Mapping the Edible City: An introduction

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Urban food mapping tackles a diverse range of food-focused data related to specific urban situations that makes visible issues about the feeding of cities or proposes solutions for their inclusive and sustainable development.

With this publication, we wish to initiate the definition of urban food mapping as a distinct activity and area of research that enables new ways of approaching the multiple issues facing contemporary urbanism. In *Second Nature Urban Agriculture*, Kevin Morgan writes, "*feeding the city in a sustainable fashion – that is to say in a manner that is economically efficient, socially just and ecologically sound – is one of the quintessential challenges of the 21st century*" (Morgan, 2014, p. 18). Our book seeks to contribute to this challenge by making visible – through maps and mapping – the many stakeholders, sites, activities, networks and products that are (or could be) part of the process where food is provided in sufficient quantity and quality as a contributor to the wellbeing of all.

Urban food mapping as a distinct activity and area of research

With global cities becoming so vast and entangled we agree that "*the map may be the only medium through which contemporary urbanism can achieve any sort of visual coherence*" and that "*the goal of rendering legible the complex, dynamic and living entity that is a city remains an urgent one*" (Cosgrove, 2008, p. 182). Moreover, we argue that there is a specific need regarding the mapping of urban food, because it remains underrepresented within general cartography as well as within food studies and within urban development, or it is dispersed throughout other related research and remains unseen. Therefore, the urban food discourse – from production to harvesting, distribution, processing, consumption and disposal – provides a rich arena in which to urgently apply mapping as a tool to communicate, enabling a more nuanced way of understanding our increasingly complex urban spaces and the lives lived within them.

Developing urban food mapping as a distinct area of urban practice and research will help to articulate a more tangible approach to urban planning and design that also allows a "way in" for many practitioners, communities and individuals that would otherwise be excluded in what is traditionally a tightly regulated professional realm. This urban food mapping practice connects disciplines ranging from anthropology to urban design to urban planning and architecture, from geography to fine art, from social science to food cultures, from community studies to agronomy and economy and beyond. It brings together activists, planners, artists, researchers, residents, farmers and gardeners, cooks and food sellers, local administrators, politicians, community practitioners and many more who are all involved in the vital work around food security, land rights and witnessing the everyday pleasures and threats of the urban food environment.

The urgency in providing such equitable discussion on food and cities has become acutely evident and increasingly unavoidable: it is critical for any urban development given the multiple global crises facing humanity and the environment. With most humans now living in cities consuming food produced way beyond

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their hinterland and assisted by resource-intensive technologies and economic models, the understanding of food-focused sustainable urban development has never been more important. For example, the alarming depletion of phosphorus as a finite resource essential for agriculture or the diminishing of drinking water quantity (IPCC, 2018) bear witness that "*a greater understanding is . . . needed of the lived reality of a modern city's ability to sustainably and equitably feed itself in a crisis situation or otherwise*" (Jensen and Orfila, 2021, p. 551). The negative environmental impact already associated with industrial, large-scale food production since the 1970s (Viljoen, 2005) has become somewhat "traditional" and "harmless" in comparison to the current realities of intensifying resource scarcities, accelerating climate change (Rockström *et al*., 2020) and the so far unknown pressures on food security caused by a worldwide pandemic (Garnett *et al*., 2020; Sridhar *et al*., 2022).

In engaging to this discourse, we are encouraging food mappers to slip behind the cartographic lines and disrupt the univocal map as an impartial image, unsettle the cartographic party and expose the dynamic between mapping space and having control over space. Now is a time to play, to dream, to bring biographies and reclaim spatial imagery so that alliances between multiple stakeholders can contribute to design, planning and implementing spatially bound food systems for all. As many have proclaimed: "The map is dead! Long live the map!"

The importance of the word "urban"

"Food" is the central focus of this volume. All chapters explore space and those inhabiting it through that one lens: food's productions, consumptions, distributions, its cultures, histories, landscapes and stories. The practice of exploration is "mapping". It describes the actions of people in the urban landscape engaging in "making visible the Edible City" through a range of activities from photography to hand-drawn images to descriptive writing, computer-generated maps and many more using mapping methods long established in cartography, such as line drawing, or using technologies, such as GIS, online platforms and various forms of social media, which more recently enabled new paths for innovative food map making.

During our research, we came across a vast array of mappings about food. They range from the origins and distribution of exotic products (Millstone and Lang, 2008) to the amount of hops needed for beer (Jensen and Roy, 2013) to food miles that add up when shipping products around the world (Paxton, 1994), to name but a few examples. The resulting maps are incredibly important to raise awareness of those food issues that contribute to the environmental and social urgencies described earlier. However, they are not necessarily *urban* food maps in the sense that we would like to discuss here. In this book's context of pressing issues around food, the benefit of semantics is in the word "urban".

We contend that *urban* food mapping is not identical with food mapping and that the former is a segment of the latter. The word "urban" grounds food mapping in an urban discourse. It highlights that its protagonists are not only interested in food *per se* – which is already complex and fascinating – but also in the interrelationships between food and urbanity. *Urban* food mapping studies the effects and demands of feeding people on the urban – especially on urban space – and it does so for small and large populations, for different geographical, political, socio-economic and environmental contexts, for vegetarian and omnivore diets. For example, an evening meal is an urban as well as spatial concern, requiring consumers to picture their shopping geographically from food production to food waste. Equally, a restaurant or street market has an environmental footprint related to food production, processing, trading, consuming or recycling, at various scales and in various locations. In short, mapping urban food also means to map urban space and those who inhabit it.

Strategically, concepts such as "urban metabolism", "productive urban landscapes" or "the edible city" already use mapping to bring together the many capacities involved in urban food systems. In the 21st century, urbanisation and the concomitant food system is everyone's concern, and as Viljoen and Bohn wrote nearly 10 years ago, "*the future of a city lies in the way its people are being fed. And the future of a desirable city lies in the way its urban space provides for food*" (Bohn and Viljoen, 2014a, p. 5).

Who maps, why maps?

In their introductory chapter to *ATLAS: Geography, Architecture and Change in an Interdependent World*, Smith *et al*. state that "*the challenge faced by architects, geographers, and researchers and practitioners in related fields [is] to respond in concrete forms and shapes to the demands of a dynamic planet and globally interdependent economy*" (Smith *et al*., 2012, p. 5). Such "*concrete forms and shapes*" are the outcomes of processes traditionally led by design professionals, just as mapping was. Yet, this division of labour has drastically changed during recent years. Participatory and co-design processes are responding to the desire of citizens to take part in urban design and planning decisions as well as to the municipal recognition that involving neighbours in "making" their neighbourhood is the best, if not only, approach to create loved and lasting places (Antony, 2014).

In responding to this, maps have emerged as a key visual tool in the initiation, conduction and presentation of food-focused urban development processes, across all involved stakeholder groups. Often, stakeholders combine diverse map-making methods moving from the simple idea of a map to the concept of mapping as an ongoing, multi-disciplinary practice. Through maps and co-led mapping processes, the transformative power of urban design and planning becomes accessible for many, with design fulfilling one of its roles: "*to invent strategies for visualizing information that makes new interpretations possible*" (Abrams and Hall, 2006, p. 12). If utilised like this in urban planning and design, "*maps [can] structure [...] our knowledge of the landscape, affecting our perception of what is important, the relative sizes and relationships between objects and spaces and where it is possible or safe to travel*" (Firth, 2015) – keeping in mind that the destination of travel, in a metaphorical sense, is a more equitable, sound and experienceable "edible city".

Consequently, urban food mapping must embrace a multiplicity of writing and image-creation to make visible the lived experience of urban space in relation to food. In our research, we identified an expansive visual approach, applying professional and traditional cartographies to the food subject as well as "amateurism" as a radical practice that includes "*the arts of speaking, inhabiting, cooking and so on*" (Highmore, 2006, p. 157). Urban food mapping often leans towards the map as art where boundaries are blurred and transgressed between maps as objective communication and other responses, such as collaging, walking or photography. "*In pointing towards the existence of other worlds – real or imagined – map artists are claiming the power of the map to achieve ends other than the social reproduction of the status quo . . . what is at stake is the nature of the world we want to live in*" (Wood, 2006, p. 10). In this world, food is an everyday matter accepting a wide variety of opinions ranging from a single resident to large government organisations. In the UK, for example, food is defined as a "critical national infrastructure", one of "*those facilities, systems, sites, information, people, networks and processes necessary for a country to function and upon which daily life depends*" (CPNI, 2019). On the other hand, the everyday matter of food is intimate, such as the feeding of a child or the price of pasta, and only noticed when disrupted, for example by crisis or sudden change.

Food clearly emerges as too fundamental, ephemeral or subjective to be controlled by a

single professional discourse alone. This does not come as a surprise given the multitude of actions and stakeholders engaged and intertwined with the urban food system. And it is not all problems, as evidenced by many of the maps in this volume which are celebratory of either food products, cultures or the potential to recreate urban space. It just is, as George Orwell commented already in 1937, "*curious how seldom the all-importance of food is recognized. You see statues everywhere to politicians, poets, bishops, but none to cooks or bacon-curers or market-gardeners*" (Orwell, 2021, p. 62).

A word on urban agriculture

Within the urban food-mapping discourse, mapping urban food production occupies a special position for us, the book editors, who have made urban agriculture a focus of study and practice for many years. Over the last two decades, urban agriculture has emerged as a key spatial practice for resilient urbanism with now wide-ranging aims. Urban agriculture was defined in 1996 as

> *an industry that produces and markets food and fuel, largely in response to the daily demand of consumers within a town, city, or metropolis; on land and water dispersed throughout the urban and peri-urban metropolis. Applying intensive production methods, using, and reusing natural resources and urban waste, to yield a diversity of crops and livestock.*
>
> (Smit *et al.*, 1996, p. 11)

To this definition, Perez-Vazquez included "*the non-material social needs such as relaxation, exercise, health, leisure and well being*" (Perez-Vazquez, 2002), whilst Taylor Lovell added urban agriculture's "*ecological functions (e.g., biodiversity, nutrient cycling, and micro-climate control) and cultural functions (e.g., recreation, cultural heritage, and visual quality)*" (Taylor Lovell, 2010, p. 2501).

Touching upon all these qualities and functions, Bohn&Viljoen Architects formulated *Continuous Productive Urban Landscapes (CPUL)* in the early 2000s, an urban design concept embedding urban agriculture within the urban fabric by defining *CPULs* as "*essential elements of sustainable urban infrastructure*" (Viljoen, 2005, pp. 266–268), which they first mapped and then planned alongside other urban systems, such as transport networks, water or energy supplies. Planning and designing for urban agriculture are also linked to concepts of "spatial sovereignty", which stresses the need to participate in or have autonomy over urban space (Tomkins *et al.*, 2019, p. 105). This is a physical, creative and visual demand that can be mapped as a prerequisite for food security and therefore food sovereignty.

When considered as part of urban food mapping, urban agriculture encompasses a wide spectrum including tradition, aesthetics, ecology, cultural connection or politics, and, as an urban design tool, makes multiple spatial issues visible when being mapped. The fact that urban agriculture can pivot easily across such manifold boundaries demonstrates how it has become an all-important concept for the interrogation, design and implementation of sustainable urban space. And given that food needs spaces and spaces need to be mapped in order to be planned and later used, urban food mapping has emerged as an indispensable tool to identify and advance the argument that urban food production and urban space can beneficially coexist.

The harmonising of urban space with food production is implicit in the call for a more "*sensual, qualitative measure for the spatial success of open urban space*" made by Bohn&Viljoen (Bohn and Viljoen, 2005, p. 110). To achieve such "spatial success" demands a sensual cartography, one that encompasses the social, political, environmental and emotional too, one that includes the human and non-human when mapping and quantifying physical sites. The aim is to reduce conflict through visualisations so that urban agriculture becomes inherent in urban spatial design. Visualisations, particularly those that are spatial, as most urban

food mappings are, aid our acceptance of what might happen, so that urban agriculture can be explained and accepted over the normalised parameters of "traditional" planning codes that have too often protected the economic status quo. As Caquard pointed out, "*mapping the world is as much about mapping reality as it is about mapping fiction*" (Caquard, 2013). Fiction is therefore powerful, and it has a touch of surrealism to imagine a large sign hanging over the edge of a multistorey car park announcing, "*ceci n'est pas un car park*" because it is now a rooftop farm or a compost and worm farm or a beehive or all of these.

The Urban Food Mapping Matrix

To capture the breadth, divergence and multi-coded practices of urban food maps systematically, we have visualised them in what we call the *Urban Food Mapping Matrix* (Bohn and Edwards, 2020). As a drawing, this matrix is a map itself, a diagram clustering urban food mapping actions and outputs into three components (fig. 1). At the top of the drawing sit the five key urban food mapping **themes** that, according to our research, are usually being mapped: sites, stakeholders, activities, networks and produce (represented by coloured drop pin icons). In the centre of the matrix drawing are the four main urban food mapping **types** that we identified: purpose-based, citizen-based, place-based and time-based urban food maps (each represented by a separate colour). At the bottom, we brought together the most typical mapping **methods** embraced in urban food mapping.

This approach has contradictions, limitations and overlaps, just as any "categorisation" of thoughts and practices would have. However, "categorisation" is also a form of mapping, of bringing order into the overwhelming to make it understandable and transferable, in short: to make visible urban food maps and mapping. For example: whilst the *Urban Food Mapping Matrix* is part of the urban food mapping theory this book aims to support, it also helps us practically to structure the volume.

The five key themes in urban food mapping

According to the editors' field notes, literature and desktop research, when questioning WHAT is being mapped, urban food mappers mainly investigate the following five themes:

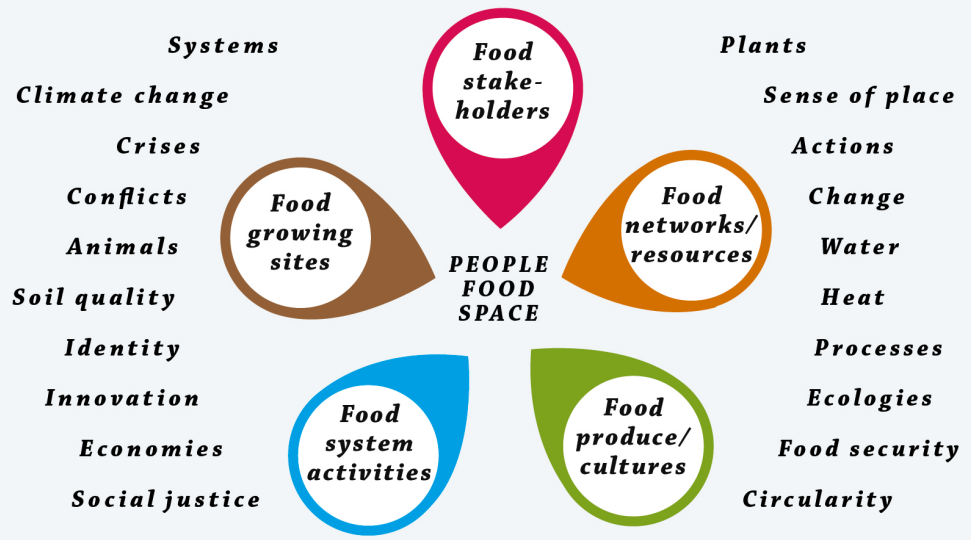
FOOD GROWING SITES
FOOD SYSTEM ACTIVITIES
FOOD STAKEHOLDERS
FOOD PRODUCE AND CULTURES
FOOD NETWORKS AND RESOURCES.

There is no order to these themes, and many maps cover several themes at once. Depending on the disciplinary background of the mapper(s), we can discern certain prevalences of themes but, as argued before, the best urban food maps are multi-coded and inclusive anyway. For example, Bohn&Viljoen pointed out that, whilst food growing sites were the main mapping focus of urban agriculture for a long time, there are other important issues – namely stakeholder, managerial and resource capacities – that need to be considered and mapped simultaneously for any successful urban food growing project (Bohn and Viljoen, 2014b, p. 159).

This book is split into five sections which correspond to the five key themes in urban food mapping as described above. Each theme is represented through five chapters by selected authors providing multidisciplinary approaches to that theme. The selection of authors is based on the conference panel *Mapping the Edible City* at the 2020 international conference *Anthropology and Geography: Dialogues Past, Present and Future* (see Preface). It is not a definitive selection but

Fig. 1: The Urban Food Mapping Matrix brings together the key food mapping themes and types that urban food maps explore. It also shows the main mapping methods used.

URBAN FOOD MAPPING THEMES



MAPPING TYPES

Purpose-based food maps

+ Connecting
+ Reimagining
+ Uncovering
+ Comparing
+ Proposing
+ Counting
+ Observing
+ Recording
+ Responding

Citizen-based food maps

+ Public institutions
+ Food initiatives
+ Private bodies
+ Urban farmers
+ Consumers
+ Local councils
+ Local communities
+ Food system activists

Place-based food maps

+ Building
+ Shop
+ Open space
+ Peri-urban
+ Estate
+ Indoor
+ City
+ Neighbourhood
+ Borough
+ Home
+ Street

Time-based food maps

+ Historical
+ Begin of UA movement (1970s)
+ Begin of industrial agriculture (1950s)
+ Present
+ Future
+ Recent past
+ Immediate event
+ Begin of 21st century
+ Near future

MAPPING METHODS

Counter-mapping
Drawing
Walking
Natural mapping
Collection
Photographing
Interviewing
Critical cartography
Table
Writing
Narrating
Collaging
Guerrilla mapping
Diagram
List
Audio recording
Opportunity mapping
Filming
Survey
Participatory mapping

Cartographic practices and products used in food mapping

exemplary of the millions of maps and mappings that we could have included. The content of some chapters in this book overlaps with several themes, where the emphasis we have currently placed is mutable. This observation confirms the complex nature of urban food mapping.

To visualise this complexity, we have "mapped" the 25 chapters of this volume in five breakout diagrams and texts at the start of each themed section. The diagrams act as a visual index of the chapters' contents and how they relate to the *Urban Food Mapping Matrix*. The purpose of the five themed sections is not to compartmentalise but to provide a moment of emphasis on a given theme. The breakout diagrams and texts can be used as a scaler, where the reader might read across a whole section or dive into individual chapters.

The four main urban food mapping types

Based on the editors' (design) research, the WHY, WHERE, WHOM and WHEN of urban food mapping result in the following four main mapping types:

Purpose-based urban food maps

Purpose-based urban food maps focus on visualising a particular concern that the mappers have in relation to food. Typical purpose-based urban food maps deal with uncovering, recording, counting, comparing and responding to food issues as well as with proposing change.

Our urban food maps are merely fragments from the countless stories we could have captured. As Rebecca Solnit writes, "*Every place is, if not infinite, then practically inexhaustible, and no quantity of maps will allow the distance to be completely traversed*" (Solnit *et al*., 2010, p. 2). However, accepting that territories could produce any number of stories and images has never deterred people or institutions or governments from making pictorial representations of a given location. As we enter an increasingly digital mapping age, multiple agencies are rushing to capture the city-map, whether commercial, institutional or governmental, yet, sometimes, with a tendency to "visually flatline" the city, to render it as a single, cohesive and somewhat sedentary landscape. By contrast, the emphasis within this book is to contribute to – and maybe disrupt – this singular discourse through creative mapping responses to urban food issues from multiple communities whose purposes are to capture the unseen: the need, the care, the emotion, the emergence, character and divergence within urban food experiences in all their variety. Such an approach is described by Highmore in relation to de Certeau as the necessity "to see the object of observation outside of the frame that has already been made for it. To let the object bite back, to de-pacify the object, what is required is a disrupted and disrupting form of attention; a derailing of observation" (Highmore, 2006, p. 7).

Stating a purpose to urban food mapping allows an escape from the concept that it is objective. Within purpose-based mapping, there is an explicit intention to use maps to create arguments, present new data – or old data in a new way – to unsettle or support a new vision which will affect the lived experience of urban space. For example, one purpose that recurs throughout this book is to challenge the assumption that cities should be and are devoid of productive urban landscapes. More than half of the chapters directly relate to and map urban agriculture, either to observe, but mostly to envision an urban food abundance, where open spaces, built form and urban life support food system activities as if there never was or could be any other mode of existence for contemporary cities. Whilst addressing various themes, these purpose-based urban food mappings bring differing stories together using mapping methods which Wood also links to the writing of Debord and the Situationists, whose fictional "*maps charted social and cultural forces that were every bit as 'real' as those charted by the planners*" (Wood, 2006, p. 10). When purpose-based urban food maps reflect on a city – real or fictional – its visibility in the form of mapping moves beyond a 2D-image to include demands and actions that encompass proposing change, reimagining, uncovering,

recording, in short: making visible the "edible city" as it is now and as it could be.

Place-based urban food maps

Place-based urban food maps focus on visualising food issues in relation to one or several distinct urban spaces. Typical place-based urban food maps deal with food in or on buildings, in open space, in a neighbourhood, borough or city and in the peri-urban realm.

All chapters in this volume are concerned with place-making and with the multiple agents, natures and designations that have formed and are forming urban space. If we look at our cities, we usually see space at the hands of the deliberate, the conceived. Yet, overlaying this physical space of brick – or soil – lies the visceral experience of urban inhabitants that marks their lives in the city. Place is therefore physical but also biographical, historical, under-recorded and ephemeral, and it is both qualities that urban food mapping aims to capture. Not only the seemingly static space of architecture or urban design – as shown in static, apolitical maps – but also the urban food landscapes of lives lived: the daily meal's table, a walk to the shops, or generating a social space on an urban farm crowded with possibility.

Whilst place-based urban food maps still focus on physical spaces in the city, such as neighbourhood, street, building or the peri-urban, we would like those spaces to be understood as "full of places". Place-based urban food maps should not be seen as images of borderlines marked by a series of dots on a map or an empty street, building or park. Seeing space as an arrangement of volumes or borderlines alone obscures daily lives behind cartographic iconography and could over-emphasise place as enduring and resistant, a two-dimensional façade. Consequently, we highlight place as enacted – brought alive by the human and non-human – where food is the connective agent. This invests our definition of place-based urban food maps with integrity: residents are literally "drawn" into maps and mapping processes because this unites locations with their sensory interactions aiming towards food sovereignty and spatial sovereignty.

Place is always overlayed with time, purpose and citizens; it is never neutral but always already occupied, even in absence. This is how we deliberately visualise it in the *Urban Food Mapping Matrix* diagram. The four urban food mapping types in the centre of the diagram emphasise the connections of place-based urban food maps with those that use the place, in the times when it is being used and by considering the purpose of mapping that use. To put it another way: one cannot have access to food unless one first has space and rights over that space. Rights over space are connected to place-making and, at the same time, to mapping that place.

Time-based urban food maps

Time-based urban food maps focus on visualising food aspects over time and in relation to processes. Typical time-based urban food maps deal with urban food issues of the recent past, the present and the near future. They range from historical maps to those imagining a future far away.

Acknowledging time within mapping is important; when you mix time with space you get narratives, imagination and memories. Allowing a focus on processes, time-based food maps disrupt the notion of space as static or predicable, so that any subsequent consideration of space is already activated by social concerns (Till, 2013). And where better to start than food? Without food, as is often stated, we are "*nine meals from anarchy*" (Simms, 2022). But if a lack of food brings immediate chaos, then food itself brings a social glue to millions of humans spending their time engaged in acts of growing, processing, transporting, preparing, eating and sharing meals and produce.

Within time-based urban food maps, we understand history not as an antiquated version of a map occasionally being updated. We understand history as lived, compared and part of a future fiction and action. Temporal urban food

mappings bring into focus the many absences of things that are no longer there and call into question why things are as they are. What, if the future we seek is actually the past made present? For example, if only we knew that right here, in this street, liquorice was grown, that there were cattle and that the smell of manure hung heavy in the air. Street names, squares and spaces are redolent with all sorts of food system activities, yet constantly are erased by the intensive food consumption that now occupies every urban corner. The task with time-based mapping is not a return or U-turn, but to gain ability of how we might leverage historical data and memory for a present in which there is greater equity and pleasure between foodscapes, urbanity, nature and people.

Kitchin and Dodge bring further distinction to a discussion on time with the idea that maps are processual, arguing that "*maps are never fully formed, and their work is never complete. Maps are of-the-moment, beckoned into being through practices; they are always mapping. From this perspective maps are fleeting, contingent, relational and context dependent*" (Kitchin and Dodge, 2007, p. 331). The idea of "always mapping" urban food emphasises the moment of reading and the actions it creates, such as walking and talking with people, or provokes thoughts about alternatives, rather than the assumption of an objective pictural knowledge. While an urban food map is a frame that bounds urban landscape, it is also a practice in the sense of being enacted by people in time and space, often foregrounding the user as author. Therefore, urban food maps do not pretend to be definitive, exhaustive of the data and stories available from within them but represent one moment from multiple others, within a given food-space-time nexus created by and often for a specific group of stakeholders.

Citizen-based urban food maps

Citizen-based urban food maps focus on visualising food issues in relation to people in the city. Typical citizen-based urban food maps depict urban farmers, food system activists and initiatives, consumers and local communities as well as public institutions.

At first sight, this type of urban food map seems to duplicate the theme *Food stakeholders*. Whilst the differences between the two are subtle indeed, we feel it is well justified to focus attention on this subject area more than once. After all, people and their actions, desires, needs and cultures, are what urban food mapping makes visible, and it is their well-being, equity and life quality that are at the centre of this book.

In our systematic, "food stakeholders" describes those humans (and non-humans) who are actively engaged in and affected by the urban food system. By contrast, "citizens" are all people in the city, including those who have no active roles in the urban food system. Here we also locate recognisable groups of people, such as public institutions or the local council which may appear in urban food mapping without being active food stakeholders. Food stakeholders are therefore a sub-group of all citizens, whereby, according to our research, it is indeed the case that they are the most mapped people in urban food mapping. Citizen-based urban food maps emphasise the importance of a holistic, inclusive approach to urban food issues where the effects of food-related urban realities and future decisions are carefully mapped across all members of society.

Additionally, it is probably no coincidence that our interest in citizen-based approaches follows a general transition where cartography has been split open as a discipline and made more accessible to a wider user group by technological advancement and opportunities, for example, widespread access to computers, the internet and social-media-based or open-source mapping software, such as *Open Street Map*. Beyond the technological, there is also an interest from spatial designers and institutions themselves to empower people by placing them on the map. Dalia Varanka discusses such advances as "*natural mapping*", a practice that

"*creates personal images of places, movement, and landmarks that are highly invested with meaning*" (Varanka, 2006, p. 16). And finally, by using the word "mapping" in the book's title, we also emphasise the action of map making, asking not only who (and what, when and why) is being mapped but also who is creating the maps and who is the user.

Urban food mapping methods

This book applies a wide-ranging curatorial approach to the emerging urban food mapping discourse. Pulling in about 200 example maps and mappings in its 25 selected chapters, it showcases and transcends disciplinary boundaries, bringing together visual and textual concepts as well as practical experiences. Many of its authors exercise urban food mapping through multiple media and in several directions at once: a hand-drawn map, a GIS-generated map, a photograph, a walk, a digital diagram, a table – all sit side-by-side. Focusing on food, this volume confirms that, enabled by new technologies and a variety of mapping and especially visualisation methods, maps are no longer singular or reductive but instead are being transformed to make visible and to empower by engaging different perspectives, subjects and tempos.

Whilst urban food maps are still primarily made as drawings – as diverse as those may be – there are also numerous examples of maps being generated using photographing, filming, writing, narrating, audio recording, surveying, walking, collecting, listing and diagrammatising – or any combinations or collages of those – to name but the main urban food mapping methods that we encountered during our research. We have therefore chosen an expansive interpretation of cartography, one that bursts the parameters of a singular scientific discipline, one where urban food mappers have become free to reminisce, wander, imagine, discuss and accept the temporality of their existence and therefore their maps. Understanding urban food mappers as members of a vast heterogenous community of citizens interested in food issues, we contend that the act of urban food map making is "omni-methodical".

This approach does not seek to disregard the scientific or academic but draws it into a relationship with the multiple makers of urban food maps and the methods they apply. It places great emphasis on who is being mapped, and why, giving prominence to people and communities, histories and visions. These mappings are not static actions and the resulting maps therefore not static objects but ones that emphasise the processes of use rather than the object in hand. To achieve such aims, key mapping methods applied in urban food mapping include counter-mapping, critical cartography, guerrilla mapping, opportunity mapping, participatory mapping, ethnocartography, eco-mapping, art mapping, indigenous mapping and natural mapping.

Using the urban food mapping matrix

Our endeavour to put urban food mapping in the spotlight as a distinct activity and area of research has four tangible outputs: (i) a definition of what it is; (ii) the identification and definition of several urban food mapping themes and types along with the identification of their typical mapping methods; (iii) a diagram, the *Urban Food Mapping Matrix*, that visualises these findings (see fig. 1); and (iv) the start of a, hopefully growing, collection of urban food maps.

Furthermore, by defining urban food *mapping* as an area of research and practice, we hope to provide a framework that can capture (design) research and multiple image-making methods, processes and outputs that would otherwise sit adrift under "other" research and practices. Within this, the *Urban Food Mapping Matrix* can add value and focus to researchers and activists who have chosen a visual approach to spatialise an argument for creating visibility and change.

The *Urban Food Mapping Matrix* can either be consulted to (i) verify whether a map is an urban food map; or to (ii) establish and compare the character and quality of a particular map or series of maps; or to (iii) be inspired and instructed to produce new urban food maps; – or, at its simplest, to (iv) raise interest in and identify gaps and new knowledge within the complex issue of urban food.

In the five breakout diagrams and texts that precede each themed section of the book, we have shown one way of using the *Urban Food Mapping Matrix* to classify existing urban food mappings. With this, the goal of our book is reached. However, it is evident how these "mappings" of the maps can be explored and assessed further to generate insights about the nature, trends or gaps of urban food mapping. Maybe, this will become another book or conference panel or an exhibition, and we will invite readers to contribute to this discussion.

Urban food mapping: A definition

Through the mappings collected in this book, we are seeking to inspire others to create further volumes of urban food maps and to further the *Urban Food Mapping Matrix*. And whilst we discuss five mapping themes and four mapping types that, we argue, bound urban food mapping, this bounding box is mutable and others will, no doubt, suggest we move the borderline, which is how it should be.

Urban food maps can be both observational and propositional tools. They are often relational with the capacity to "make visible" flows and activities that exist within the urban food system; to show connections with related resources; to illustrate infrastructures (or lack of) with regards to food access, logistics and spaces; to record food cultures and histories; and to highlight food stakeholders and their networks.

Urban food maps have power: being named and presented gives value and offers action. Utilising this power, urban food maps can depict utopian (or dystopian) future imaginaries of what food cities could become. They develop the city map into a heterogeneous image, both in the moment but also in describing possible futures. It becomes feasible to argue that territories and maps are recursive of each other, where the physical space of the city has become so intertwined with its cartographic image that they exert an iterative power on each other. If the city and its cartographic image have indeed become co-creative, then claiming "rights to cartography" will also exert an influence on "rights to the city" and "rights to food sovereignty".

Urban food mapping enables an understanding of what is going on in a community, neighbourhood or city in terms of food. It supports independence and diversity of physical urban space through planning alternatives and therefore concomitant alternative urban food systems and urban food spaces. It also records beyond the spatial status quo to encompass the imagined, the desired, as well as the daily lived experience of space.

Urban food mapping can be used to explore and make visible any aspect of the urban food system, for any given urban site, at any given moment. Urban food maps can show local food (system) gaps and surpluses as well as local food networks thereby connecting food, urban space and residents on a visual plane. This has already proven to be a successful tool in participatory and co-design processes for many cross-sectoral urban planning issues and a prerequisite to working strategically about food in the urban realm. In short, we feel the subject of this book to be so important that we would like to conclude by offering a definition of urban food mapping as a distinct activity and area of research:

Urban food mapping tackles a diverse range of food-focused data related to specific urban situations that makes visible issues about the feeding of cities or proposes solutions for their inclusive and sustainable development.

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