happens in households. Scholars have already called for a more holistic approach in the field of agri-food studies. To reach this goal, they propose life cycle thinking (Notarnicola, Sala, et al., 2017; Soussana, 2014), the focus on nutrition sensitive value chains (Allen and Brauw, 2018), the focus on post farm-gate agri-food value chains (Maestre, Poole, et al., 2017) or on meal cultures (Brückner and Çağlar, 2016; Musotsi, Brückner, et al., 2018; Teherani-Krönner, 2017).

I argue that the experience and power of food sovereignty extends beyond the market; it is also experienced in the household and private sphere through the act of producing a meal and providing care for self and others in form of utilized agricultural produce. Farmers value ecologically sound production — so do consumers. Farmers need water — so do consumers. Just as farmers require knowledge about how to best cultivate vegetables, consumers also require knowledge to know how to cook a meal. There are many intersections, resources and concerns which are shared by producers and consumers alike, and we must pay more attention to them. I want to encourage a much deeper reflection on food sovereignty that includes food providers, and thus care-givers, in the domestic sphere as actors that co-produce agricultural produce by producing a meal. Therefore, it is necessary to understand their conditions and negotiations of work and the underlying societal principles. A feminist perspective and the focus on socio-ecological care can help connect the two spheres of production and consumption.

7.1.3 The lived experience of Meal Sovereignty: Practices and methodologies

Thirdly, the framework of meal sovereignty is a practice-based approach. When one wants to understand what meal sovereignty means or could mean in a specific context or for a person or community, it is critical to engage reflexively and proactively with the everydayness of food, its use and users. A key contribution of food sovereignty and specifically of feminist political ecology debates has been to draw attention to the actors and their lived experiences, which are embedded in given structures and institutional arrangements. My central argument here is that looking into people's practices is vital in seeing how they reflect and act.

How do people use AIVs? How do they relate to them through their everyday practices? And how do they shape their own practices and negotiate norms and expectations, both individually and collectively? These were some of the questions I intended to raise and answer. In particular, I felt that the women we talked to already have solutions in place to respond to challenges and cope with risks; so far, we only know a small fraction of these everyday acts of agency and citizenship. These small, incremental practices build the core of meal sovereignty. Thus, the framework respectfully acknowledges the agency of the women and people on the ground, questioning prevalent assumptions in agricultural economics in order to find bottom-up solutions to problems with market- and technical-based interventions. With a practice-oriented view, the framework of meal sovereignty allows for the conclusion of what defines desirable conditions for those people on the ground and the environment in which they live.

These thoughts also touch upon the heart of research ethics and empirical decisions taken as a researcher. Looking at practices and food relations, and understanding both in their temporal and spatial embedding, has important implications for the research design. Through the range of methodological approaches we have chosen in this research project, we wanted to grasp a holistic picture on the one hand — and on the other, to invite the research participants to become involved as active, knowledgeable partners in the research process. Therefore, deploying participatory methods brought the diverse, hybrid material and immaterial resources and relations of food to the forefront and, furthermore, evoked a more equal relationship between researcher and participant. With the newly developed method of the cook-along interview and meal cartographies, we have purposefully engaged with the practices of AIVs. Such an epistemological reflection on how to produce knowledge is a condition which is central for understanding and doing research about meal sovereignty.

7.1.4 At the center: Consumers and women as environmental actors

Meal sovereignty rests on the idea that food is not being produced alone as an agricultural commodity, but that it is also prepared and eaten as a meal. This stretches the meaning of food, further expanding upon a concept which is frequently seen simply as an agricultural product which needs be made available to people. While those who procure and consume food are often seen narrowly in their purchasing roles and as being distanced from the agri-food system (Dowler, Kneafsey, et al., 2010), prove the results of this thesis that this does not hold true. The people who access food build a whole new world around it and — in the case of AIVs — develop a sense of ownership, responsibility and agency. However, the question remains: who are the consumers? Most often, the consumers are women. Based on the results, I can argue that women embed food into the socio-ecological web of their own lives and environments, both in history and in the present. By exploring women's AIV practices, I could show that they are environmental actors: they enact environmental responsibility and awareness in their decisions and practices. The knowledge and capacity that they carry out in cooking the vegetables must be seen as ecological care and as a vital part of conserving biodiversity. Therefore, directing attention to consumers and women is an integral part of meal sovereignty.

7.1.5 Care as the basis of Meal Sovereignty

Finally the framework of meal sovereignty is based on the principle and practice of care. Or, in other words: I see care as playing a central role in organizing and achieving meal sovereignty. The empirical results show how through caring for and with food, consumers are deliberately determined to shape and know about the agri-food system that surrounds them. In every stage up to the preparation of a meal — from growing and harvesting to the post-harvest handling and preparation of AIVs — they demonstrate an attempt to handle

food in a careful way. They were conscious of the needs and practices of farmers and sellers, and of the benefits of AIVs in socio-ecological terms. As such, consumers nurture careful relationships with people, places and natural resources and in doing so, build spaces of meal sovereignty and maintain biodiversity. Care emerges through these connections to both the human and the non-human. Looking through the lens of care allows for much potential: it allows one to look at the everyday, the agency, the relations between actors in production and consumption, and finally, at the actors in the agri-food system themselves. Care takes place as being embedded in material and immaterial resources; therefore, looking at resources is central in making sense of how care practices for meal sovereignty can be built, enhanced and sustained.

7.2   Answering the research questions

As the framework of meal sovereignty has now been introduced, I am able to return to the research questions. With this thesis, I raised research questions and sub-questions that guided the study. In my study, I used participatory and qualitative methods to address these questions. The questions are:

1. What does the lived experience of providing, cooking and eating AIVs look like?

    How are AIVs put into practice, performed and perceived?

    How do participants care socio-ecologically for AIVs?

2. How do participants shape their experience, enact agency and resist?

    What are the conditions, structures and practices that are enabling?

    Are they able to create spaces of meal sovereignty?

3. Are participants meal sovereign?

    How do material and immaterial resources shape care and meal sovereignty?

The answers to these questions have already been touched upon and discussed. In the subsequent chapter; however, I would like to briefly summarize them.

The first question has been chosen to give a general overview of AIV consumption practices in the household in order to see how the study participants experience and care for, and care through, the indigenous vegetables. The findings can be clustered into three aspects that were of importance: (1) the historical embeddedness of AIVs, (2) the role they play in socio-culturally shaped meal cultures and (3) the availability of them and the capacity to utilize them in production and consumption. To start with the first aspect, the results show that the vegetables play an important role and that the participants undertake various actions to keep them in their kitchens and in their fields. With this, they are an important part of conserving AIVs and assuring that they remain a part of

the ecosystem and of their own meal cultures. However, the 'life' of the vegetables is not free-floating; it is historically grounded, as also explained in chapter 2. The AIVs were unsuitable for the interests of the colonial rulers, grew without farmers' attention and were free and difficult to commercialize for export. Yet the vegetables continued to be a local reality for many Kenyans. Even today, when the commercialization and intensification of food has had a huge impact on agriculture in Kenya, the participants in our study remain connected to the local varieties. This highlights the inappropriateness of dominant solutions of agricultural commercialization and development introduced by external actors, but more importantly highlights the power of the local community to respond. Some of the older study participants were aware of the influences of the colonial past and the effects of a changing agri-food system which has introduced new crops and meal cultures. This suggests an explicit relationship to the greens and proves a strong resistance, not only out of a political struggle, but due to the fact that they are part of the ecological environment and of traditional meal practices.

The social and cultural aspects, aspect two, of the AIVs was obvious in the interviews. Many participants called them their vegetables and told us about them with a sense of pride. They care for the vegetables and ultimately use them to care for the health and wellbeing of themselves and others. The interviews have shown that many ethnicities have their own varieties; this was demonstrated, for example, when participants told us that specific ethnic groups prefer a specific type of AIV, which another group dislikes or even does not know. Some AIVs are typically found in specific regions and are most prominent there. The vegetables are also called different local names in different settings (see Table 2.1). Thus, the meaning-making of AIVs is shaped by the fact of availability, which is first and foremost conditioned and shaped by ecological conditions; some are not available in drier areas and some grow better in fertile areas, which then translates into ethnic meal cultures and taste preferences. The vegetables also hold spiritual value. This can be supported by findings from Patrick Maundu and other stakeholders which document the spiritual beliefs, taboos and myths concerning traditional vegetables. According to their results, women pregnant with twins or who are breastfeeding, for example, are not advised to harvest Kunde (Cowpeas) as it is believed that when a lactating mother harvests the plants, that they will dry up (Maundu, Muiruri, et al., 2013). On the other hand, it is advised that lactating women consume Inderema (African Vine Spinach) as it will boost the quantity of breast milk. Those beliefs are culturally established, which indicates the long-standing importance of AIVs. This resonates with our findings which show that the AIVs' spiritual and cultural ambiguity and charged-ness influences their acceptance and adoption in the respective communities. These cultural practices are embodied in the production and consumption of the vegetables.

In examining the third aspect, the results could show that the eating of AIVs is ritualized — in the rural even more so than in the urban context. Building on this, I argue that the vegetables are strongly positioned in the everyday lives of our participants; they seem to have high priority in the daily diet. However, they are also pivotal in spheres other than consumption, particular in women's daily work on the land and in the field. Production of AIVs is a central issue and key aspect of well-being because they are an income-generating crop, even though women often fail to access basic resources such as land through the prevailing gender inequalities in tenure system. However, not only do the AIVs contribute to a healthy and tasteful diet for the participants, but they also strengthen the participants' capacity to create an income or to diversify it. It gives women more freedom in spending the income from selling AIVs: for example, on other food, school fees, clothes or other household expenses for they need to pay, and also increases their decision-making power. The women in our study depend on the vegetables in terms of production; at the same time, the vegetables also assure that the women have access to food they prefer and that they enjoy cooking and eating. Moreover, AIVs are not only considered to be an income opportunity. Implicit in much of the material is the link to the environment and to seeing the AIVs as a mediator in talking about environmental changes and natural resources such as the dependency on rain, good seeds and soil. AIVs, therefore, are understood as being embedded in a holistic ecological system. Through the aforementioned practices and meaning-making, women contribute highly to the conservation of biocultural diversity by keeping and sharing seeds, planting the vegetables for self-consumption or distribution and finally preparing them as a palatable meal. The participants narrated many positive aspects and opportunities of the current situation of celebrating the comeback of the vegetables. However, I could also detect fears, skepticism and dissatisfaction regarding the long-term consequences of today's stories told about AIVs. It can be concluded that AIVs are positioned at the crossroads, and that how the commercialization affects the future of the crop must be further observed.

In relation to the second question, in section 6.1, I have elaborated upon spaces of meal sovereignty and enabling moments and structures. Meal sovereignty is based on principles of solidarity and agency. Those moments of solidarity and agency often happen around a kitchen table or cooking pot. I observed it as being a space of listening, learning, giving and respecting one another. Food, and AIVs in particular, acted as an object or materiality that created and initiated forms of self-governance, thus initiating spaces of personal and collective meal sovereignty.

Spaces of meal sovereignty often occurred at the personal level, for example, when women were able to acquire new knowledge gained through their own effort; or, to name another example, when they procured the AIVs they wanted to eat by organizing transport from their ancestral home. Through the self-production of AIVs, for example, some women build up their own small businesses by selling to schools or hospitals. One woman took advantage of the growing interest of time-constrained consumers in AIVs; she sells cooked

AIVs to consumers in Nairobi who have no time to prepare the vegetables themselves. Earning an income from 'knowing' about AIVs, both in cultivation and preparation, contributed to the family's income and to the women's feeling of creating something of their own choice. Spaces of meal sovereignty also occurred at a collective level, which enlarged the space of agency. The formation of cooking groups is one such example that encouraged women to learn and grow in a collective. In the rural area, women also joined farm trainings in order to improve on seed propagation, intercropping and cooking. The women also managed to build social networks with neighbors, relatives or friends, but also to sellers, which acted as a safety net in times of food scarcity. The forming of such spaces of agency has mostly been initiated by the women themselves — individually or collectively — and sometimes with the support and network of local NGOs.

Although women have the option to cook kale and cabbage — which can cook faster, are cheaper to get and are easier to find at the market — they decide to provide AIVs. It always made me wonder what the reasons are. After having done this field work, I think the women's decision describes the very essence of their power to care and to negotiate struggles. Stating this, can I say that the participants whom I met for this study are meal sovereign and are able to obtain, cook and eat the way they want? The third and final question has been raised to evaluate, whether or to what extent, the participants are meal sovereign or can be considered as such.

Drawing on the results and given definition of meal sovereignty, it can be concluded that a variety of certain resources are central in achieving meal sovereignty (see section 6.3). There are material resources such as water, kitchen infrastructure and transportation, and there are rather immaterial resources such as knowledge, taste and the gendered division of labour. Meal sovereignty is dependent upon the ability to access these or to have the opportunity, capacity and skill to enact them. Women's limits of time, knowledge or support, patriarchal structures and lack of resources (e.g. water, transport, money etc.) to meeting meal sovereignty have been shown as being strongly influencing. This draws attention to how it could be: if the participants could access all the resources and could be in control of them, it would give them greater control over their food choices and make their everyday work easier.

Having said this, and in reflecting upon the overall answer, I respond to the question with the following: I consider the participants in our study to be partly meal sovereign. The examples showed well how an unequal share of meal work and scarcity of water and time is a struggle for consumers, mainly women, which puts them in a precarious position. It is time to address such challenges at the household level, which are often neglected or simply swept under the rug. As we have stated elsewhere: "More often than not, those needs and challenges are seen as a private concern of each individual rather than as a basic human right or as a matter of broader structural processes and power relations."

(Brückner and Brettin, 2017, p. 7). Those constraints sometimes even hinder participants' nutritional and environmental interests and wishes; for example, when they need to buy exotic vegetables in case the indigenous vegetables are not available in proximity, or if they do not currently have the financial means available.

Yet women do everything within their power to overcome these restrictions and this is, I would say, what enables them to reach meal sovereignty: to act, fight, resist, reclaim and to transform. Women find a way to resist the hardship they encounter: with pleasure and joy for a diverse meal that they savor and relish. It might not always be a moment of glory, but it is a moment in which they prove to themselves what they are able to do, and that they are not powerless and restrained.