

It is not about spinach

A Food Justice Perspective on Urban Agriculture in Cape Town and Maputo

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A Food Justice Perspective on Urban Agriculture in Cape Town and Maputo

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Executive Summary

The world's rapid urbanisation has presented multiple challenges to societies and the environment and strained the sustainability and equity of urban food systems. In discussions on the future of the world's cities and their food security, urban agriculture has gained attention for its potential to contribute to food supply and dietary diversity, generate income for urban producers, and provide various multifunctional benefits such as environmental services, education, and community building.

This study reports on urban agriculture research conducted in Cape Town, South Africa and Maputo, Mozambique that built on quantitative and qualitative methods and strongly relied on a participatory research approach. The author conducted household surveys, focus group discussions, key informant interviews, participant observations, and farmer-led co-research. The research formed part of the UFISAMO project (Urban Agriculture for Food Security and Income Generation in South Africa and Mozambique) which was led by the Centre for Rural Development (SLE) at Humboldt-University Berlin from 2016–2019. The dissertation followed a conceptual approach that applies a food systems perspective on urban agriculture and uses urban agriculture as a means to identify food justice patterns. In addition, this thesis contributes to participatory action research methodology by shifting focus to the concept of democratisation processes in research. Co-research is a more radical and inclusive form of participatory action research that involves actors and groups from marginalised communities in all research steps. Communities are involved in the study design, problem posing, decision-making around methodology, data collection, analysis and triangulation, and scaling of activities. This process fosters ownership of the gathered results through mutual and transformative learning, and hence, could become more valuable than the results themselves.

The food system in Cape Town is highly segregated, as is the city itself: the legacy of apartheid-era planning left an affluent and prosperous city centre surrounded by lower-income areas populated largely by People of Colour who face daily challenges in accessing food. Urban agriculture is practised in the townships of Cape Town by hundreds of farmers—most of them People of Colour, unemployed, elderly, female home growers—and thousands of backyard growers who cultivate a variety of vegetables mostly on small plots. The food gardens are either on public or private land: land is leased for short periods from public institutions such as schools or clinics or leased from municipalities, which is a lengthy and—for many farmers—opaque process. NGOs, with support from the Municipality, introduced urban agriculture as a poverty alleviation strategy to combat high rates of food security in the marginalised parts of the city. Decades of support have hampered the establishment of community-driven food solutions and led to dependencies on NGOs for inputs, marketing, and acquisition of new knowledge. These farming activities play an insignificant role when it comes to household contribution. This is partly due to weak market challenges within the townships and partly due to bottlenecks in marketing structures organised by intermediaries; most urban farmers grow vegetables according to an intermediary's production plan and with the supplies (like seedlings) provided by the intermediary. Food is produced in highly confined and troubled spaces in informal settlements, almost exclusively for a niche market of middle/upper class consumers in the wealthier city centre. When intermediaries do not follow through on their promises to supply those niche markets, the urban farmers lose their sole marketing channel and are left with wasted garden produce. In the course of focussing their efforts on intermediary-led marketing channels, urban farmers disconnected themselves from the communities surrounding and from their own produce, with only 15% of farmers eating the vegetables they grow.

This research reveals that farming in the city is a contradictory strategy to support a marginalised society as its contribution to poverty alleviation is limited. The urban producers' income is meagre and often farmers spend more money on inputs than they earn from their urban agriculture activities. However, multifunctional benefits, such as community-building and the creation of green places for education are key contributors to social cohesion within these societies. This research has exposed the municipal support mechanisms' failure to address systemic and structural inequalities in the city's food system and the lack of political will to make urban agriculture an economically viable activity for producers.

Maputo's food system is strongly influenced by food imports from neighbouring South Africa, by its rapid growth, and by migration from the rural areas of the country where self-sustaining family farming is a primary livelihood strategy. In the urban and peri-urban area of Mozambique's capital, the *zonas verdes* (green zones) were established to combat the city's severe food insecurity crisis after the colonial era. These horticultural production sites have remained vibrant production areas. Urban agriculture is largely commercialised and plays a key role supplying the city with specific horticultural products, mainly cabbage and lettuce. Informal traders buy crops directly from the fields and sell them in Maputo's local markets and street stands. Four of five farming families indicate that the income they generate in this activity is their main source of revenue. Another estimated 40,000 people earn their livings by supporting urban agriculture through activities such as trading, selling, pesticide application, and transportation. Like Cape Town, it is mainly women who are involved in urban agriculture in Maputo's fields.

As a legacy of the socialist era, the majority of Maputo's producers are organised in farmer associations. These are hierarchical in structure and members come together regularly for meetings. However, they fail to exploit their potentials for product marketing, pesticide regulation, and knowledge transfer within governmental extension programmes. Several shortcomings and dysfunctions hamper the efficiency of these associations as promotional vehicles: opaque decision-making processes and nepotistic organisational structures marred by association members of higher status and privilege holding leading positions and determining access to agricultural inputs and services. In Maputo, associated farmers have access to land in the green zones through their associations which obtain land use rights (DUAT) from the government. Recent urban development poses a threat to farmland: foreign investments and concomitant urbanisation are profit-generating alternatives for the city and government and although the associations obtain land rights, many farmers are concerned about the future validity of those.

Understanding urban agriculture through a food systems lens was crucial in examining the potentials and challenges of urban agriculture. Applying a co-research approach in Cape Town allowed investigations that fostered participating farmers' agency over the findings and led to the creation of a strong network that carried the research beyond the scope of this project. The mutual contextualisation of the results gathered in an inclusive research process into food justice theory revealed farmers' in-depth understanding of structural inequalities within food systems in cities. Food justice theory is mainly applied in case studies in the North and looks at historical context and trauma, systemic challenges, and marginalisation in ethnicity, class, place, time, and gender. These research findings from two case studies in the South add to our understanding of marginalisation in urban agriculture in Cape Town and Maputo and shed light on the importance of intersectionality as a contextual component of food justice.

Zusammenfassung

Die zunehmende Urbanisierung weltweit stellt die Gesellschaften und die Umwelt generell vor vielfältige Herausforderungen. Sie belastet insbesondere die Nachhaltigkeit und Gerechtigkeit der städtischen Ernährungssysteme. In den Diskussionen um die Zukunft der Städte und ihrer Ernährungssicherheit rückt die urbane Landwirtschaft immer wieder in den Fokus. Von ihr erhofft man sich eine Verbesserung der Nahrungsmittelversorgung und Ernährungsvielfalt, Einkommensgenerierung und zudem Vorteile im Umweltschutz, der Bildung und Nachbarschaftsarbeit zu bieten.

Diese Studie beschreibt die urbane Landwirtschaft in Kapstadt, Südafrika, und Maputo, Mosambik. Sie baut auf einer quantitativen-qualitativen Forschung mit einem starken partizipativen Forschungsansatz auf. Als methodische Grundlagen dienen Haushaltsbefragungen, Fokusgruppendifkussionen, Experteninterviews, teilnehmende Beobachtungen und von den Kleinbäuerinnen und Kleinbauern umgesetzte Partizipationsforschung. Die Forschung war Teil des UFISAMO-Projektes (Urban Agriculture for Food Security and Income Generation in South Africa and Mozambique), das vom Seminar für Ländliche Entwicklung (SLE) der Humboldt-Universität zu Berlin von 2016-2019 geleitet wurde. Die Dissertation baut auf einen konzeptionellen Ansatz auf, der eine Ernährungssystemperspektive auf die urbane Landwirtschaft anwendet und diese dann nutzt, um Ernährungsgerechtigkeitsmuster abzuleiten. Darüber hinaus trägt diese Dissertation zur Methodik der partizipativen Aktionsforschung bei, indem sie einen Schwerpunkt auf Demokratisierungsprozesse in der Forschung legt. Dieser so genannte Co-research-Ansatz ist eine radikalere und inklusivere Form der partizipativen Aktionsforschung, da sie marginalisierte Gruppen in alle Forschungsschritte einbezieht. Die Gruppen werden in das Studiendesign, die Problemstellung, die Auswahl der Methodik, die Datenerhebung, die Analyse und Triangulation sowie die Skalierung der Aktivitäten einbezogen. Dieser Prozess fördert, dass die Forschungsergebnisse angenommen werden und könnte so durch gemeinsames und transformatives Lernen langfristig wertvoller werden als die Ergebnisse selbst.

Die Untersuchung zeigt auf, dass sich die Situationen in Kapstadt und Maputo stark unterscheiden. Kleinbauern in Kapstadt sind beim Verkauf in die reicheren Viertel der Stadt stark von Zwischenhändlern abhängig und zudem einem instabilen Markt ausgesetzt. In Maputo sind Organisationsstrukturen und Markt stabiler, doch die Ackerflächen sind durch die Konkurrenz um Landnutzung in Folge der zunehmenden Urbanisierung bedroht.

Das Ernährungssystem in Kapstadt ist wie die Stadt selbst stark segregiert: Die Apartheid-Ära hinterließ ein wohlhabendes Stadtzentrum, das überwiegend von der weißen Bevölkerungsgruppe bewohnt wird und einkommensschwache Gegenden in den Randbezirken, in denen größtenteils nicht weiße Menschen leben, die täglich mit Herausforderungen um Zugang zu Nahrungsmitteln konfrontiert sind. Urbane Landwirtschaft wird in den Townships von Kapstadt von Hunderten von Bauern betrieben - meist arbeitslose, ältere Frauen aus der schwarzen Bevölkerungsgruppe. Zudem bauen Tausende in Hinterhöfen Gemüse an, auf überwiegend kleinen Parzellen. Die Gemeinschaftsgärten befinden sich in der Regel auf öffentlichem Land: Das Land wird für kurze Zeit von Einrichtungen wie Schulen, Kliniken oder der Stadtverwaltung gepachtet, was ein langwieriger und für viele Bauern undurchsichtiger Prozess ist. Die Entstehung urbaner Landwirtschaft in Kapstadt geht auf NGOs zurück. Mit Unterstützung der Stadtverwaltung führten sie sie als eine Strategie zur Armutsbekämpfung ein, um die hohe Ernährungsunsicherheit in den marginalisierten Bezirken zu bekämpfen. Allerdings hat genau diese jahrzehntelange Unterstützung die Etablierung von gemeinschaftlich

getragenen Lösungen verhindert und zudem Abhängigkeiten zu den NGOs vor allem in Bezug auf Subventionen und Marktzugang geführt. Der Gemüseanbau spielt eine unbedeutende Rolle, wenn es um den finanziellen Beitrag auf Haushaltsebene geht. Dies ist zum Teil auf die Herausforderungen der Selbstvermarktung innerhalb der Townships zurückzuführen, aber auch auf die Monopolstruktur der Zwischenhändler für die Vermarktungskanäle in das Stadtzentrum. Die meisten Bäuerinnen und Bauern bauen Gemüse nach dem Produktionsplan eines Zwischenhändlers an und beziehen darüber auch Saatgut und Setzlinge. Gemüse wird also in den beengten, informellen Siedlungen angebaut, aber fast ausschließlich an einen Nischenmarkt für Verbraucher der Mittel- und Oberschicht im wohlhabenderen Stadtzentrum verkauft. Wenn die Zwischenhändler diese Nischenmärkte nicht beliefern, verlieren die Produzentinnen und Produzenten ihren einzigen Absatzmarkt und bleiben auf den Produkten sitzen. Das hat auch dazu geführt, dass die Bäuerinnen und Bauern den Bezug zu ihrer Produktion verloren haben, nur 15% der Produzenten konsumieren das angebaute Gemüse selbst. Damit erweist sich der Beitrag der urbanen Landwirtschaft zur Ernährungssicherheit als gering.

Die Forschung zeigt, dass die urbane Landwirtschaft eine widersprüchliche Strategie zur ökonomischen Unterstützung einer marginalisierten Gesellschaft ist, da ihr Beitrag zur Linderung der Armut unbedeutend ist. Das Einkommen der urbanen Bäuerinnen und Bauern ist gering und unbeständig, und oft geben die Bauern mehr Geld für Betriebsmittel aus, als sie mit dem Anbau verdienen. Multifunktionale Vorteile der urbanen Landwirtschaft wie Gemeinschaftsbildung und die Schaffung von Grünflächen für Umweltbildung tragen jedoch entscheidend zum sozialen Zusammenhalt innerhalb dieser Gesellschaften bei. Diese Untersuchung hat auch das Versagen der städtischen Unterstützungsmechanismen offengelegt, die systemischen und strukturellen Ungleichheiten im städtischen Ernährungssystem anzugehen, sowie den mangelnden politischen Willen, die städtische Landwirtschaft zu einer wirtschaftlich lohnenden Tätigkeit für die Produzenten zu machen.

Das Nahrungsmittelsystem Maputos ist geprägt von Nahrungsmittelimporten aus dem benachbarten Südafrika, von dem raschen Wachstum der Stadt und von der Migration aus den ländlichen Gebieten des Landes, in denen die selbstversorgende Familienlandwirtschaft eine primäre Strategie zur Sicherung des Lebensunterhalts darstellt. Im städtischen und stadtnahen Bereich der mosambikanischen Hauptstadt wurden die *zonas verdes* (Grünzonen) eingerichtet, um nach der Kolonialzeit die schwere Ernährungskrise der Stadt zu bekämpfen. Diese Produktionsflächen sind nach wie vor relevante Nutzflächen. Die urbane Landwirtschaft ist weitgehend kommerzialisiert und spielt eine Schlüsselrolle bei der Versorgung der Stadt mit Gemüse, hauptsächlich Kohl und Salat. Informelle Händler kaufen die Produkte direkt von den Feldern und verkaufen sie auf den lokalen Märkten und Straßenständen Maputos. Vier von fünf Familien, die in der urbanen Landwirtschaft beschäftigt sind, geben an, dass das Einkommen, das sie mit dieser Tätigkeit erzielen, ihre Haupteinnahmequelle ist. Schätzungsweise weitere 40.000 Menschen verdienen ihren Lebensunterhalt, indem sie Teil der urbanen Landwirtschaft im Bereich des Handels, Verkaufs, der Ausbringung von Pestiziden und Transport sind. Wie in Kapstadt sind es vor allem Frauen, die auf den Feldern Maputos in der städtischen Landwirtschaft tätig sind.

Als Erbe der sozialistischen Ära ist die Mehrheit der Produzenten in Maputo in Assoziationen organisiert. Diese sind hierarchisch strukturiert, und die Mitglieder kommen regelmäßig zu Treffen zusammen. Die Potenziale für gemeinsame Produktvermarktung, Pestizidregulierung und Wissenstransfer im Rahmen staatlicher Beratungsprogramme werden aber nicht ausgeschöpft. Mehrere Schwierigkeiten behindern die Effizienz dieser Verbände, zum Beispiel undurchsichtige Entscheidungsprozesse und Organisationsstrukturen. Sie werden durch Verbandsmitglieder mit höherem Status und Privilegien beeinträchtigt, die

Führungspositionen innehaben und den Zugang zu landwirtschaftlichen Betriebsmitteln und Dienstleistungen bestimmen. In Maputo erhalten die assoziierten Bäuerinnen und Bauern über ihre Verbände die Landnutzungsrechte (DUAT) von der Regierung. Die jüngste Stadtentwicklung stellt dennoch eine Bedrohung für das Ackerland dar: Ausländische Investitionen und die damit einhergehende Verstädterung sind gewinnbringende Alternativen für die Stadt und die Regierung, und obwohl die Assoziationen Landrechte erhalten, sind viele Bäuerinnen und Bauern besorgt über die künftige Gültigkeit des Landzugangs.

Bei dieser Forschung zu den Potenzialen und Herausforderungen der städtischen Landwirtschaft war es von entscheidender Bedeutung, die städtische Landwirtschaft unter dem Blickwinkel des Ernährungssystems zu verstehen. Die Anwendung eines Co-research Ansatzes in Kapstadt ermöglichte Untersuchungen, die die teilnehmenden Gruppen förderte und zur Schaffung eines starken Netzwerks führte, das die Forschung über den Rahmen dieses Projekts hinaustrug. Die gemeinsame Kontextualisierung der Ergebnisse, die in einem inklusiven Forschungsprozess über Ernährungsgerechtigkeit gesammelt wurden, offenbarte den Bauern ein tiefes Verständnis der strukturellen Ungleichheiten bei Lebensmitteln in Städten. Die Theorie der Ernährungsgerechtigkeit wird hauptsächlich in Fallstudien im Norden angewandt und befasst sich mit historischem Kontext und Trauma, systemischen Herausforderungen und Marginalisierung in Bezug auf ethnische Zugehörigkeit, Klasse, Ort, Zeit und Geschlecht. Diese Forschungsergebnisse aus zwei Fallstudien tragen Verständnis der Marginalisierung in der städtischen Landwirtschaft in Kapstadt und Maputo bei und beleuchten die Bedeutung der Intersektionalität als kritische Komponente der Ernährungsgerechtigkeit.

Sumário Executivo

A rápida urbanização do mundo tem apresentado múltiplos desafios às sociedades e ao ambiente, e tem pressionado a sustentabilidade e equidade dos sistemas alimentares urbanos. Nas discussões sobre o futuro das cidades do mundo e a sua segurança alimentar, a agricultura urbana ganhou atenção pelo seu potencial de contribuir para o abastecimento alimentar, diversidade alimentar, gerar rendimentos para os produtores urbanos, e proporcionar vários benefícios multifuncionais tais como serviços ambientais, educação, e construção de comunidades.

Este estudo relata a investigação sobre agricultura urbana realizada na Cidade do Cabo, África do Sul e em Maputo, Moçambique, que se baseou em métodos quantitativos e qualitativos além de ter uma abordagem de investigação participativa. O autor conduziu entrevistas com as famílias, discussões de grupos focais, entrevistas de informantes chave, observações dos participantes, e co-research lideradas pelos agricultores. A pesquisa fez parte do projeto UFISAMO (Urban Agriculture for Food Security and Income Generation in South Africa and Mozambique) que foi liderado pelo Centro de Desenvolvimento Rural (SLE) da Humboldt-University Berlin entre os anos de 2016-2019. Foi utilizada uma abordagem conceitual que aplica uma perspectiva de sistemas alimentares na agricultura urbana e utiliza esta como um meio para identificar padrões de justiça alimentar. A metodologia utilizada foi de investigação de ação participativa ao deslocar o foco para o conceito de processos de democratização na investigação. Co-research é uma forma mais radical e inclusiva de investigação de ação participativa que envolve atores e grupos de comunidades marginalizadas em todas as etapas da investigação. Nesta técnica, as comunidades são envolvidas na concepção do estudo, na colocação de problemas, na tomada de decisões em torno da metodologia, na recolha de dados, na análise e triangulação, e no escalonamento das atividades. Este processo promove a apropriação dos resultados recolhidos através da aprendizagem mútua e transformadora, e, por conseguinte, pode tornar-se mais valioso do que os próprios resultados.

O sistema alimentar na Cidade do Cabo é altamente segregado, tal como a própria cidade: o legado do planeamento da era do apartheid deixou um centro urbano próspero e abastado rodeado por áreas de baixa renda povoadas em grande parte por pessoas negras que enfrentam desafios diários no acesso aos alimentos. A agricultura urbana é praticada nos bairros da Cidade do Cabo por centenas de agricultores - na sua maioria pessoas negras, desempregados, idosos, mulheres agricultoras, e milhares de agricultores que cuidam de seus quintais e cultivam diferentes variedades de vegetais. As hortas encontram-se em terrenos públicos ou privados: a terra é arrendada tanto a instituições públicas como escolas ou clínicas por curtos períodos quanto a municípios, sendo este um processo moroso e, para muitos agricultores, complicado. As ONGs, com o apoio do Município, introduziram a agricultura urbana como uma estratégia de redução da pobreza e para combater as elevadas taxas de segurança alimentar nas zonas marginalizadas da cidade. Décadas de apoio têm dificultado o estabelecimento de soluções alimentares orientadas para a comunidade e levado à dependência das ONGs em relação a recursos, marketing, e aquisição de novos conhecimentos. Estas atividades agrícolas desempenham um papel insignificante quando se trata da contribuição das famílias. Isto deve-se em parte a fracos desafios de mercado dentro das cidades e em parte a estrangulamentos nas estruturas de comercialização organizadas por intermediários; a maioria dos agricultores urbanos cultiva legumes de acordo com um plano de produção do intermediário e com os insumos, tais como mudas e sementes fornecidos pelo intermediário. Os alimentos são produzidos em espaços altamente confinados e conturbados em povoações informais, quase exclusivamente para um nicho de mercado de consumidores de classe média/alta no centro mais

rico da cidade. Quando os intermediários não cumprem as suas promessas de fornecer para esses nichos de mercado, os agricultores urbanos perdem o seu único canal de comercialização e ficam excedentes que acabam sendo desperdiçados. Como consequência da concentração dos seus esforços nos canais de comercialização liderados pelos intermediários, os agricultores urbanos desligam-se das comunidades de seus entronos e de seus próprios produtos, com apenas 15% dos agricultores consumindo os legumes que cultivam.

Esta investigação revela que a agricultura na cidade é uma estratégia contraditória para apoiar uma sociedade marginalizada, uma vez que a sua contribuição para a redução da pobreza é limitada. Os rendimentos dos produtores urbanos são escassos e frequentemente os agricultores gastam mais dinheiro com insumos para a produção do que ganham com as suas atividades agrícolas urbanas. No entanto, os benefícios multifuncionais, tais como a construção de comunidades e a criação de espaços verdes para a educação, são fatores-chave para a coesão social no seio destas sociedades. Esta investigação expôs o fracasso dos mecanismos de apoio municipal em abordar as desigualdades sistêmicas e estruturais no sistema alimentar da cidade e a falta de vontade política para tornar a agricultura urbana uma atividade economicamente viável para os produtores.

O sistema alimentar de Maputo é fortemente influenciado pelas importações de alimentos da vizinha África do Sul, pelo seu rápido crescimento, e pela migração das zonas rurais do país onde a agricultura familiar auto-sustentável é uma estratégia de subsistência primária. Na zona urbana e periurbana da capital de Moçambique, as zonas verdes foram estabelecidas para combater a grave crise de insegurança alimentar da cidade após a era colonial. Estes locais de produção hortícola têm permanecido zonas de produção vibrantes. A agricultura urbana é largamente comercializada e desempenha um papel fundamental no abastecimento da cidade com produtos hortícolas específicos, principalmente couves e alfaces. Os comerciantes informais compram as colheitas diretamente dos campos e vendem-nas nos mercados locais de Maputo e nas bancas de rua. Quatro de cinco famílias de agricultores indicam que o rendimento que geram nesta atividade é a sua principal fonte de rendimento. Calcula-se que 40.000 pessoas ganham a sua vida apoiando a agricultura urbana através de atividades como o comércio, venda, aplicação de pesticidas, e transporte. Tal como a Cidade do Cabo, são principalmente as mulheres que estão envolvidas na agricultura urbana nos campos de Maputo.

Como legado da era socialista, a maioria dos produtores de Maputo estão organizados em associações de agricultores. Estas são hierárquicas em estrutura e os membros reúnem-se regularmente para reuniões. Contudo, não exploram o seu potencial de comercialização de produtos, regulamentação de pesticidas, e transferência de conhecimentos no âmbito de programas governamentais de extensão. Várias deficiências e disfunções dificultam a eficiência destas associações como veículos promocionais: processos de tomada de decisão complicado e estruturas organizativas nepotistas manchadas por membros da associação com estatuto e privilégios mais elevados, ocupando posições de liderança e determinando o acesso a insumos e serviços agrícolas. Em Maputo, os agricultores associados têm acesso a terras nas zonas verdes através das suas associações que obtêm direitos de uso da terra (DUAT) por parte do governo. O desenvolvimento urbano recente representa uma ameaça às terras agrícolas: os investimentos estrangeiros e a urbanização concomitante são alternativas geradoras de lucro para a cidade e o governo e, embora as associações obtenham direitos de uso da terra, muitos agricultores estão preocupados com a validade futura dos mesmos.

A compreensão da agricultura urbana através de uma lente de sistemas alimentares foi crucial no exame das potencialidades e desafios da agricultura urbana. A aplicação de uma

abordagem de co-research na Cidade do Cabo permitiu investigações que fomentaram a agência dos agricultores participantes sobre os resultados e levou à criação de uma forte rede que levou a investigação para além do âmbito deste projeto. A contextualização mútua dos resultados recolhidos num processo de investigação inclusivo sobre a teoria da justiça alimentar revelou a profunda compreensão dos agricultores sobre as desigualdades estruturais de acesso aos alimentos nas cidades. A teoria da justiça alimentar é principalmente aplicada em estudos de casos no Norte e analisa o contexto histórico e o trauma, os desafios sistémicos e a marginalização na raça, classe, lugar, tempo e gênero. Estes resultados de investigação de dois estudos de caso no Sul acrescentam à nossa compreensão da marginalização na agricultura urbana na Cidade do Cabo e em Maputo e lançam luz sobre a importância da interseccionalidade como uma componente contextual da justiça alimentar.

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List of Abbreviations

ABIODES	Associação pela Agricultura Biológica, Biodiversidade e Desenvolvimento Sustentável, Maputo
AFS	Alternative Food Systems
AFSUN	The African Food Security Urban Network
ATVET	Agricultural Technical Vocational Education and Training
BLE	German Federal Office for Agriculture and Food
BMEL	German Federal Ministry for Food and Agriculture
CFS	Committee on World Food Security
CMM	Concelho Municipal da Cidade de Maputo
CoCT	City of Cape Town
DoA	Department of Agriculture
DUAT	Direito do Uso e Aproveitamento da Terra
D4D	Design for Development
FAO	Food and Agriculture Organisation of the United Nations
FFG	Frankenförder Forschungsgesellschaft
FGD	Focus group discussion
FU	Freie Universität Berlin
HLPE	High Level Panel of Experts
HU	Humboldt-Universität zu Berlin
MDG	Millenium Development Goals
NGO	Non-Governmental Organisation
PAR	Participatory Action Research
PHA	Philippi Horticulture Area
SETSAN	Secretariado Técnico de Segurança Alimentar e Nutricional
SLE	Seminar für Ländliche Entwicklung (Centre for Rural Development)
VUVA	Vuka Uzenzele Farmers Association
UA	Urban Agriculture
UEM	University Eduardo Mondlane Maputo
UFISAMO	Urban Agriculture for Food Security and Income Generation in South Africa and Mozambique
UN	United Nations
UNAC	União Nacional de Camponeses
urbanGAPs	Good Agricultural Practices in the urban context
UWC	University of the Western Cape

1. Introduction

This PhD thesis analyses urban agriculture in Cape Town, South Africa and Maputo, Mozambique to understand its role in food systems and unveil structural inequalities and power relationships that restrict the sustainability of urban farming activities. To do so, I employ and expand upon food justice theory as a lens to deepen the understanding of urban farmers' roles. Parts of my work correspond to scholar-activists, like Chiara Tornaghi who calls for contextualisation of urban agriculture within social justice questions related to inequality and access (Tornaghi, 2014) and Allison Hope Alkon who uses food justice theory in case studies in the Global South (Alkon, 2012).

Building on a mixed-methods strategy which evolved into a co-research approach in the Cape Town case study, this thesis also sheds light on an innovative way of involving farmers in research (Nature Editorial, 2020) and seeks to advance co-research as a more inclusive form of participatory action research (PAR). Pingault et al. (2020) encourage us to apply an inclusive approach with the people we are researching, particularly when researching food insecure communities and vulnerable actors in food systems. This thesis is, therefore, both people-centred and place-centred (that is, it examines the actors' environment).

1.1 The nexus of urban agriculture in urban food systems: Why is a food justice lens needed?

Increasing urbanisation, particularly in Southern Africa, obliges us to consider cities and the role food plays in urban settings. UN-Habitat (2014) foresees a steep increase in urban population in Africa, with more than 56% of the continent's population projected to live in cities by 2030. In Maputo, on-going urbanisation could grow the population by 4% to 1.8 million inhabitants by 2035; Cape Town's population is set to grow at 2.4% to 5 million inhabitants by 2031 (World Population Review, 2020a, b). This means that 70% of the South African population will live in urban areas, with an urbanisation rate to reach 80% by 2050. In Mozambique, 35% of the population lives in urban areas, and the urbanisation rate is expected to reach 51% (OECD, 2020).

Rapid urbanisation is linked to a range of challenges, such as poverty among unemployed city dwellers, integration of newly arrived domestic and foreign migrants, and tension in achieving well-balanced co-existence of diverse human populations. City planners, policy makers, civil society, consumers, food producers, and intermediaries need to generate and design sustainable, just, and resilient urban food systems (Ballamingie et al., 2020). To do so successfully, the entire food system needs to be considered—from production to retailing, processing to packing, and consumption to waste—while taking into account the social, economic, environmental, and nutritional dimensions of food (Blay-Palmer et al., 2015). A well-functioning food system can be described as “one that ensures

a high level of food security to residents, while simultaneously contributing to sustainable social and economic development” (Ericksen, 2008: 234).

The FAO (2007) has defined urban agriculture as “the growing of plants and the raising of animals for food and other uses within and around cities and towns, and related activities such as the production and delivery of inputs, processing and marketing of products.” Historically, urban food production has been practiced in most cities, yet scholars and activists debate urban agriculture’s role in and impact on local food security.

Urban agriculture is as diverse as cities are and, for this reason, urban agriculture always needs to be contextualised in place and time, while recognising drivers, their motivations, and other pressures like the area’s economic system, history, or geography. In Kigali, Rwanda, for example, as well as Ivory Coast's Yamoussoukro, inner city areas are cultivated in family structures to supply local markets (see Figure 1). In Tokyo, high-tech, vertical farming projects are used to supply apartment blocks with fresh food; while in Berlin, numerous urban gardening projects have fostered community-building and social integration for many years. In some cases, urban agriculture has been used—as in many cities in the global North—as a means of political activism on the right to the city (Lefebvre, 1968, 1973, 1991; Harvey, 2012).



Figure 1: Selected own photographs of urban agriculture sites in the South and North. Clockwise from top-left: Urban farmland in Yamoussoukro, Ivory Coast; Community garden at the Berlin wall memorial, Germany; Family farming plots in Kigali, Rwanda; In-house farming in Tokyo, Japan.

Advocates of urban agriculture argue urban or peri-urban production is essential in providing food for growing city populations (Orsini et al., 2013; Poulsen et al., 2015). However, the discussion on urban agriculture should not be limited to aspects of urban food security and poverty alleviation, especially in the South (Battersby, 2013). There are, in fact, significantly more benefits to urban agriculture than merely growing food for local consumption, such as greening of urban spaces, community-building, and education around food (Gieseke & Adidi, 2011). Gerster-Bentaya (2013) argues for synergies within the realms of urban agriculture and urban systems to combine productive space with other important social and political functionalities in cities. Hence, urban agriculture has considerable potential in site-specific, multifunctional urban development by interlinking greening spaces, ecosystem services, and community building (Duchemin et al., 2008; Certomà & Tornaghi, 2014).

Because urban agriculture is frequently regarded as a strategy for alleviating food insecurity (Clinton et al., 2018; FAO, 2011; Poulsen et al., 2015; Warren et al., 2015; Zezza & Tasciotti, 2010), it has received a lot of research attention in recent years. These studies have examined urban agriculture's contribution to local food supply chains, dietary diversity, and additional household food availability. Southern African case studies have emerged in recent years (Crush et al., 2011; Frayne et al., 2014; Lee-Smith, 2010); however, there is rising consensus that it is not possible to address urban food insecurity and malnutrition merely with urban farming activities (Frayne et al., 2014). Rather, focus can be shifted to the benefits urban agriculture provides, such as its multi-functionality within complex urban systems (Tornaghi, 2014), its social and community-building benefits (Feola et al., 2020; Meenar & Hover, 2012; Poulsen, 2016), urban ecosystem services, and regulation of urban ecosystems, however, with limited quantified proof for these (Aerts et al., 2016).

The relationship between food and cities is much more complex than the relationship between production and the assumed benefits of shorter value chains. Battersby and Watson (2018) argue that researchers should consider both the role of food in urban studies and the role of the urban context in food security, rather than regarding one without the other. Urban food systems are part of national food systems, which are regulated by national regulations and policies and influenced by globalised food streams, corporate power, and concentrations of capital. In addition, urban systems have the distinct characteristics of the urban systems in which they are located; these can be self-contained or interlinked with rural and peri-urban systems. Therefore, we cannot understand urban agriculture's role in a city without understanding what the factors that define it mean to those who participate in the system: confined spaces, built-environment, lack of (fertile) land and land access, transport infrastructure, socio-cultural melting pots, among other factors.

The research approach for this thesis followed different steps: exploratory research on food in cities, application of a food justice lens, followed by in-depth, qualitative co-research. As a starting point, exploratory research was conducted to gain a thorough understanding of urban agriculture and its

imbeddedness in the urban food system. Secondly, the food justice lens was applied and played a central role throughout the research, especially in the validation and triangulation of early findings. Thirdly, an in-depth, qualitative participatory co-research approach was taken in Cape Town to collect the perspectives of ‘the researched’. The combination of applying a food justice lens and a commitment to participatory co-research allowed for key social justice issues to be illuminated: questions of marginalisation and privilege, root causes of failures and fault lines in the food systems in terms of power, and reflections on the role of urban farmers in the food system.

1.2 Objectives of and justification for the study

This PhD thesis aims to contribute to the discourse on the role of urban agriculture in urban food systems by shedding light through a food justice lens on two case study areas: Cape Town in South Africa and Maputo in Mozambique. While urban agriculture’s current contributions, challenges, and future potentials in livelihood development and food security have been extensively researched, this thesis addresses specific research gaps.

There is limited research investigating urban farming activities over long time spans and documenting challenges in production, marketing, and urban farmers’ (self-) organisation. To date, no study has looked specifically at urban farmers in Cape Town who are not closely affiliated to NGOs. In Maputo, relatively little is understood about urban agriculture’s role, beyond the supply of leafy vegetables to the city’s markets.

The aim of this study was to amplify existing research by using a food systems lens to understand the broader context and dynamics of urban agriculture beyond farming. Since little has been written about food justice in the South, it aims to offer insights from the actors themselves and an understanding of the significance of production systems from a place-based perspective. By committing to a methodological strategy combining mixed methods with co-research, I gained an actor’s perspective which enabled new questions and aspects to arise, oftentimes entailing a social justice focus. Given the identified literature gap, this thesis has the potential to add two rich case studies to theory and to develop the practical and theoretical understanding of co-research further.

This is a meta-level analysis which views urban agriculture through a different theoretical lens, imbedding urban agriculture within the context-specific food system on the one hand, and on the other, applying a food justice lens to identify underlying patterns of injustice in urban agriculture and adopt a place and power perspective. I argue that the weakest position in the value chain is the one of the farmers due to the asymmetrical power relations between producers and buyers. Considering the urban context of this study, it was crucial to apply a place-based perspective to the food justice lens to understand the unique geography, tradition, and historical narrative of oppression of the local people and their spatial landscapes.

1.3 Research lens

The following subchapters explain the conceptual frameworks that guided this study. I first applied a food system approach to understand the role of urban agriculture in each city's context. Next, I add the lens of the food justice theory, which entailed examining urban agriculture through a place-based perspective to highlight the role of space and the city and understand the actors and the power relations that shape their urban agriculture environment. Co-research as a central approach in my research is outlined in the co-research framework provided in subchapter 1.3.3. The conceptual framework in subchapter 1.3.4. outlines the approach I followed to understand urban agriculture.

1.3.1. Food system approach

The FAO's High Level of Expert Panel (HLPE, 2014) relates that "A food system gathers all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the outputs of these activities, including socio-economic and environmental outcomes" (p. 29). They are complex systems with "relationships among the systems that support food production, food supply chains, food environments, the behaviours of individual consumers, diets, and nutritional and wider outcomes that feed back into the system" (HLPE, 2020, p. 11). Food is very personal and reveals much about people. It is influenced by preferences such as taste, convenience, values, traditions, culture, and beliefs (Sobal & Bisogni, 2009). Food systems, in general, and urban food systems, in particular, are highly complex, as an array of layers influence cultivation, transformation, and consumption of food. Ballamingie et al. (2020) argue, in particular, that we should apply a systems perspective to integrate "urban, peri-urban, and rural communities into coherent food systems to achieve ecological, economic, and social goals" (p. 228).

Adopting a holistic system approach enables a more comprehensive understanding of urban agriculture within each city's food system by breaking down the complex dynamics, connections, and structures. This study refers to the work of Polly Ericksen (2008) who defined a food system as "a set of activities ranging from production through consumption" (p. 234). The framework provided by the HLPE outlines the drivers, aspects, and layers that influence the food system (2020, p. 13) (see Figure 2).

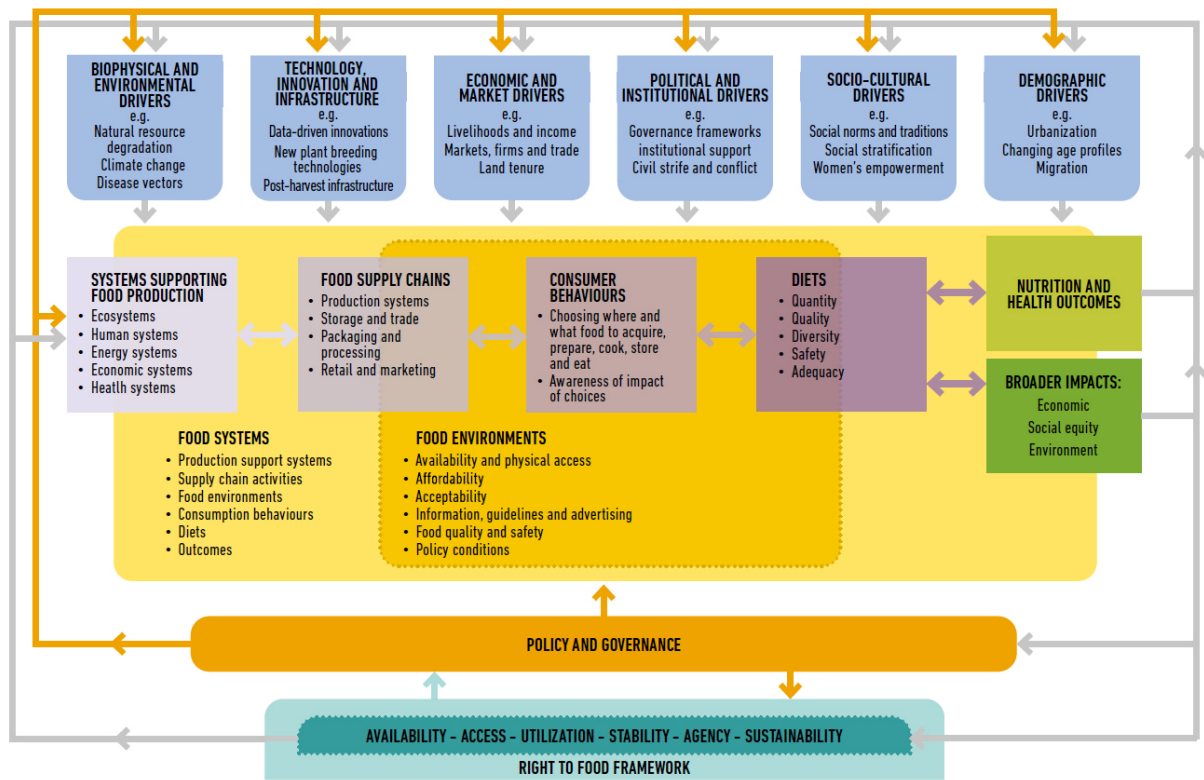


Figure 2: Sustainable Food System Framework. From *Food security and nutrition: Building a global narrative towards 2030* (p. 13). A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, 2020, FAO (www.fao.org/cfs/cfs-hlp). In the public domain. Reprinted with permission.

This thesis focusses on central aspects of the HLPE framework, which were scrutinised to understand urban agriculture’s role in the food environment of each case study city. This was done by examining the production support system, supply chain activities, food environments, and consumption behaviours. The drivers that shape those elements were also considered, such as policy and governance, economic and market drivers, political and institutional drivers, socio-cultural drivers, and demographic drivers.

1.3.2. Food justice perspective

Adding a food justice perspective enabled a deeper understanding of the fault lines and the root causes of those challenges in the two cities’ food systems as determined by systemic inequalities, historical context, and the drivers and supporting systems that shape urban agriculture in Cape Town and Maputo. This thesis applies a food justice lens, inspired by the work of Cadieux and Slocum (2015) who argue that food justice theory can only be properly understood by assessing existing structural inequalities and racial and gender discrimination.

Using a place-based perspective within a specific context is encouraged by other authors (Steel, 2013; Agyeman & McEntee, 2014; Moragues-Faus, 2018). This approach enabled the juxtaposition of the two cities and systems, which are distinctive in their history and economic power, urban culture, population strata, politics, and food culture. Glennie and Alkon (2018) define food justice as a process that “seeks to understand how inequalities of race, class and gender are reproduced and contested within

food systems” (p. 1). This approach can be applied to the cultivation, processing, and consumption of food (including working conditions in hospitality), as well as diet-related health challenges and access to land, wages, and working conditions in agriculture.

The field of food justice research was originally explored by scholars from the North, particularly the United States of America and the United Kingdom, and has rarely been applied in the context of the South where the concept of food sovereignty has played a more central role. Food sovereignty, as a community-driven, bottom-up movement, focuses on rural areas and puts the discussion on the right to land and seed at its centre. There have been very few scholars who discuss food sovereignty from an urban perspective. Siebert (2019), who explores urban agriculture in the South African city of George, is one of the few authors taking this perspective. This thesis is, therefore, motivated by the food justice movement’s foci on urban areas, on the role of race and historical trauma, and on Alkon’s (2012) call to generate more case studies from the global South. Applying a food justice lens to this work was hence imperative to make a valid contribution to the existing body of research and widen the discourse in this field.

1.3.3. Co-research perspective

A central part of this research was the deliberate shift in perspective and methodology to a co-research approach. Involving local actors, primarily local producers, as co-researchers gave the research depth, detail, and significance. Moreover, the participating co-researchers gained ownership over the process, enabling them to exchange and facilitate ideas and stories (Pingault et al., 2020). Co-research can be understood as a more inclusive way of conducting participatory action research (PAR) that engages “the researched” in all research processes from the set-up of a project, posing of research questions, design of methods, and data collection and analysis to the mutual understanding and interpretation of the findings.

Co-research also means that “the researched” (participants) do not lose sight of the results after a research process is concluded, a concern that was raised on multiple occasions by urban farmers who had previously participated in numerous research studies without receiving feedback on results. Because co-researchers are more numerous and more strategically positioned to scale out research results, having their direct involvement in and ownership of the research enables rapid scaling. In the course of this research, we defined scaling-out as sharing results to a wider community, scaling-up as sharing results with policy decision-makers and academia, and scaling-deep as fostering long-term behavioural change; an interpretation that was also encouraged by scholars within the agroecology movement (Nicol, 2020). Co-researchers were able to democratise the accumulation of knowledge and offer access to the research by actively involving actors and communities as researchers. For these reasons, co-research should be seen as a mutual learning endeavour that fosters the co-creation of knowledge and enables transformative learning processes (Scholz, 2017). The concept of co-research builds on Lewin’s action research (1946), Chambers et al.’s (1989) call for putting the ‘farmer first’ and involving farmers in

farmer-led research, and substantially on Paulo Freire’s (1970) work putting marginalised or vulnerable groups at the centre of a co-created mutual learning processes. The framework of co-research that emerged from these perspectives (see Figure 3) builds on Fioret et al.’s (2018) and McDonald et al.’s (2019) concepts of participation in a research process.

Applying a participatory co-research approach provides the opportunity to reflect on the general meaning of participation, which is a way of co-existing in a shared space (Sandercock, 2000), and acknowledges the power of citizens by giving importance and recognition to everyone’s story. Telling these stories and listening to them is becoming more and more critical in the process of conflict resolution, participatory planning and, of course, in research in general (ibid). The understanding of participation within this thesis has been significantly shaped by the two scholars Giancarlo Paba and Camilla Perrone from the University of Florence and their decades-long work on participation / *partecipazione* in urban spaces and the importance of people and their knowledge. They argue that we must apply a people-centred focus in planning and research and that it is the people who matter in a process (Paba & Perrone, 2010; Paba, 2010; Perrone, 2010). Perrone notes that participation is shaped by interaction and self-action, the cognitive exchange and potentials, the plurality of knowledge, and the accumulation of social landscape of multiplicity to and within a process (2011). Building on their teaching and writings, I emphasised participation of people in research in the co-research concept.

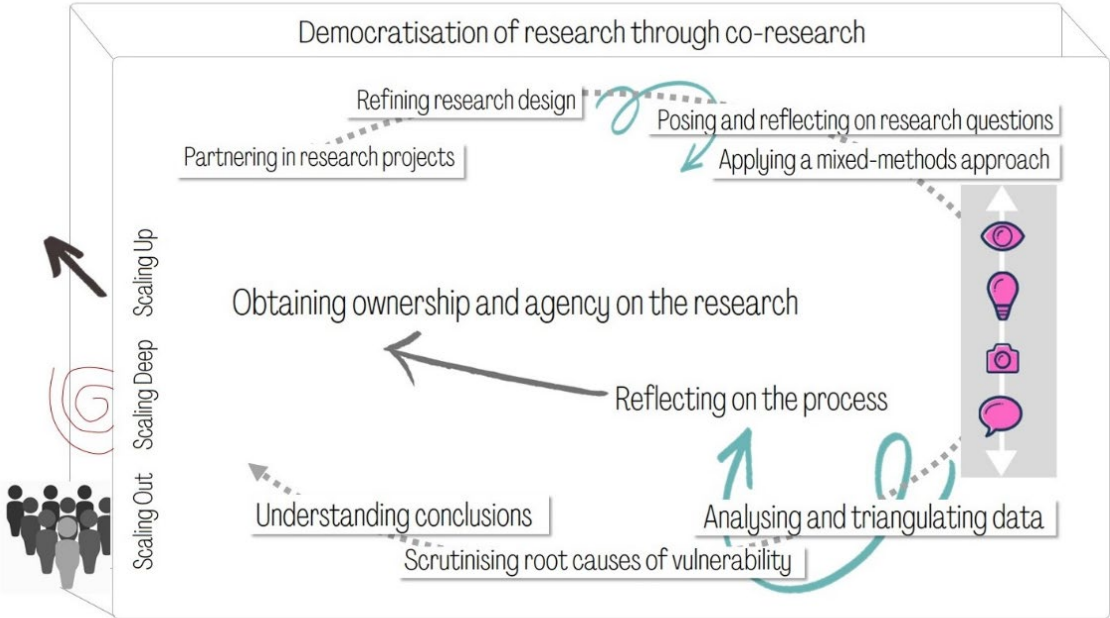


Figure 3: Co-research framework. Co-research enables multi-layered understanding involving ‘the researched’ community in all phases of research, scaling up the results to governance actors and wider academia, scaling deep to encourage long-term behavioural changes, and scaling out to foster long-term societal changes in the wider community. From the researched to co-researchers: Including excluded participants in community-led research on urban agriculture in Cape Town. *The Journal of Agricultural Education and Extension*.

1.3.4. Conceptual framework

The following diagram outlines the conceptual framework that was developed with the food system approach adapted to examine the role of urban agriculture; the use of a food justice lens; and a mixed-methods approach, giving special emphasis to participatory co-research as the active methodology.

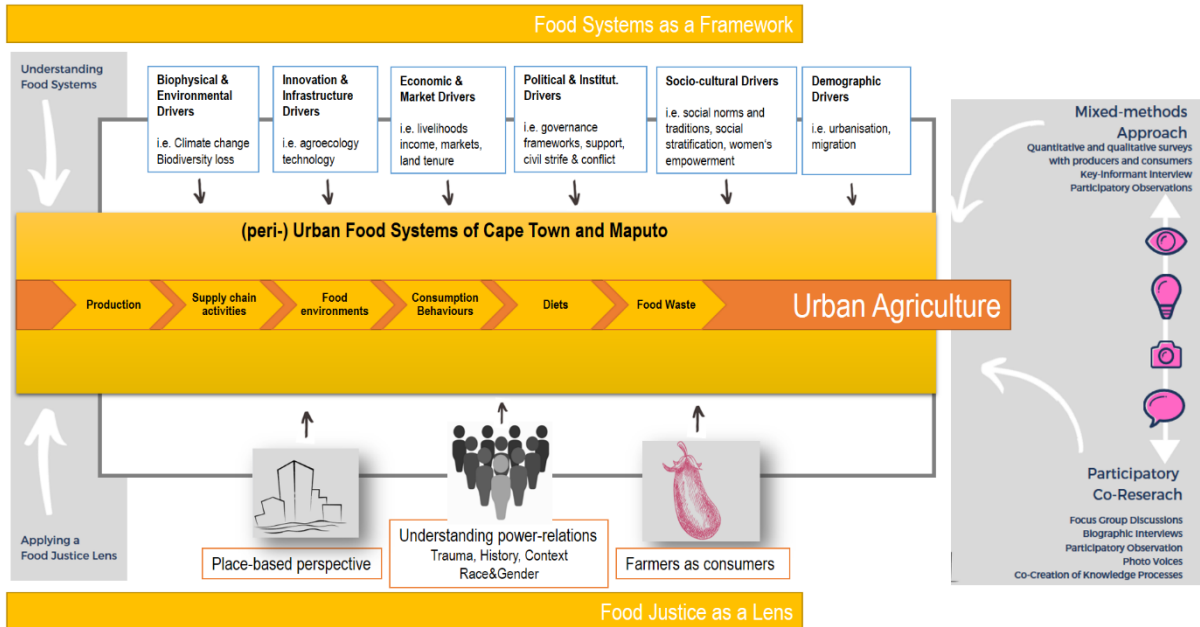


Figure 4: Conceptual framework and lens to examine urban agriculture's role in Cape Town and Maputo.

1.4 Research questions and outline of the thesis

The following guiding research questions were elaborated in 2017 after an initial explorative phase in the field. They built on a review of the existing body of research literature, early key-informant interviews, and participant observations during my first visits to the case study areas. All research questions are theory driven and build on applied concepts. The questions were addressed in three published peer-reviewed papers, each paper reflecting one of the questions and respective sub-questions as follows:

2. *What role does urban agriculture currently play in Cape Town's and Maputo's urban food system?*

What is the contribution of urban agriculture to farmers' livelihoods? Can a reorientation of urban agriculture in the local urban food system make it more sustainable and inclusive?

This question is addressed in "The potential of urban agriculture towards a more sustainable urban food system in food-insecure neighbourhoods in Cape Town and Maputo" (Journal Paper 1).

3. *Can urban agriculture reorient the local urban food system towards being more just?*

This question brings in the component of space and place by answering how 'urban' are the farmers? To understand food justice in the local context: What are the power relations between players in the urban agriculture environment in Cape Town and Maputo? And lastly, can urban agriculture bridge production and consumption of perishable crops for farmers and their immediate communities?

This question is addressed in "There is food we deserve, and there is food we do not deserve: Food Injustice, Place and Power in Urban Agriculture in Cape Town and Maputo" (Journal Paper 2).

4. *What impact does the application of a co-research strategy have on research results?*

What lessons can be drawn from the process and which barriers and pitfalls occurred? Is this kind of co-research scalable and if so, how? How can co-research contribute to the empowerment of socially excluded communities, such as the marginalised small-scale farmers in Cape Town?

This question is addressed in "From the researched to co-researchers: Including excluded participants in community-led research on urban agriculture in Cape Town" (Journal Paper 3).

This thesis is organised in introduction and methods chapters (Chapter 1 and 2), four main chapters (Chapters 3–6) that present my three peer-reviewed journal papers and two chapters published in the UFISAMO project report (as outlined in Table 1), a discussion (Chapter 7), and a conclusion and recommendation (Chapter 8).

Reference	Published
<p>Journal Paper 1:</p> <p>Paganini, N., Lemke, S., & Raimundo, I. (2018). The potential of urban agriculture towards a more sustainable urban food system in food-insecure neighbourhoods in Cape Town and Maputo. <i>Economia agro-alimentare/food economy</i>, 20(3), 399–421.</p>	December 2018
<p>Chapters</p> <p>Paganini, N. (2019a). Urban agriculture in Maputo’s food system. Vegetable production and marketing in Maputo. In E. Engel, K. Fiege, & A. Kühn (Eds.), <i>Farming in cities: Potentials and challenges of urban agriculture in Maputo and Cape Town</i> (pp. 35–36 and 45–59). Humboldt-Universität. https://doi.org/10.18452/20559</p> <p>Paganini, N. (2019b). Urban agriculture in Cape Town’s food system. Vegetable production and marketing in Cape Town. In E. Engel, K. Fiege, & A. Kühn (Eds.), <i>Farming in cities: Potentials and challenges of urban agriculture in Maputo and Cape Town</i> (pp. 111–137) Humboldt-Universität zu Berlin. https://doi.org/10.18452/20559</p>	August 2019
<p>Journal Paper 2:</p> <p>Paganini, N. & Lemke, S. (2020). There is food we deserve, and there is food we do not deserve: Food Injustice, Place and Power in Urban Agriculture in Cape Town and Maputo. <i>Local Environment</i>. 25 (11-12), 1000-1020. https://doi.org/10.1080/13549839.2020.1853081</p>	November 2020
<p>Journal Paper 3:</p> <p>Paganini, N. & Stöber, S. (in press). From the researched to co-researchers: Including excluded participants in community-led research on urban agriculture in Cape Town. <i>The Journal of Agricultural Education and Extension</i>.</p>	November 2020

Table 1 Overview of published journal papers and chapters pertaining to this thesis

The introduction (see page 1) provides an overview of the nexus of urban agriculture and food systems by drawing on recent literature. The chapter describes the research conceptual frameworks and gives an overview of the applied methods. The second chapter (see page 21) sheds light on the two case study areas, describes the placement of the doctoral research within the UFISAMO research project, and details my role within the research.

Journal paper 1 (see page 37) uses a case study approach to describe Cape Town’s urban food system and Maputo city’s regional food system, which includes the peri-urban agriculture corridors. The

paper contributes to the debate on urban agriculture's role in local urban food systems by shedding light on two case studies from the global South using Ericksen's (2008) food system approach. The paper presents early results of two baseline surveys conducted with urban farmers in 2017, illuminating the socio-demographic characteristics, farming systems, and farmers' challenges in the marketing of produce.

Two chapters (see page 38) describe all findings of the baseline surveys conducted in both cities. These chapters describe the context of small-scale urban agriculture in Cape Town and Maputo by describing production and market systems within urban agriculture value chains. The chapters also detail challenges and opportunities in the two case study areas.

Journal paper 2 (see page 39) applies a food justice perspective and examines the differences between the two urban agriculture case studies. The paper discusses what role power and race play in urban agriculture. It further applies a place-based perspective to understand the meaning of the "urban" in the food systems of the two cases and contributes with a South perspective on food justice thinking.

Journal paper 3 (see page 40) sheds light on the research process applied in Cape Town and describes the research steps of the co-research approach. The paper describes a mutual learning journey which enabled "the researched" to become "co-researchers". It contributes to discussions on the democratisation of knowledge systems.

Chapter 7 (see page 41) discusses key findings of the research in the context of the broader literature and speaks back to the theories applied. In the last sub-chapter conclusions and recommendations (see page 47), I provide five central recommendations that were developed with participating farmers during the research process.

1.5 Methods

This study compares and contrasts urban agriculture in two cities following a case study approach described by Flick (2004a). It follows a two-fold research strategy, working with mixed-methods described by Creswell and Plano Clark (2017), Kuckartz (2014), and Tashakkori and Teddlie (2010) and emphasising co-research, building on participatory action research through the qualitative social science methods described by Lamnek and Krell (2016) and Alasuutari et al. (2009). The selected mixed-methods approach combines different methods, both qualitative and quantitative, which were applied in different phases during the study. The first phase followed an inductive approach designed to explore the broader subject, while the second in-depth phase zoomed into the key aspects by following the deductive approach described by Ruddat (2012). Deploying co-research as a method to study urban agriculture proved to be a fitting choice, especially for uncovering the underlying challenges and structural inequalities from a food producers' perspective. Hence, a fully participatory process met my personal aim of conducting research with, rather than about, urban farmers. I selected research designs that do not require a fixed, predetermined hypothesis to avoid tainting observations and actions and to expand the space for adaptation and creativity as per Meinefeld (2004).

1.5.1. Data collection

Data collection took place between December 2016 and July 2019 and was divided into seven field phases of varying lengths. The division between the two cities was predefined mainly by the project design, as my role within the larger project focused on the Cape Town case. Longer periods of research in Cape Town laid the foundations for in-depth insights into the South African context. The fact-finding mission and baseline data collection in 2016 and in the first field phase in 2017 were conducted in close cooperation with three PhD students from the UFISAMO research project. From the second half of 2017 onward, in-depth research, data collection, and triangulation were done independently. From 2018 onward, the work was steered within the PhD research realm under the supervisory guidance of the University of Hohenheim.

Research Phase	Activity	Research Area and Survey Sampling
October 2016 – December 2016	Fact finding, key informant interviews, participatory observation	Maputo Cape Town
February 2017 – May 2017	Baseline survey, key informant interviews, participatory observation	Maputo (n=369) Cape Town (n=112)
October 2017 – November 2017	Inductive, explorative research: In-depth food garden survey, participatory co-research, key informant interviews, participatory observation	Cape Town (n=57)
January 2018 – May 2018	Inductive, explorative research: Participatory co-research, in-depth agroecology survey, in-depth “over the fence” survey, key informant interviews, participatory observation, multi-actor workshop	Maputo (n=23) Cape Town (n=87)
July 2018	Inductive, explorative research: Multi-actor workshop, key informant interviews	Maputo
January 2019 – May 2019	Deductive research: Participatory co-research, key informant interviews, participatory observation	Cape Town Maputo
June 2019 – July 2019	Deductive research: Validation workshops	Cape Town Maputo

Table 2 Overview of Field Phases and Activities

1.5.2 Data sources

This PhD thesis builds on more than 300 key informant interviews and personal conversations, five quantitative surveys (baseline surveys in Maputo and Cape Town, two in-depth surveys in Cape Town, and one in-depth survey in Maputo), 22 focus-group discussions (FGD) in Cape Town, four focus-group discussions in Maputo, two multi-actor workshops on the development of agroecological guidelines for urban agriculture (urbanGAPs) in both cities, and two validation workshops (a policy meeting in Cape Town and a youth and art workshop in Maputo). A vital part of the information-gathering process was made through participatory observation, while spending time in daily activities with the participants, such as cooking, eating, grocery shopping, and, of course, farming. In Maputo, I

spent as much time as possible during my stays in the “machambas”, which is the local term for fields/plots in Mozambique, to interact with farmers and gain deeper insights through informal conversations; I was able to maintain exchanges with a few individuals throughout the project span. The first-hand knowledge and experiences shared by urban farmers and their willingness to spend time being interviewed and participating in the study enabled me to reflect and articulate their challenges, a phenomenon described by Merkens (2004).

The research in South Africa was conducted in English, with all notes taken in English. In Mozambique, the research was undertaken in Portuguese, with all field notes noted in Portuguese and participatory observations documented in English.

1.5.2.1 Key informant interviews

Over the course of the project, a total of 304 interviews were conducted with key informants including non-governmental organisations (NGOs) actors, policy actors, academics, civil society members, and farmers (196 in Cape Town, 108 in Maputo). All interviews were semi-structured shaped by an open design and steered by the interviewees. The interviews served to provide crucial context to illustrate the diverse backgrounds, the cultural and political context, and the dynamics within the urban agriculture environment. The guidelines for the key informant interviews are listed in Annex 1.

1.5.2.2 Baseline data

Within the UFISAMO project, two baseline surveys were conducted in 2017. The baseline survey was designed for Maputo by all four PhD students of the project (Luisa Chicamisse, UEM; Ivo Cumbana, UEM; Anja Schelchen, SLE; and myself) and was translated and adapted to the Cape Town context by myself and Prof Abdulrazak Karriem from UWC. The baseline survey included data on demography, socio-economic background, household and livelihood information, production and marketing, organisational forms and affiliation to associations (in Maputo) and NGOs (in Cape Town), food habits, perceptions of organic/agroecological farming, and general challenges in urban agriculture.

The survey reached 369 farmers in Maputo from 19 associations in the two municipal districts of KaMabukwana and KaMavotas. The data was collected by the UFISAMO PhD students, with the support of 14 local enumerators. The baseline covered 19 of 26 associations building on the agreements of the association presidents. The sampling was adapted by the enumerators and, contrary to the official registers’ proportional distribution, more women than men were interviewed. In total, 265 women were interviewed, 104 men. Of all associations, at least 5% of the active members were interviewed to guarantee a geographical representation. In the field, the sampling was random and upon willingness to participate.

In Cape Town, a general farmer register does not exist. The sampling of the UFISAMO baselines covered farmers from the three biggest NGOs (Abalimi Bezekhaya, Soil for Life, SEED),

independent home gardeners, independent market gardeners, and farmers supported by the governmental extension service. In total, 112 farmers were interviewed by four UWC students.

1.5.2.3 In-depth quantitative data

Three in-depth surveys were conceptualised and conducted in 2017 and 2018 and selected results were integrated into the results sections of the papers. The surveys were carried out with local enumerators, following a pre-test and enumerator briefing. The surveys in Maputo were conducted in Portuguese, while in Cape Town the surveys were translated into the local languages Xhosa and Afrikaans. I involved the enumerators in feedback loops and benefited from their observations and information gained through asides. These feedback loops allowed enumerators to tease out main trends in results before data analysis which helped to phrase hypotheses.

In all three in-depth surveys, the aim was to gather the perspectives of and insights from as many urban farmers as possible. A self-established network was used as well as snowball sampling. In Cape Town, an in-depth survey with 57 garden farmers was conducted in 2017 by two enumerators to explore their challenges in producing marketable crops. In addition, the survey examined the consumption patterns of those farmers. At that time, 90 farmers were affiliated with urban gardening programmes managed by an NGO in Cape Town; our survey was completed by 50% of them. The sampling was randomly drawn from member lists of the NGO.

In 2018 in Maputo, an in-depth survey was conducted by one enumerator with 23 farmers affiliated with the NGO ABIODES who farm according to agroecological methods. The survey was designed to help understand production systems, marketing challenges, and farmers' own consumption patterns.

In 2018 in Cape Town, a consumer survey was conducted with 87 consumers who live within 200 metres of five urban food gardens. The survey set out to identify the consumers' food habits, dietary patterns, food purchases, and awareness of the food gardens as a potential food source. The survey was designed with urban farmers, who conducted the interviews and contributed to the analysis.

1.5.2.4 Multi-actor workshops

In consultation with project partners and urban farmers, I conceptualised multi-actor workshops. In total, we facilitated five multi-actor workshops (see Table 3) for stakeholders including policymakers, academics, civil society members, farmers, consumers, and NGO staff members. All workshops were documented and/or the results were summarised in proceeding briefs.

Cape Town, 6–8 March 2018	UrbanGAPs Workshop	n=42
<p>The workshop was facilitated by two researchers, allowing ample time and space to discuss the advantages and disadvantages of urban agriculture and to develop a SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats). In the process, the urban farmers gathered/collected good agricultural practices for the urban context. All results were captured/utilised in a corresponding guideline¹ and training manual²</p>		
Maputo, 24–26 July 2018	UrbanGAPs Workshop	n=52
<p>Using the model of the Cape Town workshop, I facilitated this workshop while giving special attention to the role of urban farmers in the food system of Maputo. The results of this workshop built on the Cape Town guidelines and were processed into guidelines for good agricultural practices for Maputo³ The training manual⁴ was developed with the partner organisation ABIODES.</p>		
Maputo, 26 April 2019	Youth in Agriculture Dialogue	n=26
<p>Two PhD students from UEM and I discussed the future of urban agriculture in Maputo by rethinking the status quo. Building on this workshop, a policy brief⁵ was formulated.</p>		
Cape Town, 27 June 2019	Policy Dialogue	n=29
<p>This dialogue was initiated by urban farmers for the purposes of summarising findings from the three-year project and presenting an earlier develop policy brief⁶</p>		
Maputo, 03 July 2019	Art Workshop	n=26
<p>This workshop built on focus-group discussions in Maputo on agroecology and invited farmers to work in groups on lino-prints as a creative way to formulate desires, fears, or political claims.</p>		

Table 3 Overview of Multi-actor Workshops

¹ See Kühn, A. & N. Paganini, 2018. Good Agricultural Practices. Cape Town Edition on Vegetables.

² See Paganini, N., Khan, Z., and Urban Research Farmers, 2019a. Farmers Manual Urban Agroecology Cape Town.

³ See Siueia Júnior, M. & E.Engel, 2019. Boas Practicas

⁴ See Paganini, N., Mahalambe, A., and A. Luis, 2019b. Farmers Manual Maputo. Agroecologia Urbana.

⁵ See Chicamise, L. & Cumbana, I. & Luis, A. & Mahalambe, A. & N. Paganini, N., 2019. Pensando fora da caixa: Como os jovens agricultores podem mudar o futuro da agricultura urbana em Maputo Visões de futuro baseadas em resultados de pesquisas da UFISAMO.

⁶ See Karriem, A. & Paganini, N. & Khan, Z. & Kanosvamaha, T. & Mfaku, A. & Tevera, D. and Urban Research Farmer. 2019. Rethinking required -How can urban agriculture in Cape Town still become sustainable in the future food system? Policy Recommendations and Results of the UFISAMO project.

1.5.2.5 Participatory co-research

The co-research process was initiated in Cape Town in October 2017 and over the course of the project ending in July 2019, 22 focus groups discussions (FGDs) were conducted with 20 members of the research farmer club. All FGDs followed an open, explorative approach which built on a shared orientation and understanding of a topic, its documentation, and its validation as advised by Bohnsack (2004). All FGDs were not recorded to provide a ‘safe space’ for the participants, but note cards and flipcharts were used to document results. The FGDs were intended to expand existing knowledge within the co-research process, to deepen early findings from the quantitative work, and to provide an open space for the participating co-researchers to engage in discussions, share experiences, and jointly seek solutions and collaboration beyond the scope of the research.

The topics of the FGDs were set in advance by the participants. While in 2018, the focus was on production-oriented topics, in 2019 the participants focused on underlying and systemic issues, such as power, marginalisation, and inequality. In addition, the co-researchers captured their farming challenges and food habits through photographic food diaries as per Harper (2004). Together, the participants documented their food system in a mapping process, conducted a farmer-led consumer survey, and co-developed training materials. The co-researcher group in Cape Town had an open setting in terms of membership, with a consistent core team of 15 farmers for almost three years, with new members joining and others leaving the group over the course of the research. Due to the large group size, it was possible for me to gain different perspectives from a range of sites and to explore the different opinions of individual participants of different ages and cultural backgrounds.

1.5.2.6 Participatory observation

Throughout the project, I conducted 90 field and home visits in Cape Town, following a field observation / participatory observation approach recommended by Hammersley and Atkinson (2007), Lüders (2004), and Nieswand et al. (2015). This included reflection guided by Lüders (2004) on how to build relationships, how to perceive one’s role in the field, how to report, how to make notes, how and when to withdraw, how to behave, how to use technical equipment, how to use different interview styles, and how to prevent oneself from being overwhelmed.

I tried to engage with all farmers on a personal level through informal face-to-face exchanges. While spending time with the farmers, I sometimes took notes as well as photographs. These notes provided a great source for reflection and, above all, helped me evaluate the context. Participatory observation took place during visits, workshops, joint garden work, and food purchasing/cooking in the living context of the co-researchers. These exchanges provided me with a better understanding of participants’ daily realities and opened the door to conversations on structural inequalities in relation to food systems. The group in Cape Town collaborated through WhatsApp groups and a validation workshop in January 2020.

Subsequent to the UFISAMO project, the co-researchers embarked on a new research endeavour with a collective of producers, researchers from the Centre for Rural Development (SLE) at the Humboldt-Universität zu Berlin, and partners from the Critical Food Studies Department of UWC, Cape Town.

In Maputo, I gained access to and insights into the food systems through farmers that are affiliated with the UFISAMO partner organisation, ABIODES, by joining them in farm work. I spent time in the informal settlements in Polana Caniço with a local family. Through my hosts, I met local home gardeners who helped me visualise the farming challenges and daily struggles of families living in Maputo's disadvantaged communities. Visiting more than 20 city markets deepened my knowledge of local trade activities. Due to time constraints, it was not possible to set up a co-research group in Maputo; however, a group of eight younger farmers (aged 18–35 years) from different farmer associations established a WhatsApp group for on-going exchanges of ideas and joined three multi-actor workshops in 2018 and 2019. Through these channels, I was able to interact with them in an informal manner and gain further insights. In the first multi-actor workshop, we analysed the role of urban farmers in the city's food system and power relations within urban agriculture. The second event focused on young farmers and the future of urban agriculture. The third workshop addressed inequalities of and challenges in the food system through art, using lino as a medium. Along with an artist from Cape Town, I facilitated the translation of urban agriculture challenges into art by encouraging farmers to work in groups to design a visual message using lino prints which could be reprinted for other farmers.



Figure 5: Lino prints from the "Arts & Youth in Agriculture" workshop hosted in Maputo. The first print shows informal vendors who collect products from the field. The second print speaks about gender inequalities in farming activities.

1.5.3 Data analysis

Both quantitative and qualitative data were examined first through an exploratory approach then with a food justice theory lens as described by Cadieux and Slocum (2015). Taking the notion that “data are materials to think with” (Hammersley & Atkinson, 2007, p. 158), this approach allows for analysis and interpretation to emerge from rather than being imposed upon the data.

The bulk of my observations were jotted in hand-written field notes and captured general ideas about the environment and impressions of the places I visited. These notes were reworked before I started analysis and when I moved to a remote desk. The data analysis followed a three-phase strategy. The first stage of early and explorative analysis employed qualitative tools and findings to explore quantitative results. A second phase focused on context, which was provided through key informant interviews as well as a review of secondary literature. Finally, answers to the research questions formed the centrepiece of the three research papers.

For the quantitative surveys, I used secondary literature, key informant interviews, and participatory observation to explore the topic and to solidify the questions. Reviewing secondary literature as an on-going activity was important to avoid replicating previous research and to add to a research niche and add a new perspective to current discussions. The surveys were cleaned and analysed using IBM SPSS Statistics 25. The overall analysis was descriptive, but included cross-classified tables to illustrate differences related to the interviewee’s gender and location. I further applied a qualitative content analysis as per Mayring (2004) and coded the interviews using MaxQDA, which helped define general and sub-categories. From these results, I phrased the research questions.

I used the focus group discussions and interviews to engage the participants to validate and give feedback on my results as per Ruddat (2012). I included methods from the qualitative participatory and rapid rural appraisals, such as participatory mapping, vulnerability assessments, and biographic interviews. Finally, I triangulated the data to combine data from different sources, places, and people. I also categorised the observations and perspectives to negate the subjective influences of individual information sources as per Flick (2004b).

2. Research context

In this chapter, I will briefly describe the two case study areas of Cape Town and Maputo to provide background and context to the researched areas. In the next section, I describe the research context of the UFISAMO project, in which my research was imbedded in the beginning of my PhD research. Next, I reflect on the limitations of the research settings and provide some introspective reflections on my role as a researcher.

2.1 Case study areas

The following subchapters describe the research sites in Cape Town in South Africa and Maputo in Mozambique and highlight the main potentials and challenges for farming activities in the cities.

2.1.1. Cape Town and its urban agriculture scene

Cape Town is South Africa's second-largest city and the seat of the South African parliament. The current population stood at 4.13 million in 2020 and is predicted to increase to 4.23 million by 2023 (Western Cape Government, 2017). The city's recorded history dates back to the late 17th century when Dutch traders established a provisioning station in the sheltered bay of the Cape and, at the same time, evicted the population of the San and Khoi. Over 150 years of Dutch rule have significantly shaped the history of the city and its inhabitants. During this time, slaves from Indonesia, India, and Malaysia were brought to the colony to be exploited for labour and the sex industry, alongside the local Black population, resulting in the Cape Coloured population. At the beginning of the 18th century, the British took over the leadership of the Cape.

At the beginning of the 20th century, the Black population was resettled in designated peripheral areas of the city. In 1948, segregation was officially enforced in the city, and the National Party transformed the nation into an apartheid state. As a result of the Group Areas Act of 1950, People of Colour were consigned to the periphery of the city (Strauss, 2019; Christopher, 1994). The legacy of the apartheid state is still apparent in urban planning today and a large share of the city's Black, Coloured, and minority populations lives in townships outside the city centre. In addition, an increasing number of people are migrating to Cape Town, especially from the Eastern Cape and other Southern African states, in search of employment.

Cape Town is a city of contradictions and a melting pot of cultures and people. The gross inequality between White and non-White South Africans, between class, is reflected in South Africa's Gini coefficient, a statistical measure of inequality of income or wealth within nation-states, which stands at 0.63 (the highest score assigned), making South Africa the most unequal country in the world in terms of wealth distribution (World Bank, 2020). Inequality and segregation are apparent throughout the city, with poor, marginalised communities living in dense and cramped townships and the minority enjoying high living standards and spacious properties. Urban agriculture is mostly conducted in the outskirts of the city centre, in an area called the Cape Flats (see Figure 6).



Figure 6: Research areas in the townships of the Cape Flats. The research was conducted mainly with farmers from Khayelitsha, Gugulethu, Mfuleni, Ottery, and Mitchells Plain. Source: Paganini, in Engel et al., 2019: 11.

Urban agriculture in Cape Town has received considerable attention and has been widely researched and examined from different perspectives (Battersby & Marshak, 2013; Olivier & Heineken, 2017; Swanepoel et al., 2017). Previous investigations concluded that urban agriculture plays a minor or negligible role in food and nutrition security (Battersby, 2011) and is a misplaced livelihood strategy of the urban dwellers in the Cape Flats. Crush et al. (2018, p. 17) found that only a “handful of households” (0.1%) make any income from urban agriculture. The authors describe the uptake of urban agriculture by policy actors and donor organisations as misinterpreting the issues of food access and food security for the poor (ibid, 4).

Urban agriculture is imbedded in national, provincial, and municipal policies as a strategy for food security, and is, therefore, promoted without consideration as to its local appropriateness or sensibility (Swanby, 2018). The city’s urban agriculture policy was manifested in the “Urban Agriculture Policy” which was replaced in 2013 by the “Food Garden Policy” (City of Cape Town [CoCT], 2007; CoCT, 2013); however, the actual implementation of this policy has been perceived as weak by governance actors and farmers, despite the establishment of the “Strategic Development Unit for the Promotion and Development of Urban Agriculture in the City of Cape Town” unit, which was integrated into the Department of Social Development in 2017. Political support for urban farmers has mostly been reduced to subsidised inputs, such as farm infrastructure (shade nets and boreholes), seeds and seedlings, as well as compost and fertiliser; and fails to address the most pressing challenge: the increasing demand for vacant land on which to farm. Addressing structural issues in the sector requires both political commitment and an adequately staffed, responsible implementing body. Yet, during this

three-year study, the extension service dedicated to urban agriculture consisted of only four people linked to the provincial Department of Agriculture. Key structural amendments, such as increased access to land and farmer-led market channels, were not part of the unit's mission (Z. Msimango, Department of Agriculture, personal conversation 1 March 2017; P. Mentani, Department of Agriculture, 2 March 2017; G.Domingo City of Cape Town official 20 April, 2018).

In this gap, various local NGOs have come to play a central role. There are people who dedicate their work to urban agriculture and provide trainings and workshops, advisory support, and some even offer marketing channels within their programmes. NGOs have set different foci and provide diverse expertise in several fields, such as soil building (Soil for Life), seed saving and permaculture (SEED), and home gardening training and retailing (Abalimi Bezekhaya, Umthunzi Farming Community, PEDI). Most farmers are affiliated with one of these NGOs, which intend to promote the potential of urban agriculture to foster social capital, community-building, and education/training (Olivier & Heinecken, 2017; Kanosvamhira & Tevera, 2019).

As outlined above, Cape Town's urban planning history is strongly shaped by the apartheid years and the forced settlement of People of Colour into geographically separated townships. Urban agriculture was an activity that was neither part of this original planning process nor part of the natural development, as is sometimes the case with villages and towns that expand and transform into cities organically. Instead, the township population was introduced to this practice by outside actors, mainly the NGO Abalimi Bezekhaya, who appropriated urban agriculture as a poverty alleviation strategy. However, the Cape Flats are not a very suitable place to farm: the physical conditions are poor, with sandy soils, strong winds, and a tough local climate: intense solar radiation during the summer months and cold and rainy days in the winter. These conditions have been exacerbated by climate change. Cape Town's severe water shortage in 2018, which led to strict water restrictions being imposed by the City of Cape Town, demonstrates the serious impacts caused by climate change (CoCT, 2018). Farmers without boreholes lacked access to water, forcing many to stop operating during this drought.

The confined space for urban agriculture projects in the townships, in combination with insecure land tenure and obscure land application procedures, only add to these challenges. The precarious conditions that characterise life in many townships (violence, crime, and continuous theft from) further hamper urban agriculture's development. One of the key challenges identified throughout this research project is the marketing activities of urban farmers. Urban farmers have not realised the market potential of their ware and rely on artificial NGO markets, which creates dependency and decreases farmers' resilience.

2.1.2. Maputo and its urban agriculture scene

Mozambique's capital, Maputo, is situated in the very south of the country, close to the borders of South Africa and eSwatini (formerly known as Swaziland). The city forms a large urban centre with

its neighbouring city, Matola. Maputo consists of five urban districts (KaNihamankulu, KaMavotas, KaMbukwana, KaMpfumu, KaMayaquene), the peninsula of KaTembe, and the island of KaNhaca. With the 2018 construction of a bridge to the KaTembe peninsula, access to South Africa became easier and the city’s economic orientation to its neighbouring countries became even more important.

A former fishing village, Maputo was named Lourenço Marques while under Portuguese rule and grew to become a colonial trading centre. Today, the inner city, *Maputo cemento*, is a colonial heritage site for architecture and art deco buildings, yet also houses the high-rise buildings of the socialist years. Informal settlements are located in the city centre, *Maputo caniço*, or the reed city. The country’s economy was devastated by the civil war (1977–1992) and has been impacted by the effects of climate change, such as the flooding in Beira in 2019 (caused by cyclones Idai and Kenneth). Foreign investments, especially from China, have become increasingly noticeable in the last few years with, for example, the new building of the Chinese-funded faculty at the project partner University UEM or the Costa do Sol, the built-environment beach promenade on the Indian Ocean.

Urban farmers in Maputo are organised in associations located in the peri-urban zones of the city (see Figure 7). These associations are farmer groups that form an organisation to obtain land which is that is then partitioned among them.

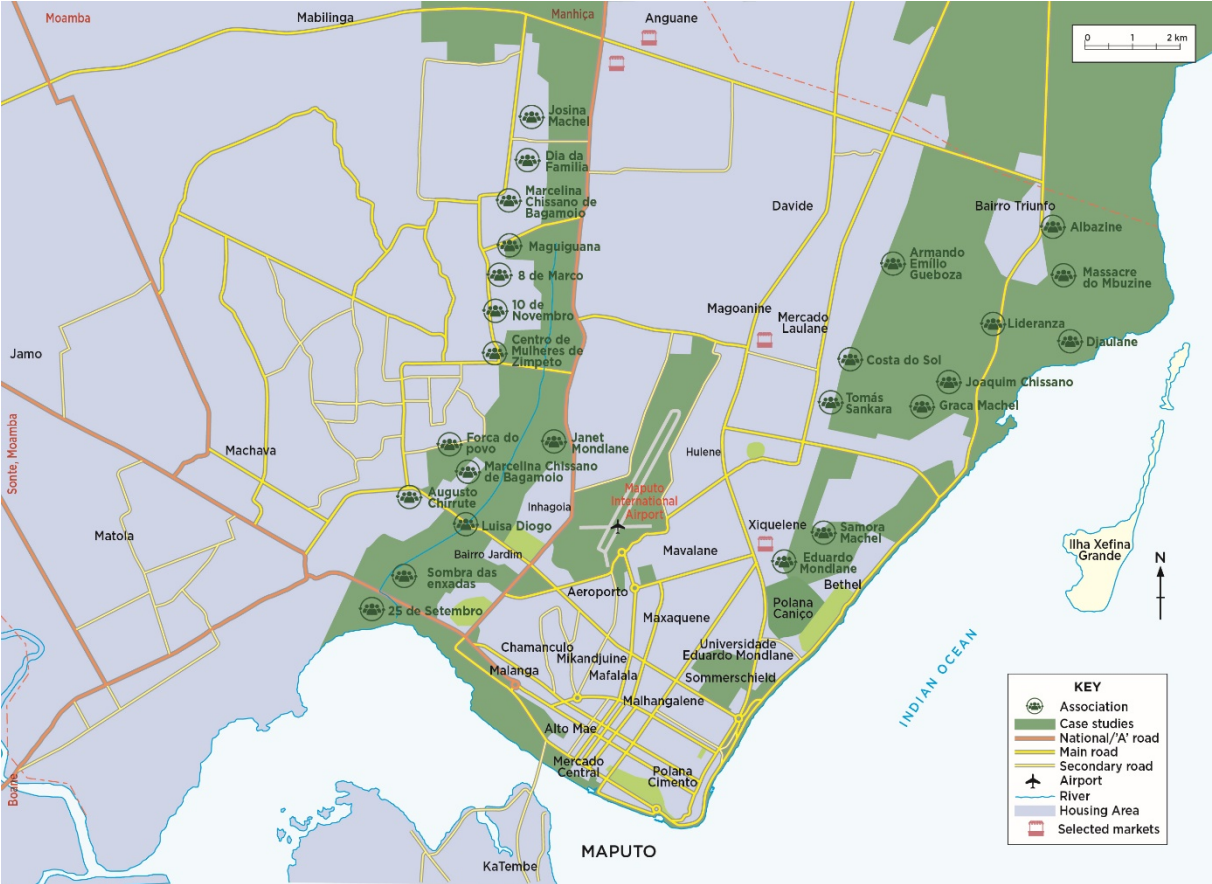


Figure 7: Research areas in Maputo in the two peri-urban horticulture valleys or “zonas verdes” of KaMavotas and KaMbukwana. Source: Paganini, published in Engel et al., 2019: 10.

Urban agriculture in Maputo is practiced by 26 of the 34 established urban farmers associations in two peri-urban green zones, the *zonas verdes*, in the two districts of KaMbukwana and KaMavotas. A legacy of the country's socialist era is the organisation of urban farmers into formal associations, with their crucial function being to assure their members' land rights which is called DUAT, *Direito do Uso e Aproveitamento da Terra*. Urban agriculture plays a central role in Maputo's food system, as according to previous research, with more than 10,000 farmers cultivating under the associations (Siteo, 2010). Additionally, thousands of households produce food individually in backyards (ibid). The associations are organised under two organisations within their districts, with the union of urban agriculture (*União*) acting as an overall umbrella body.

Urban agriculture in Mozambique, and particularly in Maputo, has been viewed by decision makers as an important food supply strategy for many decades (Sheldon, 1999). The city's *Conselho Municipal de Maputo (CMM)* which is the city's municipality, through the Department of Economic Activities, keeps records of the associations' members and permits to use land for agricultural purpose by issuing the DUATs. As a result of a project that ran from 2012 to 2016 under the French NGO, ESSOR, the CMM now promotes agroecological farming practices through advertising and awareness-raising initiatives including public events, banners, and radio programmes. ABIODES, which succeeded ESSOR in 2018, continues to provide advisory support to agroecological farming; however, the vast majority of farmers sell their crops monthly to address household financial pressures and prefer conventional growing methods which they perceive as providing quicker returns. The national Department of Agriculture's food security programme promotes urban agriculture and focusses its advisory support on increasing production levels of leafy vegetables which have a short production cycle. To achieve the desired production rates, extension services support the use of mineral fertilisers and pesticides. These services have a somewhat limited effect since the extension officer to farmer ratio is sub-optimal (Cachomba et al., 2016).

Main markets are local markets and street stalls with the majority of farmers selling via informal intermediaries, *maguevas*, who buy farm produce in the early morning hours for resale. Nowadays, urban agriculture activities are crucial for the city's supply of leafy vegetables.

Agriculture in the city faces various challenges including the hierarchical organisational structure of farmer associations, poor integration of young generations into farming practices, and horticultural problems arising from weak farming practices and the subsequent deterioration in soils and high dependency on seed suppliers. Maputo's rapid urbanisation further threatens urban agriculture, particularly along the coastline, where conflicts of interest around land use between investors who rely on much-needed foreign capital for the economic growth of the city and urban farmers associations who hold the right to use this land. Serious climate change effects (severe droughts and water shortages in the summer months and heavy rainfalls, flooding, or cyclones in winter) also threaten urban farming

activities and impede farming activities along the coastline. Soil salinisation near coastlines is rendering large sections of the arable land progressively unsuitable for farming.

Yet, despite these challenges, the importance of urban agriculture in Maputo is probably unique in the world. Its economic contribution to the city's informal sector is essential, with more than 10,000 farmers and similarly high numbers of informal intermediaries. According to the city's administration, formalisation of marketing channels is not yet planned because the current, inefficient structure creates jobs for many. However, urban agriculture also plays a subordinate role in the food system; most of Mozambique's staple food is imported through the central market *Zimpeto* before being transported to the north of the country. Food is also being shipped and imported through the port, for example, rice from Indonesia and Thailand; potatoes, onions, tomatoes, and processed foods from South Africa; milk from Portugal; chicken from Brazil; and even frozen fish (Mozambique has more than 2,500 km of coastline) is imported from Angola (Paganini & da Fernanda Ouana, 2019). As a consequence, traditional staples like *xima* (a thick porridge made from corn) are being replaced by cheaper, imported foods such as rice and bread and farmers repeatedly demand a ban on food imports from South Africa that destabilise local prices. This highly volatile pricing resulting from food imports can threaten local food security; for example, while writing this introduction, emergency measures in place to prevent the spread of COVID-19 led to drastic price jumps and food insecurity (Paganini et al., 2020). Considerations on the future maintenance and viability of urban agriculture in Maputo should take three key factors into consideration: competition for land, climate change, price fluctuations resulting from imports, and attracting and maintaining future generations into urban agriculture.

2.2 Research context: Brief description of the UFISAMO project setting

This PhD research was imbedded in a larger research project. The UFISAMO project, which stands for *Urban Agriculture for Food Security and Income Generation in South Africa and Mozambique* that was funded from 2016 to 2019 by the Federal Agency for Agriculture and Food (BLE) through the Federal Ministry of Food and Agriculture (BMEL). The project was led by the Seminar für Ländliche Entwicklung / Centre for Rural Development (SLE) at the Humboldt-Universität zu Berlin as an interdisciplinary and international research project. Research partners in South Africa included the Institute for Social Development and the Department of Geography, Environmental Studies and Tourism at the University of the Western Cape (UWC), and the NGO Abalimi Bezekhaya (until early 2019). In Mozambique, the consortium partners were the Department of Social Science, *Faculdade de Letras e Ciências Sociais* at the Universidade Eduardo Mondlane (UEM), the governmental organisation and Secretary for Food Security, *Secretariado Técnico de Segurança Alimentar e Nutricional*, SETSAN (until mid-2017), the NGO ABIODES (from 2018 onward), and the Freie Universität Berlin (FU) in Germany with the Department for Veterinary Medicine and the Frankenförder Forschungsgesellschaft mbH (FFG).

The project had a strong production focus and development-oriented approach and aimed to achieve the stated output: “The aim of this project was to contribute to food security for the disadvantaged population groups in cities by improving production and marketing methods in Maputo and Cape Town” (Engel et al., 2019). I was involved as doctoral candidate for the University of Hohenheim (since October 2018) and project researcher responsible for delivering the working package 2.1 on crop production (Engel et al., 2019). Being involved in a larger project provided the advantage that my research activities were funded and that I was able to use and expand the project network and gain access to the affiliated institutions.

Cape Town and Maputo were designated as research locations by the first project manager building on previous university relationships in Maputo. The Cape Town case study was added because the partner organisation, Abalimi Bezekhaya, was identified as a promising local organisation with decades-long experiences in urban agriculture and had an existing network that could allow research results to be scaled into practice. As no previous working relationship between the project organiser and the NGO existed, it was not initially expected that the projects’ objectives would not be met by the partner organisation, but this quickly became apparent as effective communication and cooperation proved to be challenging. The organisation’s attempt to control and choose research results according to their own interests, including their decision not to publish critical results on their urban agriculture activities, are one such example.

Because UFISAMO’s project engaged two pre-defined cities that are incomparable in terms of political-historical context and their grossly dissimilar approaches to urban agriculture as a fresh-produce provider manifesting in dissimilar climate zones, dissimilar land access, availability of land and the role of small-scale farmers in the national agricultural system. Due to the historical and political differences in the two locations, and the differences in the organisational structure of urban agriculture, I decided against a comparative study and opted for a case study approach.

2.3 Limitations of this study

A central limitation in this research is the uneven time I spent in the two cities. Due to project funding, visas, and other assignments in my capacity as researcher in the UFISAMO project, the distribution of field research between the two sites was uneven. I spent about one and a half years researching in South Africa, while I only worked about half a year in Mozambique. I started Portuguese language learning in the first project year. This phase enabled me to network with other academics at the UEM (who were of much greater help than the designated project partners) and to interview actors that I selected myself independently from the project. While the project was of crucial importance to provide institutional framing and to fund the field research, it hampered the research for the doctoral research as elements, methods, and objectives of the project were pre-defined. Implementing an

objective and independent research plan was only possible after starting in-depth fieldwork beyond the project assignments. Despite these efforts, the larger project consortium remained a challenging setting. The research consortium in Cape Town was newly established, without building on previous relationships. The cooperation with the partner NGO in Cape Town turned out to be counterproductive. Farmers who were also affiliated to the NGO were asked by the NGO not to participate in workshops, particularly toward the end of the research.

A methodological limitation was that the co-research method was only carried out in Cape Town; hence the third paper focuses exclusively on the in-depth results from Cape Town and the mutual learning processes that were initiated there. Having more research time in Maputo would have allowed me to implement a co-research process there, too. A comparison between the cities would have provided insights into the methodology and could have been a unique opportunity to foster South-South exchange. At the very end of the project, I initiated small exchanges between the researchers and practitioners at the two sites and observed the excitement that a mutual learning process and exchange of experiences created for both sides. Methodologically, this study took an innovative approach with co-research. This method was continued by the farmer research group in two research projects after the research for this doctoral thesis. Co-research has limitations which could be further explored in research with other marginalised groups, as well as through further development of the data produced through co-research. For example, data analysis is often descriptively examined, but not fully analysed with statistical significance by co-researchers. Co-research also demands time. A central element of co-research emphasises the role of the researcher as facilitator. This is a complex process and requires regular feedback loops and reflection sessions to avoid personal bias within the goals of neutral, fact-seeking science.

One noteworthy divergence from the intent of the project plan was the application of a food justice lens. Although I was able to apply a place-based perspective and examine the local power relations at play, other central pillars of food justice, particularly the gender perspective, were beyond the capacity of this thesis. Further research should deepen the work on food justice in politicised (food) spaces, particularly in the South and within marginalised communities. The role of women who are active in urban agriculture – as well as in local food systems – is a special one. Women traditionally make decisions about food: what is grown, what is cooked, and how money is spent in the household. I suggest that the role of women as change-makers in food systems should be examined in future research.

2.4 Introspection - Role of the researcher

Having a genuine interest in the people I met, I gained insights into the lives of many urban farmers beyond the scope of research. I was fortunate and privileged to be given so much time and offered such deep insights by these urban farmers in the field. Through numerous conversations and

personal relationships, I became acquainted with local realities. These close interactions were of utmost importance for the research part of my methodology; however, to avoid any bias, introspection along with validation and triangulation was crucial to maintain the objective view of a researcher.

Throughout this research, I constantly reflected on my role and the work I was doing, particularly as an international researcher working in a third-party-funded project. Such projects are often designed as a kind of helicopter-research model where researchers fly in from different locations and spend a relatively short time on the ground. These projects, such as the one in which I was involved, are often not aimed at establishing long-term partnerships and create the impression, if not the reality, that the benefits mainly accrue to those in the global North, particularly when the largest share of funding goes to the salaries of those researchers. To counter this, in terms of local structures, it is vital that projects that provide academic qualifications involve as many local students as possible, who in turn, foster the local academic system. There is enormous potential for mutual learning if the project demands and encourages such exchange and collaboration. Moreover, it is essential to reflect on what kinds of issues research projects initiate within local structures through a flurry of research and workshops which are not processed or further facilitated because the person in charge leaves after a short period of time.

As stated in the limitation section, my research focus was mainly on the Cape Town case. The contested space and politicised environment of Cape Town generated an expansive set of questions, and my work went beyond just scratching the surface. I unpacked these by changing the research topic from a development-oriented project mission to a mission to comprehend the challenges urban farmers face in the context of their livelihoods and to use urban agriculture as a means to tackle issues such as structural inequalities and power relations. This shift was significant to me as it rendered the research process more open and more egalitarian, but certainly was also energy and time demanding in the same way.

A personal challenge was to find the balance between being over-involved with participatory methods of working during the fieldwork phase, and maintaining the objective lens of a researcher. This was evident in the increasingly close relationships I developed with some of the co-researchers, especially after intensive and overwhelming biographical conversations. This was further complicated after some criticism of my work were made which led to violent threats being made against me and the co-researcher team. These incidents naturally affected me as a researcher (and a person). In retrospect, however, it was precisely the participatory part of the work and the close relationships that were nurtured in the Cape Town setting that enabled not only a genuine quality and depth to my work, but also a meaningful and indescribable experience for me.

It is extremely moving to see how the participating co-researchers invested time in this research (and far beyond) and had been working together and exchanging ideas as a network for years. Nevertheless, participatory research is still implemented below its potential. As part of academia, it is in the nature of research and research funding that academic researchers ultimately leave the study area,

while co-researchers are left behind. Even if the research project is jointly designed, data is concurrently collected, and co-researchers are involved in the analysis, the writing process and how the results are framed is very much established by the person who writes it up—in this case, me. While coming in as an outsider certainly has its advantages as someone who can look impartially at realities, those realities are framed by an imbalance of power. As a researcher, you are paid for your work, while co-researchers typically do not benefit equally. Furthermore, in an ideal world, I should not be the only one profiting with an academic qualification; the co-researchers should also receive some form of academic recognition beyond being named as co-authors or acknowledged in papers.

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3. The potential of urban agriculture towards a more sustainable urban food system in food insecure neighbourhoods in Cape Town and Maputo

Authors: Nicole Paganini, Stefanie Lemke, Inês Raimundo

Abstract

This paper uses a case study approach to describe Cape Town's and Maputo's urban food system. The debate on the contribution of urban agriculture to food and nutrition security and income generation is controversial. In Cape Town the main challenges identified in urban agriculture are access to local and external markets, fair pricing and sovereignty in production. In Maputo, urban farmers move towards adaptation to more agroecological production techniques, combined with a more diverse production, which could reduce pest pressure, and increase income and diversify diets. In conclusion this paper argues that urban agriculture needs to be embedded in the wider urban food system thinking and food planning in order to contribute towards more sustainable food systems.

Citation Journal Paper:

Paganini, N., Lemke, S., & Raimundo, I. (2018). The potential of urban agriculture towards a more sustainable urban food system in food insecure neighbourhoods in Cape Town and Maputo. *Economia agroalimentare/food economy*, 20(3), 399–421. <https://doi.org/10.3280/ECAG2018-003008>

4. Farming in cities: Potentials and challenges of urban agriculture in Maputo and Cape Town.

Urban agriculture in Maputo's food system

Urban agriculture in Cape Town's food system

Author: Nicole Paganini

Two chapters retrieved from the project report describe all findings of the baseline surveys conducted in both cities. These chapters describe the context of small-scale urban agriculture in Cape Town and Maputo by scrutinising production and market systems within urban agriculture value chains. The chapters also detail challenges and opportunities in the two case study areas.

Citation Chapter:

Paganini, N. (2019a). Urban agriculture in Maputo's food system. Vegetable production and marketing in Maputo. In E. Engel, K. Fiege, & A. Kühn (Eds.), *Farming in cities: Potentials and challenges of urban agriculture in Maputo and Cape Town* (pp. 35–36 and 45–59). Humboldt-Universität. <https://doi.org/10.18452/20559>

Paganini, N. (2019b). Urban agriculture in Cape Town's food system. Vegetable production and marketing in Cape Town. In E. Engel, K. Fiege, & A. Kühn (Eds.), *Farming in cities: Potentials and challenges of urban agriculture in Maputo and Cape Town* (pp. 111–137) Humboldt-Universität. <https://doi.org/10.18452/20559>

5. “There is food we deserve, and there is food we do not deserve” Food Injustice, Place and Power in Urban Agriculture in Cape Town and Maputo

Authors: Nicole Paganini and Stefanie Lemke

Abstract

This paper applies a food justice perspective and examines the differences between the two cities – Cape Town and Maputo. It discusses what role power and race play in urban agriculture and applies a place-based perspective to understand the meaning of the “urban” in the food systems of the two cases. While Maputo’s urban farmers sell to their local communities and contribute significantly to the city’s leafy vegetable supply, Cape Town’s urban farmers produce almost exclusively for alternative food system channels, such as niche markets. Farmers in the marginalised areas of the city produce vegetables for the more affluent strata of the city and deliver their produce via vegetable box schemes. In both cities, we revealed stark structural inequalities and highly uneven power dynamics.

Citation Journal Article:

Paganini, N. & Lemke, S. (2020). There is food we deserve, and there is food we do not deserve: Food Injustice, Place and Power in Urban Agriculture in Cape Town and Maputo. *Local Environment*. 25 (11-12), 1000-1020. <https://doi.org/10.1080/13549839.2020.1853081>

6. From the researched to co-researchers: Including excluded participants in community-led research on urban agriculture in Cape Town

Authors: Nicole Paganini and Silke Stöber

Abstract

This paper sheds light on the research process applied in Cape Town and describes the research steps of the co-research approach which entitled participating urban farmers to take ownership of the research. The paper describes more than three years of a mutual learning journey which enabled “the researched” to become “co-researchers”. It contributes to discussions on how participatory research could be conducted. The process described is particularly relevant and noteworthy in societies, such as South Africa’s, where knowledge justice plays a neglected role. Here, People of Colour have been excluded from higher education and agricultural participation not only during the apartheid era, but also in the post-apartheid period, leading to further inequalities in access to and dissemination of knowledge and, therefore, power.

Citation: Journal Paper: Paganini, N. & Stöber, S. (2021). From the researched to co-researchers: Including excluded participants in community-led research on urban agriculture in Cape Town. *The Journal of Agricultural Education and Extension*. <https://doi.org/10.1080/1389224X.2021.1873157>

7. Discussion

Achieving food and nutrition security is a growing concern in an urbanising world. The food crisis of 2007/08 put food security back on the political agenda as food prices increased significantly within weeks and showed the world how vulnerable food systems are, particularly in cities. This vulnerability was also recently seen when measures imposed to control the spread of COVID-19 caused spiking food prices and volatile markets that severely impacted food security; for example, as highlighted by Paganini et al. (2020) in research conducted outside of this doctoral thesis in Cape Town and Maputo. How to feed cities is one of the major challenges of our time (Steel, 2013), but it is not a new question if we look back at the history of urban food planning and initiatives. Common historical examples of urban agriculture include Persian desert towns that built irrigation systems that continue to supply water to Iranian cities and urban farms today, garden cities envisioned by Ebenezer Howard during the industrialisation era, and Tiergarten's cabbage fields which ultimately saved the divided city of Berlin's population from famine during the final years of the war. It is not a question we should raise only during shocks and crises. At first glance, encouraging the practice of urban agriculture seems like an obvious answer to supply cities with food. However, there is mounting consensus that it is not possible to address (urban) food insecurity and malnutrition merely through urban farming activities (Frayne et al., 2014), but by applying a systemic perspective to food systems (Battersby, 2016). Although the recent increase of urban agriculture initiatives in both cities during COVID-19 show short-term effects; with all known challenges of food insecurity, the complex interplays of urban food systems, and the rise in urbanisation in Southern Africa, linking the urban agenda with intervention (and adaptation) of food systems can have a significant impact on urban poverty (Battersby & Haysom, 2016). A systemic and holistic approach allows not only an understanding of the different aspects of food security (especially in rapidly expanding informal urban areas), but also the possibilities for future urban food system designs and their implementation. These crucial issues need to be addressed by policymakers, urban populations, civil society, city planners, and urban farmers.

This study used mixed-methods techniques to explore urban agriculture in Cape Town, South Africa and Maputo, Mozambique. The research was initially imbedded in a larger research project based on a theory that urban agriculture can be a powerful strategy to combat food security if farmers improve their farming practices (Engel et al., 2019). This idea was grounded in the belief that those who do not have enough food should engage in food production to provide sufficient food for their families. This very technical understanding of food security fails to recognise the structural inequalities imbedded in food systems, thereby reducing the dignity of those who live with food insecurity. The approach of improving urban farming practices to feed cities overvalues urban agriculture as a solution and, in so doing, undermines some of the real benefits of urban agriculture, particularly its strong community-building component.

In my research, I examined overlooked issues around urban agriculture such as power relations among actors by using food justice as a lens to explore food-related questions around the meaning of place, especially while engaging continuously with small-scale producers. The three journal papers which form this dissertation critically examine the two case study sites in Cape Town and Maputo by using a food systems framework (Ericksen, 2008), applying a food justice theory (Cadieux & Slocum, 2015), and by shifting the perspective of urban agriculture critique from the academics to the farmers using a co-research approach (Paganini & Stöber, 2020). It was imperative in my research to engage urban farmers to critically discuss and examine the role of urban agriculture and its multifunctional roles within a multi-layered set of systems and contradictions as per McClintock, 2014; Milbourne, 2012; and Tornaghi, 2014.

7.1 The role of urban agriculture in Cape Town and Maputo

In a first step, this research sought to understand the role of urban agriculture in the two case study areas, its contribution to urban farmers' livelihoods, and the question of how a reorientation of urban agricultural activities could contribute to more sustainable food systems. The differences between the two study sites are quite apparent from a geographical perspective. While Maputo's urban agriculture fields are seemingly endless green and surrounded by fruit trees, the setting for urban agriculture in Cape Town is, at first glance, invisible. Most food gardens are locked behind walls and fences in townships. In Maputo, early mornings in the fields are vibrant. Traders bustle from field to field, farmers harvest produce, and baskets and sacks of leafy vegetables leave the production sites for the various community markets. In Cape Town, it is the discussion around urban agriculture that is ultimately more vibrant than the farming activity itself.

For Cape Town, results obtained within the larger project showed that urban agriculture is an activity of passion, motivated by attitudes towards a healthy lifestyle or encouraged through NGO affiliation, rather than being viewed as a reasonable livelihood strategy. Previous research in Cape Town had already highlighted that the role of urban agriculture in food insecure communities plays a limited role in its contribution to household incomes (Battersby, 2011; Haysom et al. 2017), but that it is an activity that fosters social capital and community-building (Kanosvamhira & Tevera, 2019; Olivier, 2018; Battersby & Marshak, 2016). Results obtained through the UFISAMO baseline survey re-confirmed this hypothesis (Paganini et al., 2018).

There are a thousand and one reasons for township dwellers to be active in urban agriculture, but as a serious income-generation strategy, urban agriculture only works for a few farmers. Moreover, urban agriculture as a food security strategy as promoted by the City of Cape Town (CoCT) in their *Urban Agriculture Policy* and the *Food Garden Policy* (CoCT, 2007; CoCT, 2013) is becoming even more obsolete. Although at the provincial level urban agriculture is considered to play a role in the food system, its importance for food security is rated as negligible in urban areas (Western Cape Government, 2017). In terms of quantity, the amount of food produced in urban gardens is undoubtedly not at all

sufficient to supply the township communities continuously with food. Although urban agriculture has shown potential as an emergency solution for situations of high levels of food insecurity (as during the early weeks of COVID-19 lockdown), it can't be seen as a long-term solution to combat urban hunger. Before encouraging the urban poor to use urban agriculture to grow their own food, systemic inequalities in food systems must be addressed. In terms of quality, urban agriculture activities enhance the dietary diversity of producers and increase the amount of fresh vegetables consumed by the households of urban producers. However, the baseline study revealed that most of the vegetables produced are leaving the townships and are not, in fact, supporting the local community's food supply.

These findings can be explained, in part, by NGO's role in urban agriculture in Cape Town: urban agriculture is an activity that was recently introduced by NGOs and not an activity that developed organically alongside the growth of the township settlements. In addition, the environment for growing vegetables in these areas is arduous with sandy soils, burning sun, and strong winds worsened by frequent periods of drought and water shortages. A striking finding of the baseline study was that many farmers invest more in input costs than they see returned from their farming activities. This is compounded by violence and vandalism as well as shortcomings in infrastructure (lack of electricity for water pumps and lack of transport and marketing channels).

Maputo, in contrast, hosts large horticultural zones in the peri-urban belt of the city, where thousands of farmers grow leafy vegetables to sell exclusively to communities in the city, thereby contributing significantly to household incomes and to the local economy (Siteo, 2010; McCordic, 2016). Almost one in five people in Mozambique's capital are involved in some form of urban agriculture (Raimundo et al., 2018). The baseline survey found that almost all of Maputo's farmers grow food to contribute to their household incomes. The general picture emerging from the survey shows that urban agriculture is a viable activity. However, its future requires a shift in many aspects, such as a turn towards more agroecological production techniques, a decentralisation of the farmers associations system, and the safeguarding of the land that is currently dedicated to agricultural production.

The findings in Cape Town and Maputo are not generalizable beyond the case studies, however, the general picture emerging from the findings is that urban agriculture cannot be regarded as a blanket solution to food security nor can it be offered as a stand-alone poverty alleviation strategy, particularly without understanding the food system context of the locality. Nevertheless, the findings could be useful for building knowledge about urban agriculture as a multifunctional activity in line with Duchemin et al. (2008) and Tornaghi's (2017) arguments to acknowledge the role community plays in localised food systems, especially in disadvantaged urban neighbourhoods.

The two very contrary case studies also provide a foundation for understanding concepts of local and community food systems and their benefits (Altieri, 2012; Andree et al., 2017; Lemke and Delormier, 2017; Kneafsey et al., 2012). The differences between the case studies have ultimately led to a deepening of the question of urban agriculture's role in the food system, and which systems interact

here. The FAO's HLPE (High Level Panel of Experts on Food Security and Nutrition) framework (see introduction p. 6) on food systems shows not only the complexity of the interacting systems, but also the interdependencies between them (HLPE, 2020). These food system connections or non-connections within the different support systems determine the landscape for urban agriculture through external drivers, such as economic, environmental, or political drivers, or the ecosystems, energy-systems, food supply chains, and diet behaviours that impact how and which food is grown and consumed. Practically speaking, in Cape Town, for example, the absence of transport facilities was mentioned by farmers as a major challenge, which also shows how a lack of infrastructure and capital in urban spaces can negatively impact food flows. This is particularly apparent in urban farmers' tremendous challenge in establishing local market channels that supply their neighbouring community. In Maputo, on the other hand, one of the main challenges is the uncontrolled use of pesticides and mineral fertilisers, which shows that the support system, namely the governmental extension service, is pushing for an abundant harvest and fast growth of the produce, to the detriment of soil fertility and plant health. The externalised costs for this, and also for human health, are not included in the government's approach to intensification of fast-growing varieties to meet market demand and maintain informal jobs for tens of thousands of farmers and traders.

Food, and the growing of food can be regarded from different, multifunctional perspectives (Poulain, 2013). When seeking to understand food through a value chain approach, food is seen as a linear item that is produced, retailed, processed, consumed, and wasted. When exploring people and context, food becomes identity and collective culture. This research is inspired considerably by food justice scholars and motivated by a wish to understand the relationships between food and social justice questions.

The guiding theory of food justice has, so far, been applied mainly in the North as seen in Heynen (2006), Gottlieb and Joshi (2010), Alkon and Ageyman (2011), Alkon (2012), Sbicca (2012), McClintock (2014), Dowler (2014), Blay-Palmer and Knezevic (2015), and Herman and Goodman (2018). Using the theory of food justice was exceedingly useful in the two research sites. The theory looks at certain aspects that influence food and the food system. One aspect is trauma and inequity, which seeks to understand what role race, class, and gender play within the local context (Cadieux & Slocum, 2015). By applying this lens to the contexts in Mozambique's Maputo and South Africa's Cape Town, the aspect of intersectionality as a crucial component became a central focus, particularly in the South African case. Therefore, I suggest expansion of the food justice framework and inclusion of the component of intersectionality. It was here where, among the mentioned discriminatory factors like ethnicity, class, and gender, additional aspects come into play and raise very important questions about the right to land (Kepe & Hall, 2018) and spatial segregation in urban areas (Strauss, 2019; van Rooyen & Lemanski, 2020). These influences are highlighted by the lens of food justice theory and this research

focussed on two central components discovered under the lens: the aspect of place and the understanding of power.

Urban agriculture is a place-based strategy supporting the growth of social capital and partly attempts to address food injustice, requiring a deeper understanding of the historical context of its actors, as well as racial and social politics (Santo et al., 2016) and the right to city (Purcell & Tyman, 2015). Because of this, Horst et al. (2017) caution that urban agriculture could amplify and entrench social inequalities by favouring more affluent population groups who compete for rare urban housing space. This could exclude and further marginalise disadvantaged households even if indirectly and unintentionally. It is, therefore, vital to address these concerns, especially where urban agriculture is claimed to promote justice within food systems such as in Cape Town.

It is also important to see food not only as an agricultural production product, but as a product that links the economic, social, and cultural contexts. While exploring and consolidating food justice as the central theory for this thesis, it was important to distinguish the food justice lens from the food sovereignty evaluation. Food sovereignty has a high value and a powerful network, especially in South Africa, with a strong focus on land rights, production, and rural areas. Networking—like that which takes place through La Via Campesina and agroecology movements—is strong in Mozambique, although not as strong as in South Africa.

7.2 From ‘the researched’ to co-researchers

This research adopts a participatory co-research approach, building on Lewin’s (1946) real-life lab, which paved the way later action research by Reason and Bradbury (2008), Kindon et al. (2007), and Wakeford and Sanchez Rodriguez (2018). Chambers (1989), who was among the early developers of this approach, actively included small-scale farmers in research. The concept links back to Paulo Freire’s (1970) reflections on learning processes and problem-posing methods of oppressed and marginalised groups. Co-research includes actors who are typically excluded from an active part within research processes (Pingault et al., 2020), and is a process of learning in, from, and together with communities. It calls for change and the democratisation of the knowledge process (Pimbert, 2018).

Co-research uses discussion and mutual listening as central methods to foster mutual knowledge creation and encourage change. Maughan et al. (2008) express the concern that research tends to create more questions than answering the one posed, but that this can be a starting point for reflection. From a food justice research perspective, the work of Cadieux and Slocum (2015) inspires the co-research methodology. They state that we should “work with” instead of merely “report on” marginalised communities and, while acknowledging our White privileges, the research should be “guided by a feminist, antiracist, and anti-colonial commitment” (ibid, 2015, p. 2). To avoid these becoming merely buzzwords, iterative introspection is imperative to critically reflect on everyone’s role within the

research (Lemke & Claey's, 2020). In my three-year involvement with co-research, I prioritised and emphatically communicated my role as an academically connected researcher as one of a process facilitator, not as a driving force. It is essential that co-research places the process in the foreground over the results of the research. This research has shown that an inclusive approach fosters agency of “the researched” and leads to a democratisation process within a very hierarchical academic world.

The idea of co-research helps fulfil a certain need to challenge the structures of existing research in an elite academic environment (Anderson, 2020). This requires academics to critically reflect on the groups we are working with so that a central question is: with whom do we do research? And do we reach everyone with these activities (Lemke & Claey's, 2020)? When working with marginalised communities, it is very likely that only the most outspoken persons of these communities participate and they may not represent everyone. Some disadvantaged groups might be without a voice entirely: the elderly, youth, migrants, or people with disabilities. Co-research can potentially address this by bringing intersectionality to its centre and enabling an intersectional understanding of food-related issues. There is huge potential to make use of and scale research results on different levels: scaling-up to decisionmakers and the wider academic public, scaling-out to communities, and scaling-deep to foster a behavioural change (Nicol, 2020).

7.2 Research outlook

It is necessary to look beyond the horizon of the two examined research sites. As previously stated, comparisons of urban agriculture in the two dissimilar cities are not possible; however, a comparison with similar settings would be interesting and insightful. Maputo, with its large production areas, could be compared with similar farming areas, for example in Accra or Abidjan, where urban farmers are also organised in similar structures. A comparison of Capetonian urban farmers with urban farmers in Nairobi's slum, Kibera, would certainly be fruitful. In Johannesburg, urban farmers are also organised in independent market structures, which could offer an in-country comparative case study. In any case, it is important to look at the larger context and always understand how urban agriculture is imbedded in the food system.

I recommend the continuation of the contextualisation and development of food justice theory by examining cases from the South and by adding an intersectional lens. Food justice is a relatively established field of interest in the North and holds huge potential to expose food dynamics, politics, and patterns of inequality in the South. Future research should build on the work on women in agriculture and feminism in food as done by scholars like Lemke and Bellows (2016), Cock (2016), and Slater (2010). There is great potential to include an intersectional analysis as per Williams-Forson and Wilkerson (2011) within that by using food justice as a lens. The intersectionality in food-related topics is rarely discussed in the South. It is crucial to understand what happens at the intersection of places,

too, of lived experiences and of systems of oppression and exclusion. This means we must also acknowledge the blindness one might have to historical patterns of oppression. To do so, we need to politicise food and expand our view beyond its function as a simple linear value chain and explore how food operates at the intersections and within systemic components.

Another significant area to focus research is the replicability of co-research. The most intense benefits of co-research in my work only happened in the Cape Town where I spent a longer period time in the field. Because of time limitations, a co-research was not possible for my work in Maputo; however, my observation is that the co-research approach applied in Cape Town yielded higher quality results and allowed lived experiences and alternative viewpoints to be captured. To put the co-research approach to test and see if it consistently returns high quality results as it did in Cape Town, it should be employed in other places or another small-scale contest, perhaps with fisher folk or indigenous communities.

It is important to consider the contextualisation of co-research and elaboration on the methodology as important parts of the discourse on democratisation of the academic world. Further research in other case study areas could deepen these questions and create a collection of interlinked co-research projects. South-South exchanges should encourage meaningful learning and provide greater inspiration for a co-research agenda.

8. Conclusion and recommendations

Two closing workshops were conducted with urban farmers in each city and participants agreed this study produced a deeper understanding of two intriguing and unique urban agriculture sites. A commonality recognised by workshop participants is that urban agriculture cannot be regarded without understanding the systems, intersections, and actors' networks that shape and influence farming in cities. Policy support in both cities addressed different aspects of urban agriculture. In Maputo, policy support served to keep registers of farmers and to facilitate land access processes. The city council encourages agroecological production and supports sustainable growing techniques by developing market channels, conducting campaigns in the neighbourhood for locally grown produce, and championing supportive infrastructure such as a community farmers markets. In Cape Town, policy support was limited to the provision of subsidised farm inputs to urban farmers. The governance system lacks political will, not only to holistically understand urban agriculture within the city's food system, but also to strengthen urban agriculture's contributions to social cohesion, education, and community wellbeing. To realise urban agriculture's potential, decisionmakers in the municipal and provincial government must acknowledge and address the challenges and make efforts to amplify its advantages. Policies must be responsive to stresses – such as climate change, urbanisation, and obsolescence of urban farmers and be a part of a long-term food system strategy. While the larger UFISAMO project published recommendations in lengthy documents aimed at different actors (Engel et al., 2019), this conclusion pinpoints two central recommendations per city as follows.

1. In Cape Town, the central challenge for urban farmers lies in the obvious contradiction of the setting. Marginalised people, often food insecure themselves, grow vegetables in probably some of the poorest soils in the whole city, surrounded by highly food-insecure communities who lack access to nutritious and fresh food. However, their products are sold outside their communities to a middle-upper class via intermediaries. Although some individual farmers earn a reasonable income in this way, there is no economic benefit for the wider community of urban farmers. Worse still, the food grown in these urban gardens is shipped out of the community, leaving the marginalised and food insecure members of that same community without access to those foods. Urban farmers have appealed for government support to create local markets; however, local market establishment requires input and cooperation from three actors as described below.

First, they need policy actors who are willing to provide support for infrastructure, transportation, and security systems to allow produce to be retailed in the township communities. A supportive environment may involve job creation in transportation, processing, and packaging. An initial step could be the decentralisation of school feeding programmes to allow links between the food gardens on the school ground with the schools. Although the gardens would not be able to fully supply the school feeding system, they could supplement it while strengthening urban garden's visibility as a source of food for students, teachers, and parents. The concept of short and direct value chains has been successfully proven within community-led structures by bridging food gardens and community soup kitchens during the COVID-19 pandemic. Second, it requires Cape Town's supporting environment, the civil society, NGOs, CBOs, and other stakeholders to expand their programmes from production-focussed workshops to skills training around financial literacy (which was done for a small group in 2020), administration, and simple business skills that uplift urban farmers to agripreneurs. Thirdly, a mind-shift is required by urban farmers who, according to the findings, prefer to sell to their communities, but lack time, motivation, or capacity to approach neighbours to offer their produce and, of essential importance, lack trust in fellow farmers, preventing them from establishing collective farmer-owned systems.

2. My next central recommendation builds upon this last point and addresses the organisation of urban farmers in Cape Town. The farmers who took part in the research study mentioned being affiliated with NGOs, but not with farmer organisations. The foundation of a farmer-owned body is long overdue and may be a way forward toward independence. This farmers body should represent urban farmers and, amongst other member-defined tasks, serve as a community and government liaison point for pro-farmer programming such as, for instance, policy lobbying, collective marketing, collective purchasing of inputs, or seed saving. To guarantee the success of an independent representative body, urban farmers need to understand why previous attempts to form associations (such as a farmer organisation called VUFA) failed and develop trust in each other. This, of course, is easier said than

done, and requires active facilitation to urge members to continue to meet, speak, and learn from each other.

3. While Cape Town lacks urban agriculture organisations, Maputo boasts a sophisticated system of urban farmer organisations and sub-organisations. However, Maputo's farmers are quick to critique the system as weighed down by its hierarchical, over-organised, and micro-managed nature. Further, they expressed that the system favours individual chiefs who hold leadership positions within associations. A re-organisation of those associations was called for by younger farmers who see potential in urban agriculture, but perceive the current structures as a hampering innovation and shifts in cultivation methods. Their call for change focuses on decentralising decision-making processes, emphasising transparency in communication structures, and establishing a horizontal system of knowledge transfer so that information, new knowledge, and innovation reaches all farmers.

4. While scholars romanticize agroecology, it is not a panacea to quickly achieve sustainable agriculture, however; it does provide many long-term benefits to the farmer and in environmental services. Agroecology as a set of production techniques was introduced in Maputo through the French organisation ESSOR from 2010-2016 targeting 1,000 farmers. Of those trained, only dozens still use the new agroecological techniques compared to the vast majority of their peers who did not apply the course learnings and do not enjoy the same great success in terms of biodiversity and pest control. It is therefore important to understand exactly why only few farmers take it up (presumably because they require more time, resources, and labour), how those constraints can be addressed, and what enabling environment is needed to scaffold its scaling. To do so, the established association needs to support training and programmes but in a first step, they need to understand which agroecological practices succeeded, which ones did not, and which are promising but require further exploration through information and trainings. To tackle these issues around poor uptake of agroecology, I suggest conducting a multi-fold co-research that seeks to understand farmers' fear or scepticism of change by understanding what it means to be an emerging farmer in a war-torn country. As a second step, the co-research could follow the approach of climate field labs (Rostini et al. 2020). By doing so, urban farmers use field schools to experiment with new techniques, learn from one another, and observe the success on demonstration plots. This has the advantage that farmers do not need to provide the land they need to use for generating income to trial with new techniques. Supporting organisations such as NGOs—for example, ABIODES, Kosmoz, Africarte, La Via Campesina, the National Union of Mozambican Peasants (UNAC)—as well as research institutions, government extension services, and the many Agricultural Technical Vocational Education and Training (ATVET) providers could augment the discussions. From the demand side, the City Council should continue their consumer awareness programmes (especially pertaining to pesticide use) and scale them to increase market-reach.

5. My fifth recommendation does not address decisionmakers in the two cities; rather, I wish to share this recommendation for those who are planning research projects.

I shifted the perspective of my research by actively involving communities in the research process. This enabled a deeper understanding and unforeseen results. It also provided new knowledge to the field of research on urban agriculture and generated new perspectives on food justice. This co-research process is more important than results; the process has given participating co-researchers an important sense of group cohesion in addition to knowledge creation, deeper understanding, and new perspectives. An interesting question would be if the co-research process can debunk privilege in the same way that marginalised groups unpacked their vulnerabilities. When research projects involve marginalised communities, be they small-scale farmers or fisher folk, women, youth, elderly, or indigenous groups, an agreement with “the researched” on the objectives of the research should be a guiding principle of good scientific practice. Involving groups in the research process (not solely for data collection) and the results scaling strategy can enable longevity of findings. The sharing back of research findings and the acknowledgement of contributions should be a matter of course, but is sadly lacking in many research projects. In the long run, promotion of co-research in science requires a change in the research funding landscape since short project periods make it difficult to establish long-term and trusting partnerships with co-researchers. This can complicate research in the global South where sufficiently funded projects are already rare.

The research has contributed a food justice perspective in urban agriculture. At first sight, the researched urban agricultural sites did not look like spaces of social inequality, but seemed to be solutions for cities facing contemporary challenges. At second glance, systemic challenges became obvious as the food justice lens converted urban agriculture into a means to talk about tensions and identify structural inequalities. Urban farming cannot be the silver bullet solution to global hunger problems if we leave this activity to those who are traditionally marginalised, most threatened by hunger, and at the edge of food insecurity, especially without providing fair pricing and an enabling environment that fosters systemic change.

It is important to put food as a topic on our tables and address the crucial aspect that food and food security is not a private topic, rather a political and societal one. Therefore, it is of utmost importance to keep those in dialogues who play an active role in local food systems. Hence, an equally or even more important contribution of this dissertation, including for those involved with the research, was the implementation of the co-research approach and the methodological development of the concept. Through its inclusivity and innovative perspective on marginalised communities, co-research became a more radical form of participatory action research. In turn, this commitment resulted in a process that strived not only for the generation of new knowledge but also fosters the call for democratisation of knowledge in the academic world.

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I. Author's declaration

I hereby declare that this doctoral thesis is a result of my personal work and that no other than the indicated aids have been used for its completion. All quotations and statements that have been used are indicated. Furthermore, I assure that the work has not been used, neither completely nor in parts, for achieving any other academic degree.

A handwritten signature in blue ink that reads "Nicole Paganini". The signature is written in a cursive style with a large, stylized 'P'.

Nicole Maria Paganini
Berlin, 11.12.2020

