Who wants to live in a potato field?

Appraising the integration of agriculture in the planning practices of peri-urban Oosterwold (NL)

Jan Eelco Jansma

Propositions

1. Agriculture-inclusive planning practices mobilise and redistribute responsibilities.
   (this thesis)

2. Conducting action research involves patience.
   (this thesis)

3. Acquiring funding is an undervalued competence in academic education.

4. Universities ensure transparency in their staff's use of generative artificial intelligence.

5. The layout of an allotment garden reveals the gardener's nature.

6. The contribution of beans to the protein transition in the Netherlands is overestimated.

Propositions belonging to the thesis, entitled

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Jan Eelco Jansma

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Thesis committee

Promotor

Prof. Dr Peter Oosterveer

Professor emeritus, Environmental Policy

Wageningen University & Research

Co-promotor

Dr Sigrid Wertheim-Heck

Associate professor, Environmental Policy Group

Wageningen University & Research

Other members

Prof. Dr Bettina Bock, Wageningen University & Research

Prof. Dr Martha Bakker, Wageningen University & Research

Dr Bálint Balázs, Environmental Social Science Research Group (ESSRG), Budapest, Hungary

Dr Rositsa Ilieva, CUNY Urban Food Institute, and CUNY Graduate School of Public Health and Health Policy, New York, USA

This research was conducted under auspices of the Graduate School Wageningen School of Social Sciences (WASS)

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Thesis

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Jan Eelco Jansma

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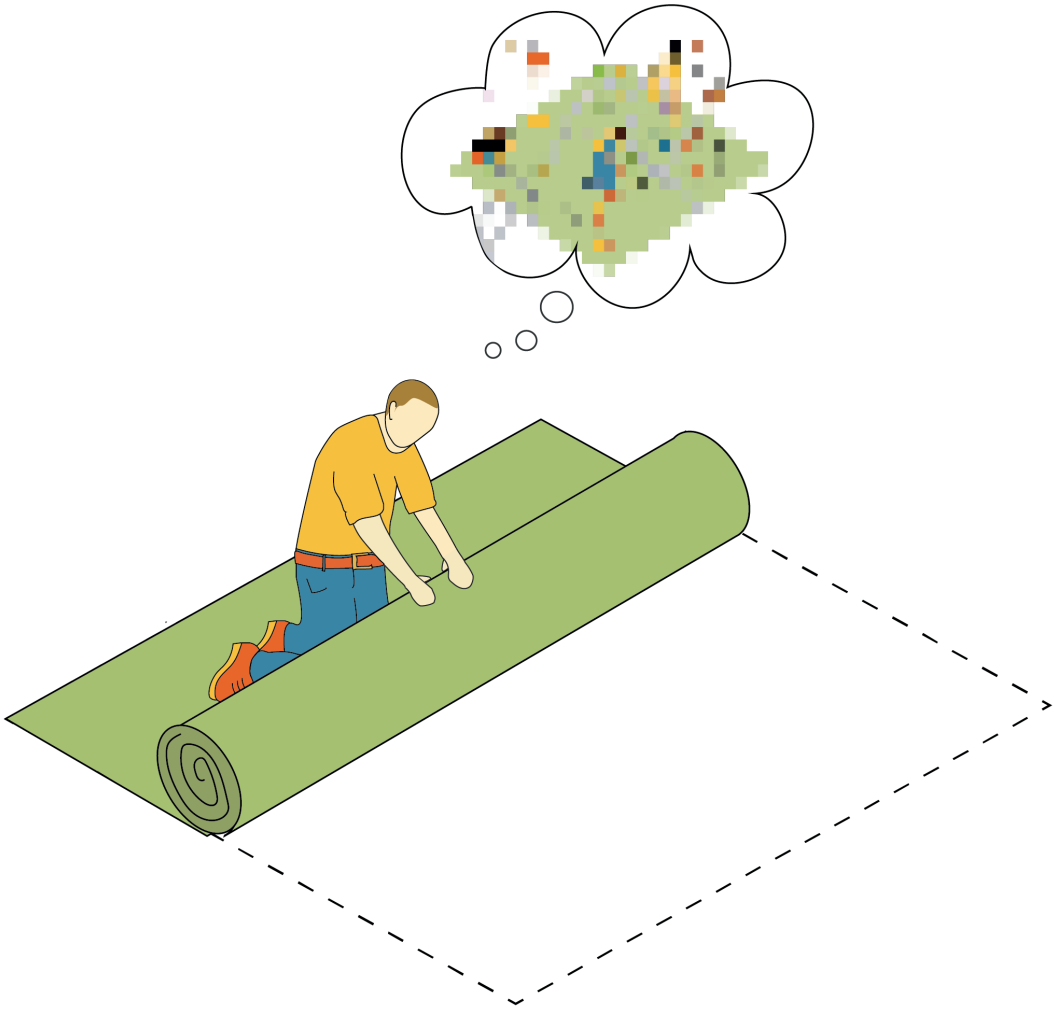


Chapter 1

Introduction

1.1 Introduction – Farming the (peri-) urban realm

> "There can be *synergy* between agriculture and the city: the mere presence of agricultural and urban functions in one area can have a positive effect on the quality of the urban landscape, economically, ecologically and aesthetically."
> (LNV, 1995: 6) (translated by author)

This quote articulates *avant la lettre* the start of this thesis, that is, the search for a renewed synergy between agriculture and the city. A synergy that contributes to the quality of the urban landscape economically, ecologically and aesthetically. The quote originates from a vision paper on the future of urban landscapes commissioned by the Dutch Ministry of Agriculture almost 30 years ago. At that time, a strict spatial segregation between agriculture and urban development prevailed in Dutch spatial planning. Although this paper offered a beckoning perspective for an integration of urban and agricultural functions in spatial planning, the Netherlands did not appear ready for it. The document fell into oblivion.

Since the industrial revolution, the intimate bond between city and its agricultural hinterland lost its primary function, that is, the production of food for the local market (Ilieva, 2016; Steel, 2008; Wilson, 2023). Although attempts have been made to revitalise this bond, agriculture and the food it produces have gradually become part of a global food network disconnected from the local environment. A locally disconnected agriculture is the everyday reality in our post-industrial society. Current farming practices are embedded in a system that interconnects food flows at a global rather than at a local scale. However, in recent years an incipient change of attitude has been observed in the relation of cities to the provenance of food. The perceived challenge to feed cities in a secure, healthy and sustainable way has put food squarely on many urban policy agendas (Blay-Palmer et al., 2018; Moragues-Faus & Morgan, 2015; Morgan, 2014). The urgency of urban areas to reconnect with their agricultural hinterlands is furthermore felt in the current era of societal unrest through, for example, geopolitical crise and climate change, which have affected (or even disrupted) the global food system (Van der Gaast et al., 2020).

Despite the rising urban attention for local agriculture and its products, the reality is different. Peri-urban agriculture does not have a significant position in local food flows, let alone in urban planning and development (Langemeyer et al., 2021; Van der Schans & Wiskerke, 2012; Zasada et al., 2019). A strict functional division between the city and its hinterland where nearby farms predominately operate segregated from the local urban realm still prevails. Moreover, the peri-urban areas where these farms operate manifest themselves as a highly competitive environment characterised by a great hunger for non-agricultural land use. Peri-urban agriculture has to persevere in this competitive environment in which farmland is increasingly falling prey to and being replaced by urban usage and development. As such, the space to locally produce food is slowly being infiltrated by urban functions, which increasingly stymie the future of agriculture as local food provider (Mok et al., 2014; Olsson et al., 2016; Spyra et al., 2021).

The strict functional division between city and hinterland is clearly visible in the Netherlands. The exclusion of agriculture in Dutch urban planning practices is rooted in a rigid planning regime of functional segregation, or as the aforementioned vision paper of the Dutch Ministry of Agriculture emphasised "it is a challenge for spatial planning in urban landscapes to initiate this process of promoting that quality [of agriculture]" (LNV, 1995: 6) (translated by author). This challenge merits attention because still little is known about urban planning practices that actively integrate agriculture (Langemeyer et al., 2021; Rolf et al., 2020; Sonnino, 2010; Zasada, 2011). The importance of understanding such integrative planning practices is paramount because "food systems -- and their health and wellbeing attributes -- inherently interact with (and shape) spaces and places" (Marsden & Sonnino, 2012: 427).

The starting point of this thesis lies in the interaction between agriculture and peri-urban 'spaces and places', which manifests itself in a tension between the urban ambition, on the one hand, and the everyday reality of a segregated, disconnected agriculture in the hinterland, on the other. From the premise that "if you want truly to understand something, try to change it" (attributed to Kurt Lewin 1890-1947), this PhD research explores attempts to change (peri-) urban planning practices towards agriculture in order to better understand agriculture inclusive practices. In other words, an endeavour to understand planning that includes agriculture helps to shed light on why agriculture is currently shunned. In addition, better understanding current planning practices could offer a window of opportunity to establish new functional synergies between city and agriculture. By trying to gain an in-depth understanding of

the interaction agriculture engages with spaces and places, this thesis intends to contribute to two debates. First, to the debate on how planning can engage and commit (new) local actors to the complex challenges of today's society. Second, to the quest of the significance of pursuing a functional synergy between city and agriculture in the peri-urban zone.

In short, 30 years after the Dutch Ministry of Agriculture launched their plea for a functional synergy between city and agriculture that contributes to the quality of the urban landscape, knowledge is still scant on how planning practices could organise such a synergy, or what that synergy might be. The Netherlands, in particular, with its rigid planning practices of separation of functions offers a great starting point to study the planning and the impact of implementing such a synergy and thus to assess planning practices towards agriculture, to appraise the gap between urban aspiration and rural reality, and to explore if planning practices could provide opportunities to bridge that gap. In particular, the focus in this thesis is on the Dutch new town Almere, which was selected because it functions completely segregated from its agricultural hinterland of the Flevopolder. A hinterland pre-empted to efficiently produce agricultural products for a global rather than a local food network (Wertheim-Heck, et al, 2020). Recently, however, the city's segregated position towards its hinterland was altered with city's Masterplan Almere 2.0 (Almere, 2009), which embraces (urban) agriculture as one of the pillars of its future development.

The remainder of this introduction elaborates how to deconstruct and appraise the knowledge gap of how planning practices could organise a synergy between city and agriculture in the peri-urban space. In doing so, I start with an historical overview of the relationship between city and agriculture, and from there I move to the contemporary segregated relationship between the two. Then I elaborate on the relationship between agriculture and city in spatial planning practices, showing that over the past 150 years there have been emphatic but unsuccessful attempts to remove the segregation. Next, I introduce the empirical context and focus on the Dutch post-war spatial planning approach, which separated agriculture from urban development. Subsequently, I introduce Almere, a new city founded in the Flevopolder in the 1970s, a city that exemplifies the functional gap between city and hinterland but recently tried to change that position. This leads to the identification of several gaps in knowledge and understanding of planning practices, in general, and towards peri-urban food production, in particular. The next section explains and justifies the use of Social Practice Theory to grasp change in planning practices, that is, how does change occur and who brings it about? This is followed by a presentation of the empirical case and applied methods. Finally, this introduction concludes with an outline of the rest of the thesis.

1.2 Historical context: the need to feed the urbanites

1.2.1 A brief historical perspective at peri-urban agriculture: from boon to nuisance

The close link between the city and agriculture in the peri-urban zone hark back to early human conurbations. The peri-urban zone was controlled by the city, but how far that control extended was determined by many factors, such as accessibility, land fertility, and the extent of the city (Scott, 2017). The peri-urban zone that hemmed the city acted as a food quarry as well as a buffer between the city and the elusive and uncontrollable "barbarian" hinterland. Agriculture, understood as controlled production of food in all its forms and related products, had a complex and erratic relationship consisting of dependency and reciprocity with the city. Internal and external events could greatly affect who really benefited. Depletion of the urban hinterland by wars, vagaries of nature, over exploitation or mismanagement could affect this complex of reciprocity and reduce prosperity on both sides (Diamond, 2011; Scott, 2017; Steel, 2008). Agriculture offered the city access to fresh food and manpower as well as created revenues through, for example, taxation. In return, the city was the hinterland's market, but it also provided resources, such as labour, food scraps to feed the livestock and manure to fertilise the land. In times of crisis the hinterland buffered the city from malaise. The hinterland's production capacity often influenced the extent to which a city could expand and urban society flourish (Montgomery, 2007). Although long-distance water transport increasingly contributed to the city's food supply, the immediate hinterland continued to play an important role as a local source of food.

The industrialisation of society affected this reciprocity between (peri-)urban agriculture and city, due to different factors, including the introduction of fast and long-distance transport, food preservation and agricultural mechanisation (Steel, 2008; Wilson, 2023). The soaring availability of cheap fossil fuels to replace manual labour, to produce nitrogen fertilisers, to transport people and goods over long distances and to conserve and store food,

made urban and peri-urban agriculture no longer a necessity to create a flourishing urban society (Langemeyer et al., 2021). Food could cheaply be imported, transported and stored. Hence, messy fields, nuisance farms and unhygienic animal husbandry associated with agriculture no longer fitted into a modernising urban realm (Wilson, 2023). Urban and peri-urban space increasingly fell prey to (sub-)urbanisation. Farmland was gradually replaced by activities considered to have higher (market) value, such as housing, estates, parks, industry and infrastructure. Still, agriculture never fully disappeared from the (peri-) urban fabric, for example, in terms of relief-, allotment- or school-gardens, and forms of horticulture. Agriculture marginally continued to exist, and sometimes even received a brief momentum of renewed attention during moments of crisis. However, it was seldom considered a permanent and inextricable part of urban life, let alone urban planning (Bellows & Nasr, 2010; Ilieva, 2016; Lawson, 2005).

1.2.2 A new perspective at (peri-) urban agriculture: from separation to rapprochement

Today, cities consume about 80% of the total food produced in the world, which is distributed through a complex and globally organised food flow (FAO, 2024; Zou et al., 2022). However, the increasing challenge of feeding our rapidly growing urban societies gives rise to the return of food on the urban agenda (e.g., Blay-Palmer et al., 2018; Moragues-Faus & Morgan, 2015). This return is, on the one hand, driven by the ambition to feed the expanding cities sustainably and healthily (Seto et al., 2010). On the other hand, it is motivated by a sense of insecurity about the fragility of the current system of globally organised food flows (Langemeyer et al., 2021). This food system consists of a complex and interrelated food network that strongly relies on both food production and distribution organised at a global scale as well as on the input of non-renewable resources. The fragility of this globally organised food network became evident in the recent disturbances that affected, even disrupted, global food flows (Van der Gaast et al., 2020). Many cities, led by harbingers of urban food policies like the members of the Milan Food Policy pact, expect that an improved city-region orientation on food production will reduce the dependency on this global food network and, hence, mitigate the impact of these disturbances and contribute to a more sustainable and resilient food system (Nicholls et al., 2020; Opitz et al., 2015). In the context of this regional geography and food dynamic of food, new food policies as well as food-related civic networks emerge and gain momentum (Renting et al., 2012; Sonnino, 2016).

This renewed urban orientation on food offers an opportunity to strengthen agriculture in the peri-urban zone. Peri-urban zones, the focus of this thesis, are understood as the grey zone where urban and rural functions collide. Gallent and Shaw (2008: 635) understand these zones as “dynamic and rapidly changing environments, where different activities and interests compete for space, and with roles and functions that have not always been properly valued or understood”. The peri-urban zone is spatially dynamic and consequently its boundaries are difficult to demarcate exactly although they are mostly under urban influence in terms of space (zoning), jurisdiction and planning (Mansfield & Mendes, 2013; Orsini, 2013; Seto et al., 2010). As such a peri-urban zone is a contemporary ‘Banlieue’, that is, a ban (agreed agreement or contract) that is applied to a lieu (place -city-) or in other words, a legally defined area for taxation and legislation belonging to a place or a city. Modern peri-urban zones manifest as functionally hybrid urban-rural areas and are characterised by competitive land-use practices and demands (Spyra et al., 2021; Zasada, 2011). In Europe, the growth rate of the peri-urban zones surpasses that of urban areas, and a doubling of their total area is projected within 30-50 years (Nilsson, 2013). The 'pentagon' delineated by London, Paris, Hamburg, Munich, and Milan, particularly Greater London and the Benelux countries, contains the highest concentrations of peri-urban zones in Europe.

Despite the incipient city-region orientation on food, there is a tension between the urban ambitions ‘on paper’ towards local agriculture and the difficulty to implement these ambitions in ‘real life’. Even though the initiatives in (peri-) urban agriculture are growing in number and diversity, (peri-)urban food production is still a marginal practice in terms of food flow and impact on the urban food system (Van der Schans & Wiskerke, 2012; Zasada et al., 2019). The daily reality reveals a dwindling peri-urban agriculture losing the competition to other economically stronger spatial functions as well as to better equipped food-producing areas elsewhere (Akimowicz et al., 2020; Olsson et al., 2016). More-over, peri-urban agriculture is also under pressure even where peri-urban farmland is protected by urban containment programmes (Akimowicz et al., 2016; Shao et al., 2018; Ustaoglu & Williams, 2017). Farmland in these earmarked zones still gradually transforms into non-agricultural usages (estates, and equestrian farms) and agriculture thus fragments further (Paül & McKenzie, 2013; Perrin et al., 2018; Spataru et al., 2020; Waegemaeker et al., 2023).

1.2.3 Planning for (peri-) urban agriculture: from Garden City to Broadacre City

Can urban (spatial) planning establish a new synergy between city and agriculture in the peri-urban zone? In recent history, some attempts have been made to develop planning practices for a new coexistence between city and agriculture. Below two initiatives are briefly introduced, first Ebenezer Howard's 1898 vision of 'Garden City of To-morrow' (Cabannes & Ross, 2018) and second Frank Lloyd Wright's 1934-1935 vision of 'Broadacre City' (Ilieva, 2016; Wise, 2013). Both attempts are closely entwined with the subject of this thesis.

Ebenezer Howard was not the first to envision 'garden cities or villages'. In the second half of the 19th century, spacious green neighbourhoods sprang up around several industrial areas in Europe and the US, mostly on the initiative of reformist industrialists and notables (De Klerk & Van Der Wouden, 2021). These sites with spacious and green surroundings were primarily intended to house and retain high-quality employees. Howard took it a step further and added agriculture as an inseparable and coherent part of the layout of his Garden City of To-morrow. He envisioned a self-contained garden city that would house 32,000 people on an estate of 2,400 ha and incorporate various forms of food production, such as large farms, small holdings, allotments, and cow pastures. To put his ideas into practice, he projected Letchworth (1904) between London and Cambridge. This poly-nuclear circle of single garden cities was predicted to evolve into a 'social city' of about 250,000 residents (Cabannes & Ross, 2018). Although Letchworth and its sibling city Welwyn Garden city were never fully realised, the idea inspired many garden cities around the world, including the Netherlands. However, the Dutch answer to a 'Letchworth-like' social city did not get beyond the drawing board, while attempts at other garden cities were turned into spacious and green urban developments but without the component of food production (De Klerk & Van Der Wouden, 2021).

Frank Lloyd Wright's Broadacre City proposed an innovative urban-rural blend in combining the strengths of both while addressing their shortcomings (Ilieva, 2016; Wise, 2013). Similar to Howard, Wright envisioned liberating the urban dweller from industrial metropolitan constraints. Broadacre city coined a novel form of decentralised suburbanisation in urban planning organised around the central idea of agrarian self-sufficiency. However, it was not a mere return to agrarian sub-urbanism, but "it attempted to develop and intensify not agrarian but suburban trends" (Watson, 2018: 1008). Still, a key tenet of the Broadacre city model was the policy to allocate one acre (0.4 ha) of farmland to every Broadacre dweller, fostering the aim of local self-sufficiency in food. The surplus produce was to be sold locally through a system of roadside markets (Wise, 2013). In addition, small-scale homesteads were envisioned as an added neighbourhood amenity. Despite Wright's influence and reputation, Broadacre City remained unrealised, existing only as a theoretical concept, although post-WWII suburbanisation in the US is sometimes mistakenly attributed to Wright's vision (Wise, 2013).

Although both examples of urban planning including agriculture have had limited success they captured the imagination of many and served to inspire new generations of planners (De Klerk & Van Der Wouden, 2021). The empirical case of this thesis, the Dutch new town Almere and specifically its recent peri-urban district Oosterwold, displays traces of both Garden City and Broadacre City. Before further outlining the case of this thesis, I will first discuss the broader Dutch context from which Almere emerged, i.e. the post WWII housing vs agriculture dichotomy in Dutch spatial planning.

1.3 Empirical context: Dutch spatial planning

1.3.1 Dutch spatial planning in the post-World War II era: functional segregation

The Netherlands is one of the most densely populated countries in the world today. About 18 million people dwell, work, recreate and commute on about 3.36 million ha of land - or 4.2 million ha including water - (CBS, 2024). After WW II, Dutch spatial planning introduced a policy of clustered suburbanisation to avoid overly high densities in the major cities while concomitantly eluding urban sprawl. It aimed at keeping the rural landscape open and undeveloped, limiting travel distances and supporting urban amenities (Janssen-Jansen, 2016). Spatial planning practices were characterised by a strict segregation between cities, on the one hand, seen as residential zones, and rural areas, on the other, seen as predominately agricultural zones. In addition, this spatial separation was also firmly institutionalised in governmental structures with a strict distribution of roles between the different layers of governance and in shared rules, institutions and routines (Roodbol-Mekkes et al., 2012). Dutch spatial planning is

generally considered successful because urbanisation remained limited and concentrated even in areas with high urban pressure (Koomen et al., 2008). In 2017, about 66 percent of Dutch open-space land was still used for agriculture, 16 percent for urban space and infrastructure, and 18 percent for nature and recreation (CBS, 2024). Dutch spatial planning thus left ample room to agriculture, which was strongly scaled-up, rationalised and modernised after WW II. Today, the Dutch agro-food complex is considered a successful, competitive and innovative player at the global level. With an export value of 122.3 billion euro, the Dutch agro-food complex is still one of the major players in the world market of agricultural products (Jukema et al., 2023).

Since the 1990s, the national planning practices have slowly been transforming from a top-down approach to an area-, stakeholder- and process-oriented approach. The latest Spatial Planning Act (2008) legally delegates spatial planning to regional authorities, providing them with more freedom to give substance to local expansion (Janssen-Jansen, 2016). A Dutch city that took full advantage of this new freedom was Almere.

1.3.2 Functional integration in planning: the retrieved Garden City vision of Almere

Almere is with 220,000 residents one of the largest cities in the Netherlands despite being founded just a half century ago. This so-called new town is located east of Amsterdam in the Southwestern part of the Flevopolder (Figure 1.2). The Flevopolder was originally dedicated to provide the Netherlands with excellent farmland. In line with the post-WW II development of Dutch agriculture, the polder was designed and structured to let large-scale, rational, and modern agriculture prosper. Authorities only allowed for small-scale urbanisation that served the local agricultural community. However, in the late 1950s the national planning agency reconsidered this policy. A clustered suburbanisation in the Flevopolder was deemed a strategy to mitigate the expected expansion of the northern wing of the Randstad, a megalopolis primarily consisting of the four largest Dutch cities and their satellites. In the 1960s, the national government commissioned the development of a new town in the southwestern part of the Flevopolder, the future Almere.

The second chapter of this thesis extensively discusses the design, planning and development of Almere and how this was initially intertwined with agriculture. This Introduction is limited to the essence of the development of Almere. The initial layout of Almere was inspired by Ebenezer Howard's poly-nuclear social city. This layout inherently formed an antithesis to the Dutch urban planning of clustered suburbanisation at that time. The Almere planners respected the green intra-nuclear space as an inseparable and coherent -rural- part of the urban fabric. In the planners' vision, every urbanite should be able to have direct contact with the city's green surroundings. Agriculture fulfilled a dual role in the intra-nuclear space: first, as the temporary form of land-use preceding the construction of infrastructure and housing and second, as part of the future rural-urban living environment. In line with this reasoning the planners expected future agriculture to support the city with several new amenities, such as outdoor activities, recreation, attractive landscapes and natural elements, thereby contrasting to the strict mono-functional character of agriculture in the rest of the Flevopolder.

However, despite its innovative plans, Almere's development is a typical exponent of the Dutch spatial planning after WW II. Almere became a top-down meticulously planned and developed city propelled by market-driven housing and blueprint spatial planning programmes. Although the design's open green layout was executed to a certain extent, the ambition to blend agriculture and urban development gradually faded into oblivion. Almere's development became strictly segregated from its agricultural hinterland: farmland was considered -- at most -- land preserved for future urban development.

The national government's goal in the early 2000s to expand Almere with another 60,000 houses over the next 30 years and the political room to give it local substance, revived Almere's original design. The city introduced the so-called seven Almere Principles to guide the city towards a sustainable future and to regain the city's identity as a people's garden city. These seven principles formed the building blocks of the Almere 2.0 Masterplan, launched in 2009 (Almere, 2009). The masterplan reintroduced agriculture in Almere's planning practices; that is, it coined urban agriculture as one of the pillars of future development. Urban agriculture could provide the city with more functions than just food production as well as make the city greener and more sustainable. In hindsight, the 1970s layout of Almere had inadvertently laid a foundation for the future development of urban agriculture in the city.

The Almere 2.0 Masterplan stimulated the city's pursuit to reconnect with (urban) agriculture in a city-region context. Several steps were taken to realise this, such as the city's commitment to the Milan Urban Food Policy pact and the

articulation of the Urban Food Strategy 2021-2025 (Brons, Oosterveer, et al., 2022). In 2022, the city hosted the international horticultural exhibition Floriade under the banner of 'Growing Greening Cities'. It co-established Flevo Campus, an innovation hub intended to challenge scientists, entrepreneurs, policymakers and chefs to find innovative solutions to persistent food dilemmas facing modern cities. In addition to and partly independent of local policy's goal to re-embrace agriculture, the city is home to a thriving civic food network. Dekking (2018) appraised the urban agriculture network of Almere and found 140 initiatives within the city's boundaries, predominately non-commercial initiatives like school, neighbourhood and community gardens. Subsequently, an unpublished 2022 inventory showed further growth in local (peri-) urban agriculture initiatives, predominantly due to Almere's newly developed peri-urban district Oosterwold.

In brief, Almere's planning exemplifies the desire and the reality of integrating agriculture in the context of a dominant planning structure of segregation. In the next section, I will consider planning practices of agriculture in and around the city from a scientific perspective.

1.4 Scientific context: planning the future of the farming fringe

1.4.1 The nature of (peri-) urban agriculture: food or more?

Although (peri-) urban agriculture has co-existed with urban life ever since the expansion of early human settlements, current urban agriculture is considered a new activity strongly linked to current urbanisation and societal needs (Opitz et al., 2015; Van der Schans & Wiskerke, 2012). It is said that this new activity found its genesis with the green guerrilla movement of New York citizens who started to green derelict lots amidst the 1970s financial crisis (GreenGuerillas, 2024). Since then, urban agriculture has spread to other cities around the globe. In the Netherlands, it emerged in the 2000s and accelerated during the 2008 real estate crisis (Jansma et al., 2015; Van der Schans & Wiskerke, 2012). Following Mougeot (2000: 10) modern urban agriculture can be understood as "an industry located within (intra-urban) or on the fringe (peri-urban) of a town, a city or a metropolis, which grows or raises, processes and distributes a diversity of food and non-food products, (re-) using largely human and material resources, products, and services found in and around that urban area and, in turn, supplying human and material resources, products, and services largely to that urban area".

In other words, urban agriculture uses resources, products and services found in and around the city and supplies resources, products and services for local consumption or usage in return. The notion of 'urban' in urban agriculture defines not so much the physical location of agriculture but rather the market for the goods and services produced. This sets it apart from 'traditional' forms of rural agriculture that have limited or no location specificity with respect to the products and services they offer. Urban agriculture depends on typical urban resources, competes for land, labour and water with other urban functions, is influenced by urban policies, networks and plans, and uses and supplies urban products and services (Van Veenhuizen & Danso, 2007). De Zeeuw et al. (2011) and Opitz et al. (2015) discern urban and peri-urban agriculture as two distinct forms of urban food production, each with partially different functions. Urban agriculture is about small-scale food production at the urban level (households, schools and neighbourhoods), which has predominantly community, health and wellbeing, environmental, and educative functions within the urban system (Prové, 2018; Veen et al., 2015). Peri-urban agriculture, on the other hand, is considered a hybrid between community-based urban and economy-of-scale rural agriculture that merges socio-economic and environmental functions (Opitz et al., 2015). In Chapter 3, current manifestations of peri-urban agriculture are discussed in more detail.

The emerging interest in agriculture in peri-urban areas corresponds to the expectation that the current intensification of urban regions will create a growing demand for regional support systems. These support systems should counter balance the pressure on liveability and sustainability evoked by pervasive urbanisation (e.g., Shaw et al., 2020; Waegemaeker et al., 2023). Hedblom et al. (2017) stress that the future of sustainable cities hinges on effective governance of peri-urban areas as providers of crucial services for both urban and rural citizens. One service that is interwoven with a sustainable urban future is food. This prompts the question on how much the peri-urban hinterland could potentially contribute to a sustainable regional food flow. In some cases, this contribution is circumscribed as the (urban) foodshed. "In the foodshed, efforts would be made to increase the level of local and intra-regional food production, processing, and distribution and so to retain economic value and jobs" (Kloppenburg et al., 1996: 10).

The term, which has analogies with watershed, harks back to the 1920s. It was introduced to study food logistics between the city and its agricultural hinterland, evoked by concerns about the city's growing dependence on long-distance transport. Today, 'foodshed' is increasingly being used to conceptualise the geography of urban food production and distribution and, in particular, to map and explain the connections between food production, distribution, processing and consumption in a city-regional context (Schreiber et al., 2021). Recently, many studies have appraised the potential food production of urban foodsheds, for example, Almere (Van Dijk et al., 2017), Avignon (Vicente-Vicente et al., 2021), Boston (Saha & Eckelman, 2017), Cleveland (Grewal & Grewal, 2012), Lisbon (Cardoso et al., 2017), London, Berlin, Milan and Rotterdam (Zasada et al., 2019), and Saclay plateau near Paris (Tedesco et al., 2017). Although these studies stress that the level of estimated -potential- self-sufficiency highly depends on the chosen scenario parameters, such as the food shed boundary, diet, and type of agriculture etc, most studies underline that a certain level of self-sufficiency could be realised within a city-region context. However, nearly all these studies emphasise that in daily reality the level of self-sufficiency at the city-regional level is limited. In this respect, Almere is no exception (Wertheim-Heck et al., 2020).

A new dimension in the debate on the contribution of (peri-) urban agriculture is whether regional food supply or a certain level thereof is sustainable, necessary or feasible given the limited availability of land around cities, the limited and sub-optimal production conditions, the lack of supportive infrastructures, and the fact that peri-urban agriculture has to compete with better equipped food-producing areas (e.g., Akimowicz et al., 2016; Small et al., 2019; Valley & Wittman, 2019). For example, Hawes et al. (2024) found that the carbon footprint of the food produced by conventional agriculture is, in general, significantly lower than that of urban agriculture. They estimated that the production capacity of urban agriculture is generally lower than that of conventional agriculture, and it relies on more external resources. Moreover, Wielemaker et al. (2019) showed that in urban agriculture the mean nutrient inputs exceeded mean crop nutrient demands, which may pose a risk to the environment. Valley and Wittman (2019: 42) thus wonder "Why should municipal governments create a policy to promote urban agriculture if those involved in food production report minimal environmental impact, produce low yields relative to the volume of food necessary for maintaining an urban population, and find that their primary consumer base are 'urban foodies' who are relatively food secure?". This gives rise to the question whether a focus on food production capacity does not distract the debate from other -- and perhaps more valuable -- contributions from agriculture in the (peri-)urban area. Possibly a fully nourishing peri-urban zone is unrealistic, but agriculture can also fulfil a multitude of other valuable functions that contribute to the liveability of dense urban zones (Ilieva et al., 2022; Kirby et al., 2021; Valley & Wittman, 2019). This triggers debate in planning on the need to redefine the role of the rural-urban fringe and, in that respect, the significance of agriculture (Nicholls et al., 2020; Opitz et al., 2015; Schulp et al., 2022).

In the debate on planning, some urge to change the current position of peri-urban zones from a landscape in a state of functional uncertainty to one that is recognised for its potential and importance both to urban and rural dwellers (Hedblom et al., 2017). The potential and importance of peri-urban zones may go beyond single functions, such as food production. In particular, the urban public perceives and values the multifunctionality of peri-urban agricultural landscapes (Barral & Guillet, 2023; Brinkley, 2012). Although planning can embrace this multifunctionality, it still struggles with the persistent monofunctional housing vs agriculture dichotomy (Ives & Kendal, 2013; Rolf et al., 2020). The mix of functional land synergies and different users' interests in peri-urban zones complicates spatial planning. Urban policies and urban planning struggle to understand and handle the sectoral routines of agriculture, while conversely rural governance is often ill-equipped to understand and handle urban issues (Hedblom et al., 2017). Planning of multifunctional peri-urban zones requires an adaptive and flexible approach that addresses both socio-economic, landscape and spatial aspects in the context of diverse stakeholder demands and preferences while encouraging and preserving multifunctional land use (Ives & Kendal, 2013; Shaw et al., 2020; Spyra et al., 2021). How agriculture fits into this multifunctional land use remains a rather uncharted territory. An "agro-urban vision" is needed that involves "agricultural planning, new types of public policies and innovative forms of governance" (Gottero et al., 2021: 12). Such a new approach entails knowledge sharing, active participation of multiple stakeholders, and acknowledgment of local objectives (Perrin et al., 2018; Schulp et al., 2022).

The role and position of (spatial) planning in a changing and complex world is questioned (de Roo, 2018; Healey, 2023). Spatial planning is understood as actively and purposefully intervening in surroundings to add valuable impact to society (Albrechts, 2006; Allmendinger, 2009). Traditional planning practices are predicated on control of the intervention. They are about maintaining the existing social order rather than challenging and transforming it (Albrechts, 2015). This traditional linear model of organisation and order is no longer considered applicable for the

current complex challenges that city-regions are increasingly facing (Albrechts, 2010; Rauws & De Roo, 2016). Planning practices should rather be flexible, open for continuous renewal, and supported by local communities, while remaining robust and resistant to undesirable developments. Moreover, planning practices have to be able to respond to the growing demand for self-organisation and multi-functionality in a regional context (Horlings et al., 2021). Thus, scholars like Albrechts et al. (2020) advocate a transformative attitude in planning to deal with the contemporary complexity of society. Transformative planning is regarded as a conscious and purposive process of envisioning a future to which local actors are committed and concomitantly actively shaping it with short-term actions.

As noted in Section 1.1, this thesis aims to unravel how planning practices are shaped while trying to transform established practices specifically towards agriculture. As underlined in the Section 1.3, current Dutch planning practices firmly share routines that contrast the aforementioned advocacy of a transformative attitude towards planning. Hence, intending to create conditions to activate local actors around an idea of change, requires a thorough understanding of how and why change of practices occurs and who is engaged (i.e., who carries change). Such understanding can be conceptualised with the help of Social Practice Theory (SPT), an approach that offers "untapped potential for understanding change" (Shove et al., 2012: 1). The next section delves deeper into this approach.

1.5 Theoretical approach: Social Practice Theory and Action Research

This thesis applies Social Practice Theory (SPT) to conceptualise how planning practices towards agriculture change and who or what carries this change. SPT is an approach within sociology that studies how social practices—patterns of performance, rules, norms, rituals, and routines—are created, maintained, and changed. It takes the 'middle ground' between a focus on institutional structure and on human agency (Spaargaren & Oosterveer, 2010). A social practice is understood as a reproductive activity enacted by knowledgeable and capable human agents, that is, the practitioners -- the carriers of the practice (Reckwitz, 2002; Spaargaren et al., 2016). Practices are thus not just individual behaviours but are embedded within social contexts and are shaped by various factors, such as culture, power dynamics, rules, material conditions, visions and historical contexts (Spaargaren, 2011). A (social) practice is understood as "a routinized type of behaviour which consists of several elements, interconnected to one other, forms of bodily activities, forms of mental activities, things and their use, a background knowledge in forms of understanding, know-how, states of emotion, and motivational knowledge" (Reckwitz, 2002: 249). In short, a practice is a routinised way in which practitioners actively do things, deal with objects, understand the world, and are emotionally engaged.

Practices are not uniform but change over time. Moreover, they can vary across different contexts, individuals, and social groups. This diversity is reflected in the multiple meanings, competences, and materials associated with practices. Social practices are inherently dynamic because they are constantly subject to change due to their volatile and multifaceted nature. Change in practices arises from sequences of unintentional and intentional activities, possibly induced by material events and processes (Schatzki, 2024). Practices have their own lifecycle, that is, they emerge, congeal, transform and eventually fall apart over time. Although inherently dynamic, there are limits of "tolerable variation" within a practice "bounding the difference that is understood as still plausible or acceptable for participants" (Hui, 2017: 56).

A social practice is not only clear and perceived as such by its insiders -- the carriers who actually perform a practice at a particular space and time -- but it is likewise comprehensible as an entity to potential observers outside a practice (Hui, 2017; Reckwitz, 2002). Hence, SPT may be used as a lens to obtain, as an outsider, an understanding of the dynamics of practices and a means to appraise and understand the empirical reality of this dynamic.

In deconstructing the dynamics of practices, this thesis follows Shove et al. (2012), who regard a social practice as the interplay of three basic elements:

1. Competences: the skills, knowledge, and abilities required to perform a practice effectively.
2. Meanings: the cultural and symbolic significance attached to a practice, including its social norms, values, and identities.
3. Materials: the physical objects, infrastructures, and technologies that are integral to carrying out a practice.

According to Shove et al. (2012), a practice is perceived by how and why links between these three elements arise, connect, persist, change, disrupt and disappear. However, a social practice is usually not performed in isolation or by a uniform and unique constellation of practitioners. Practices are interconnected - bundled - with and influenced by other practices, their carriers and their contextual developments (Shove et al., 2012). Changes in one practice or bundling of practices beget others, creating a cascading circuit of action that eventually changes social practices (Hui, 2017). At the intersection between practices, practitioners' competences and meanings, and associated material components can transmit and cause such a cascading circuit of social change. Hence, change unfolds over time "simply by virtue of people leading their everyday lives and enacting practices, practices and their structures metamorphose." (Schatzki, 2024: 63).

SPT studies focussed predominately on exploring social change in consumption (e.g., food, mobility and energy), however, attention is slowly trickling into the domain of professional studies, including (urban) planning (e.g., Binder & Boldero, 2012; Cohen & Ilieva, 2015; Hargreaves et al., 2013; Lamond & Everett, 2019). In this thesis, I understand urban planning practices as a bundle of routines interwoven with and influenced by other practices, such as designing, economic planning, and social housing as well as impacted by larger societal developments including the economic climate, climate change, and growth and composition of the population. All these aspects influence how planning practices are performed. A similar approach can be used to study agriculture. This study addresses both practices, planning and agriculture, but with a focus on planning. The practices of agriculture and urban planning still encounter each other in the peri-urban zone, at least with the material element of land. Nevertheless, there is hardly any intersection between the two. Both practices operate segregated in the peri-urban zone, there seems to be no room to intersect elements or practitioners. Agriculture has fallen outside the tolerable variation in the practice of planning, agricultural land is considered at most as future land for urban development. However, although Garden City and Broadacre City were unsuccessful attempts to reconcile agriculture with planning practices they may inspire changes in modern urban and peri-urban planning practices.

While the added value of modern urban and peri-urban agriculture is recognised, there remains a significant gap in understanding how to arrange the position of agriculture within peri-urban areas. What role can planning play in positioning agriculture in peri-urban space and, moreover, how does agriculture-inclusive planning then evolve? Hence, the aim of this PhD study is to comprehend the unfolding of planning practices that seek to advance the integration of agriculture in the peri-urban space. Figure 1.1 illustrates the conceptual approach of this thesis in tracing the transforming planning practices overtime and across scale. The temporal dimension refers to the time frame of events -- when did what happen --, and the scale dimension refers to physical extent of events -- who or what embodied them -- in which the change occurred. Hence, the aim is to understand the evolution of the planning practices and to reveal what was instrumental in the trajectory of change.

At the start of this study, there was an absence of an empirical case that effectively integrated agriculture in urban planning. To actively shape such an empirical case, Action Research (AR) was applied, that is, a "practice-changing practice" (Kemmis, McTaggart et al. 2014: 85). Kemmis, McTaggart et al. (2014) understand practices as malleable rather than as fixed social activities, and transformable through intentional and decisive social action. AR aims to change practices, the understandings of practices, and the conditions, motivations, and the rules and (social) relations under which they are performed. In AR the focus is on the doing, the process of change of social practices, which involves an iterative process or cycle of diagnosis, action and evaluation (Wittmayer and Schäpke 2014, Dick 2015). Both SPT and AR emphasise the importance of understanding and engaging with the complexities of social practices. SPT provides a framework to vet the arrangements, elements and dynamics of practices and their carriers, while AR provides a methodology to actively and intentionally engage with and change practices and their performers in a real-world context. In this study AR is deployed to change the planning practices of Almere and Oosterwold (Figure 1.1) by collaborative and concomitant research (to collect new knowledge) and by establishing new social connections between planning and agriculture practices.

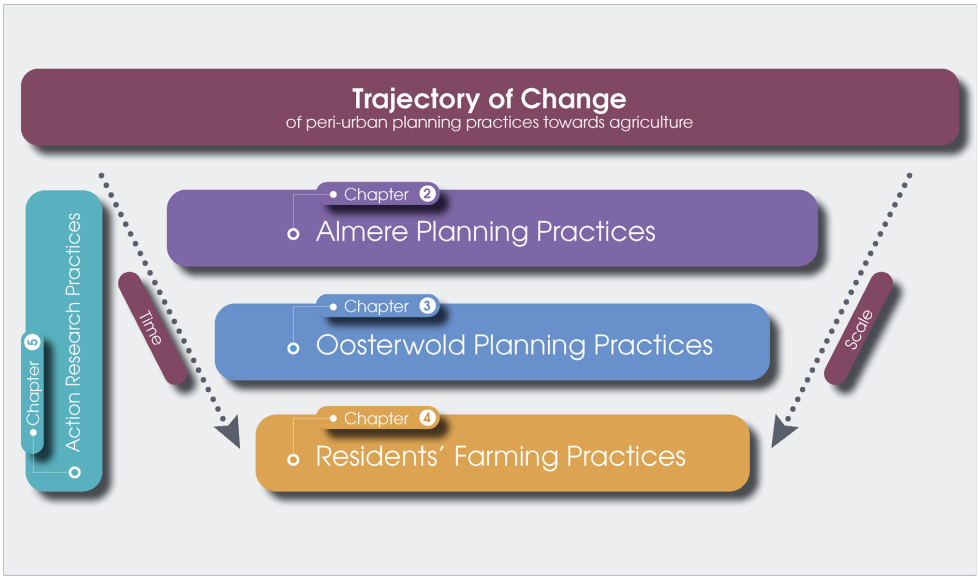


Figure 1.1 Conceptual outline of this thesis and the relevant chapters.

In brief, in this study SPT and AR are performed in parallel. AR is deployed to engage with and change planning practices towards agriculture, while SPT is used to unravel and understand the dynamic nature of planning practices in situ.

1.6 Research questions and conceptual outline

The previous sections highlighted the challenges of agriculture in a highly competitive peri-urban zone, on the one hand, and the ambition of many cities around the world to increase city-regional provenance of food, on the other. However, agriculture largely remains an outsider of peri-urban planning. But can planners integrate agriculture into their practices and thus contribute to new functional synergies between urbanisation and agriculture in the peri-urban zones? To explore what these new functional synergies might entail, this thesis aims to understand the evolvement of peri-urban planning practices that include agriculture.

This thesis thus addresses the over-arching research question:
How do planning practices that seek to advance the integration of peri-urban agriculture unfold?

This key question is divided into four sub-questions:

1. How did agriculture emerge in the planning practices of the Dutch city of Almere?
2. How did agriculture evolve in the planning practices of Oosterwold, Almere's new peri-urban district?
3. How do the planning practices of Oosterwold intersect with the new residents' daily performance in agriculture?
4. How did the integration of agriculture into planning practices of Oosterwold come about?

Hence, this thesis tries to understand the development of emerging planning practices that strive for new synergies between agriculture and peri-urban development. It specifically addresses the empirical case of the planning of the new peri-urban district in Almere: Oosterwold. Oosterwold is a district where city planners have created a platform that enables a synergy between agriculture and peri-urban development. This empirical case presents a unique perspective on planning practices that (try to) functionally integrate urban development and agriculture in a peri-urban zone. The next section elaborates on Oosterwold's planning and substantiates why unravelling this

particular case contributes to an understanding of planning for synergy rather than for a dichotomy in the peri-urban realm. As argued, SPT offers a theoretical frame to obtain an in-depth understanding of how and why peri-urban agriculture was integrated in Oosterwold planning. In particular, who was engaged (at different stages of change), and how this affected the planning process of peri-urban agriculture and ultimately the residents' farming practices. Subsequently, this thesis applied AR to actively explore how the integration of agriculture in peri-urban planning practices was mobilised.

1.7 Planning for synergy: the empirical case of Oosterwold

Oosterwold is a significant progeny of the Almere 2.0 Masterplan (Almere, 2009). In the planning of this district, Almere 2.0 planners took the liberty of planning an innovative new peri-urban district. This new district should accommodate approximately 15,000 future residences across an area of about 4,300 hectares between urban Almere and rural Zeewolde (Figure 1.2). The Oosterwold Masterplan delineates a distinctive approach in two dimensions (Almere, 2012). First, the masterplan advocates for the self-organisation of prospective residents. Second, it underscores a functional integration of agriculture in the residential district. This thesis extensively studies the historical setting and recent evolution of the planning, and the residents' urban agriculture practices in Oosterwold. In this section, I explain why unravelling Oosterwold planning contributes to a better understanding of planning for synergy in the peri-urban realm.

Oosterwold planning practices basically depart from the legacies of the hybrid urban-rural ideals of Garden City and Broadacre City. The masterplan of Oosterwold positions urban agriculture as the principal green core of the district by establishing two fundamental objectives. The first objective earmarks at least 51% of the available land for (urban) agricultural purposes. In practical terms, this objective is translated into a regulatory framework specifying that each resident is mandated to allocate a minimum of 51% of their property to food production. The second objective is that the district should fulfil 10% of Almere's future food requirements. The size of the area over which these objectives are effectuated is unprecedented by Dutch standards, that is, 4,300 ha, the size of an average Dutch town. Moreover, the masterplan clearly breaks with the traditional Dutch housing versus agriculture dichotomy as well as the clustered suburbanisation in Dutch urban planning. These unique basic principles of Oosterwold justify it as an excellent opportunity to understand the planning for new synergies between agriculture and urbanisation in peri-urban planning.

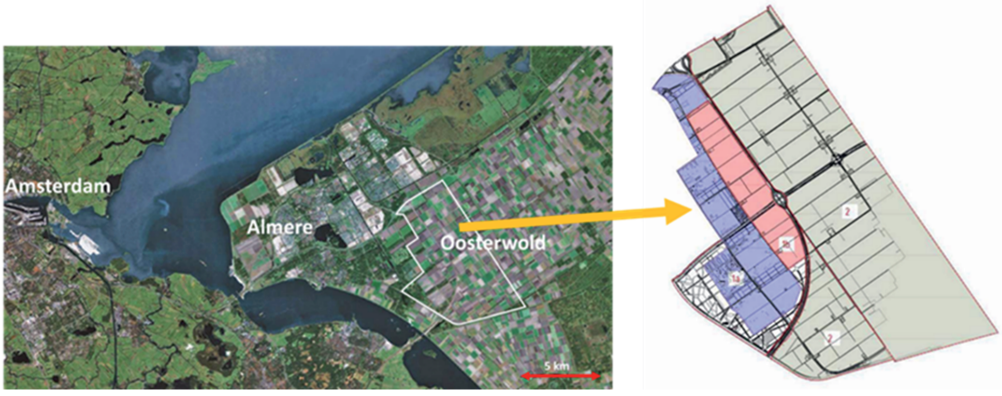


Figure 1.2: The peri-urban area of the Dutch city of Almere: Oosterwold. Almere is situated at the Eastern wing of the Metropole Region Amsterdam (Map: Almere (2012); detailed map: Oosterwold Development Authority).

The case of Oosterwold offers a unique and innovative perspective on how to plan for peri-urban agriculture in the context of city-regional food production. Oosterwold touches upon the three interlinked debates elaborated on in Section 1.4. First, it considers the nature of agriculture in the urban and peri-urban fabric, for example, is food still the nature of peri-urban agriculture? Second, its planning practices shed light on the future functions of the peri-

urban zone and specifically on how to integrate and sustain agriculture beyond the default procedure of urban containment, knowing that the peri-urban realm is a highly competitive and dynamic environment. Third, it touches upon the debate of how planning can contribute to transformative change of entrenched practices and in this context the role of co-production in planning, that is, how to engage new participants in planning practices.

Box: Oosterwold
Late autumn 2015, the land issuance of Phase 1a (700 ha) started under the supervision of the Oosterwold Development Authority (ODA) and in 2021 continued through the 350 ha of Phase 1b (Figure 1.2). Both Phases 1a and 1b were confined within the territory of the municipality of Almere. By 2023, both phases were almost fully parcelled out but still partly under construction. The development of Phase 2, which is almost entirely situated in the Zeewolde municipality, is still pending due to extensive political reconsideration on the area's future. In early 2016, the first residents settled in Oosterwold, and by 2023 the area housed approximately 4,500 residents. The habitation of Oosterwold is a mix of single homes, community houses, privately commissioned neighbourhoods and small-and large scale real estate development (Figure 1.3).

Figure 1.3. Impression of Oosterwold, 2022 (Photo above): Copyright Municipality of Almere, Oosterwold Development Authority; lower photos Copyright Daniel Münderlein).

1.8 Research approach and methods

This thesis uses a single case approach and is limited to the first phase of development in Oosterwold, that is, Phase 1a and b, which covers approximately 30% of the intended 4,300 ha of development (Lekkerkerker, 2016). This single case approach was chosen because it gives the opportunity to develop and analyse its complex dynamics in detail. An additional argument for choosing the Oosterwold case is the author's long term involvement in the area's development, which stretches from before the initial concept to the area's actual development. This experience has supported the unravelling of Oosterwold's planning practices. However, as strong involvement carries the risk that some objectivity may be lost in analysing the case, collaboration was sought with a diverse group of stakeholders as well as scientists. This allowed for maintaining a critical perspective on the case. Room for this critical perspective was enhanced by the use of the two theoretical approaches, Social Practice Theory and Action Research.

SPT and AR are non-prescriptive in terms of methodology (Dick, 2015; Warde, 2014). Nevertheless, although permitting methodological heterogeneity, both approaches gravitate towards embedded routines. Methods in SPT analyse the enacted routines while methods in AR actively try to provoke change of routines. To study enacted routines, the SPT-informed empirical studies prefer in-depth investigation by applying qualitative research methods (Halkier & Jensen, 2011; Spaargaren et al., 2016). They mostly employ discussion techniques. For example, interviews are considered useful to reveal practice compositions and arrangements, while concomitantly reflexivity on behavioural performance can be obtained. In addition, SPT use a broad range of observational methods, ranging from shadowing to photo-elicitation, which offer a direct access to the observable practices. Quantitative methods, such as counting and mapping, usually function as secondary -- supportive -- methods (Schmidt, 2016). This thesis deploys a mix of quantitative and qualitative methods to incrementally zoom in on the situated planning practices of Almere and Oosterwold and, subsequently, on residents' urban agriculture practices. The process of zooming in, allows for focussing on the interaction between the three elements that constitute practices and the carriers of these practices (Shove et al., 2012).

Key to AR is the focus on the process of change of routines, people's interpretations of their routines, and the conditions under which they change them (Kemmis et al., 2014). In this process of change, the emphasis of the methodology is on joint studying, learning, and achieving. This emphasis anticipates a tight collaboration between stakeholders and researchers who collaboratively perform iterative cycles of diagnosis, action and evaluation (Coghlan et al., 2022; Wittmayer & Schäpke, 2014). The methods in AR thus focus on understanding and analysing context and interests as well as nurturing stakeholders' commitment to the collaborative process of change. Chapter 5 describes and analyses the local context and conditions as well as the methodological unfolding of the action research process on the emerging and evolving planning practices towards agriculture in Oosterwold.

The following section further specifies the methodological approach of each chapter (see alsoTable 1.1).

Chapter 2 focuses on the historical context of agriculture in Almere planning practices. To analyse the position of agriculture in Almere planning, qualitative research methods were used, consisting of historical document analysis and in-depth semi-structured interviews with people involved in Almere planning at different moments in its young history, thus capturing 'sayings' about 'doings' in the past.

Chapter 3 commences with a scoping literature search to discern the types of peri-urban agriculture that could theoretically be put into practice in Oosterwold. In addition, to obtain an understanding of Oosterwold planning practices in-situ, the emphasis moved from documented plans and outcomes towards the actual performance of urban agriculture and how the residents as new co-carriers mould the planning process. Methodologically, this chapter combines quantitative, and qualitative methods. (Non-) official documentation of the planning process were analysed and personal observations and accounts were collected. An in-person questionnaire was circulated and data about the current agricultural activities in the area collected.

Chapter 4 combines two quantitative methods: an online survey and an aerial photo analysis. The choice to combine these methods can both practically and analytically be justified. Practically, the combination was chosen because the limitations of social interaction during the COVID-19 pandemic did not allow for face-to-face research and other in-person observational methods. Analytically, a survey is helpful to uncover the significance that (future) residents ascribe to urban agriculture, but as a sole method it is limited because it does not reveal the more routinely enacted

and lifestyle embedded elements in the performance of urban agriculture. Therefore, the photo analysis was used to circumvent these limitations and address the actual performance of urban agriculture in-situ.

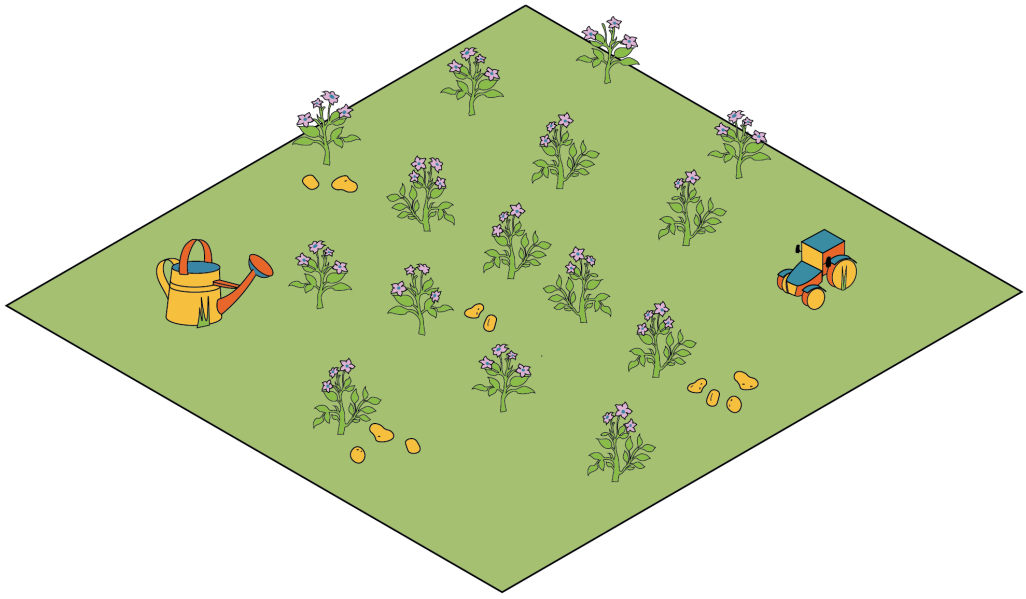
Chapter 5 understands AR as a process of collaborative and concomitant carrying out research (gather new knowledge), establishing new social connections and nurturing change. This action research methodology relied on stakeholder management (Bulten et al., 2020) and the future scenario approach (e.g., Van der Gaast et al., 2023). The stakeholder approach was supportive in understanding local interests and contexts and in shaping the iterative process of diagnosis, action and evaluation. To support the process of action research and to 'manage' the stakeholders, a diverse set of methods, approaches and 'tools', was utilised. The future scenario approach was helpful in activating and committing local stakeholders to the idea of change.

Table 1.1 Overview of aim, empirical focus, methods used, journal of each published chapter.

	Chapter 2	Chapter 3	Chapter 4	Chapter 5
Aim	To reconstruct the position of agriculture in the history of spatial planning in Almere	To explore how spatial planning of Oosterwold included agriculture	To appraise how Oosterwold residents perform agriculture	To reflect on the process of re-integration of agriculture in Oosterwold
Empirical focus	The Almere planning practices	The Oosterwold planning practices	The residents' farming practices	The action research practices
Time	1958-2013	2009-2020	2016-2021	2002-2022
Scale	Almere	Oosterwold	Residents of Oosterwold	Almere-Oosterwold-Residents
Methods				
Qualitative	Interviews; documents & accounts	Literature review; documents & accounts; log	-	Stakeholder approach; future scenarios; interviews; documents & accounts; log
Quantitative	-	Survey (n=105); Dutch agricultural census	Survey (n=111); photo analysis (n=199)	Two surveys (n=342/n=563); food production capacity

1.9 Outline of this thesis

The next three chapters (2, 3 and 4) follow the outline set out in Figure 1.1, that is, the historical context of agriculture in Almere planning practices, the emergent planning practices of Oosterwold, and Oosterwold residents' perception of and emerging routines in urban agriculture. Chapter 5 analyses the process of action research, which unlocked and enabled the change in Oosterwold planning practices. The concluding chapter considers the collected findings from this research and formulates the main conclusion and recommendations. I confer that agriculture adds value to the peri-urban space, but that this added value is not only related to food production. To ensure agriculture's position in the peri-urban space, planning practices need to include agriculture and its carriers.



Chapter 2

Thoughts for urban food: A social practice perspective on urban planning for agriculture in Almere, the Netherlands

This chapter has been published as:

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Abstract

A growing group of cities feels responsible to feed urban populations sustainably. This has stimulated cities to embrace urban agriculture as an alternative in their food system orientation. However, while urban agriculture in all its diversity has arrived in the urban fabric and at planners' desks, it largely remains an outsider to urban planning practices of peri-urban zones. How could city's planning practices transform into practices that include urban agriculture in peri-urban zones? This paper reflects at this question with the analyses of the becoming of planning practices of the Dutch city of Almere that fully integrate urban agriculture in a new urban area: Oosterwold.

Using a social practice perspective, our study unpacks the shifting position of agriculture in the planning practices of Almere over a 55-year period. The paper describes the historical reconstruction by examining the meanings, materials and competences in four periods of the urban planning practices. Our analysis reveals that the integration of agriculture into the city's planning is not just a sign of the times. Agriculture has always been an element of planning from the city's inception. Nevertheless, it took 55 years to emerge as hybrid urban-rural planning practices that fully integrate agriculture in urbanisation. Furthermore, the case demonstrates how this integration of agriculture stretches the professional domain of urban planning as it required interdisciplinary and unconventional operation as well as leadership to organise.

2.1 Introduction

Today's reality of rapidly expanding conurbations, on the one hand, and concerns about the impact of the current - globally oriented - food system, on the other hand, prompts a global awareness about how to feed cities sustainably (e.g., Cabannes & Marocchino, 2018; Mansfield & Mendes, 2013; Morgan, 2014; Seto et al., 2010). Interests in feeding urban populations are increasingly stimulating local authorities to consider a city-regional orientation on food systems, as exemplified by the members of the Milan Urban Food Policy Pact (Blay-Palmer et al., 2018; Ilieva, 2016; Mansfield & Mendes, 2013; Morgan, 2014; Opitz et al., 2015). Local authorities realise that agriculture within a city-region is generally overlooked by and disconnected from the urban domain and that a reconnection between city and local agriculture potentially contributes to a sustainable city-region food system (Blay-Palmer et al., 2018; Morgan, 2014; Opitz et al., 2015). The urgency to locally reconnect agriculture becomes explicit when the global food system is under pressure due to uncertainties that might affect local food supply, like geopolitical crisis, natural disasters, climate change or the recent Covid-19 pandemic.

In the Global North, the focus of this paper, a growing group of cities considers urban agriculture as a promising avenue for improving both the sustainability and resilience of the city-region food system (Morgan, 2014; Opitz et al., 2015; Vitiello & Wolf-Powers, 2014). Urban agriculture here is understood as "an industry located within (intra-urban) or on the fringe (peri-urban) of a town, a city or a metropolis, which grows or raises, processes and distributes a diversity of food and non-food products, (re-) using largely human and material resources, products, and services found in and around that urban area, and in turn supplying human and material resources, products, and services largely to that urban area" (Mougeot, 2000: 10). Urban agriculture thus depends on urban resources, competes for land with other urban functions, is influenced by urban policies, and uses and supplies urban products and services. The notion of 'urban' in urban agriculture defines not so much its features or its location but rather its connection to the adjacent city through markets, resources and services.

In early times urban agriculture was an integral part of the urban domain, but with the industrial revolution - specifically the development of fast and long-distance transport and food conservation - agriculture lost that position (Steel, 2008). In the Global North urban agriculture regained interest with Ebezener Howard's garden city design which revalued and integrated it in the urban and peri-urban planning (Cabannes & Ross, 2018). More recently, a renewed interest of urban planning in urban agriculture emerged with scholars like Pothukuchi and Kaufman (2000), and Bohn and Viljoen (2012). Simultaneously urban agriculture initiatives, either with or without support of planning, like school- and community gardens and urban farms transpired into the urban fabric (Morgan, 2014; Vitiello & Wolf-Powers, 2014).

However, urban agriculture largely remains an outsider in the planning of peri-urban zones (Opitz et al., 2016). The peri-urban zones, the focus of this paper, are understood as "spatially and structurally dynamic transition zones where land use, populations, and activities are neither fully urban nor rural" (Seto et al., 2010: 177). When planning for peri-urban zones, urban planners still leave agriculture out of their plans; farming is considered a rural business and farmland as just "awaiting development" (Ilieva, 2016: 79). Nevertheless, farmland in the peri-urban zones is gradually infiltrated with non-agricultural, urban usages, which fragments the farmland and consequently the remaining agriculture dwindles. Pressure at agriculture even occurs when the peri-urban farmland is legally protected by zoning and urban containment programs (Akimowicz et al., 2016; Olsson et al., 2016; Ustaoglu & Williams, 2017). Urban planning practices require fundamental change when striving for inclusion of urban agriculture in peri-urban planning.

This paper analyses a change of planning practices that led to a hybrid urban-rural planning which integrated urban agriculture in a peri-urban development. The analysis is guided by the key question of how to include urban agriculture in peri-urban planning and by the sub-questions of who is engaged and what elements are instrumental. By reflecting on these questions, this paper considers the nature of peri-urban planning in the debate on how to feed cities sustainably.

In the next section the paper proceeds with the presentation of social practice theories, fundamental to our analytical framework. Next a description of the applied methodology is provided which includes an introduction of our case study, the Dutch city of Almere. Finally, we present and analyse our findings, followed by a discussion and the conclusions.

2.2 Analytical framework

In this study we conceptualise urban planning as a social practice. We apply a social practice approach because it takes the 'middle ground' between a focus on institutional structure and human agency. A social practice is understood as a reproductive activity enacted by knowledgeable and capable human agents, i.e. the practitioners -- in our case urban planners -- (Giddens, 1984; Schatzki, 2016; Spaargaren et al., 2016). Social practices are "a temporally evolving, open-ended set of doings and sayings linked by practical understandings, rules, teleo-affective structure, and general understandings" (Schatzki, 2002: 87). They are not isolated activities but interconnected -- bundled -- with (and thus influenced by) other practices and contextual developments (Shove et al., 2012). The practice of urban planning, for example, is interwoven with practices, such as designing, economic planning, social housing, as well as impacted by larger societal developments including the economic climate, environmental concerns, and growth and composition of the population. All these aspects influence how planning practices are performed.

Social practices are inherently dynamic, they have their own life-cycle: practices emerge, solidify, transform and eventually fall apart over time. A social practice approach thus offers "untapped potential for understanding change" (Shove et al., 2012: 1). Although predominantly applied in studies of consumption (like food, mobility and energy), the practise approach is increasingly trickling into the domain of professional studies (e.g., Gartner et al., 2016; Loscher et al., 2019). This includes urban planning. Binder and Boldero (2012) used a practice approach to analyse the introduction of sustainable construction targets in urban development in Australia. Cohen and Ilieva (2015) applied a social practice approach to study change in NYC food planning. Lamond and Everett (2019) used it to understand the community preferences in the UK for Blue-Green Infrastructures (BGI). These studies highlighted that a social practice approach was supportive to obtain an understanding on how and why change occurred (Pölling et al., 2016).

In this study we use a social practice approach to deconstruct the changing position of (urban) agriculture in the urban planning of Almere. Our analysis consists of three components (Figure 2.1). Firstly, we zoom in on how planning practices are performed over time as the result of the dynamic interplay of three elements (Shove et al., 2012): (1) meanings (e.g. symbolic meanings, discourses), (2) competences (e.g. skills, know-how), and (3) materials (e.g. technology, material artefacts). That is, how and why links between these three elements arise, persist, disrupt and disappear. Secondly, we focus on the practitioners of the practice and more precisely the shifting composition of the practitioners performing the planning practices over time (Reckwitz, 2002). This is specifically relevant given the professional nature of urban planning practices. Thirdly, zooming out, we observe the shifting urban planning practices as embedded in the wider societal context of urban planning in the Netherlands (Nicolini, 2009).

In the next section we present our case study, the planning of Almere, and our social practice informed research methods.

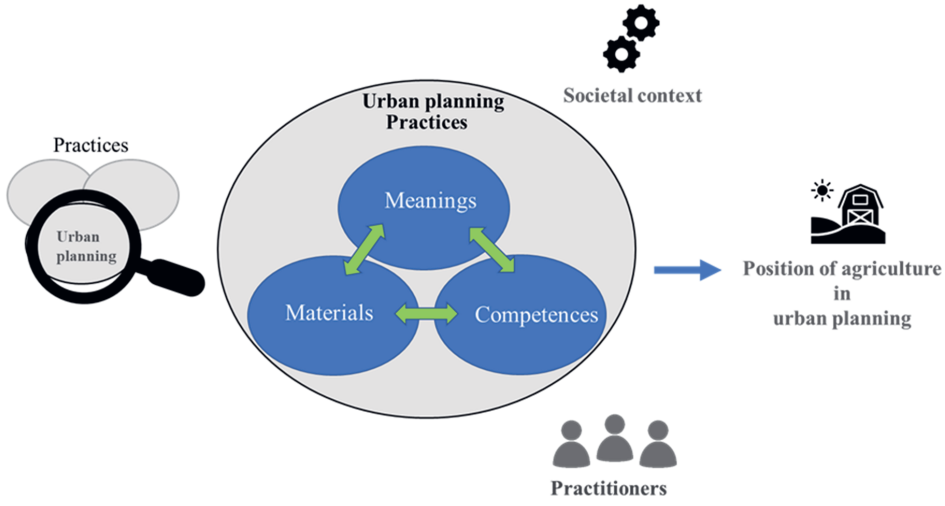


Figure 2.1. Analytical framework of this paper.

2.3 Research methods

2.3.1 Case study – the planning of Almere

This study is based on the history of planning the city of Almere, the Netherlands. Almere was founded about 45 years ago and is located on the outskirts of the Amsterdam Metropole (Figure 2.2). Almere is planned and developed on the reclaimed land of the Southern Flevopolder (Figure 2.4). The city is a typical exponent of the Dutch spatial planning after WWII: a top-down and meticulously planned and developed city strictly segregated from its agricultural hinterland. In contrast, Almere's newly planned area, Oosterwold (Figure 2.2), marks a watershed in the Dutch spatial planning. Oosterwold planning integrates agriculture into urbanisation; the Oosterwold Master Plan dedicates at least 50% of Oosterwold's 4,300 ha to urban agriculture (Almere, 2012). In this respect, Almere provides a unique opportunity to analyse the elements that were instrumental to the emergence of urban agriculture in the urban planning practices.

This paper focuses on the period from 1958 to 2013 to deconstruct the changing planning practices of Almere. The year 1958 is significant because the Dutch government launched a national spatial planning document that -- for the first time -- emphasised the need for urbanisation in both the Eastern (reclaimed in 1957) and Southern part of the Flevopolder (reclaimed in 1968) (OWL, 1958). The planning of substantial urbanisation in both Flevopolders

marked a new era as the Flevopolders were originally dedicated to agriculture. The analysis ends in 2013 with the regional and national approval of the Master Plan of Oosterwold (Almere, 2012).

Figure 2.2. The Dutch city of Almere (208,000 residents in 2019) with its new district Oosterwold. Source: (Almere, 2012).

2.3.2 Methods

Social practices as a methodological approach captures the actual performed activities of practices while observing 'sayings' and 'doings' (Schatzki, 2002; Shove et al., 2012). Given the historical reconstruction approach of this study, the possibilities for a direct capture of performed activities are limited. To analyse the pathway of change in the planning practices of Almere, we used qualitative research methods, consisting of historical document analysis and in-depth stakeholder interviews, capturing 'sayings' about 'doings' in past and present times.

Our study started with the analysis of 31 planning documents (both official and non-official; Appendix A) issued by the local authorities between 1958 and 2013, of which some are cited in this paper. As a reference, we consulted national spatial planning policy documents published between 1958 and 2013 (n = 7). In addition, we drew upon a broader range of documents and accounts reporting about the planning of Almere and Oosterwold, including published historical accounts from involved actors as well as media communications, personal notes of exchanges with planners, and summaries of meetings and workshops of the first author. From 2006 to 2013, the first author carried out projects and participated in workshops and design sessions commissioned by the Oosterwold planning team as well as its precursors.

The document analysis was synthesized with semi-structured interviews (n = 17) with planners, (landscape) architects, (social) geographers, economists and policymakers connected to Almere planning. The interviewees were selected based on their role and function as well as on the period they were active in the planning process. The group of interviewees bridged the Almere planning between 1971 and 2013, each decade was represented by at least four interviewees (notice that some interviewees spanned more than one decade). The interviews were carried out during summer and autumn 2018. They lasted about one hour each, were recorded and transcribed, except for one interview that took place through e-mail. All interviewees gave their consent to use the material in this research. The interviews and documents were analysed to identify the practice elements (e.g. meanings, competences and material), the practitioners engaged with the Almere planning practices, and the societal context in which the planning took shape. Within this analysis our focus was on agriculture in more general terms, rather than on the specific notion of urban agriculture, because the explicit reference to urban agriculture emerged in Almere planning only after the year 2000.

2.4 Results

Spatial planning in the Netherlands after WWII was guided by a strict spatial segregation between cities, seen as residential zones, and rural areas, predominately seen as agricultural zones. The strict segregation aimed to keep the scarce rural landscape open in a densely populated country, and it developed an extensive set of rules, blueprint development plans and a highly institutionalised approach to spatial planning (Gerrits et al., 2012; Roodbol-Mekkes et al., 2012). National spatial planning was guided by the Ministry of Home Affairs and Spatial Planning and is generally considered successful because urbanisation remained limited and concentrated even in areas with high urban pressure (Koomen et al., 2008). Rural areas, in contrast, were the domain of Dutch Agriculture, which ascended to become a competitive player in the global food system. It is against this background that the planning of Almere evolved.

Within the timespan of our analysis (1958–2013), we distinguish four periods in which we uncover the shifts in urban planning practices and simultaneously analyse why, how and to what extent agriculture co-constituted these practices. Figure 2.3(a-d) presents the planning practices as well as the resulting plan of each of the four periods.

2.4.1 Period 1: 1958-1971

This period starts with the first national spatial planning document (1958) in which the construction of a city is projected in the Southern Flevopolder and ends with the formal approval in 1971 to develop Almere. The foundations of Almere were laid in the 1960s atmosphere of optimism in modernisation (Van Der Wal, 1997).

Societal context

The Flevopolder is the final piece of what started in 1918 as the so-called law on reclaiming the 'Zuiderzee'. This law was initiated to protect the shoreline, combat salinization and improve the water management of the northern part of the Netherlands (Goverde, 1987). New polders formed a key element in the law. These new polders would eventually provide the Netherlands with good agricultural land in the years of austerity after World War I and notably after World War II. The Dutch government established a dedicated project organisation, the Flevopolders Development Authority (FPDA), to engineer the newly reclaimed land to accommodate an 'elite' agricultural society (Goverde, 1987; Van Der Wal, 1997).

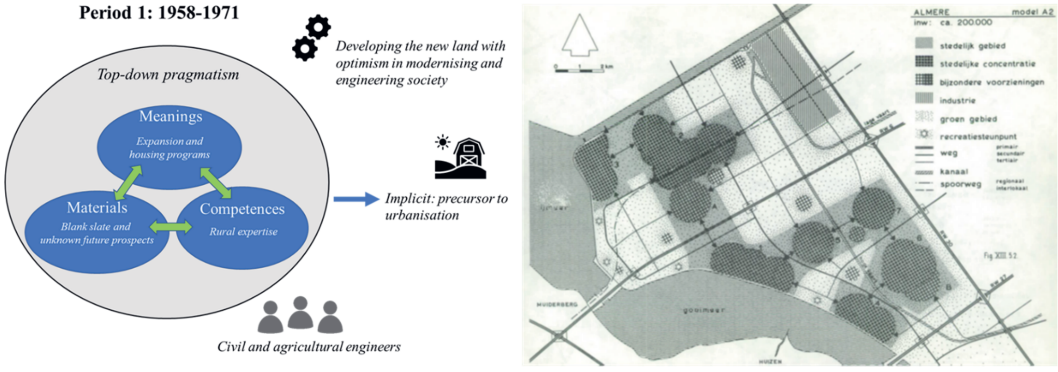


Figure 2.3a. Planning practices of period 1 (left) leading to the first 1970s plans to accommodate 125,000 to 250,000 residents within 25 years in Almere (right). The plan suggested a poly-nuclear layout of 5–8 built-up nuclei consisting of homes, shops and other urban functions and surrounded by green intra-nuclear areas. Source: (Verkenningen, 1970).

Until the mid-1950s, small scale urbanisation in the polder was aimed at benefitting the agricultural community. However, in the late 1950s this changed when urbanisation was reconsidered as a strategy to mitigate the expected expansion of the northern wing of the Randstad, a megalopolis in the central-western Netherlands primarily

consisting of the four largest Dutch cities and their satellites. Although the need for new cities was already mentioned in the planning document of 1958, only the Second National Spatial Plan of 1966 effectively and officially announced urbanisation in the Southern Flevopolder (Tweede Nota, 1966). Two years later this new urbanisation plan was officially ratified by the national government and its realisation was allocated to the south-western part of the newly reclaimed Southern Flevopolder (Berg et al., 2001). The national government mandated FPDA to carry out a reconnaissance study of this new urbanisation, although both the city of Amsterdam and the city of Utrecht eagerly applied for this role as well. Launched in 1970, the reconnaissance document proposed that the new urbanisation -- Almere -- would consist of a poly-nuclear layout (Figure 2.3a). This poly-nuclear layout was criticised by the national planning institutions because it was considered anti-urban (Van Der Wal, 1997). However, criticism did not gain the upper hand and a pragmatic attitude dominated, leading in 1971 to the formal approval by the national government to develop Almere (Nawijn, 1988).

The practitioners

The FPDA consisted of agricultural and civil engineers who had little experience with urbanisation. Although they had developed some polder villages and had started to develop the city of Lelystad in the Eastern Flevopolder, their main task was to prepare both Flevopolders for agriculture. One of the former Almere planners (Interviewee 7) recalled the FPDA organisation with the phrase "… the FPDA created its polders and also Almere purely top-down, neatly calculated … One of the first things planned in Almere was the cemetery. It was the director of the FPDA who said, we are not going to let people live here if they cannot be buried here as well". Placing the reconnaissance of Almere under the auspices of FPDA meant that it resorted under the Ministry of Public Affairs instead of the customary Ministry of Home Affairs and Spatial Planning. This unusual position and background gave the FPDA the opportunity to operate relatively independently in its own realm -- the Flevopolder --, unencumbered by traditional institutions, conventions, and programs of urban planning.

Planning practices

The FPDA started the planning of Almere with a blank slate, that is, a desolate, muddy, flat and open polder landscape. Its only physical features at the time were a dyke in the southwest and a large scale agricultural grid of ditches and fields to the northeast (Figure 2.4). As mentioned before, the FPDA proposed a poly-nuclear layout for the future city. They wanted to remain flexible in Almere's development in the light of its yet unknown future dimensions, preferences and needs. Specifically, the experiences with the rather rigid, centric and unrealistic design of Lelystad informed the need for more flexible design approaches. In addition, Lelystad's development taught the FPDA that creating a new city revolves around future residents and how they like to live and not around symbolic (Van Der Wal, 1997). A high level of urbanisation in Almere was rejected. Within the FPDA the common ethos prevailed that residents prefer to live in a pastoral-like (rural) setting in one-family homes with a garden and with all urban functions (leisure, work, shops, and green) within walking distance and integrated into an urban environment (Berg et al., 2001). The experience that the FPDA had with integrating nature, agriculture and leisure in other parts of the polder directed the desire to integrate multiple functions in the planning. As a FDPA planner mentioned in Berg et al. (2001: 19): "My involvement in the integration of agriculture, nature, recreation and forestry [in the Flevopolder] constituted the idea of the poly-nuclear layout. Such a structure would also allow us to integrate these elements into urban areas".

The FPDA underlined the importance of the green intra-nuclear areas between the built-up areas as the city's basic structure (Figure 2.3a). They recognised these areas as the backbone to the new urbanisation as well as a functional part of the future city. The reconnaissance document provisionally dedicated at least one third of the future city's spatial room to green intra-nuclear areas. In addition, it provided for undefined intra-nuclear areas for unanticipated future functions. Although agriculture was not specifically mentioned as a user of these green intra-nuclear areas, the reconnaissance report suggested that agriculture had at least a precursor -- place making -- function to urbanisation. This spatial function was most prominent at the city's eastside. In the FPDA's perception, agriculture and urbanisation formed communicating vessels within the projected urban development: two to four urban nucleus were projected, whereby the number and size were contingent on the expected number of future residents.

2.4.2 Period 2: 1972–1983

This period starts in 1972 with the national approval of Almere's foundation and ends in 1983 with Almere's formal structure plan although Almere had already housed its first residents by 1976. Almere is planned, designed and developed in a period that echoed anti-establishment sentiments and social and environmental pessimism.

Societal context

In 1972, the FPDA was tasked to develop a city for 125,000 to 250,000 residents by 2000. It had to be an independent city and not a suburb of Amsterdam or Utrecht. For this specific urbanisation task, the FPDA appointed the task force Project Office Almere (POA) to implement the urbanisation, and in doing so, it bypassed the criticism that the FPDA organisation could not develop a city. The POA formally resided under the FPDA, but in practice, the POA operated practically independently. The FPDA was too preoccupied with the further development of the Flevopolder and the city of Lelystad, in particular, to closely monitor the POA's activities.

In 1977, the national government ratified its Third National Spatial Plan (Derde Nota, 1977). Key to this plan was a controlled and concentrated urbanisation within a selective group of 10 Dutch cities; Almere was earmarked as one of them. The Third National Spatial Plan positioned Almere at the core of urban development of the northern wing of the Dutch Randstad. Almere had to accommodate about 24,000 of the needed 100,000 homes in the period 1980–1990.

A concept version of Almere's structure plan was released early 1978, and after adjustments the official plan was approved in 1983 (Figure 2.3b).

The practitioners

In 1971, the FPDA started to recruit POA employees, and within a few years, the organisation had evolved into a project office of about 80 people, predominantly young, urban academics from various disciplines: social scientists, geographers, planners, economists, designers, constructionists, architects and landscape architects. Stirred by the early 1970s atmosphere of anti-establishment sentiments, POA's young academics contradicted and contrasted with the traditionally and hierarchically organised FPDA. As one POA planner (Interviewee 16) memorised: "We were a kind of Fremdkörper [odd man out] in the FPDA". Another former POA planner (Interviewee 10) mentioned: "It was the time of flower power, we were super democratic, so everything was voted on. It was one big chaos and at a certain moment [late 1972] they [FPDA] hired a project manager to improve the effectivity of the [POA] organisation". The new project manager transformed the rather chaotic group into a coherent project organisation. Under this organisational leadership, the POA methodically designed, devised and developed the city in every detail.

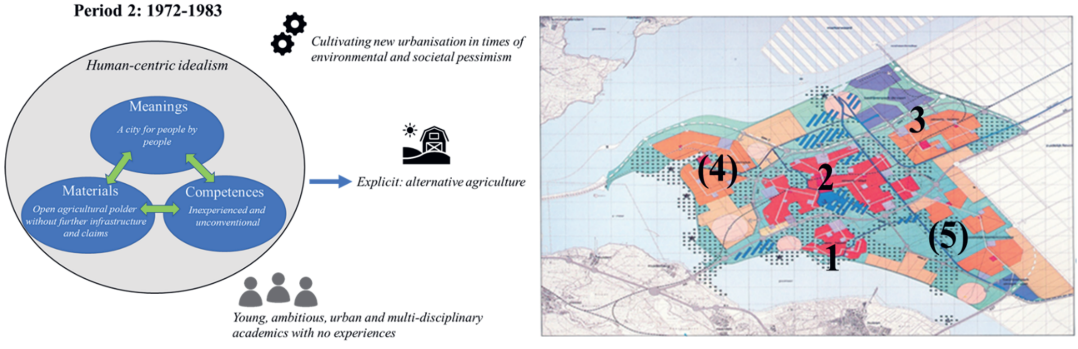


Figure 2.3b. Planning practices of period 2 (left) leading to the 1983 poly-nuclear plan of Almere (right). Numbered (1–3) are the initial urban nuclei to be developed by the year 2000. The preliminary West (4) and East (5) were to be fully developed only after 2000. On the city's eastside, a complex of villages was planned to cumulatively accommodate 35,000 to 45,000 inhabitants in the future. Source: (Almere, 1983).

Planning practices

Despite intense debates about the future city's layout, it was not questioned that Almere should become the opposite of its predecessor Lelystad. Lelystad was planned in an atmosphere of modernisation with the car as the design's pivotal element (Van Der Wal, 1997). In contrast, the POA, influenced by the environmental and societal pessimism of the 1970s, positioned people and a healthy environment as central to the new city's design; Almere should be a city for people by people (Nawijn, 1988). The POA formulated six societal goals as fundamental guidelines to the new city's design (Table 2.1).

Table 2.1 The six societal goals that constituted Almere planning. Source: (Almere, 1974).

	Goal
1	Almere has to contribute to regional overflow of citizens
2	Almere keeps perspectives open for future needs
3	Almere has room for everyone
4	Almere supports individual development
5	Almere contributes to the maintenance of a healthy natural environment
6	Almere contributes to the development of an urban culture and identity

The emphasis on liveability and the green intra-nuclear area meant that an integrated planning approach was needed. The design of Almere started from a clear hierarchy in which the green intra-nuclear space was central in shaping the framework of the urban areas. This design hierarchy was inspired by Ebezener Howard's concept of the garden city in which the green intra-nuclear areas are an inseparable and coherent part of the urban layout (Cabannes & Ross, 2018). The green intra-nuclear space, including agriculture, had an explicit function in the future city. Agriculture fulfilled a dual role in Almere's planning practices, first as the temporary user of land preceding the construction of infrastructure and housing, and second, as part of a rural-urban living environment. Concerning the second role of agriculture, the POA was inspired by the emergent alternative agriculture movement as one of the pillars of Almere's outdoor space. In the early 1970s this movement strived for an alternative to conventional agriculture, therein it was the precursor of the later organic agriculture. Alternative agriculture could develop between the eastside complex of villages and the polder (Figure 2.3b), which would, in the ideas of the planners, contrast with the strict mono-functional character of agriculture in the rest of the polder. Agriculture in the urban fringe could support the city with several new functions, such as outdoor activities, recreation, attractive landscapes and natural elements. One of the documents of POA about the position of agriculture in future Almere noted: "Agriculture has a clear meaning for city dwellers as their food provider and should therefore not be treated as a residual function. Moreover, agriculture can have a very positive contribution to the city of Almere and therefore deserves the necessary attention" (Almere, 1978: 1).

In the POA's view, the city and its intra-nuclear areas were complementary. To emphasize the importance of this concept, a special team was appointed to coherently design and plan the intra-nuclear areas. However, their final plan (Almere, 1978) was never ratified because the FPDA considered it too complicated and too innovative in the context of the already complex debates about Almere's future development. Nevertheless, the 1983 Structure Plan of Almere adopted many of its elements. For example, about 2,500 ha of Almere's total of 14,000 ha were earmarked as permanent agricultural land.

2.4.3 Period 3: 1984–2003

A new period for Almere started in 1984 when the city became an ordinary municipality with a council, politicians and a civil administration. The launch of the Structure Plan Almere 2010 in 2003 marked the end of this period (Almere, 2003). Between 1984 and 2003, the city expanded to more than 150,000 inhabitants (Figure 2.5).

Societal context

While Almere became an established municipality, the national government handed over the land rights to the city at a low cost, expecting that the municipality would be able to use the land to invest in real estate and thus generate revenues. These revenues should enable the municipality to establish public facilities, such as a hospital, a library, parks and schools. This construction thus encouraged the new municipality to invest in residential construction projects; the more new homes the better for the municipality's treasury. Moreover, in the late 1980s and early 1990s, national spatial policies urged Almere to increase the speed of urbanisation to accommodate the overspill of the Amsterdam Metropolitan area (Vinex, 1993; Vino, 1998). The city's growth climbed to 2,000 to 3,000 new homes per year. This growth took place in a neoliberal atmosphere in which public-private cooperations in real estate development dominated urban planning in the Netherlands.

The Structure Plan Almere 2010 anticipated the city's further expansion and suggested condensed urbanisation on its western side and a rural-urban development on its eastern side. It was thought that the eastside development should integrate urbanisation with an already devised nature zone across the Flevopolder. The document marked the end of the expansion period within the municipality's borders (Almere, 2003).

The practitioners

The creation of Almere municipality implied that the responsibility for the further planning and development of Almere was transferred from the POA to the new municipality's departments. Some POA staff were transferred to the new municipality, while others stayed with the FPDA. As former POA staff members gradually integrated into the new municipality's organisation, their leading position in Almere's planning diminished. By 2000, most former POA staff had left the municipality. The young municipality was now fully focused on urban expansion and the overall view on the city's planning disappeared. A POA planner (interviewee 10) who was repositioned at the new municipality explained: "In 1984 the power of the POA was transferred to the new municipality. A city council was established with rather inexperienced policymakers, like a bus driver and a kindergarten teacher, they were given the responsibility for one of the largest constructing fronts of NL, which meant that those councillors were completely occupied by urban development. They didn't care at all about the green intra-nuclear areas". Building houses provided the municipality with an increasing cash flow and the key roles within the municipality planning shifted from the former POA members to the department of land exploitation, project development and economic affairs. Departments in charge of the urban landscape and overall planning were manoeuvred out of decision making. A planner (Interviewee 4) who was hired by Almere in the 1990s, portrayed: "Almere became a cash machine. So, if you were the manager of the municipal land office you were in a position to hand out a lot of 'cakes' every year. You hand out cakes to real estate developers. And you hand out cakes to the city council… Well, that's… then you are the king. Moreover, land management, project management and economic affairs were combined in one department. It was all about the money. The discussion about the quality of the city went to the background".

Planning practices

The establishment of the municipality and the creation of the department responsible for the urban development 'normalised' the planning practices of Almere. The establishment of Almere municipality fragmented the functional spatial integration in urban planning that the POA had introduced (Wezenaar, 1994). The young municipality focused on delivering new houses and infrastructure to fulfil the national government's policy targets. According to the custom of this period, public-private cooperation with commercial real estate organisations prevailed. The city's poly-nuclear layout started to be questioned and the explicit function of green intra-nuclear space gradually disappeared in urban spatial planning. These changes also eroded the position of agriculture (Figure 2.5). Although the municipality's development plans from the 1980s still confirmed that agriculture was considered an inseparable part of the city's intra-nuclear space, in reality this position slowly evaporated in the planning. Areas initially

earmarked for agriculture were eventually sacrificed to urban expansion. The Structure Plan Almere 2010 expected that after 2010, the municipality would hardly have any room for agriculture (Figure 2.3c).

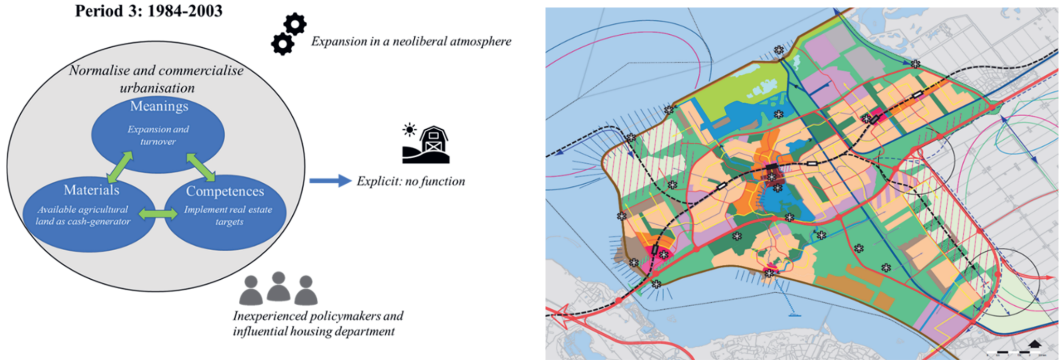


Figure 2.3c. Planning practices of period 3 (left) leading to the Structure Plan Almere 2010 (right). The remainder agricultural land at the west- and eastside (red shading in pale green) is predominately designated to urbanise after 2010. Source: (Almere, 2003).

2.4.4 Period 4: 2004–2013

In 2006, the Dutch parliament approved a new national program to improve international competitiveness of the Amsterdam Metropolitan Region (Nota Ruimte, 2006). This program assigned Almere and its regional partners the task of expanding Almere with another 60,000 houses over the next 30 years. In 2006, the parliament also approved the law on Spatial Planning, which legally shifted planning tasks from national to regional authorities and municipalities (Gerrits et al., 2012). This decentralisation of spatial planning created room for a regional organisation and execution of planning. This period ended in 2013 with the regional and national approval of the Master Plan of Oosterwold.

The 2004–2013 period has two contrasting sides: an economically optimistic side before and a pessimistic side after the 2008 financial and real estate crisis. In addition, in the same period environmental awareness energetically hit policy agendas due to the climate crisis.

Societal context

In this period Almere not only considered the conditions needed to accommodate the 60,0000 new homes but also critically reflected on its first 30 years of development. The reflection brought to light that the national focus on real estate development had left Almere with little variation in its type of housing, an insufficient infrastructure and limited amenities to create an attractive living and working environment. The city had become too much subjected to the national housing program objectives. A policymaker (interviewee 15) expressed the local feeling: “It accumulated in the years after 2000. The city council had something like … We are stuck with traffic jams, and the national authorities only dump more houses over here”. This feeling ignited the political awareness that an expansion of the city could work only if it went hand in hand with improving the city’s quality.

As a consequence, the council representatives who were elected in 2006 opted for a radically different approach. All existing structure plans, formalised or not, were abrogated. A newly appointed chief councillor, who left the national parliament for Almere, started the Almere 2.0 program. The program allowed for a renewed interest in the city’s quality: its poly-nuclear layout. The chief councillor underlined in the Almere 2.0 Master Plan: “Continuation according to the [concept] structure plan of 1978 forms the basis of our [Almere 2.0] plans… Precisely by building on the old plan, past and future are consistently intertwined” (Almere, 2009: 10). The Almere 2.0 program identified the emergent urban agriculture as one of the means to achieve its ambitions. Urban agriculture could provide the city with more functions than just food production as noted in the Almere 2.0 Master Plan: “City and agriculture form a

contemporary combination. They reinforce each other. Urban agriculture makes the city greener and more sustainable" (Almere, 2009: 90).

During the elaboration of the Almere 2.0 program, the 2008 financial and real estate crisis badly affected the perspectives to further develop Almere's real estate. The annual production of new houses quickly dropped from over 2,000 new houses in 2000 to around 500 in 2013. The crisis plunged the city into financial debt and forced it to economize. Nevertheless, the Almere 2.0 Master Plan was launched in 2009 and subsequently approved in 2010. In 2012, the city launched the Master Plan of Oosterwold in cooperation with national authorities and the adjacent municipality of Zeewolde (Almere, 2012).

The practitioners

The Almere 2.0 program was developed by a multidisciplinary team of insiders and outsiders with a significant contribution from urban planners and architects of MVRDV, an internationally renowned Dutch architecture and urban design company. The freshly formed Almere 2.0 team worked predominately outside of the municipality's planning organisation. The chief councillor directed the Almere 2.0 team, gave the team freedom to explore options, excluded commercial real estate developers from the team, informally took decisions and directly negotiated with the regional or national administration when needed. Interviewee 1, who was part of the Almere 2.0 team, portrayed the role of the chief councillor: "…in the end [the chief councillor] played an important role in shaping the planning of Almere 2.0 …We really had to embrace the poly-nuclear layout and stick to it, albeit there was [at the national level] the urge to adopt condensed urbanisation".

Within the same context, a small project team of planners, predominantly recruited from outside the municipality staff and with diverse backgrounds (urban and rural) and expertise (amongst others urban agriculture), along with MVRDV, started to plan Oosterwold in 2010. The Oosterwold planners could work in relative freedom, although they needed to keep the pre-investment costs of the new area as low as possible. In addition, the city's attention was on its westside. Although originating from different organisations and with different backgrounds and expertise, the Oosterwold planners were united in their aversion to large-scale commercial real estate development. They aimed to build on the residents' self-organisation capacity.

Planning practices

The city introduced the seven Almere Principles to guide the city towards a sustainable future and to retrieve the city's identity as a people's city (Table 2.2). These principles gave the planning practices of Almere 2.0 program a new and clear direction, or as interviewee 15 explained it: "We just had a very powerful and clear vision [Almere Principles] of how we could make that city unique". Pre-existing plans, some of which had already been approved, were pushed aside. The planning practices opened up for new actors and expertise by deliberately moving away from the standard approach that was guided by experts from the responsible departments within the municipality and its allies. 'Empower people to make the city' - the overarching seventh principle - was the rationale that buoyed the planners. The city started to experiment with the programming of self-organisation of private housing development in another part of the city. Here self-organisation implied that the future home-owners as much as possible are responsible for the design and construction of their homes. Even in this time of financial crisis, the self-organisation of private homes attracted a wide variety of new residents. This gave the planners the confidence to further develop self-organisation programs.

Table 2.2. The seven Almere Principles. Source: (Almere, 2008a).

	Principle
1	Cultivate diversity
2	Connect place and context
3	Combine city and nature
4	Anticipate change
5	Continue innovation
6	Design healthy systems
7	Empower people to make the city

While the first 30 years of Almere followed a south-north axis of expansion, Almere 2.0 focused on planning the space that was still available at the east-west axis. Almere 2.0 aimed at high urbanisation on the city's westside and at a low density urban-rural development at the city's eastside (Figure 2.3d). The new area east of the city, Oosterwold, was meant to reflect the ideas fostered in the Almere 2.0 program, namely self-organisation and multi-functional landscape. The self-organisation in Oosterwold implies that besides the design and construction of their homes, the new residents also have to self-organise (whether individually or cooperatively) all kinds of infrastructures and facilities, ranging from roads, electricity, waste and sewage systems, to shops and schools. In the Netherlands these are normally organised and provided for by the municipality. In Oosterwold the role of the municipality officials is limited to supervision landowners' compliance with the Oosterwold development rules.

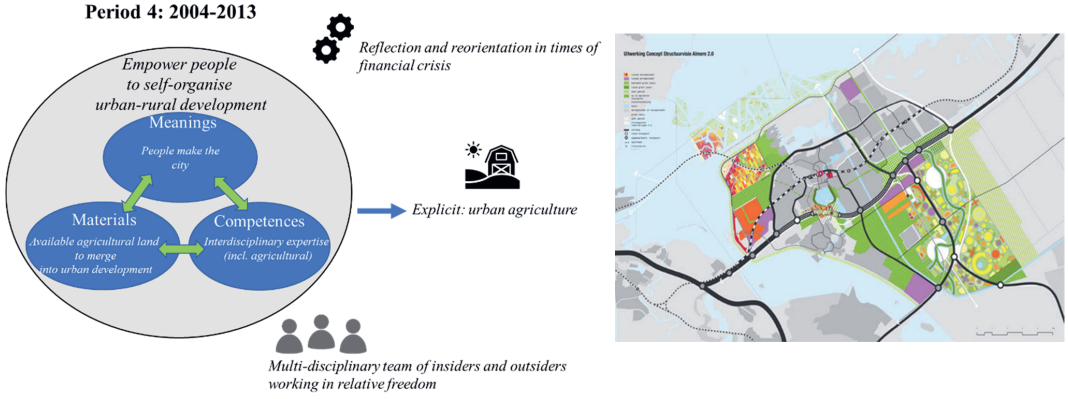


Figure 2.3d. Planning practices of period 4 (left) leading to the Structure Plan Almere 2.0 (right) aiming at high urbanisation on the city's westside and at a hybrid urban-rural development at the city's eastside -- Oosterwold --. Oosterwold stretches into adjacent municipality of Zeewolde. Source: (Almere, 2009).

Oosterwold was regarded to offer the city a multi-functional landscape: combining urban agriculture with homes, scenery, leisure and biodiversity. As noted in the Almere 2.0 Master Plan: "It [Oosterwold] offers a development strategy for a transformation of the large-scale polder landscape into a small-scale landscape with room for living, urban agriculture and recreation" (Almere, 2009: 248). Initially agriculture was not part of the Oosterwold practices, however as interviewee 1 mentioned: "We had plans and ideas to work with nature on a large scale [in Oosterwold] …I can still remember that the conversation altered to use the existing landscape, a polder with very good agricultural land". The Master Plan of Oosterwold eventually aspired to agriculturally produce 10% of Almere future food needs in Oosterwold. In the planned transformation process of Oosterwold, urban agriculture was pivotal in place-making as well as in the area's future green geography. This was confirmed with the Master Plan's requirement for each residential parcel of land to dedicate 50% of the parcel to urban agriculture. The requirement was incorporated in a so-called 'parcel passport', a kind of contract which binds the new land-owner to all the development rules of his/her

specific parcel of land. Each new land-owner has to agree on this parcel passport before being allowed to purchase (and develop) their parcel. Creating this rule, the planners rendered the creation and maintenance of Oosterwold's landscape to its residents. Urban agriculture, thus, neatly fitted the overall frame of the Oosterwold planners, who positioned it as an experiment in self-organisation of a multi-functional landscape with few opportunity and organisational costs, making the area a unique hybrid of urban-rural planning practices. One of the Oosterwold planners (interviewee 2) confirmed: "We saw the development of urban agriculture in the Netherlands and abroad as an inspiring trend. We had a lot of open space and there were no financial risks [for implementation]. It all came together [in Oosterwold planning]. The crises also created opportunities we got a fairly open assignment". Figure 2.6 gives a first impression of Oosterwold anno 2020.

2.5 Discussion

This paper deconstructs the shifting position of agriculture in the urban planning practices of the city of Almere over a 55-year period. It uncovered the planning practices of Almere by concomitantly zooming in -- in terms of 'who was performing the planning practices' and 'what was the interplay between the three practice elements' -- and zooming out -- in terms of 'the societal context in which the planning practices were performed in a given period'-- (Nicolini, 2009; Shove et al., 2012). Table 2.3 summarises the zooming in and out and reveals that the integration of agriculture in Almere's urban planning practices is not just a sign of the times. From the start, agriculture was an integral element of the city's planning practices, albeit the performance was influenced by a dichotomy between urban and rural routines. Initially, the planning practices were carried out by the FPDA engineers, who considered the new polder's rural (agricultural) development as their daily routine. Their successors, the young and inexperienced urbanists from the POA, introduced urban elements into Almere's planning practices, such as putting the urban dweller at the centre of the planning, as well as introducing the utopian garden city design. In the 1980s and 1990s, the practitioners became increasingly embedded in traditional political processes and institutional contexts guided by local as well as national market-driven housing and spatial planning programs. However, from the early 2000s onwards, rural elements re-entered Almere's planning practices. It was the emergent urban agriculture that could balance the dichotomy between the urban and rural elements in the hybrid planning practices of Almere as executed in Oosterwold.

In Oosterwold, the meaning of the green (intra-nuclear) space in liveable cities, a mixed bag of skills and competences, the absence of historical claims on the virgin territory, as well as the context of a crisis with plummeting budgets and a reduced pressure on real estate development allowed for the emergence of the area's hybrid urban-rural planning practices. It remains to be seen how these hybrid practices will evolve when the wider contextual dynamics, such as those in national housing programs, and elements, such as the economic profits of the real estate market gain weight in the future planning practices (Shove et al., 2012). Moreover, fundamentally new and influential to future practices are the roles of the laypersons in the planning practices of Oosterwold. In Oosterwold, the responsibility of the area's development has partly shifted from urban 'officials' -- municipality officials and real estate developers -- and rural 'officials' -- farmers -- to newcomers: Oosterwold's current and future citizens. However, it is beyond the scope of this paper to elaborate on the impact of this shift. Further research is required to assess the position of Oosterwold and specifically urban agriculture in planning practices of Almere.

It is beyond the scope of this paper to answer the question whether or not Almere's chosen path is an effective one to counterbalance the impact of the current global food system. Does a change of living rules as imposed in Oosterwold necessarily lead to changes in the daily practices of the residents? Oosterwold likely attracts a certain type of committed residents, maybe people who already have food production integrated into their routine. However, this probably does not apply for all future 15,000 households of Oosterwold. Will these households also integrate food production into their other daily practices? A change of practices is connected and influential to many other (bundles) of social practices (Shove et al., 2012), which might be significant to the outcome of Almere's imposed change in Oosterwold.

Figure 2.4. Southern Flevopolder, Almere region, 1961 -before- (left) and 1973 -after- reclaiming (right). A polder is an artificial unit of land reclaimed from see, lake, river or moor and enclosed by dikes (embankments). In 1968, the Southern Flevopolder is reclaimed from the lake IJsselmeer, which was an inland see before the 1930s. In 1973 the agricultural grid of ditches and fields (white arrow) was already visible, as well as the first arrangements for the development of Almere (red arrow) (Pictures: ©neo.nl, Amersfoort, 2020).

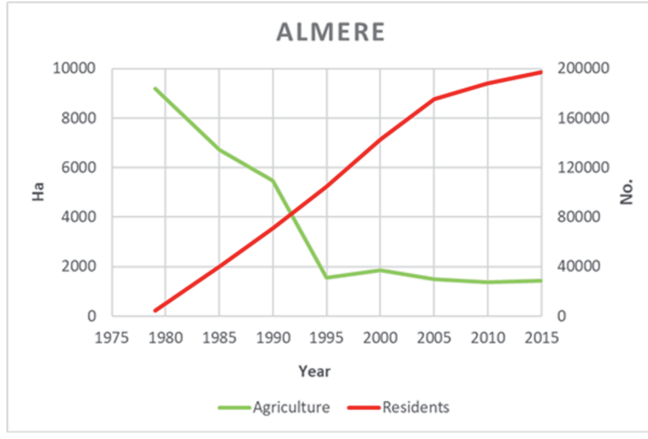


Figure 2.5. Number of residents (right axis) and ha of agriculture (left axis) of municipality of Almere from 1976 to 2015. (Source residents: https://www.almere.nl/over-almere/feiten-en-cijfers/sociale-atlas-almere/ Source agriculture year 1979: (Almere, 1979). Source agriculture (years 1984–2015): https://opendata.cbs.nl/statline).

Figure 2.6. One of the residents of Oosterwold practicing urban agriculture (2018) and an aerial impression of Oosterwold (2020). (Pictures: respectively Arjan Dekking and Gebiedsteam Oosterwold -- ODA --).

Table 2.3. Overview of the becoming of the hybrid urban-rural planning practice of Oosterwold.

	P1 1958-1971	P2 1972-1983	P3 1984-2003	P4 2004-2013
Contextual typology	Developing the new land with optimism in modernising and engineering society	Cultivating new urbanisation in times of environmental and societal pessimism	Expansion in a neoliberal atmosphere	Reflection and reorientation in times of financial crisis
Practitioners	Civil and agricultural engineers	Young, ambitious, urban and multi-disciplinary academics with no experiences	Inexperienced policymakers and influential housing department	Multi-disciplinary team of insiders and outsiders working in relative freedom
Practice typology	Top-down pragmatism	Human-centric idealism	Normalise and commercialise urbanisation	Empower people to self-organise urban-rural development
Meanings	Pastoral urbanisation	A city for people by people	Expansion and turnover	People make the city
Competences	Rural expertise and beginning experience with urban planning	Inexperienced and unconventional	Implement real estate targets	Interdisciplinary expertise (incl. agricultural)
Material	Blank slate and unknown future prospects	Open agricultural polder without further infrastructure and claims	Available agricultural land as cash-generator	Available agricultural land to merge into urban development
Function of agriculture	Implicit: precursor to urbanisation	Explicit: alternative agriculture	Explicit: no function	Explicit: urban agriculture
				→ **Hybrid planning**

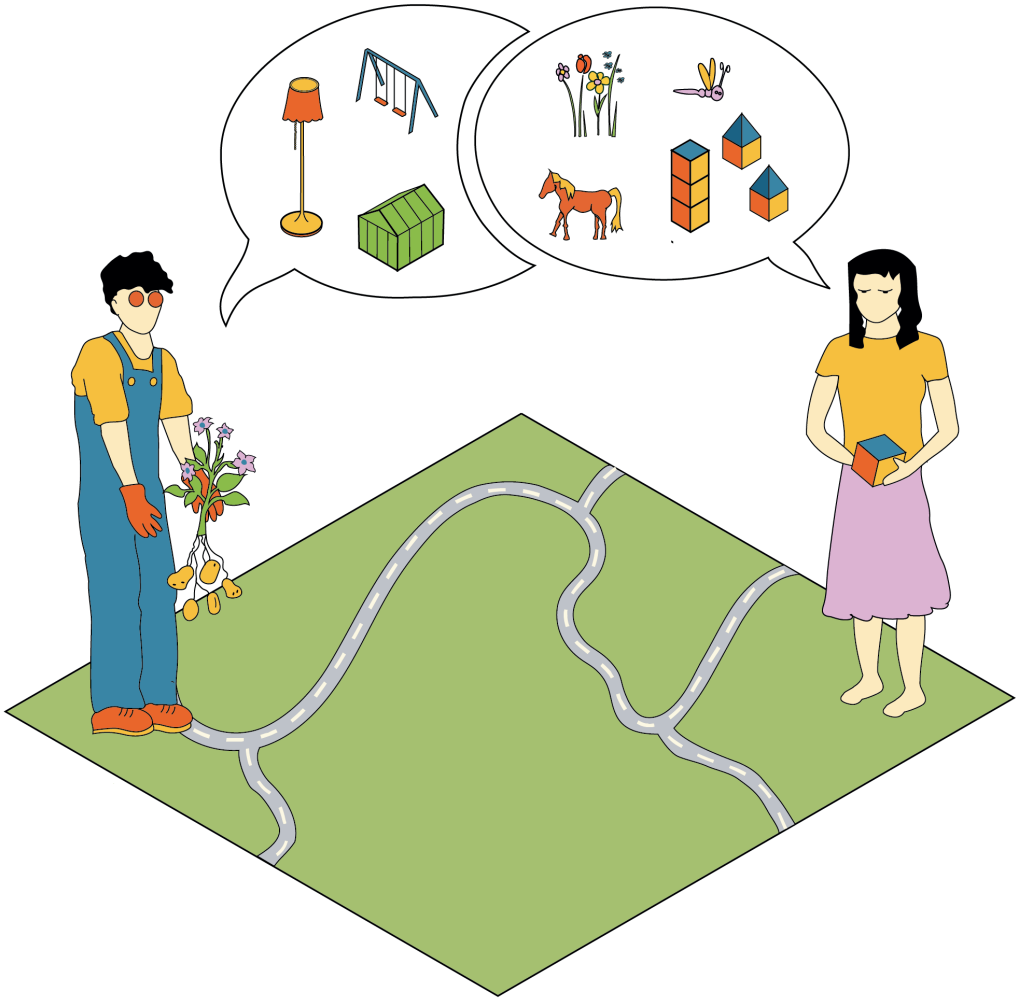
During the 55 years of planning practices in Almere, the context as well as the practices of agriculture dramatically changed in the Netherlands: from the modernisation and institutionalisation of agriculture during the 1960s and early 1970s; the rising environmental concerns and the rise of an alternative agriculture movement -- the predecessor of the later organic agriculture -- in the 1970s and 1980s; the environmental restrictions, market orientation and the decline of the position of agricultural institutions in the 1990s; to the emerging urban agriculture in the 2000s. We did not explicitly elaborate on these changed positions of agriculture in the Netherlands, although it is implicitly part of our study. Agriculture obviously has been the major spatial counterpart of urban planning in the Dutch open space.

Many cities around the world revalue urban agriculture, as conveyed by the harbingers of the Milan Food Policy pact (Blay-Palmer et al., 2018). A myriad of initiatives in food production emerged within the urban fabric, whether or not encouraged by urban planning (Blay-Palmer et al., 2018; Morgan, 2014; Prové, 2018; Vitiello & Wolf-Powers, 2014). However, the urban-rural dichotomy that we revealed in the Almere planning practises still manifests itself in many peri-urban zones. Urban expansion predominantly goes at the expense of the hinterland, which is generally agricultural land. In the current urban planning routine, bricks prevail over agriculture and thus agricultural land decreases at the expense of the expanding urban world, even under conditions in which farmland is legally protected with agricultural zoning and urban containment programs (Olsson et al., 2016; Ustaoglu & Williams, 2017). Oosterwold presents an alternative for peri-urban development, in which agriculture is functionally integrated with urbanisation. Although this integration isn't unique in itself -- with examples ranging amongst others from ancient Angkor (Diamond, 2011) to today's Detroit (Giorda, 2012) --, the uniqueness of Oosterwold is in the scale of the ambition -- 4,300 ha and 15,000 new homes --, the 50% urban agriculture rule and the self-organising nature of the development. The 'urban farming dwellers' of Oosterwold create, as such, a genuine hybrid urban-rural landscape in the peri-urban zone of Almere.

2.6 Conclusion

Although the Almere case has its particular characteristics and change of routines is complex and unpredictable, we may draw three general conclusions from this case. First, the alleged large shift in Almere's planning practices after 2004 is not completely radical. Agriculture has been part of Almere's planning practices from the city's inception. Because agriculture was already part of Almere's identity, the Oosterwold planners described the introduction of urban agriculture as a logical intervention that hardly raised any criticism from either the planning practitioners or the local and regional policy makers. This resonates with Binder and Boldero (2012) and Shove et al. (2012), who suggest that practitioners preferably stay close to established routines. Hence, if change is preferred modifying established routines could be more effective rather than radically breaking with them. Cities that strive for planning practices that integrate agriculture should search for the role of agriculture in their existing identity. However, an integration of agriculture stretches beyond the current professional domain of urban planning, thus requiring interdisciplinary and unconventional operation. Second, our case demonstrates that the agency of an enticing future vision - whether it is the six societal goals of the 1970s or the seven Almere Principles of the 2000s - helped to open up planning practices to the introduction of new practitioners and performances. Third, our case showed the importance of leadership. In Almere it was the leadership of the chief councillor (or that of the project manager of the 1970s POA) that encouraged and sheltered the changes in the planners' routines. Shielded by the chief councillor and inspired by an enticing vision, the planning practitioners could add urban agriculture to their daily routine.

Oosterwold continues with valuing the multi-functional contribution of agriculture to urban and peri-urban development which started with Howard's garden city. Almere's experiment with urban agriculture in Oosterwold stretches the domain of urban planning. It will certainly rouse many new debates about the character of urban planning. Hence, the attempt of this study to uncover the planning practices of Almere responds to the plea from Cabannes and Marocchino (2018: 20) that "although food is beginning to be integrated into planning in various cities and regions, local practices have not yet been made visible to a wider audience and, just as importantly, reflections on their limits and successes remain scarce".



Chapter 3

Feeding the city: A social practice perspective on planning for agriculture in periurban Oosterwold, Almere, the Netherlands

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Abstract

Concerns about sustainable food supply in a city-region context increasingly spark cities' authorities to consider their peri-urban area as a source of food. However, such an orientation seldom leads to critically assess planning for peri-urban agriculture. Peri-urban planning is generally based on segregating agriculture and housing, hence risking to overlook agriculture's potential. This paper unpacks a case of peri-urban planning that intends to integrate farming at a considerable scale in peri-urban development, i.e. the case of Oosterwold in Almere, the Netherlands. Key to Oosterwold is residents' self-organisation and the 51% allocation of the area to agriculture. The case study departs with a literature review to comprehend peri-urban agriculture in the urban regions of Northwest Europe and comparable regions elsewhere, which can be funnelled into three generic typologies of farming: (1) garden, (2) multi-functional and (3) conventional. Subsequently, the Oosterwold planning practices are analysed which uncovers the influential arrival of newcomers in the planning process. These newcomers are the fresh residents of Oosterwold who start practising urban agriculture in the area. They have contributed to an open-ended, iteratively evolving process of spatial planning, in which the interpretation of peri-urban agriculture appeared malleable. As a consequence, peri-urban agriculture in Oosterwold has predominately developed towards (hobby) garden farming. It is concluded that there is a range of options for integrating agriculture in peri-urban planning, but this implies the inclusion of new practitioners in the planning process which will further stretch existing practices and face new challenges.

3.1 Introduction

For many centuries, agriculture in the regional hinterland was neatly integrated in the urban food provision and its production capacity largely determined the expansion of the city. Conversely, agriculture was well connected to the adjacent city through the supply of a market-outlet, labour and resources (manure and food scraps). However, from the 19th century onwards, in the Northwest of Europe, regional agriculture has been losing its function as neighbouring cities' prime source of food due to the introduction of fast long-distance transport of food, manufactured fertilisers, agricultural mechanisation and food conservation (Langemeyer et al., 2021). Today, there hardly exists an inter-relation between the city and its regional food producers. However, urban authorities increasingly seem to re-consider their peri-urban areas as a potential supplier of local food (Blay-Palmer et al., 2018; Moragues-Faus & Morgan, 2015; Morgan, 2014; Sonnino, 2010). This re-consideration is on the one hand driven by an emerging ambition to feed cities sustainably and on the other hand motivated by a sense of insecurity about the fragility of the current food supply. It highly depends on global sources which consists of complex and interrelated systems. The fragility of the current food supply becomes evident due to present disturbances, like geopolitical crises, natural disasters, climate change or pandemics, such as the recent outbreak of Covid-19 illustrates (Langemeyer et al., 2021). Many cities, led by harbingers like the members of the Milan Food Policy pact, expect that an improved re-orientation on city-region food production helps to mitigate the impact of these disturbances and thus contributes to a more sustainable and resilient food system (Blay-Palmer et al., 2018; Nicholls et al., 2020; Opitz et al., 2015).

This, recent, urban re-orientation on city-region food production contrasts with the everyday reality of agriculture in most peri-urban areas. Many city-regions have designated peri-urban zones, 'green belts' or 'agro parks', where urbanisation is officially restricted and agricultural production safeguarded. Examples of these zones are the Greater Golden Horseshoe in Toronto (Canada) (Akimowicz et al., 2016), Parco Agricolo Sud di Milano in Milan (Italy) (Quaglia & Geissler, 2018), Saclay plateau in Paris (France) (Tedesco et al., 2017), Soto del Grillo Park in Madrid (Spain) (Pinna, 2017), the Baix Llobregat Agricultural Park in Barcelona (Spain) (Maldonado et al., 2016; Paül & McKenzie, 2013), and the Groene Hart in The Netherlands (Van Den Brink et al., 2007). These zones represent a spatial planning policy that segregates urbanisation from agriculture (Ilieva, 2016; La Rosa et al., 2014; Zasada, 2011). This policy of segregation, i.e. the "housing-versus-farming dichotomy", inhibits urban encroachment in the designated agricultural zones (James, 2014: 385) and aims to limit urbanisation to 'non-restricted' zones (Salomon Cavin & Mumenthaler, 2016). In these designated agricultural zones, farming is considered an inherent part of the cultural or scenic landscape (Han & Go, 2019), rather than a full-fledged part of the city-region food production. As a consequence, agriculture in these designated zones increasingly gives way to other activities like recreation (golf courses, equestrian usage), life-style estates, nature conservation, business parks, infrastructure and, in spite of restrictions, to build-up areas (Akimowicz et al., 2016; Gant et al., 2011; James, 2014; Olsson et al., 2016; Salomon Cavin & Mumenthaler, 2016). Hence, regardless zoning legislation and urban containment programmes, farmland in the designated peri-urban zones gradually transforms to non-agricultural usages and is prone to further fragmentation and thereby losing its function as food producer (Cánovas-Molina et al., 2021; Paül & McKenzie, 2013; Perrin et al., 2018; Salomon Cavin & Mumenthaler, 2016; Shaw et al., 2020; Spataru et al., 2020; Ustaoglu & Williams, 2017).

This paper focusses on the practice of planning for agriculture in peri-urban areas, which are defined as "spatially and structurally dynamic transition zones where land use, populations, and activities are neither fully urban nor rural" (Seto et al., 2010: 177). In these peri-urban areas, urban functions like housing, industry, leisure and infrastructure compete for space with rural functions like farming and nature (Pölling et al., 2016). Peri-urban areas are spatially dynamic and consequently their boundaries are difficult to demarcate, though, they are mostly under urban influence in terms of space, jurisdiction (zoning) and planning (Ilieva, 2016; Mansfield & Mendes, 2013; Orsini, 2013). The focal point of this paper is the apparent discrepancy between an urban re-orientation at city-region food production, and the everyday reality of dwindling peri-urban agriculture. The leading question thus is: How can urban spatial planning practices enable and sustain agriculture in a competitive peri-urban environment?

Notwithstanding the broad urban interest for peri-urban agriculture's contribution to local food provision as well as its potential added value to the quality of life and human well-being, little is actually known about the urban planning practices involved (Ilieva, 2016; Langemeyer et al., 2021; Rolf et al., 2020; Zasada, 2011). To get better insights into planning for peri-urban agriculture, this paper unpacks an empirical case of urban planning which integrates peri-

urban farming in (peri-) urbanisation at a considerable scale: Oosterwold. Oosterwold is a large peri-urban area of the Dutch city of Almere where the municipality has introduced a planning strategy to enable residential development while retaining farming. In addition, it is Almere's ambition to produce 10% of its future food needs from this new area (Jansma & Wertheim-Heck, 2021). In order to achieve this 10% aim, the planning documents of Oosterwold depict the future area as a peri-urban landscape with a versatile agriculture (Almere, 2012, 2013). Hence, Oosterwold provides us an interesting opportunity to appraise how planning practices are being performed when aiming to move beyond the conventional housing-versus-farms dichotomy. We deploy a practice theoretical lens in analysing the Oosterwold planning practices and the involvement of different stakeholders.

The next section proceeds with a detailed description of our methodological approach followed by a section where we demonstrate how the novel planning practices of Oosterwold engage a range of unfamiliar practitioners in the planning process. Subsequently, we analyse and discuss our findings, and infer that Oosterwold planning illustrates an alternative route to enable and sustain agriculture in peri-urban areas but that this implies new challenges to urban planning.

3.2 Research design and methods

We conducted a scoping literature search to understand what type of farming the Oosterwold planners could expect if planning for an expanding city that concomitantly pursues for a reconnection with agriculture in its peri-urban zone. Our literature search concentrated on documents published between 2000 and 2021 using the databases Scopus, Web of Science and WorldCat (Figure 3.1). We deployed a three steps approach. Firstly, a title, abstract and keyword search was conducted, using the words: agriculture, farm/farming, horticulture, city/cities, peri(-)urban, fringe, suburban, new entrant(s), typology/typologies and food resilience. With our focus on literature referring to the practice of agriculture in relation with urbanisation in peri-urban areas in the Northwest of Europe - and regions with a comparable context -, we secondly screened the yielded documents and subsequently selected the relevant literature based on title and abstract. Agriculture is understood in a broad connotation, i.e. growing crops and keeping animal husbandry regardless scale or purpose. We excluded studies with reference to vertical, indoor and rooftop farming, because these types of food production are mostly associated with built-up urban areas, rather than peri-urban areas. In complementing our search, we scanned the references of the selected documents for additional relevant works and added 28 documents not yielded by the initial search. The thus selected 109 documents were analysed on the types of peri-urban agriculture in terms of scale of operation, type of food production, and type of connection to and relation with the adjacent urban environment. Based on this literature review we constructed typologies for three distinct types of peri-urban agriculture, which are further detailed in the results section of this paper.

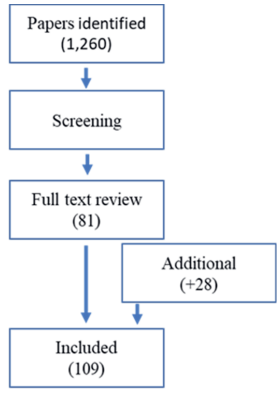

Figure. 3.1 Overview of the literature search of this paper.

3.2.1 Case study

The case study is on Oosterwold, which is a peri-urban area of 4363 ha, or net 3645 ha available for development, east of the city of Almere, The Netherlands (Almere, 2013). The first phase of Oosterwold consists of 1375 ha land (Lekkerkerker, 2016). The second phase is mainly located in the adjacent municipality of Zeewolde, nearly 3000 ha, and is due to be developed after the year 2022 (Figure 3.2). Jansma and Wertheim-Heck (2021) described the pathway which eventually led to the planning of peri-urban Oosterwold over the period from 1958 to 2013. By 2013, Almere started the development of the pilot of phase 1, after a preparatory phase (2009–2013). By 2016 the first residents settled in the area and by early 2020 about 600 households or nearly 1600 persons resided in Oosterwold. We analysed the case over de period 2009–2020, with respect to (1) the planning and (2) the peri-urban farming practices. To analyse the planning practices, we used the social practice perspective (Hui, 2017; Shove et al., 2012; Spaargaren et al., 2016; Spaargaren & Oosterveer, 2010). We applied this approach to deconstruct the planning practices and thus to obtain an understanding how peri-urban agriculture was included in Oosterwold. In our approach, we follow Shove et al. (2012) who regard social practices as the dynamic interplay of three basic elements: (1) meanings (e.g. symbolic meanings, discourses), (2) competences (e.g. skills, know-how), and (3) materials (e.g. technology, material artefacts), carried out by individuals who perform the practice, i.e. the practitioners. The Oosterwold planning practices are innovative because they move beyond the traditional planning process and its official practitioners (policy, real estate developers, planners) by opening up to new practitioners, i.e. the residents of the new area. Hence, while analysing the Oosterwold planning practices, we paid particular attention to the impact of the shifting composition of the practitioners.

We analysed the official documentation of the planning process as well as non-official documents, communications, and memoranda issued by the planners of Oosterwold and their predecessors in the Oosterwold Development Authority (ODA) during the planning and deployment phases (2009–2020). In addition, the first author collected observational records and jottings in a log, when he participated in workshops, meetings and design sessions in the Oosterwold planning process during the same period. The log also included notes of contacts, meetings and events involving (future) residents of Oosterwold as well as (social) media communications about the development of Oosterwold, such as the Oosterwold e-newsletter.

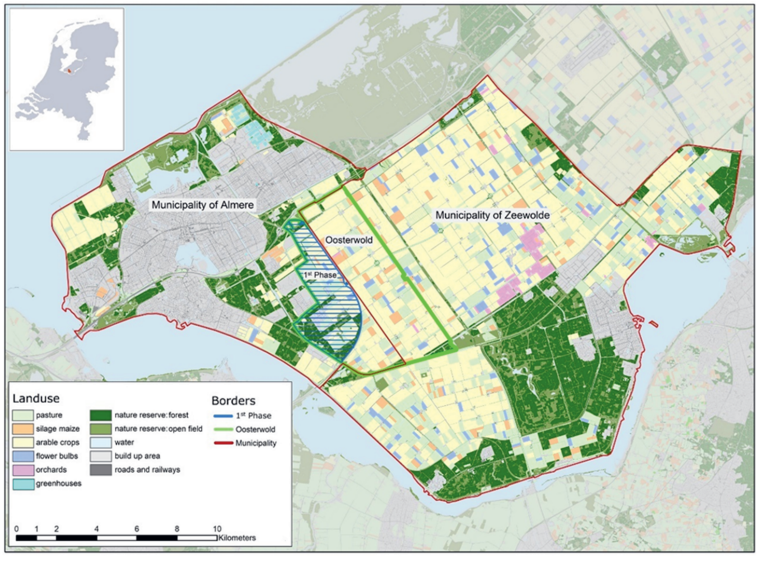

Figure 3.2. The new peri-urban area Oosterwold between urban Almere and rural Zeewolde in the Flevopolder, The Netherlands, in the year 2019. The Flevopolder, part of the province of Flevoland, is situated east of the Metropole Region Amsterdam. Source: national database of the agricultural registration modified by Wageningen Environmental Research (WEnR, 2021).

To appraise peri-urban farming in the light of the planning practices of Oosterwold, we collected data about agriculture in the area using the national database of the agricultural land registration. This database is restricted to registered (semi-)commercial farms with more than 3000 standard revenue (equivalent of 3000 € income) and annually registers the agricultural usage of each individual parcel of land (CBS, 2021). Because this database presumably precludes the new types of peri-urban agriculture emerging in the Oosterwold area, a survey was conducted amongst the Oosterwold residents. This survey was executed in June 2019, at a local urban agriculture fair in Oosterwold which was visited by around 1000 people. 105 visitors of this fair filled out the questionnaire; 42% of these respondents already resided in Oosterwold, the other 58% had the intention to reside in Oosterwold. The questionnaire consisted of fourteen questions about the respondents' background, type of urban agriculture performed or willing to perform, and needs and wishes concerning the implementation of urban agriculture. The survey data were entered in a Microsoft 365 Excel (16.0) spreadsheet to develop frequency and descriptive analysis.

3.3 Results

3.3.1 Literature review: typologies of peri-urban farming

Notwithstanding that farming in peri-urban zones is diminishing in Northwest Europe (Ustaoglu & Williams, 2017)), literature still recognises varied types of peri-urban farming that try to sustain in an urbanising environment (Akimowicz et al., 2016; Olsson et al., 2016; Opitz et al., 2015; Ruoso, 2020; Scheromm & Soulard, 2018; Shaw et al., 2020; Tedesco et al., 2017; Wästfelt & Zhang, 2016). As Zasada (2011: 646) puts it: "peri-urban farming is now characterised by a heterogeneous pattern of holdings with intensive and specialised production, high participation in diversification, and low-intensive hobby and lifestyle oriented farms". This heterogeneous pattern of peri-urban agriculture practices is due to variations in local context, i.e. variations in socio-historical, geographical, political, agricultural, economical, climatological and demographical conditions. Notwithstanding this varied pattern of peri-urban farming with related performances, we can extract three generic types: (1) garden farming, (2) multi-functional farming, and (3) conventional farming (Table 3.1; Figure 3.3).

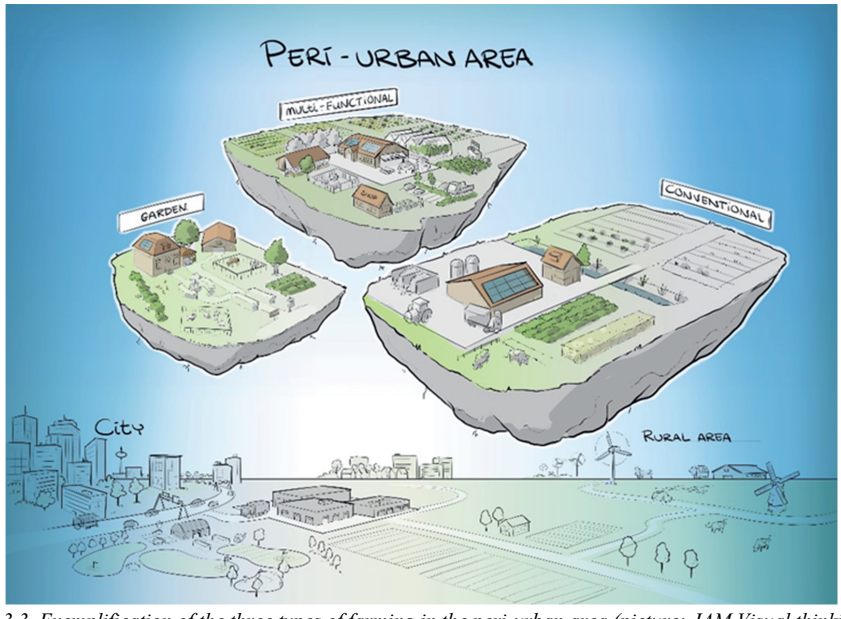

Figure 3.3. Exemplification of the three types of farming in the peri-urban area (picture: JAM Visual thinking).

Garden farming

The first type, garden farming, refers to a broad range of non-and (semi-)commercial farming activities executed by (groups of) individuals, associations, cooperatives, or NGO's. It encompasses, not only small-scale hobby and lifestyle oriented farming, like in, orchards, allotment and community gardens, forest gardens, equestrian holdings, granges and societal urban farms, but also (par-time) farming in smallholdings (Cánovas-Molina et al., 2021; Krikser et al., 2016; Mok et al., 2014; Schwab et al., 2018; Shaw et al., 2020; Sutherland et al., 2019; Taylor & Lovell, 2012). This type includes activities with the intention to stimulate education, cultural heritage, social cohesion or biodiversity, but also activities related to hobby, life style or subsistence (Olsson et al., 2016; Orsini, 2013; Paül & McKenzie, 2013; Sutherland et al., 2019; Zasada, 2011). This garden farming type also consists of private (family) activities, like in home kitchen gardening which can be a significant element of local food provisioning (Darly et al., 2021; Veen et al., 2020). It generally provide all kinds of food for private usage, usage by small groups of known associates or known costumers. Food, commonly fresh products like fruits and vegetables (and sometimes meat, honey or eggs), is predominately produced outside the formal economy, sometimes alongside social-cultural activities (Krikser et al., 2016). Commercial activities may occur, for example, as ancillary income of the initiative or family (Krikser et al., 2016; Mok et al., 2014; Paül & McKenzie, 2013). Garden farming is getting a substantial part of the peri-urban space. For instance, Sutherland et al. (2019) estimated that in Scotland non-commercial farms occupy about 13% of the available agricultural land. Although they made no distinction between urban and peri-urban areas, it is expected that residential pressure ignites the transition from commercial agriculture towards garden farming practices (Eagle et al., 2014; Olsson et al., 2016). The scale of operation may vary from several hundred square metres (single gardens) to hundreds of hectares (rural estates). However, garden farming is predominantly limited to several hectares at the most (Edmondson et al., 2020; Grafius et al., 2020; Mok et al., 2014; Opitz et al., 2015; Taylor & Lovell, 2012).

Multi-functional farming

The second type encompasses a range of semi- and full-professional farms characterised by "diversification on and off the farm, specialisation in production and processing, direct marketing or measures in nature and landscape management" which contribute to the modification of income for these multi-functional smallholdings Zasada (2011: 641). Multi-functional farms are highly differentiated in their orientation, and position towards local customers as expressed in their different strategies, business models, activities and products generated (Olsson et al., 2016; Opitz et al., 2015; Paül & McKenzie, 2013; Pölling et al., 2016; Zasada, 2011). However, they share the practice of utilising their proximity to urban areas to establish versatile relations with their customers. These direct relations strengthen the farms to survive in an environment of urban encroachment. Examples of these direct relations include box schemes, on-farm sales, Community Supported Agriculture (CSA), and 'pick-your-own' (Krikser et al., 2016; Paül & McKenzie, 2013; Scheromm & Soulard, 2018; Zasada, 2011). Multi-functional farms predominantly produce high value crops like vegetables and fruits, however commodity crops, like cereals are not excluded (Opitz et al., 2015). Livestock can be found on these types of farms, mostly held to produce distinct products, like special cheese, specific meat products or free-range eggs. The products these farms produce are mainly distributed unprocessed or slightly processed (Krikser et al., 2016). Beside food, multi-functional peri-urban farms commonly integrate non-food activities, like recreational, equestrian, educational and social services, in their business (Cimino et al., 2021; Pölling et al., 2016). In comparison to the aforementioned type of garden farms, multi-functional farms usually cover a larger area with larger plots of land. However, the distance to the build-up area is strongly influencing the size and the related business model of their operation (Pölling et al., 2016). In general, the scale of operation ranges between 1 and 50 ha or more but most farms at a short distance of build-up areas operate near the lower end of that range (Kopiyawattage et al., 2019; Manganelli & Moulaert, 2019; Opitz et al., 2015; Pfeiffer et al., 2014).

Conventional farming

Conventional farming is understood as an economy of scale enterprise that operates on the global food market. This type of farms predominantly serves global markets with commodity products, such as corn, potato, onion, meat or milk (Filippini et al., 2018; Scheromm & Soulard, 2018; Tedesco et al., 2017). Their products are generally part of longer supply chains in which the final consumers are unknown to the farmers. Conventional farming, both field crops and livestock, is still present in peri-urban areas across Northwest Europe, although their presence is dwindling (Akimowicz et al., 2016; Olsson et al., 2016; Quaglia & Geissler, 2018; Sutherland et al., 2019; Tedesco et al., 2017).

Numbers are going down due to the ongoing reduction and fragmentation of available and affordable land, the loss of supportive infrastructures (agents, suppliers, peers and network actors), restrictive legislation, and uncertainties about future perspectives (Akimowicz et al., 2016). The size of conventional farms ranges widely from a few to over 100 ha, and is more related to the type of produce and related activities (specialities, commodity crops, fodder crops, fallow land, livestock) rather than to their location (Akimowicz et al., 2016; Filippini et al., 2018; Opitz et al., 2015; Scheromm & Soulard, 2018).

Table 3.1. Three types of agriculture in the peri-urban zone indicated by six dimensions.

	Type of agriculture	Scale of operation (ha)	Production	Products	Activities	Supply	User
1	**Garden farming**	< 2-3	kitchen garden/ poultry	fresh products	private, non-commercial	family-neighbourhood	known customers
2	**Multifunctional farming**	1-50	market garden/ livestock	fresh and low processed	commercial, (semi-) professional	city-region	known customers
3	**Conventional farming**	2 - 100+	commodity field crops/livestock	fresh to highly processed	commercial, (semi-) professional	national-global	unknown customers

In reality these three farming types may obviously (partly) overlap, for example, a typical conventional farm could have on-farm sale or a multi-functional farm could still produce some crops targeted at the world market. It is important to note that these three cannot be directly linked to a specific zone in the peri-urban area (Akimowicz et al., 2016; Manganelli & Moulaert, 2019; Olsson et al., 2016; Tedesco et al., 2017; Wästfelt & Zhang, 2016). However, the encroachment of build-up areas in the peri-urban zone will lead to, on the one hand, increased fragmentation of land and higher prices for land, while it, on the other hand, opens up new opportunities for smallholders. This development impacts the type of farming that manages to sustain in the peri-urban area. It is expected that in the proximity of urban districts the garden and multi-functional farming types are better positioned than conventional enterprises due to their versatile embedding in local networks. A prevalence of garden and multi-functional farms will influence food provision in the city-region, both in terms of the diversity of products available and the capacity to produce (Zasada, 2011). Initiatives looking for new niches at the local food market influence the diversity of products while the increase of (and focus on) financially attractive non-food activities may diminish the production capacity.

3.3.2 The planning of Oosterwold

This paper commenced with the everyday reality of a growing tension between agriculture and urbanisation in the peri-urban areas of Northwest Europe. In the case of peri-urban Oosterwold, urban planning practices explicitly addresses this tension by targeting the integration of agriculture in peri-urban development.

Oosterwold is situated in the eastern outskirts of the city of Almere, the eighth largest city of The Netherlands. Almere is a new town and created in the 1970s on reclaimed land, the Flevopolder, at the eastside of the Metropole Region Amsterdam (MRA; Figure 3.2). The Flevopolder was originally designated to accommodate large scale conventional agriculture, predominately arable and livestock farming. Due to the urgent housing needs in the MRA, urbanisation is increasingly expanding in this agricultural zone. Today, Almere houses about 210,000 residents and has a population density of nearly 1700 inhabitants per square km. As ‘spill over’ area in the MRA, the population number as well as the population density of Almere is expected to rise over the coming decades, through processes of infill and expansion. Regarding the latter, peri-urban Oosterwold is one of the newly planned build-up areas, destined to provide for 15,000 new houses at about 4300 ha by 2030, according to the Almere 2.0 Masterplan (Almere, 2009).

Prior to the planning of Oosterwold, spatial planning in Almere was a conventional top-down process that resulted in an urban expansion that was strictly segregated from the agricultural hinterland (Jansma & Wertheim-Heck, 2021). The first years of the planning of Oosterwold still contained some of these conventional planning practices, exemplified in the official planning documents, which was compiled by a group of planning professionals in a structured and pre-defined top down process (Figure 3.4). However, these planning professionals concomitantly opened up for new planning practices that aimed for a more open-end and iterative rather than a prescriptive planning process. In two respects the Oosterwold planning process differs from the conventional planning practices. Firstly, instead of deploying a detailed and descriptive blueprint, the development of Oosterwold is made dependent on the self-organisation of its (future) residents. Self-organisation in Oosterwold includes not only the design and construction of residents' homes, but it also comprises the self-organisation (individually or cooperatively) of all kinds of auxiliary infrastructures and facilities (from roads to schools), normally provided by the municipality. This self-organisation process is guided by a set of formal rules and regulations. Secondly, the planning of peri-urban Oosterwold targets at integration rather than segregation of agriculture and housing. The Master Plan for Oosterwold (Almere, 2012) positioned urban agriculture as the green carrier of the area and aimed at producing 10% of Almere's future food needs in Oosterwold. This aim resulted in a spatial plan that earmarked 1869 ha, or 51% of the available 3645 ha, to (urban) agriculture. This implies that (in general) each new land-owner in Oosterwold is obliged to devote at least 50% of his/her parcel to urban agriculture. To guide the development towards a heterogenous landscape with various types of urban agriculture, the planners subdivided Oosterwold in different types of plots, which the residents can purchase and develop themselves. Table 3.2 shows the four main types of plots: standard, agriculture, landscape and business. Each of these four types of plots has a specific spatial distribution within the area and each plot has a specific, and mandatory, functional distribution (Table 3.2). Concerning the latter, the purchaser of an agricultural plot, for example, is obliged to reserve at least 88% (in a later stage reduced to 80%) of his/her plot's space to urban agriculture and is only allowed to allocate at most 7% of the plot to house, sheds and yard. In case of an acquisition of a standard or business plot, the purchaser should reserve at least 58% (in a later stage reduced to 50%) of the plot for urban agriculture. The exception is the landscape plot which doesn't require urban agriculture. To control the development of Oosterwold, a 'parcel passport' was developed, a kind of contract which binds the new land-owner to all the spatial and other development rules specific for his/her plot. For example, the parcel passport specifies the spatial division of red and green functions of the plot. In the everyday reality of Oosterwold this parcel passport is relocated in an eight step route, in which all the obligations and permits towards the purchase agreement of the plot are organised (Jansma & Wertheim-Heck, 2021).

Table 3.2. Spatial distribution (%) and availability (ha) of the four main types of plots in Oosterwold.

	Type of plot:			
	Standard	**Agriculture**	**Landscape**	**Business**
Spatial distribution in Oosterwold				
Total available (ha)	1,941	370	615	540
First phase (Pilot) (ha)	228	43	72	63
Spatial functions per plot				
Red functions (house, yard etc) (%)	25	7	6	25
Infrastructure (road etc) (%)	8	2	2	8
Green functions (garden, nature etc) (%)	7	2	90	7
Water (ditch, pond etc) (%)	2	1	2	2
Urban agriculture (%)	**58**	**88**	**0**	**58**

Practitioners of Oosterwold planning

The self-organisation of (future) residents introduced a newcomer in the planning practice. Initially the ODA professionals were the only practitioners involved. However, from 2016 onwards, a new and rapidly growing group of (non-professional) practitioners co-influenced the Oosterwold planning process: the residents. These new residents organised themselves in formal and informal groups to exchange data, experiences, and knowledge (through Facebook groups and other social media) and to cooperate in the development of roads and housing, but

also to negotiate with the ODA about the interpretations of the rules and regulations. An example of a formal group is the road association where residents who share the same road are obliged to organise themselves to coordinate its construction and maintenance. An example of an informal group is 'Platform Oosterwold', which residents regard as their unofficial interactive learning community, and consists of several working or learning groups. Despite its informal status, this platform has regular and official meetings with the ODA. Negotiations with residents and their interpretations have in some cases urged the ODA to reformulate or adjust the rules and regulations.

Planning practices of Oosterwold

The interactions between the practitioners in the planning process -- the ODA and the residents -- have been shaping the planning practices and thus the way agriculture is being transformed in Oosterwold. To illustrate this transformation we use the social practice elements of knowledge, meaning, and materials to respectively review the knowledge of urban agriculture, the meaning of urban agriculture, and the price and availability of land (Figure 3.4).

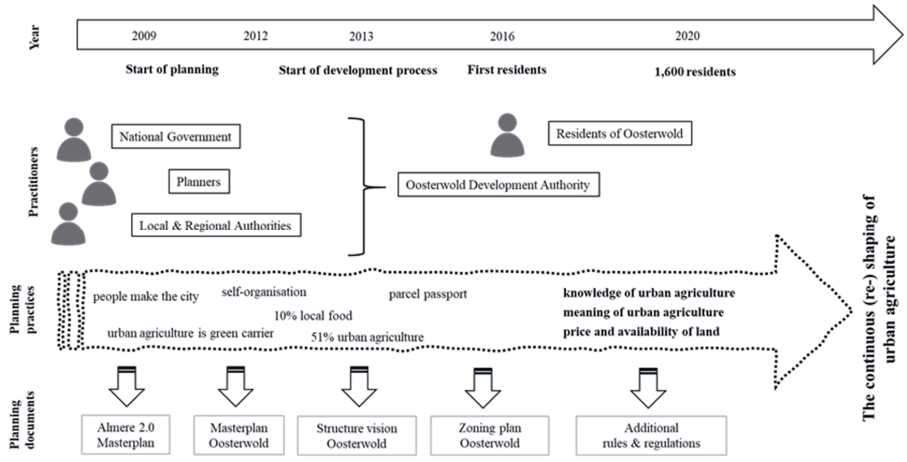

Figure 3.4. Planning practices and practitioners of Oosterwold.

Knowledge of urban agriculture. Our survey found that 42% of the (future) Oosterwold residents considered themself as having 'no experience' in urban agriculture, while only 14% considered themselves 'experienced'. Nevertheless, ODA developed only a few instruments to support new residents when implementing urban agriculture at their plot. An online handbook, which is available for each (new) resident, provides some background information about agriculture. ODA expects that the residents self-organise the necessary means, skills and knowledge to farm their plot. However, it seems that urban agriculture comes second in the residents' process of settlement, i.e. their primary focus is on completing their home and develop supportive infrastructure (like roads). Only recently, different kinds of (in)formal initiatives emerge to exchange knowledge and experiences as well as share equipment and products related to urban agriculture. In 2021, the Platform Oosterwold has started a working group to support the knowledge exchange on urban agriculture.

Meaning of urban agriculture. In the zoning plan (Almere, 2016), the ODA understood urban agriculture in Oosterwold as:

> *"the cultivation, harvesting and sale of food in or in the vicinity of (build- up) centres. Urban agriculture also includes livestock farming and the farming of fish for consumption. The guiding principle is that an agricultural product is produced [in Oosterwold] and that there are short food chains. Urban agriculture can concern food production that is professionally practiced but also for self-sufficient usage. Urban agriculture in Oosterwold also has health care, recreational (leisure), educational, scenic and economic (employment, self-employed companies) dimensions. This makes additional functions possible, such as a mini camping and a playground. At least 80% of its land use must relate to a realistic production of agricultural food products,*

in the context of production level as well as production cycle" (original text in Dutch, translated by first author).

After questions from the residents about the interpretation of 'a realistic production of agricultural food products, in the context of production level as well as production cycle', the ODA presented a list of agricultural production levels which resonated with figures found in conventional agriculture. Some of the figures ODA presented were 200 broilers, 140 laying hens, 10 goats or 80 fruit trees per 1000 square metres. These figures were explicitly challenged and ignored by the majority of the residents because they considered them neither realistic nor feasible in Oosterwold. According to our survey, the majority of the residents understood agriculture in Oosterwold as (hobby) garden farming (Figure 3.8).

Through dialogue with the new residents who aimed for broadening the definition of urban agriculture, the ODA decided to accept non-food elements, like flowers and (tree) nurseries, as urban agriculture. However, keeping or breeding horses for sports or recreational purposes was not included as all animals that are being kept and not used for the production of meat or dairy remain excluded from the definition of urban agriculture. The ODA is still contemplating the position of greenhouses as they consider this as build-up and thus as a red function, while residents deem greenhouses to be part of urban agriculture as it is a means to produce food.

Price and availability of land. Freedom for the new residents to choose and develop a plot was an important rule at the start of Oosterwold planning. However, this freedom is restricted in two ways: the price tag per square metre of land and the availability of land per type of plot. Firstly, each plot has a fixed price tag in Euros per square metre (Figure 3.5), i.e. an independent organisation yearly appraises the market value of each of the specific types of plots. The appraisal is based on several indicators including the market value of each of the different spatial functions of a plot (i.e. the section designated to red functions is differently -- much higher -- valued than that of the agricultural function), real estate market in the region and the expected expenses of the purchaser (to prepare the land for a home or to construct a road). Initially, the price of a standard plot was about ten times lower than the average price of a build-up plot in a traditional residential area in the province of Flevoland (Figure 3.5). However, its price has been soaring in recent years. The same holds for the agricultural plot. While initially the price tag was 20% above the price of agricultural land in the region, by 2020 the price gap between them nearly reached 120%.

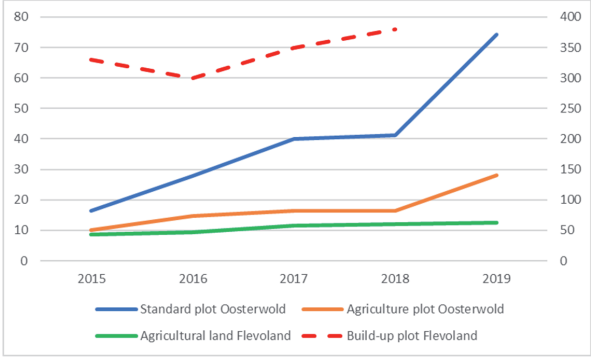

Figure 3.5. Price (€/m2) of the standard and agricultural plot in Oosterwold, and that of agricultural land in the province of Flevoland (Solid lines and left axis). Price (€/m2) of build-up plots in the province of Flevoland (dashed line and right axis).(Source: Agricultural land Flevoland: (Kadaster, 2021), modified by Wageningen Economic Research; Standard & Agricultural plot Oosterwold: Handboek Oosterwold (ODA, 2020); Build-up plot Flevoland: (De Leve & Kramer, 2020).

Secondly, only a small part of the available land is allocated to agricultural plots, in the pilot of the first phase only 43 ha (Table 3.2). By 2016, these 43 ha were already reserved, so newcomers are forced to acquire the more costly standard plot or have to wait until the next phase. The allocation among the different types of plots is the result of a political negotiation, guided, at least in part, by financial considerations. To sustain the quality of life in the rapidly expanding municipality of Almere as a whole, a fund was established. The national government agreed with the

municipality that, as they owned about 2,000 ha of future Oosterwold, they would support the fund through the sale of the first 7,000 standard plots.

The lack of experience of the new residents with urban agriculture, the residents' interpretation of urban agriculture, the price tag of a plot and the limited availability of land other than the standard plot steered agriculture in Oosterwold predominantly towards a hobby, garden type of farming. This is confirmed when we take closer look at the actual agricultural practices in the first phase of Oosterwold.

Agriculture in Oosterwold

Initially, the Oosterwold area has been the domain of conventional farming which produce for the world market (Figure 3.6). In the year 2010, before the development of Oosterwold, the area contained about 3,400 ha of farmland. The majority of the farms cultivated arable crops (like potatoes, onions, sugar beets and wheat), grassland and fodder crops or vegetables (like cabbages, pumpkins and legumes). The average size of the farms was about 70 ha (Jansma & Wertheim-Heck, 2021) and only a few farms offered additional multi-functional services like on-farm sale or caravan storage.

Figure 3.6. Impression of current peri-urban Almere (Oosterwold Phase 2) with predominately conventional farming (pictures: first author).

In 2016, the first residents arrived and by 2019 already 259 ha were handed out, and of these 259 ha, according to the rules and regulations, about 130 ha (at least 51%) should produce food. Our survey confirms that most of the agriculture in Oosterwold can be considered a hobby or lifestyle type of garden farming (Figure 3.7), which is exemplified in the scale of operation, type of production and products, and activities. The scale of operation of the farming of the (future) residents is between 500 and 5000 square metres and only a few have the intention to farm more than one ha (Figure 3.8). On their plot, the majority of the (future) respondents manage a kitchen (vegetable) garden and/or an orchard. Most respondents characterise themselves hobby farmers (Figure 3.9). A variety of products are being cultivated and produced, ranging from vegetables, fruits, honey, nursery products and wine to (cut-)flowers. It is expected that the majority of the food produced is consumed by family, relatives or shared within the neighbourhood. One of the few exceptions is a professional 40 ha multi-functional farm with a shop and residences on site.

Figure 3.7. Aerial impression of Oosterwold Phase 1 with predominately garden farming (pictures: Gebiedsteam Oosterwold/ODA).

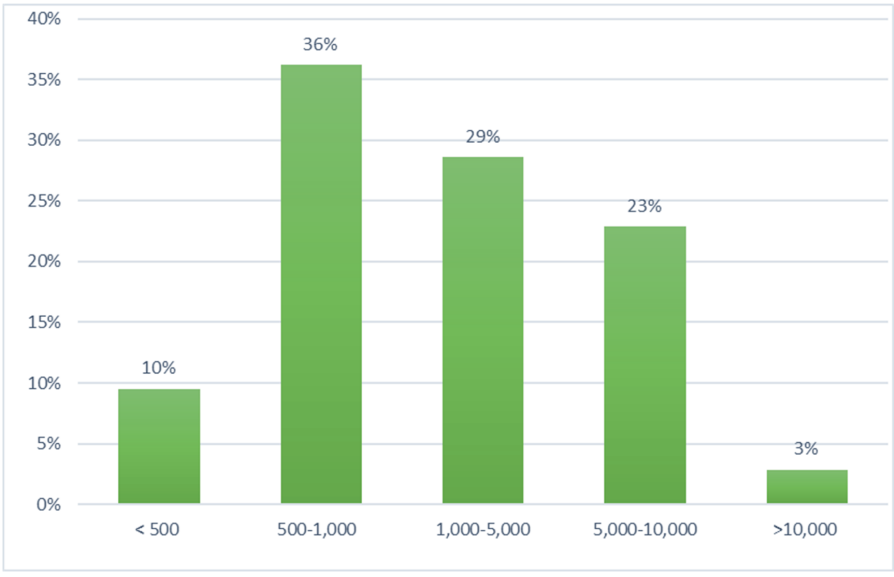

Figure 3.8. The relative distribution of the size of the agriculture (m2) per plot the respondents farm or intent to farm in Oosterwold (N = 105).

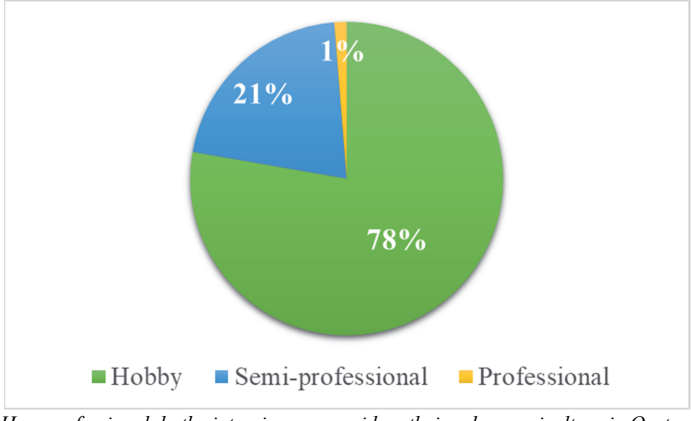

Figure 3.9. How professional do the interviewees considers their urban agriculture in Oosterwold (N = 104).

3.4 Discussion

This paper started with the question how urban planning can enable peri-urban agriculture that genuinely contributes to the city-region food provision within the light of competing land-use dynamics. Although it is acknowledged in many studies that peri-urban agriculture can contribute to city-region food provision, urban planning insufficiently recognises its potential. The dominant planning practice is to segregate agriculture and urbanisation -- the housing versus agriculture dichotomy -- starting from the expectation that peri-urban farming can be sustained in the reserved areas. However, such segregation does not prevent functional changes towards non-agricultural usage which incrementally fragments the incumbent peri-urban agriculture. The question is whether planning can successfully pre-empt these non-agricultural usages?

Many scholars underline that urban planning for (peri-urban) agriculture is a challenge. Zasada (2011: 645) emphasizes that "there is strong evidence from various peri-urban case studies that public planning is not capable of addressing the small-scale functional transformations beyond physical land cover changes". Rolf et al. (2020: 10) conclude that there is "a lack to look beyond policy traditions surpassing urban-rural dichotomy". Planning predominantly focuses on the esthetical purposes of green peri-urban zones in lieu of the agricultural functions (Tedesco et al., 2017). Moreover, zoning plans and legislation neglect the diversity of peri-urban farming and thus the need for variability in spatial and policy solutions (Langemeyer et al., 2021; Orsini, 2013; Pölling et al., 2016; Rolf et al., 2020; Wästfelt & Zhang, 2016). As Edmondson et al. (2020: 158) Edmondson, Cunningham et al. (2020: 158) underline: "For UH [urban horticulture] production to expand sustainably, a more widespread understanding of its potential amongst urban planners, policymakers and businesses must be fostered". Gottero et al. (2021: 12) underline the requirement of an "agro-urban vision" that involves "agricultural planning, new types of public policies and innovative forms of governance" to support agriculture in peri-urban areas. Planning for peri-urban agriculture thus can't be executed in a top-down manner as it requires participatory processes and thus an understanding and involvement of multiple stakeholders (James, 2014; Perrin et al., 2018). Therefore, the challenge revolves around the question how to understand and integrate agriculture (and its stakeholders) in the planning practice.

Our case study showed how planning practices can approach this challenge. Oosterwold formally integrates (urban) farming and its stakeholders (the practitioners) in the development process of a large scale peri-urban area thus moving beyond prescriptive approaches that exclude agriculture and its practitioners from peri-urban planning. Deconstructing the planning practices, utilising a social practice theoretical lens, our study uncovered that two elements have been influential in the open-ended, iteratively evolving process in which the interpretation of agriculture appeared flexible. The first element is the reservation of (at least) 51 % of the available land for urban agriculture, allocated to the individual plot level in lieu of to the area as a whole. The second element is the rule of self-organisation which brought the arrival of a new group of practitioners in the planning process: the residents. Both elements have shaped the first 130 ha agriculture predominately towards garden farming, which also includes non-food production like flowers and nurseries. This outcome contradicts the initial planning documents which depicted Oosterwold as a diverse landscape with all three types of peri-urban agriculture. Moreover, agriculture in Oosterwold highly contrasts with ODA's interpretation of urban farming, as agriculture following professional farming standards.

These unintended outcomes can be explained through our analysis of the planning process. Oosterwold planning practices started as an open ended iterative process and two elements in the process highly influenced the conversion from the intended diverse landscape of urban agriculture to the rather uniform kitchen gardening activities. The first element concerns the distribution of land, in particular the measures of pricing the land and spatially allocating the different types of plots. Both measures were informed by conventional institutional expectations based on financial considerations rather than by the ambition to create a diverse landscape of urban agriculture. It can be expected that the soaring land price negatively influenced the acquired acreage per plot because the investment capacity of the new residents has not been rising comparably. The resulting smaller acreage implicates less opportunity for agriculture per plot, which inherently contributes to an orientation on small-scale (kitchen) gardening by the residents. The second element concerns the level of skills and knowledge of the residents, the new co-carriers of Oosterwold planning. The residents predominately appeared inexperienced and unskilled entrants in (urban) agriculture. It is unlikely to expect that these laypersons would immediately start and experiment with new forms of agriculture on their plots. In fact, most new residents, because of the rule of self-organisation, started to develop their own property, and auxiliary infrastructures and facilities to create a living environment; urban agriculture comes second in their perception. Moreover, by focussing on residents self-organisation of urban agriculture at plot level, Oosterwold planning practices overlooked the need for overarching and supportive arrangements and the involvement of actors who are more experienced with agricultural development in the area. For example, the unexperienced garden farmers, who are prominent in first phase Oosterwold, could benefit from actors and infrastructures supporting the local development of know-how and skills in farming. Multi-functional farming in Oosterwold could benefit from inclusion from actors in the local food chain, i.e. consumers, retailers and the hospitality sector.

Influenced by the two elements mentioned above, Oosterwold planning practices are still prone to an open ended, iterative, process in which knowledge, materials and visions direct the shaping of peri-urban agriculture. There are

therefore still opportunities for including a broader range of farming activities in the area. For example, the ODA started to consider a monitoring and control system which should enforce residents to improve their urban agriculture performance. The ODA also asked the Platform Oosterwold to co-design measures to support the development of food production in the area and the Platform established a working group urban agriculture to create a critical mass able to debate with ODA. In 2020, residents of Oosterwold, supported by ODA, initiated a food cooperative to coordinate and sell food produced in Oosterwold. Different dynamics are also expected in the planning of the second phase of Oosterwold, which takes place in the more rural municipality of Zeewolde (Figure 3.1). Zeewolde opts for clusters of build-up plots -- hamlets or small villages -- throughout the area, which might leave ample room between these build-up plots for multi-functional and conventional types of agriculture and their practitioners.

The way is which agriculture is interpreted in Oosterwold has also implications for the Almere's ambition to provide in 10 % of its future food needs. According to Van Dijk et al. (2017) the (future) 1,869 ha agriculture in Oosterwold can produce only six percent of the food needs of the current 210,000 residents. They estimated that 1,400 square metre farmland per capita is needed to produce 85% of all ingredients of the current Dutch menu, assuming the use of conventional (professional) farming methods as performed in the Almere region. The current Dutch menu they used in their calculation includes a large amount of animal-based proteins, which has a large impact on the need for farmland to produce animal feed. The observed planning practices in Oosterwold, whereby food production is handed to its (layperson) residents, will take Almere even further away from its 10 % aim. This aim is only feasible when 3,000 ha of the available 3,645 ha in Oosterwold would be earmarked for professional farming (Van Dijk et al., 2017). These 3,000 ha could provide a full menu for about 21,000 residents, that is 10% of the current population of Almere. This calculation underlines the observation in many peri-urban regions that integration of new non-food functionalities will reduce food production capability, even if agriculture, like in Oosterwold, is an earmarked functionality (Olsson et al., 2016; Ruoso, 2020). However, offering room to "new entrants" in farming, like Oosterwold does, concomitantly opens a potential platform for innovations (in markets, products, consumer interactions, and services) in agriculture (Sutherland et al., 2019; Zagata & Sutherland, 2015: 40).

A fundamental question is what the most optimum spatial level would be for peri-urban food provisioning that is environmentally, culturally and economically resilient. Mok et al. (2014) and Small et al. (2019) question if (a certain level of) regional food provision is necessary or feasible given the competition with other food producing areas which have lower production costs or other (environmental) advantages. Should a peri-urban area only be used to produce a selected range of fruits and vegetables or also more basic caloric crops and sources of protein? And for whom should the peri-urban area produce, given the culturally diverse needs of a multi-ethnic urban population in majority-minority city-regions (Brons et al., 2020)? Answering these questions, although complex because of the multi-faceted nature of food production and consumption, should be incorporated in the planning process. Subsequently, planning could question what type of peri-urban agriculture supports their ambitions best. In the case of Oosterwold, this 10 % aim is not specified in terms of what should be included for whom and why, nor is this discussed with its residents. One could ask whether this aim is not misguiding the planning of Oosterwold because it confronts the area with expectations which are neither realistic nor enticing.

The planning practice of Oosterwold led to an unintended rather uniform type of peri-urban agriculture in Oosterwold, while the initial planning documents (Almere, 2012, 2013) opted for a diverse landscape of (peri) urban agriculture. It corroborates the importance to understand the context of planning practices that influence the everyday reality of peri-urban agriculture. Oosterwold emerged from a unique context, i.e. a rather clean slate in which an interdisciplinary and unconventional operation as well as leadership steered for a new hybrid interpretation of peri-urban development (Jansma & Wertheim-Heck, 2021). The context of Oosterwold is not easily comparable with many other city-regions, nor are its planning practices a blueprint for a concomitantly development of urbanisation and support of agriculture in peri-urban areas. However, the merit of Oosterwold planning practices is that it explores and appraises new principles to peri-urban planning of agriculture; Oosterwold thus enlarges the toolbox of urban planning.

3.5 Conclusion

The Oosterwold planning practices opened up for a new approach towards peri-urban agriculture, an approach beyond the housing-versus-farming dichotomy. Key to this new approach was an open-ended, iteratively evolving planning process which was led by two innovative rules in the planning of this new area, i.e. residents' self-organisation as well as at the earmarking of least 51% of the available land to urban agriculture. Both rules created a new dynamic in the planning of the peri-urban area. Planning gave agriculture a pivotal position in the development of the area and the performance of the area's agriculture was handed over to the new (farming) residents.

The application of a social practice perspective on our empirical case directed our focus from plans and outcomes towards the performance in-situ. The social practice perspective was instrumental in our understanding of the role of the residents as new practitioners in an iterative planning process. It illustrated how practices are adapted and reconstructed in everyday performance, i.e. how these new practitioners have been shaping the performance of agriculture in this peri-urban area. The initial (and official) expectation of Oosterwold planners was that the area should accommodate various types of urban farming, but the new residents reshaped that interpretation towards a dominant hobby garden farming and even introduced non-food elements like flowers and nurseries. Nevertheless, this case effectively demonstrated that there is a range of opportunities beyond the currently practiced regime of housing-versus-farming. The review of literature on peri-urban agriculture found that Northwest Europe knows, as well as comparable urban regions elsewhere, three generic types: (1) the group of garden farming, (2) the group of urban oriented -- multi-functional -- farming, and (3) the group of global market oriented – conventional -- farming. Each type will contribute differently to local food provision as well as to other (peri-) urban needs, and in return requires different supportive measures and actors.

Integrating farming in lieu of segregating it in (peri-urban) planning, as our case exemplifies, implicates the inclusion of new practitioners in the planning process. These practitioners will stretch conventional planning practices while carrying their meaning, knowledge and material elements into the process. Their inclusion confronts planning as a professional activity with new dynamics and associated challenges. As in the Oosterwold case the planning process switched from a traditional prescriptive and linear process towards a dynamic non-linear process, i.e. an iterative and open ended process with an unique and unpredictable spatial blend as outcome. Peri-urban planning should acknowledge the added value and the possible trade-offs of integrating agriculture in the peri-urban zone and embed its practitioners in the planning process to co-shape the conditions needed for a prosperous peri-urban agriculture.

Chapter 4

A city of Gardeners: What happens when policy, planning, and populace co-create the food production of a novel peri-urban area?

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Abstract

Urban re-orientation on feeding the city in a city-region context has encouraged local policies to spur urban agriculture by stimulating bottom-up citizen participation in urban food production. However, in real life, tensions occur between policies and practices. The misalignment of policy goals with planning instruments and the needs of practitioners in urban agriculture hampers the development of substantial urban food production. This paper introduces Oosterwold, a new peri- urban area of the Dutch city of Almere that pivots urban agriculture. Oosterwold is a unique experiment in which a top-down policy goal -- producing 10% of the future urban food needs -- is handed over to the self-organisation of new residents, who are bound by the rule to allocate 51% of their plot to urban agriculture. This study deploys a social practice theory–informed analysis to appraise the performance in urban agriculture. Novel in our methodology -- combining an online survey (n=111) with an analysis of aerial photos (n=199) -- we unpack the unruly nature in which urban policy and planning are shaping up through bottom-up citizen participation. Our study demonstrates that (i) it takes time for residents to adopt urban agriculture as a substantial practice in their heterogeneous lifestyle and (ii) that a focus on bottom-up approaches, such as Oosterwold residents' self-organisation, does not imply laissez faire from planning and policy. It is inferred that a balance in policy goals, planning instruments, and the needs of the practitioners requires a shared vision and builds on supportive conditions.

4.1 Introduction

Bottom-up governance in urban agriculture is increasingly receiving attention, with cities as the fulcrum for a transformation towards new paradigms in 'feeding the city' (Morgan, 2014; Sonnino et al., 2019; Valley & Wittman, 2019; Zasada et al., 2019). However, how this is effectuated within a top-down routine in urban planning is still largely uncharted territory. What happens when bottom-up and top-down meet each other in a peri-urban development that pivots urban food production? This paper addresses the tension between top-down policy goals and planning rules, and bottom-up practice in urban agriculture in a shared desire to ascertain new paradigms in feeding the city.

Many cities have set goals to stimulate the practice of urban agriculture, through a diverse set of tools such as plans, regulations, and inventories (Prové, 2018). However, in real life, a tension is present between these policy ambitions and everyday practice of urban agriculture (Halvey et al., 2021; Langemeyer et al., 2021; Moragues-Faus & Morgan, 2015; Reed & Keech, 2019). This tension stems from an imbalance between these policy ambitions 'on paper' and the difficulty to perform in real life. The imbalance is linked to various incentives: (i) the priorities given to build-up areas and other economically prioritised functions in spatial planning (Jansma & Wertheim-Heck, 2022), (ii) a lack of understanding of the multifunctionality of urban agriculture (Langemeyer et al., 2021), (iii) the complexity of a functional integration of urban agriculture in the urban green space (Rolf et al., 2020), (iv) departmental fragmentation, variety, and complexity of regulations and limited access to supportive means (Halvey et al., 2021), (v) the disparity between the informal food movement and the formally regulated planning (Hardman et al., 2018), and (vi) a misunderstanding of motivations of practitioners in urban agriculture (Kirby et al., 2021). A wide range of scholarly evidence stresses that successful policies coining at local food agendas should build on a mode of "concerted action" of local policy, planning, and populace working towards "place-based" solutions through co-creation (Bendt et al., 2013; Moragues-Faus & Morgan, 2015: 1569; Sonnino et al., 2019: 115). Critically, this mode implies an active participation of local communities in (spatial) planning. The underlying rationale is that the local communities of practitioners best understand their own needs which are reproduced in their everyday practices (Shove & Walker, 2010; Torres et al., 2018).

Over the last two decades, spatial planning developed various instruments in response to the increasing demand for active participation of citizens and societal groups in co-shaping the urban space, for example, in urban agriculture (Certomà & Notteboom, 2016; Halvey et al., 2021; Horst et al., 2017; Lachmund, 2022; Rauws & De Roo, 2016; Zhang et al., 2019). Instruments range from a distant consult of target groups towards participative collaboration in (urban) living labs (Horlings et al., 2021). These living labs act like spaces for real-world experimentation in which citizens are actively engaged in the co-creation of solutions to urban challenges and in which local authorities act as enablers and process facilitators (Brons, van der Gaast, et al., 2022; Gamache et al., 2020; Mahmoud et al., 2021). The challenge of this real-world experimentation is in the balance between policy goals, planning instruments, and citizens' needs and wishes (Janin Rivolin, 2012). However, how this balance is effectuated in urban agriculture, where the food growing movement predominantly operates in the informal sphere "outside of, or in conflict with current city planning models" (Coles & Costa, 2018: 1), is still largely unexplored. Moreover, what happens if a food producing ambition is formally taken to the level of a (peri-) urban area and the residents -- the residential households -- are obliged to co-shape this ambition in their daily practice? What does this imply for the planning instruments on the one hand and how are these ambitions effectuated in the residents' urban agriculture practice on the other hand? In brief, how does the balance between policy goals, planning instruments, and residents' needs and lifestyle work in the real world of urban agriculture?

This paper centres Oosterwold, a new peri-urban district of the Dutch city of Almere, 30 km east of Amsterdam. In Oosterwold (the next section details this further), top-down policy goals and planning instruments meet bottom-up urban agriculture practices of its new residents. Oosterwold thus is a unique living lab to uncover how municipal planning polices and the accompanying planning instruments shape the residents practice of urban agriculture. Our study provides empirical evidence of residents stepping in on urban agriculture practices, 5 years after they first settled in Oosterwold. Whether and how will Oosterwold residents produce food for the city region of Almere? By focussing on the diversity of the urban agricultural practices, our aim is to appraise how the policy goals and planning instruments are balanced with residents' everyday rationalities and needs in producing food. We deploy a practice theoretical lens to study the balance between planning and practice of urban agriculture in Oosterwold. The methodically vetting of the practices provides a deeper understanding of how urban agricultural shapes up the way

it does in the context of Oosterwold. This understanding informs future policies in planning for urban agriculture as a potential pillar of the aspired new 'feeding the city' paradigm.

The paper sets out to describe our case in more detail. Subsequently, it continues with our social practice theory–informed methodological approach. Finally, we present our findings, analyse and mull these findings, and infer that a concerted action to co-create a food producing area requires a shared vision, time, and supportive conditions to obtain a balance between policy goals, planning instruments, and residents' needs.

4.2 Living lab Oosterwold

Oosterwold encompasses a 4300 ha peri-urban development east of the city of Almere (220,000 residents in 2022) at which 15,000 new homes are foreseen (Figure 4.1). Almere policy set the ambition to produce 10% of future food needs of Almere in Oosterwold. Although the Almere policy steers for this 10% ambition, the planning instruments of Oosterwold are limited. These instruments revolve around a basic set of top-down established living rules, of which residents' self-organisation has a pivotal position (Cozzolino et al., 2017; Testi, 2022) . A key living rule in the context of this paper is that each resident should devote at least 51% of their property to food production, that is, urban agriculture (Jansma & Wertheim-Heck, 2021).

Oosterwold opened for residential participation in late 2015. All new residence, whether single family, collective (e.g. as in collective private ownership), or property development, have to complete an admission procedure before being permitted to purchase land. Part of this procedure is the submission of a plan on how they aim to develop their plot including urban agriculture. Because Oosterwold highly relies on the self-organisation of the residents, it takes time to complete the admission procedure and subsequently to organise and develop the home, its auxiliaries (infrastructure, sanitation, electricity, etc.), and the other parts of the plot, including the urban agriculture. Notwithstanding this time-consuming process, by 2020 readily 420 homes were developed accommodating around 1,600 residents (data acquired from Oosterwold Development Authority (ODA)). Since 2020, the number of residents has been doubled. By the end of 2022, Oosterwold accommodated nearly 1,000 homes and about 3,300 residents (Almere, 2022). The supplementary section (Section 4.9) provides more details of the Oosterwold residents.

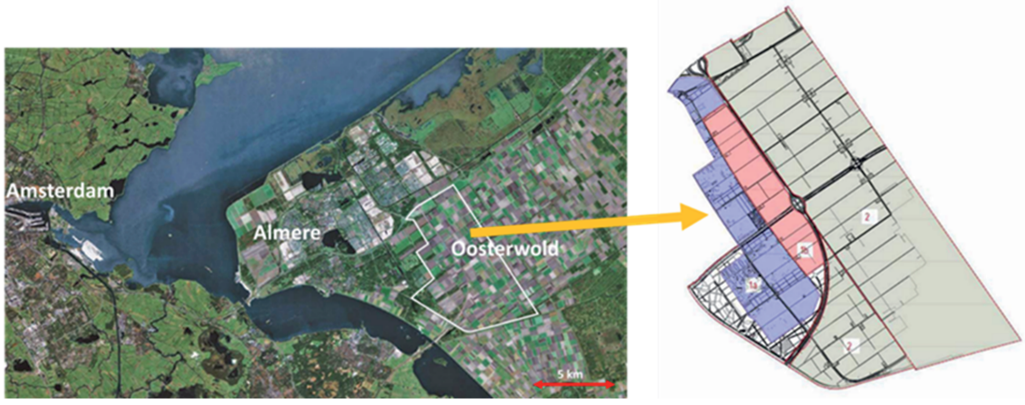


Figure 4.1. Map of the development of peri-urban Oosterwold, a new residential area of the city of Almere (NL). The detailed map illustrates the three steps of development of the area: 1a (700 ha) started in 2016; 1b (350 ha) started in 2021; while 2 (2,850 ha) is projected after 2024 (Map: Almere (2012); detailed map: Oosterwold Development Authority).

4.3 Social Practice Theories

To study the performance of urban agriculture in Oosterwold, we deploy a social practice theoretical (SPT) perspective (Reckwitz, 2002; Shove et al., 2012; Spaargaren & Oosterveer, 2010). Our empirical focus is on the practice of urban agriculture as being performed by the Oosterwold residents. Though practice theoretical approaches predominantly foreground well-established, routinised behavioural patterns (like commuting, showering, or shopping), this study concerns the emergence of urban agriculture in a new residential area. By zooming in on the versatile performative manifestations of urban agriculture in Oosterwold, we aim to uncover the modes of engagement (in urban agriculture) of the residents. We follow Shove et al. (2012) in specifically paying attention to the amalgamation of meaning (e.g. visions of and discourses in urban agriculture), competence (e.g. understanding of and skills in urban agriculture), and material (e.g. available infrastructures, equipment, and tools) as indicators of the shaping up of the practices of urban agriculture in Oosterwold (Figure S4.1). The development of and connection between these three elements gives an understanding of why and how a practice is performed as it is (Shove et al., 2012).

SPT does not prescribe a unifying methodology – instead it allows for methodological eclecticism (Warde, 2014). The wide range of SPT informed empirical studies demonstrates a preference for in-depth investigation by qualitative research methods (Halkier, 2011; Spaargaren et al., 2016). Practice theorists importantly make use of discussant techniques for inquiry; for instance, interviews are considered helpful to reveal practice compositions and arrangements, while reflexivity on routinely enacted behavioural performances can be provoked. In addition, practice theories utilise a broad range of observational methods, ranging from shadowing to photo-elicitation, which offers a direct access to the observable practices. In this study, we deviate from these generally accepted methodological approaches and combine a quantitative online survey with a qualitative aerial photo analysis (Table S4.1).

Although quantitative survey methods are critiqued for their methodological individualism and thus considered incompatible with the ontological and epistemological premises of SPT (Halkier & Jensen, 2011), an emerging body of work pays specific attention to methodological combination (mixed methods), underscoring that quantitative methods (like a survey) are also applicable to social practice theories (Browne et al., 2013; Kennedy et al., 2013; Wertheim-Heck et al., 2014). This interest in quantitative methods is based on their potential to reveal social differentiated patterns and trajectories of practices (Cochoy et al., 2022), and for enabling cross contextual comparison (Zollet et al., 2022). Our choice of an online survey was both practically and analytically informed: practically, because the limitations to social interaction during the COVID-19 pandemic did not allow for in-depth face-to-face inquiry and observational methods and analytically, the survey method was considered relevant for two reasons: firstly, in tracing and understanding the different elements (meaning, competence, and material) that blend the urban agricultural practices in Oosterwold and, secondly, by including urban agricultural practice imaginaries of residents not yet (fully) residing in Oosterwold.

However, surveys are limited, for example, in the sense that questions and response categories are predefined and these might trigger socially desirable 'sayings'– say what you do – rather than a reflexive evaluation of the 'doings'– the actual performance in situ. It is not only what residents say that matters in SPT but also how they actually perform in the unruliness of daily life. We thus deemed it essential to follow up with empirical research that allowed qualitative access to the practices as being performed. In our approach, we replaced the 'usual' (in SPT methodology) interviewing and observational methods with an analysis of the doings in urban agriculture by means of high-quality aerial photos. The photos helped us to examine the actual performances at a moment as the circumstances (COVID-19) didn't allow for other more in-depth qualitative methods. In addition, the photos offered us an interface to comprehensively and instantly appraise the diversity of urban agriculture in situ, uncovering temporal, organisational, and functional dimensions.

4.4 Methods

4.4.1 Survey

The survey was composed of open and closed questions about respondents' general personal background and living conditions, performance of urban agriculture, motivations, means and knowledge of urban agriculture, and requirements and constraints of living in Oosterwold. We used Qualtrics XM software to compile an online questionnaire which was available to respondents between 7th of May and 8th of June 2020. A link to the survey was circulated at several online platforms within the area. The raw data were filed in a Microsoft 365 Excel (16.0) spreadsheet. We removed all trials, and incomplete datasets, which left us with 111 complete records (representing 26% of the Oosterwold residential households in 2020). Subsequently, answers to open questions were removed from the data base. Questions with non-numerical values (like in 'Totally disagree', 'Disagree', 'Neutral', 'Agree', and 'Totally agree') were given a numerical value (respectively, 0, 2.5, 5.0, 7.5, and 10). The data interpretation was carried out using statistical software of Genstat for Windows 21st Edition (VSN International). We used the statistical software to estimate per question the frequency distribution of the answers over the classes and to approximate the mean using the numerical values mentioned above. Subsequently, a non-hierarchical cluster analysis was carried out with a selected subset of 31 variables about respondents' ideas on living in Oosterwold as well as their experiences with and the meaning they attribute to (their) urban agriculture in Oosterwold. The online questionnaire and the anonymised dataset are available in the repository linked to this document.

4.4.2 Photo analysis

ODA provided us with 356 high-quality (>8,000 MB) aerial photos of properties (plots in all stages of development) in Oosterwold. These photos were commissioned by ODA and taken with a drone during the peak of the growing season, that is, 24th and 25th June 2021. The drone photos were captured from a bird's eye view camera position, offering a different perspective compared to the typical vertical position of satellite images. The collection of photos provided us with detailed material that enabled a thorough examination of the performance of urban agriculture performance at the individual plot level. We selected 199 unique residential plots (nearly 30% of the 680 households of Oosterwold in 2021), that is, home (and sheds) or cluster of homes with garden or field that is recognised as a single and unique plot with a postal address. For the purpose of the analysis, we excluded the photos of plots that didn't (yet) show any residential development activity. The photo analysis was executed by the first author, who for many years is familiar with the development of urban agriculture in Oosterwold and is educated as an agricultural engineer. Notwithstanding the high level of detail the images offered, there were certain aspects that required estimation. Due to the oblique perspective it was not always possible to distinguish between different types of vegetation, such as trees, shrubs, and vegetable beds, or the type of livestock kept. In addition, the surface allocated to urban agriculture was based on first authors' estimate. The observations were recorded in a Microsoft 365 Excel (16.0) spreadsheet, which, together with a detailed description of the assessment procedure taken, is available in the repository linked to the article.

4.5 Results

4.5.1 Survey

General findings

With a focus on the practitioners to capture distinct patterns in urban agricultural practices in Oosterwold, we first provide a profile of the respondents in relation to urban agriculture. Most respondents (95%) had their employment background outside the food sector (whether as an employee, an independent freelancer, or a retiree). This was reflected in the assessment of their own competence in urban agriculture, which they predominantly judged moderate. During the survey, 65% of the respondents inhabited their plot, while the other 35% were in a (pre-) phase of developing the plot. Residents claimed that the urban agriculture at their plots predominately ranged between 500 and 2,500 square metres. 96% of the respondents indicated to have planted fruit/nut trees on their plots and that vegetables (96%), berries (96%), flowers/perennials (84%), and herbs (93%) were grown. Lesser numbers

stated to have beehives (9%), vines (20%), and chicken or other livestock (51%). About 50% of the respondents were residing long enough in Oosterwold to have had at least 1 year of harvest from their plot. The harvest was predominantly consumed or processed at home or shared with the neighbourhood. Only a minority sold or bartered the harvested and/or processed products.

In performing the agricultural practices, the respondents indicated that it is largely their individual activity though also with receiving support from their families or partners. The 'pre-COVID-19' time devoted to urban agriculture was estimated in the same order of magnitude as that to social life and leisure activities but much less than the time they spent on their job and family life. Respondents indicated that COVID-19 had a positive impact on their interest in producing food and gardening as well that it offered more room to spend time on urban agriculture. Time for farming appeared as an important constraining issue, with respondents commenting that 'in an ideal world' they would spend more time on farming their plot at the expense of work and travel. Besides more time devoted to urban agriculture, the residents considered training/courses, knowledge infrastructures, coordination of production and sale, and a processing facility as potentially enabling the development of urban agriculture in Oosterwold.

Respondents gave great importance to urban agriculture in general terms like in the reduction of the dependency on the global food system and the reduction of the gap between production and consumption, as well as its contribution to a greener city and its educational function (Table S4.2). However, they discriminated in the local importance of it. Urban agriculture was considered highly relevant to Oosterwold but not that much important to local networks in food as well as to the city region of Almere.

Typology of practices of urban agriculture in Oosterwold

To have a closer look at how urban agriculture is envisioned, a non-hierarchical cluster analysis was performed. A division into 4 clusters -- typologies -- delivered sensible groups each referring to a part of the Oosterwold population (Table 4.1; An additional characterisation of the four types can be found in the supplementary section 4.9).

4.5.1 Photo analysis

We analysed the urban agriculture performances at two scales: firstly, we zoomed in on individual plots and, secondly, we zoomed out for a clustered orientation of multiple plots.

Assessment of individual plots

The apparent uniformity in how urban agriculture is performed in Oosterwold, as revealed in the survey, recurs in the photo analysis (Table 4.2). A high percentage of the food-related elements were fruit trees and shrubs, and (raised) vegetable beds. Other elements that hinted to food production, although much less present than in the survey, were glasshouses or plastic tunnels, chicken/livestock sheds, vines, and beehives. The lower share of these latter elements in the photo analysis may be related to a disbalance between intention and actual performance.

The limited space allocated to food-related practices was not revealed by the survey but evidenced from the aerial photographs (Table 4.2). On average, the space allocated to food amounted to an estimated 10 to 25% of the plot, which is considerably lower than the formally required 51% spatial designation to urban agriculture. Urban agriculture appeared to compete with other activities in daily life. The photographs portrayed lawns, flower beds, ponds, swimming pools, hot tubs, and substantial areas covered with tiles. Some residencies were shown to keep (riding) horses and/or other pets. The presence of children was visible, with 29% of the gardens showing garden play equipment, such as a trampoline or a swing. The seemingly low portion of urban agriculture can also be explained by the stage of development. We estimated that most of the pictured plots were only recently inhabited, on average 1 to 2 years, and that most gardens seemed not yet fully developed, retained as lawn, or in some cases even appeared as fallow or nature/wild garden.

Table 4.1. The four clusters of typologies and their dimensions (n=111).

	Social	Business	Committed	Pragmatic
Percentage of residents (%)	26	15	30	29
Stage of development in Oosterwold	Residing in	Developing	Developing	Residing in
Recruitment in Oosterwold	Living environment and autonomy	Urban agriculture, autonomy and green space	Urban agriculture, autonomy and living environment	Living environment, cheap plots and green space
Recruitment in urban agriculture	No strong opinion	Local food networks and making food system more sustainable	Making food system more sustainable; reducing the dependence of global food system; greening the city	No strong opinion
Engagement in urban agriculture	Hobby and obligation; social activity	Shortening the food supply chains; start-up a business; social activity; professional craft	Shortening the food supply chains; social activity	Hobby and obligation; not a social activity
Engagement in food	No strong opinion; social function of food	Growing own food; working in the garden; new business models	Healthy and fresh food; environment	No strong opinion; not the social function of food
Urban agriculture in household	More costly than it yields	Saves expenses	Saves expenses	More costly than it yields

Table 4.2. Results of photo analyses of individual plots (n=199) in Oosterwold. The upper – overall – row is a sequential overview of all the 199 plots. In the two lower rows this overall impression is split in, respectively, the group with (n=93) or without (n=106) a dominant lawn.

					%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Overall	199	1-2 years of inhabitation	12%	largely developed	10-25	81	44	86	70	35	6	28	6	5	10	22	34	95	29	4
	Number	**Status home**	**Uniform neighbourhood**	**Status garden**	**Coverage food elements**	**Lawn**	**Nature garden/Fallow**	**Fruit/Trees**	**Vegetable garden**	**GlashouseH/plastic tunnel**	**Vines**	**Chicken**	**Beehives**	**Horses**	**Other animals**	**Flower garden**	**Pond**	**Solar panel**	**Childern**	**Swimmingpool/Jacuzzi**
Dominant lawn	93	1-2 years of inhabitation	18%	largely developed	10-25	100	26	89	57	20	5	25	4	4	10	10	31	96	43	6
No dominant lawn	106	1-2 years of inhabitation	7%	largely developed	25-50	65	60	83	79	48	7	30	8	6	10	32	37	95	17	2

The aerial photo analysis disclosed a relative dominance of meadows and lawns in Oosterwold. Nearly half (47%) of the analysed plots were predominantly covered by a lawn or a meadow (in Table 4.2: Dominant Lawn – DL). Also, among the other plots (in Table 4.2: No Dominant Lawn – NDL), lawns were still visible, though smaller in size and spatially not dominant. Both groups were visually indistinguishable in the level of development of home and garden as well as in percentage solar panels (nearly all homes had solar panels on their roof) and ponds. However, on some critical points, there were clear differences between the two groups. Nearly 20% of the DL plots were situated in a neighbourhood with a uniform type of houses, and the remainder were individual or so-called collective private ownership plots. A much lower percentage of the NDL-group habited a uniform neighbourhood. Remarkably more plots from the DL-group had elements indicating the presence of children. Both groups displayed urban agriculture; however, the appraised coverage of urban agriculture was in the group with a dominant lawn much lower than the group with no dominant lawn. Urban agriculture in the DL-group generally showed a lawn with some fruit trees and one or a few raised beds with vegetables. Plots belonging to the NDL-group clearly showed larger spatial allocation to urban agriculture, such as vegetable gardens, fruit trees, and greenhouses or plastic tunnels. Moreover, the NDL-group demonstrated a higher portion of space allocated to flower and nature/fallow gardens.

Assessment of multiple plots

Zooming out from assessing the individual plots to a multiple orientation, taking a wider area perspective, three dimensions were identified as being influential to the performance of urban agriculture in Oosterwold: (1) a temporal, (2) an organisational, and (3) a functional dimension.

4.5.2 Temporal dimension

Regarding the temporal dimension, two patterns were observed: the stage in plot development and the stage of Oosterwold area development. The stage of the development of the home is the first pattern that is influential to the performance of urban agriculture. The primary focus of the new residents is obviously the construction of their home(s). Because Oosterwold highly relies on residents' self-organisation, including the construction of both houses and infrastructures (such as sanitation), this construction requires individual effort and usually extends over a long period of time. As such, after purchasing the plot, it generally takes residents a year or more to construct their residence. In nearly all observations, only after the house is finalised the garden, and thus urban agriculture, gradually comes into play (Figure S4.2).

The second pattern regards the distinction between sites in the Oosterwold area developed before 2019 and sites where development started in more recent years. The analysis (Figure S4.3) highlighted that in the 'older' part of Oosterwold, the individual plots are on average larger in size, which resonates with the soaring square metre tag per plot after the first years of the development. Larger plots obviously offer more space for a diverse interpretation of the urban agriculture rule. Moreover, the newer parts accommodate relatively more uniform neighbourhoods. Some neighbourhoods have smaller individual plots because (a part of the) the urban agriculture is outsourced to a farmer outside the neighbourhood (see next section). It seems that residents of these more uniform neighbourhoods are less interested in agriculture themselves.

4.5.3 Organisational dimension

In relation to the above, the photo analysis revealed an organisational dimension of the urban agriculture practices (Figure S4.4). This dimension has two influential patterns: the organisation of the plot as a whole and the organisation of the urban agriculture at the plot. The analysis reveals that the organisation of the plot can be outsourced to a real estate developer, to a farmer, or privately executed as an individual or as a collective. The other pattern is the actual organisation of urban agriculture, which is carried out individually, as a collective and/or is outsourced to a farmer from within or outside the area.

4.5.4 Functional dimension

Furthermore, the photo analysis revealed that performance has a functional dimension, reflected in two axes: (1) level of execution (limited vs fully) and (2) level of professionalism (hobby vs (semi-) professional) (Figure 4.2). A wide range of factors influences how and to what extend urban agriculture activities are executed within the realm of both axes. These factors can be lifestyle elements, like having children (Photo 2) and/or riding horses (Photo 4), or like creating a nature garden (Photo 3). Note that, although there are some examples of keeping riding horses, the ODA does not consider it an urban agriculture activity; thus, it is not part of the 51% rule. There are only a limited number of (semi-) professional urban agriculture activities in Oosterwold, like Photo 8 (vineyard and lodges) and Photo 9 (nursery of ornamentals). Full professional urban activities, like in Photo 7 (40 ha crops as well as beef cattle), are scant. Reversely, there are substantial examples with no to limited urban agriculture activities, as Photos 4, 5, and 6 illustrate. Although Photo 10 illustrates a professional activity (landscaper/horticulturist), the plot itself has only few elements that mark food production.

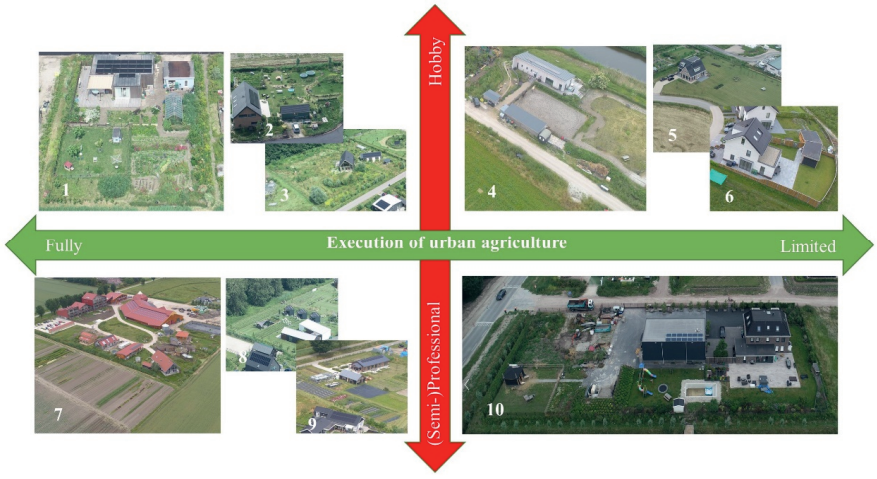


Figure 4.2. Functional dimension of urban agriculture in Oosterwold in two axes: (a) level of execution: fully versus limited (horizontal) and (b) level of professionalism: hobby versus (semi-) professional (vertical). Photos: Copyright Municipality of Almere, Oosterwold Development Authority, June 2021.

4.6 Discussion

We applied an SPT-informed approach to analyse how and why the urban agriculture practices amalgamate with the daily reality of the Oosterwold residents. To deconstruct the urban agriculture practices, we deployed a sequential mixed-method design that combined a quantitative (an online survey) with a novel qualitative method (an analysis of aerial photos). The conducted survey proved valuable in providing a socially differentiated perspective on urban agriculture in Oosterwold, while it also highlighted the generally shared meaning attributed to urban agriculture. However, a survey as a sole method is limited in uncovering the more routinely enacted and lifestyle embedded elements in the urban agriculture performances of the residents. The photo analysis helped to bypass these limitations. Moreover, the photos offered us the opportunity to analyse nearly 200 practices at the same moment in time, an analytical scale nearly impossible to organise in a face-to-face interview or observational setting. Still, we acknowledge that these photos are instant snapshots of the urban agriculture practices. They thus do not provide complete understandings of how urban agriculture practices evolved at a specific plot, which could be revealed through interviews and home visits. However, the diversity in stages of development helped shed light on the evolving urban agriculture in Oosterwold.

Our mixed-method approach was useful for studying the performativity of urban planning in practice, zooming out from individual household performances to the shaping up of a wider area. It revealed the unruly nature of bottom-up citizen participation in a top-down feeding the city realm. The survey highlighted the significance residence attributed to urban agriculture in Oosterwold. Residents stated to practice farming by growing fruit trees and vegetables, with ambitions to complement this with vines, chickens, bees, and other animals. However, despite the significance expressed in the survey, the actual 'doings' portrayed at the aerial photos often show a lesser degree of engagement in the implementation of urban agriculture. The photo analysis revealed rather limited urban agricultural activities with a spatial allocation not exceeding one quarter of the plot, which is far below the 51% rule. The survey revealed that residents consider time and knowledge important constraints. Farming between 500 and 2,500 square metres land requires skills and a considerable investment of time and toil which competes with other lifestyle elements like jobs, social life, and children. For instance, the photos uncovered a higher share of children-oriented (garden) play equipment on the plots dominated by lawns (DL-group), illustrating competing claims in space and time between urban agriculture and caring for children. The photo analyses also revealed competition in the allocation of time and effort in relation to the stage of development of the plot. Residents prioritise constructing houses, with the lawn acting as interim place maker of urban agriculture. Only when the home is in a final stage, the garden comes into play and residents start to organise the production of food. All these aspects not only influence the course of the stages of the newly arrived residents but also how the food production eventually (or not) evolves on the plot, that is, ranging from a lawn with some fruit trees to a full fletched food garden or an urban farm.

A kind of realism pours in the moment the residents reside in the area. A realism that farming is more complex and time consuming than initially assumed and that it is difficult to fit in the complexity of everyday life. With this realism, the 51% rule gets out of focus. It is not helpful in this context as the authorities do not monitor, facilitate, or enforce (with a timeframe) residents' performances in urban agriculture. Under the pretext of self-organisation, authorities have strictly transferred all responsibilities to the individual – the residents of Oosterwold (Cozzolino et al., 2017; Testi, 2022). However, as this study highlights, the complexity of performing urban agriculture requires a joint effort. Without a joint effort it is obvious that the 10% policy goal will get out of reach, which could ultimately lead to a cul-de-sac for urban agriculture in Oosterwold.

So how could ODA – the Oosterwold Development Authority – take a more balanced position in urban agriculture? They could start with acknowledging that self-organisation is not a goal in itself, but rather find "the right balance between planners' decisions and spontaneous self-organising process" (Testi, 2022: 366). Moreover, planners of ODA have to consider that the urban agriculture in Oosterwold is a 'proto' practice, that is, a practice in which the elements meaning, competence, and material exist but are not (yet) fully developed and connected (Shove et al., 2012). For example, residents attribute a meaning to urban agriculture but this does not match their competence (e.g. experience in farming) nor the material (e.g. their garden). Finding a right balance thus could start with the involvement of the residents in the debate what urban agriculture means to Oosterwold residents. So far, the residents have not been included in such a debate. Carving out the same turf commits all stakeholders involved to the development of urban agriculture in Oosterwold, an urban agriculture that matches local needs and expectations and concomitantly highlights omissions in competence and material (Akimowicz et al., 2020; Albrechts et al., 2020). Such a debate is a recurring process because new generations of residents will engender new needs and expectations. The debate should also acknowledge that farming in the urban realm is a highly diverse practice (Jansma et al., 2024) and that motivations of practitioners in urban agriculture go beyond the mere production of food (Kirby et al., 2021). Hence, the 10% goal should be part of this debate. As Valley and Wittman (2019: 42) put it: "the challenge [to transform urban landscapes to produce food] lies in not letting the conversation stay within city limits [to produce food]". Lingering in the 10% policy goal might hamper a real debate about the future of urban agriculture in the area, putting a blind eye to a wider interpretation as well contribution of urban agriculture. Needless to say that a wider interpretation which is in line with local needs and expectations is not necessarily supportive to the policy goal of feeding the city.

Finding a balance also implies acknowledging that it takes time to adapt urban agriculture as a practice and that a focus at residents' self-organisation does not imply a laissez faire from planning and policy side. Each resident steps in with a different level of expectations and skills at a different moment in time. Do not expect full fletched urban agriculture from day one and differentiate expectations. Most Oosterwold residents originate from an urban background and consider themselves as rather inexperienced and unskilled in urban agriculture. These new

residents have to incorporate food production in their daily life besides taking care of jobs, kids, and other pressing tasks like constructing a new home. Oosterwold planning could organise competence and material to support the residents with performing urban agriculture, for example, a knowledge exchange application for peer groups, or supportive infrastructures and equipment, like a physical community centre for urban agriculture which also could serve as location to process, store, and sell products under the valid Dutch regulations. As such, ODA could reinforce their support to the Oosterwold food cooperative that sells food produced in Oosterwold (Jansma & Wertheim-Heck, 2022). Oosterwold planning unintendedly offered another interesting pathway, that is, the outsourcing of the urban agriculture practice to professionals within or outside the community. This pathway is enforced by the rising price tag of land. Offering room to develop larger hamlets with small individual plots provides enough space for professional farming within the 51% rule.

Zooming in on new residents' engagement in urban agriculture, our study revealed the tension between planning for bottom-up citizen participation and the actual performance of these participants in defiance of everyday reality (Zhang et al., 2019). This study shows the residents evolving endeavour of incorporating -- whether successfully or not -- urban agriculture practices in their lifestyle. Zooming out to a wider area perspective, a similar incremental process holds for the urban agriculture in the planning of the area. The planning of urban agriculture began as a bold process enforced by politicians and planners who were passionate about the idea of bridging the gap between the city and its agricultural hinterland (Jansma & Wertheim-Heck, 2021). The planning of urban agriculture of the area appeared malleable at the moment the first residents stepped in and started to perform urban agriculture (Jansma & Wertheim-Heck, 2022). This study illustrates that a malleable position of urban agriculture does not suffice to overcome the tension between planning and everyday reality in the development of urban agriculture. In 2022, Oosterwold planning invited residents to debate about the future of urban agriculture in the area. This debate led to a set of requests, including continuing and extending the debate, and organising knowledge infrastructures and other supportive conditions. These requests on the one hand address the needs of the residents but are on the other hand a clear signal of residents' wish to be part of the planning of urban agriculture. This wish should rouse a process of negotiation between policy, planners and populace of Oosterwold about balancing the respective roles and responsibilities in the areas' planning of urban agriculture.

4.7 Conclusion

This paper questions what happens when top-down policy and planning meet bottom-up participation in a peri-urban living lab that pivots residents' urban agriculture? Five years after the first residents settled in Oosterwold, we appraised residents' practices in urban agriculture and examined the tension between planning for feeding the city and partitioners' everyday performance in food production. Our social practice–informed analysis uncovered a dissonance between these new residents' sayings and their actual doings in food production. Although the new residents have a positive attribution to (practicing) urban agriculture, the complexity of the daily reality hampers their performance. Our study demonstrates that (i) it takes time for residents to adapt to urban agriculture as a substantial practice in their heterogeneous lifestyle and (ii) that a focus on bottom-up approaches, such as Oosterwold residents' self-organisation, does not imply a laissez faire from a more top-down planning and policy side.

Living lab Oosterwold is a one of a kind in the planning of urban agriculture; however, it provides planning (and policy) generic pathways in retrieving a balanced and place-based action towards feeding the city. The Oosterwold case offers four pathways to consider. Firstly, create a shared vision of what urban agriculture should entail for all stakeholders involved. Oosterwold illustrates that a lack of a shared vision induces a distance between the practitioners and planning in terms of understanding urban agriculture. A shared vision helps to guide the development of urban agriculture. It might also lead to an interpretation of urban agriculture, related to its intrinsic diversity of practices, that might redirect the initial objectives of feeding the city. Secondly, planning should acknowledge that new urban entrants in urban farming (and most are) have to find ways to incorporate agriculture in their lifestyle. Planning could facilitate and encourage these new entrants by creating supportive conditions. Thirdly, developing urban agriculture is a shared effort. Allocating space to urban agriculture is not the endpoint of planners' responsibility, but rather a starting point of a dynamic process in balancing roles and responsibilities. Consequently, co-creating urban agriculture is a recurrent process of negotiating the conditions that support residents in their daily agricultural practices. These conditions should be adjusted to residents' diversity in stage of development, skills, motivations, and expectations but also to (unforeseen) external conditions. A recurrent process is also vital to include new generations of residents in the urban agriculture. Fourthly, while acknowledging that not all new residents want to (and/or are able to) practice urban agriculture themselves, planning could further explore the pathway of the outsourcing of food production to professionals within or outside the community. Guiding conditions could link these professionals to the local community.

In the co-creation of feeding the city, planning plays a pivotal role as intermediate between policy (objectives) and local needs and expectations. Induced by the involvement of the residents, Oosterwold planning evinces a transition in the position of urban agriculture. Its position started as an enforceable asset in the planning of Oosterwold, that is, the 10% goal and the 51% land earmarked to urban agriculture. With the residents stepping in Oosterwold realm, urban agriculture changed to a malleable asset in the planning. This study illustrates that, in the co-creation of a food producing area, urban agriculture should evolve to a negotiable asset that reflects a balance in role, responsibility and position of each stakeholder in the planning process. It is further inferred that a balance in policy goals, planning instruments and the needs of the practitioners requires continuously staying attuned to a shared vision while iteratively assessing and creating supportive conditions.

4.8 Supplementary material

Table S4.1. Sequential mixed-method design of chapter 4.

	Data set 1	Data set 2
	Survey	**Aerial photo's**
Rights of data	Wageningen University and Research	Oosterwold Development Authority
Date	May 2020	June 2021
Method	Quantitative	Qualitative
Type	Online questionaire	Aerial photo's
n =	111	199
Observation	What residents say about their performance	Snapshot of how residents actually perform

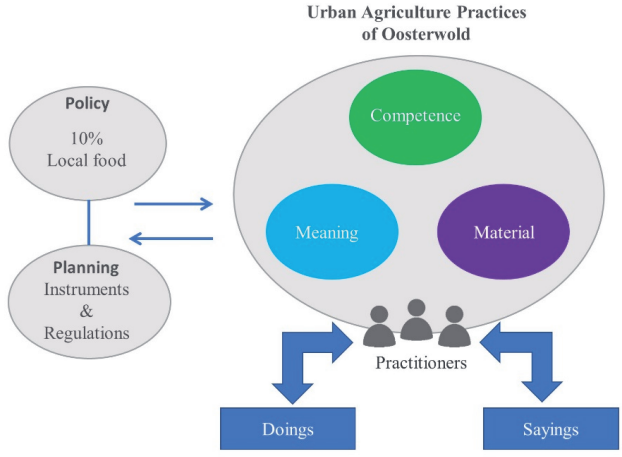


Figure S4.1. The analytical framework of this paper.

Oosterwold residents

Taking a closer look on the composition of Oosterwold residents, it is relevant to highlight that they predominantly originate from urban areas, mostly from within the metropole region of Amsterdam. However, where Almere is characterised by a highly diverse population of which 44% has a migration background, the vast majority (81%) of the Oosterwold residents has a Dutch ethnic background (i.e. both the parents are born in the Netherlands). Besides, Oosterwold has a relative overrepresentation of the age groups between 0-9 and 40-60 years (data acquired from ODA), that is, the residents are either households with young children or senior couples. Residents predominately live in single family homes, which they have in ownership. The average income per resident of Oosterwold is nearly €35,000, which is substantially above the average of Almere and The Netherlands respectively - €28,000 and €24,000-. These data resonate with the percentage of residents with higher education (comparable to at least BSc level), which is 56% in Oosterwold compared to 29% in Almere (data of 2021: (Almere, 2022)). Although the new Oosterwold residents are obliged to engage in urban agriculture on their own plot, a survey, carried out amongst Oosterwold residents in 2019, revealed that they have limited experience with and knowledge of urban agriculture (Jansma & Wertheim-Heck, 2022).

Table S4.2. How the respondents (n=111) envision urban agriculture.

		Totally Agree	Agree	Neutral	Disagree	Totally Disagree
Urban agriculture....		%	%	%	%	%
	reduces the gap between food production and consumption	48	45	6	0	1
	contributes to more green in the city	48	42	7	2	1
	has an educational function about the provenance of our food	45	47	6	1	1
	helps to increase the biodiversity	35	53	10	1	1
	contributes to the wellbeing of people and animals	34	53	12	0	1
	reduces dependence on the global food system	32	51	12	4	1
	supports local networks in food	22	49	26	3	1
I consider urban agriculture...						
	as an important part of Oosterwold	74	21	3	0	3
	as an important part of making the food system more sustainable	39	43	13	4	2
	as an important part of Almere	15	37	32	14	2

Characterisation of the four clusters

The four clusters of typologies derived from the survey can be characterised as:

Social – (26% of respondents) Urban agriculture in Oosterwold is considered a hobby and an obligation and it costs more than it yields. However, the added value of urban agriculture in Oosterwold is recognized. Urban agriculture in Oosterwold is predominantly seen as a means to be socially involved. This cluster has not an outspoken engagement with food except its social function. Living in Oosterwold is attractive because of the living environment and the autonomy it offers to the residents. The respondents of this cluster are predominantly already living in Oosterwold.

Business (15% of respondents) - Urban agriculture in Oosterwold is more than a hobby, it is a professional craft, supportive to shorten the food supply chain, and is about (start-ups in) new business models. Urban agriculture in Oosterwold is a means to be socially involved in the area. Engagement in food is about working in the garden, growing your own food and saving in the expenses. Attractive to Oosterwold is the urban agriculture, the green space and the autonomy it offers to residents. Respondents of this cluster are still in process to develop a living in Oosterwold.

Committed (30% of respondents) - Urban agriculture contributes to greening the city and is important to make the food system more sustainable. This cluster is highly interested in food and environment, healthy food for the family, and the quality of fresh food. However, in contrast to cluster 2 -- business --, urban agriculture in Oosterwold is not considered as a professional craft nor a start-up to business in food. In line with the previous two clusters urban agriculture in Oosterwold is a means to be socially involved, and is seen as an activity that helps to save expenses in food. Living in Oosterwold is about urban agriculture, the attractive living environment and the autonomy it offers. Respondents of this cluster are still in process to develop a living in Oosterwold.

Pragmatic (29% of respondents) – Urban agriculture is a hobby and an obligation, it has no added value to family income. Urban agriculture is important to Oosterwold but not so much to Almere nor in making the food system more sustainable. Urban agriculture is not seen as a social activity, and a means to be socially involved, nor a professional craft. Like the social cluster, the respondents of this cluster have not an outspoken engagement with food, however contrary to the social cluster, this cluster does not see the social function of food. Living in Oosterwold is attractive because of the living environment, the cheap plots and the abundance of green space. The respondents of this cluster are predominately already living in Oosterwold.

Figure S4.2. Temporal dimension of urban agriculture in Oosterwold (1): the stages in plot development. 1-3 are examples of early stages in which focus is at development of the house; 4-6 are stages of plot development where urban agriculture gradually receives attention (Photos: Copyright Municipality of Almere, Oosterwold Development Authority, June 2021).

Figure S4.3. Temporal dimension of urban agriculture in Oosterwold (2): individual plots at the elder part of Oosterwold are lager (1-2), while plots in the recently developed parts are smaller and accommodate more uniform neighbourhoods (3-4) (Photos: Copyright Municipality of Almere, Oosterwold Development Authority, June 2021).

Figure S4.4. Organisational dimensions of urban agriculture in Oosterwold at two levels: (A) the level of plot organisation and (B) the level of organisation of urban agriculture:

A. *The organisation of the plot is (i) outsourced (1, 4 and 5); (ii) collectively organised (2); or (iii) individually executed (3 and 6);*

B. *The organisation of urban agriculture is (i) outsourced (1, 4 and 6); (ii) carried out collectively (2); or (iii) individually executed (3 and 5).*

(Photos: Copyright Municipality of Almere, Oosterwold Development Authority, June 2021)

Chapter 5

Going against the grain:
How action research put urban agriculture on the map in planning Oosterwold (NL)

Abstract

This chapter retrospectively reflects on my role as an action researcher in the process that fundamentally changed the peri-urban planning of Oosterwold, a new peri-urban area of the Dutch city of Almere. The process of action research commenced about 20 years ago with questioning why agriculture is an outsider in urban planning. The process that followed soon focused on Almere and specifically on the planning of its future peri-urban area Oosterwold (4,300 ha and approximately 15,000 homes). In my contribution I will specify how the action research process evolved in four successive phases: (1) 2002-2006: Exploring & Substantiating, (2) 2006-2009: Designing & Co-creating, (3) 2009-2016: Advising & Monitoring, and (4) 2016-2022: Re-exploring & Supporting. Going through these phases, the process started from a situation with no predetermined goals, a target group, a methodology, nor a fixed duration, but developed step-by-step based on an iterative cyclical approach of diagnosis, action, and evaluation. Eventually, it initiated a fundamental change in the planning practices of Oosterwold. Urban agriculture got formally included in the planning of the area, which in daily practice implies that residents are expected to farm at least 51% of their land. In retrospect, I reveal how the action research anticipated serendipity and zeitgeist, how stakeholder were engaged and how they successively co-shaped the action, what roles were performed during the process of action, how various competences were executed, and how funding was arranged. I will conclude with some general lessons distilled from my involvement as action researcher in the transformation of Oosterwold's urban planning practices.

5.1 Introduction

Around 2002, I was intrigued by future concepts of new farming systems in and around urban areas that were presented by a research programme commissioned by the Dutch Ministry of Agriculture. These future concepts sparked my thoughts because at that time I had moved with my young family into a newly developed residential district strictly separated from the surrounding agricultural area. I realised that agriculture in the urban and peri-urban context was a black box to me as an agronomist and to the vast majority of my colleagues. At the time, agriculture was considered a rural business, strictly segregated from the (peri-) urban sphere (Roodbol-Mekkes et al., 2012). Consequently, as an agronomist, I focused on the rural side. However, inspired by these future concepts, I started to question under which conditions agriculture could be re-introduced as a natural and vibrant part of (peri-) urban districts and, subsequently, what a re-introduction of agriculture in the (peri-) urban sphere might imply to the planning of a future city and its layout. I approached these questions as the start of a personal and scientific learning process, based on the premise that "if you want truly to understand something, try to change it" (attributed to Kurt Lewin 1890-1947). This learning process evolved into a collaborative research because (peri-) urban agriculture was an uncharted territory in urban planning, practice and research. Retrospectively, I frame this collaborative endeavour as action research, a process of joint research, learning and action that led to a fundamental change (Kemmis et al., 2014; Wittmayer & Schäpke, 2014). Specifically, it fundamentally transformed the spatial planning practices of Oosterwold, a new peri-urban area in the fringe of the Dutch city of Almere. I explicitly emphasise 'retrospectively' because I did not originally intend to start a process of action research to explore new pathways for agriculture in (peri-) urban planning, a process that, moreover, would last 20 years. Driven by curiosity, the action research attitude gradually grew in me.

The planning of Oosterwold demonstrates a radical discontinuity in the urban planning practices in the Netherlands (Jansma & Wertheim-Heck, 2021). In the previous chapters I elaborated on this change from three different perspectives: (1) an historical perspective on the shifting position of agriculture in the planning of the 'new town' Almere (Jansma & Wertheim-Heck, 2021), (2) a perspective on how the residents as new entrants in the planning practices of Oosterwold contributed to an open-ended and iteratively evolving planning process (Jansma & Wertheim-Heck, 2022), and (3) a perspective on the new residents' performance in urban agriculture and how they try to incorporate urban farming into their daily practices (Jansma & Wertheim-Heck, 2023). This chapter reflects on the contribution action research made in the fundamental change of planning practices of Oosterwold. In doing so, I use my 20 years of experience in Oosterwold as the empirical case, retrospectively assessed from the perspective of action research.

As Kemmis et al. (2014: 59) clearly explain "action research aims to change practices, people's understandings of their practices, and the conditions under which they practice". However, the premise of my action research was that seemingly no attention was given to alternative conditions for peri-urban agriculture, and moreover that there were no planners nor others striving to change their understanding of planning practices for agriculture in the peri-urban zone. I thus formulate my research question as follows: how can agriculture be integrated in (peri-) urban planning practices if there is ostensibly (1) no concern about the segregation between city and agriculture, (2) no felt need to change urban planning practices, and (3) no group of people voicing the need to change planning practices towards the agriculture in the peri-urban zone?

To reflect on my research question, this chapter considers an empirical case that began without concern, need or people but which brought a fundamental change in urban planning that - in retrospect - addressed a concern, a need, and a group of people. Before answering my research question, I briefly elaborate on my approach to action research. I then explain how I navigated through this 20-year period of action research. In doing so, in hindsight, I funnel the process of action on urban agriculture in Oosterwold in four subsequent 'action' phases: (1) 2002-2006: Exploring & Substantiating, (2) 2006-2009: Designing & Co-creating, (3) 2009-2016: Advising & Monitoring, and (4) 2016-2022: Re-exploring & Supporting (Figure 5.1). These subsequent action phases describe how this research step-by-step unfolds in an iterative anticipatory process. Each action phase is described in a separate section and accompanied with a text box that highlights the major 'stepping stones', the methods applied and the funding acquired for each phase of the process. Here stepping stone is understood as a key node in the process of action research, such as a stakeholder(s), an event or an intervention linking the successive actions. After considering the two questions in the discussion section, I conclude with five general lessons distilled from the action research process that transformed the urban planning of Oosterwold.

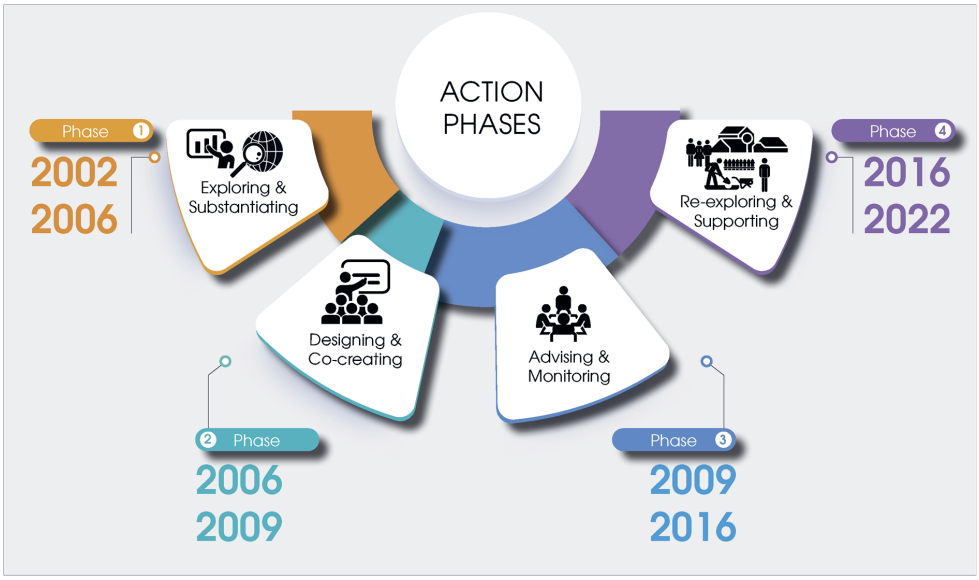


Figure 5.1. The four phases of the action research process in Oosterwold planning.

5.2 Action research

Action research as a field of scientific interest has a long history dating back to the work of Kurt Lewin in the 1940s. Subsequent scholars in the field have defined action research in many different ways (e.g., Braun et al., 2021; Dick, 2015; Kemmis et al., 2014; Van der Gaast et al., 2023). I follow Van der Gaast et al. (2023), who refer to Wittmayer and Schäpke (2014: 484), in understanding action research as "a collaborative production of scientifically and socially relevant knowledge, transformative action and new social relations through a participatory process". This understanding of action research specifically refers to:

1. the production of new knowledge, i.e., to explore how agriculture can thrive in the (peri-) urban sphere;
2. the notion of a transformative action, i.e., to establish a fundamental change in the position of agriculture in (peri-) urban planning;
3. new social relations, i.e., to connect new participants (farmers and related actors) to the domain of peri-urban planning.

Action research is non-prescriptive in terms of methodology. It is considered a "meta-methodology" that "acts as a container for numerous methodologies, methods and tools" (Dick, 2015: 440). Key to this meta-methodology is the focus on the process of change of social practices, involving iterative cycles of diagnosis, action and evaluation (Dick, 2015; Wittmayer & Schäpke, 2014). In this process of change the emphasis of the methodology is both on joint research and co-realisation of action. However, fostering change inherently implies that "as action research is with people, rather than on or for them, the quality of the relationships between members and researchers is paramount" (Coghlan et al., 2022: 12). The methods in action research should thus focus on understanding local context and interests as well as nurturing people's commitment to both the collaborative process of research and the realisation of action.

This action research started without a local context, let alone a group of local people that was already committed to a process of action or in need of transformative change. To navigate the people in the process, this action research strongly relied on the approach of stakeholder management (e.g., Bulten et al., 2020; Freeman, 2010). A stakeholder is understood as "any group or individual who can affect or is affected by the achievement of the organization's purposes" (Freeman et al., 2010: 26). The organisation's purposes in this definition is translated by me in the purpose of the action research process. The stakeholder approach in this chapter pivoted around the stakeholder portfolio I compiled. This portfolio consisted of a stakeholder scheme (Figure 5.2) in which I charted and periodically detailed the stakeholders over the period from 2005 to 2011. I selected stakeholders in Almere based on (1) interest in the outcome of the process, (2) degree of influence on and mandate in their environment/organisation, and (3) accessibility, in the sense that these stakeholders could be reached and communicated with. In addition, to support the process of action research and to 'manage' the stakeholders, I utilised a versatile set of approaches, methods and 'tools', e.g., future scenarios, desk studies, surveys, interviews and visualisations, and I organised workshops and events as well as published papers, reports, leaflets and newsletters.

			Phase			Position			Interest				
Name	Organisation	Function	Inform	Consult	Collaborate	Blocker	Floater	Mover	Ambition 1-10	Impact 1-10	Network 1-10	Additional info	Intervention
A	Municipality of Almere	Politician		X				X	9	9	9	Ambition to implement Almere 2.0 Masterplan	Continue to inform through assistent
B	Municipality of Almere	Planner Oosterwold team			X			X	9	8	8	Lead on behalf of Almere in Oosterwold planning team	Get invited in Oosterwld planning team
C		Farmer in Oosterwold		X				X	7	6	7	Wants to continue farm in Oosterwodl area	Keep informed about progress
D	Municipality of Zeewolde	Planner Oosterwold team		X			X		7	9	9	Concerned about position current agriculture in planning Oosterwold	Discuss opportunities urban agriculture
E	Province of Flevoland	Policy adviser	X			X			6	8	9	New in Oosterwold planning team	Send additional info of Agromere

Figure 5.2. Excerpt of the anonymised stakeholder scheme that was used to navigate the stakeholders in the action research from 2005 to 2011.

In this action research, I deliberately focused on building and nurturing relationships with stakeholders by using a stakeholder management approach. This focus helped me to understand the local interests and contexts, and was supportive in shaping the action. In the course of the action when stakeholders started to co-shape the process, the stakeholder approach became a less dominant method to nurture relationships in the action. However, on a more intuitive basis, the method remained a part of this action research.

Acquiring funds and paid assignments was another key element of this action research. Without funding we could not have carried out this action research, e.g., to facilitate the events; to hire experts, process facilitators, and illustrators; and to produce documents, newsletters etc.

From 2005 to 2022, I recorded my observations and jottings of conversations, workshops, meetings and design sessions, and personal reflections in a log. The log also included notes on documents, reports, social media communications and other communications about the development of Oosterwold. The log helped me to navigate and reflect on my position in the on-going action research. It also helped me to retrospectively understand the action research process.

In the next four sections I elaborate on the subsequent four action phases of my action research in the planning and development of urban agriculture in Oosterwold. Zooming out on this empirical case helps to assess key elements of an action research process that - at the start - did not have people and was not motivated by a need.

5.3 Action phases

5.3.1 Phase 1: Exploring & Substantiating (2002-2006)

My action research career started with a research programme commissioned by the Dutch Ministry of Agriculture that explored what sustainable farming practices should look like by 2030. Stakeholders from various sections of society were invited to imagine and develop agriculture scenarios for 2030. One of these scenarios was labelled: New rounds, different opportunities (Krikke & Klein Swormink, 2004). The stakeholders imagined opportunities for new forms of agriculture in coherent circles around an urban centre. These circles corresponded to the circles of agriculture in pre-industrialised societies, postulated by Von Thünen in the early 19th century (Van der Schans & Wiskerke, 2012). In Von Thünen's perception, the circles reflected agriculture's connectivity with the city. A connectivity dictated by the price of land, the type of product (volume, degree of storage life) and the costs of transport to urban areas. This idea of agricultural circles around and connected to a city fascinated me as it fundamentally contradicted the everyday reality of segregated agriculture in our post-industrial society.

A research programme on system innovation in agriculture funded by the Dutch Ministry of Agriculture gave me some financial means and intellectual space to study the position of agriculture around cities in the Netherlands and how this position was linked to societal needs. The study consisted of a desk research and interviews (n=17) and explored how urban dwellers experience the rural area and, in particular, agriculture in the urban periphery (Spruijt et al., 2004). The exploration highlighted that Dutch society had an untapped need for small-scale multi-functional experience farming and that some farms successfully practiced types of experience farming[1] near urban areas. However, it was concluded that support was needed to change this need into a profitable practice for a larger group of farmers. The conclusion encouraged me to explore what cities, and specifically urban planning, could do to support farming in their periphery and vice versa. Coincidentally, at this time the chair of the local branch of the farmers union directed me towards Almere planning with the words: "Recently, I was invited by Almere planners to be updated on the future expansion of the city. In the near future, farmers around Almere will lose a lot of fertile farmland due to planned urban development".

I arranged a meeting with the planners of Almere and shared my thoughts about functionally integrating agriculture in the city's future urban planning. At some point in the conversation, an Almere planner bluntly asked: "Who wants to live in a potato field?". This sentence clearly summed up the urban planners' position on agriculture that I encountered in this meeting. I also realised that I lacked the knowledge as well as a supportive network to be a serious mandated actor in a debate with these urban planners. Still, I did not leave the meeting empty handed. A meeting participant was a nearly-retired planner who had participated in the initial planning years of Almere in the 1970s. He turned out to be willing to join my pursuit because he could link agriculture to the original ambitions of these early planners. Soon I learned that these early planners were inspired by the 'garden city' concept of Ebenezer Howard and that agriculture was an integral part of Almere's original Structure Plan but never implemented (Jansma & Wertheim-Heck, 2021). To increase local knowledge about urban agriculture while also establishing a support network, I organised two subsequent workshops. The rationale behind organising these workshops was (1) to substantiate the added value of farming in and around cities and, in particular, in Almere and (2) to create a supportive network of stakeholders in Almere (planning). Individuals with a background in education, agriculture, business, research and policy were invited to discuss and design what agriculture could look like in the fringe of Almere, which led to interesting reflections. A workshop participant reflected in a glossy I compiled after the meeting: "It is interesting to explore whether agriculture can contribute to the quality of this city, while also providing something for the farmer" (Jansma, 2005: 3). While I organised the first meeting at the research plant of Wageningen University & Research in Lelystad, I organised the second at the 'Urban Farm' of Almere. I had recently met the farm's entrepreneurs, who almost a decade earlier had founded this farm with the intention of establishing a farm 'facing the city'. This farm literally exemplified what vibrant farming could look like in the urban fringe. The Urban Farm entrepreneurs evolved into an important member of the stakeholder network that I eventually created. Other members of this network represented local NGOs, farmers, research, and businesses.

[1] In those early years I used the phrase 'experience agriculture' or 'urban-oriented agriculture' to denote farming with societal amenity values such as offering tourism, education, or landscape, for example. It was not until 2006 that I started to use the term 'urban agriculture'.

Artists' impressions of agriculture in and around a city were created, based on the discussion of the second workshop (Figure 5.3).

Figure 5.3: Artist's impression of urban agriculture outside the city (left) and inside the city (right). Outcome of the second stakeholder meeting in Almere, 2005 (picture: JAM Visual Thinking).

After the two workshops I realised that two important groups of stakeholders were not represented: Almere residents and members of the planning community. First, Almere residents as potential users, practitioners or customers of future urban (-oriented) agriculture were not part of my network. To overcome this blind spot, I asked a student, with the help of an office specialised in telephone interviewing, to carry out a survey (n=342) among residents living in the outskirts of Almere (Warnaar, 2005). The survey focused on the desirable activities and properties of farms near Almere. Respondents were asked how they would use farm-related services if these services became part of farms around Almere in the future. The results showed that residents of Almere wanted more involvement in the countryside and enjoyed visiting farms. These results fuelled my arguments that urbanites were interested, to a certain extent, in agriculture.

Second, both workshops attracted farmers and representatives from NGOs, research & education, and business but lacked representatives of Almere's planning community, except the nearly-retired planner. Coincidently, a newly appointed chief councillor (alderman) left the national parliament to work for the city of Almere. It quickly circulated that this newly appointed chief councillor was determined to fundamentally change the future of Almere (Jansma & Wertheim-Heck, 2021). I realised that if I wanted to involve the planning community of Almere, I had to involve him in my process. Supported by some members of my stakeholder network, I organised an event at the Urban Farm of Almere and invited the councillor as the keynote speaker (Figure 5.4). The presence of this councillor attracted many curious visitors, such as real estate developers, local farmers as well as representatives from the municipalities of Almere and adjacent Zeewolde, nature organisations, education, the Dutch Ministry of Agriculture, and business. At this meeting, we presented the councillor with the first print of the document Stad en land: een vruchtbare combinatie (City and agriculture: a fruitful combination) (Jansma, 2006). The document substantiated a compelling perspective of future urban agriculture in and around Almere. In his speech, the councillor introduced himself to the audience and set out his ambition to dramatically change the planning of Almere: "City and country should both have a meaningful place in the future expansion of Almere" (Flevoland, 2006). In his speech he mentioned the eastern part of Almere as an interesting location to explore new forms of residency in a green environment because this is the place where Almere meets the countryside.

At the informal lunch after the meeting with the chief councillor, I invited a selection of the invitees - those whom I considered key stakeholders - to a follow-up process of interviews and workshops (Elaborated in: Jansma et al., 2010). Nearly all invited stakeholders agreed to participate in this follow-up process. Notably, some Almere planners agreed to participate as well.

Figure 5.4: Impression of stakeholder meeting at the Urban Farm of Almere with Almere's new chief councillor, October 2006.

In short, this first phase started with the broad question, is there a need for new types of agriculture in the urban fringe? The exploration confirmed that there was a societal need to reconnect agriculture with urban life but unexploited in urban planning. In the eastern side of Almere I found a tangible case to further explore and corroborate agriculture's position in urban planning. Here the city planned to expand in its agricultural hinterland. I was also backed by a local network that included Almere planners who were committed to co-explore the reconnection of agriculture to this urban expansion.

Box 2002-2006

Stepping stones

- 2002: Future perspective on agriculture in circles around a city in 2030;
- 2004: Chair of local farmers association directed me towards Almere because here agriculture would meet the expansion plans of the city;
- 2004: A founding planner of Almere linked my ideas to the original Structure Plan of Almere;
- 2005: Stakeholder network urban agriculture Almere;
- 2005: The entrepreneurs of the Urban Farm of Almere exemplified a tangible interpretation of my idea of peri-urban agriculture;
- 2006: Almere's new chief councillor responsible for the future expansion of Almere.

Methods

- Future scenario approach of agriculture in the Netherlands 2030 (Krikke & Klein Swormink, 2004);
- A desk research and interviews (n=17) (Spruijt et al., 2004);
- Two stakeholder workshops in 2004 and 2005 (Jansma, 2005);
- A survey (n=342) among residents living on the outskirts of Almere (Warnaar, 2005);
- Stakeholder event at the Urban Farm of Almere with the new chief councillor as the keynote speaker;
- Stakeholder portfolio.

Funding

- Dutch Ministry of Agriculture, programme System Innovation in Field Crops, project Tomorrow's taste -- De smaak van morgen --, which offered financial support to explore urban agriculture and to organise workshops and events in Almere.

5.3.2 Phase 2: Designing & Co-creating (2006-2009)

After phase 1 I had the people, but I still had no idea if and how urban agriculture could fit into Almere's future expansion, let alone, if and how agriculture could be formally integrated into the city's planning. Fortunately, the results of my work up to this point had attracted the attention of the research programme Multifunctional Agriculture, commissioned by the Dutch Ministry of Agriculture. This programme offered me the opportunity to continue and even intensify my action research. Under the banner of 'Agromere' I aimed to explore if urban agriculture could become a natural part of Almere East's future development. Moreover, the project's budget offered room to expand the research team that supported the action research process by hiring experts, process facilitators and designers. The project budget also provided room to implement a communication and publicity strategy with the support of specialists. Finally, a few specific assignments from the municipality of Almere offered additional funding.

I started with interviewing the stakeholders[2] (n=15) whom I considered vital to urban agriculture in the future Almere East area. The interviews elaborated on both the certainties and uncertainties that might be important for the realisation of (urban) agriculture in Almere East. In addition, the interviewees were invited to join three subsequent workshops. Again, I also wanted to include an important group of stakeholders, the residents of Almere, in my action research. Therefore, with the help of a student, I conducted an online survey using the Almere city panel. This city panel is a voluntary online platform the municipality maintains to survey residents about a broad range of local issues. The online survey explored whether Almere citizens would be happy with farming in their neighbourhood and, if so, under which conditions. The survey underlined that respondents (n=563) valued (urban) agriculture in their area because it potentially provided a neighbourhood with greenery, leisure activities, tranquillity and space (Engelen, 2007).

The interviews and the survey provided the input for the three subsequent workshops. Each workshop took about half a day and was prepared and executed by the research team, supported by a process facilitator and illustrators:

1. Workshop 1 (January 2007) created and explored four future scenarios (Figure 5.5). The four scenarios emerged from the two variables that appeared to be the most uncertain from the interviewees' perspective and that had the greatest impact on the features of urban agriculture in peri-urban Almere East: Global versus Local development and a Technologically- versus an Ecologically-oriented society. Subsequently, stakeholders identified possible functions of agriculture in these four scenarios;
2. Workshop 2 (April 2007) discussed the four scenarios in terms of feasibility in future Almere East, critical transition points towards realisation of agriculture in the scenarios and how to proceed. Stakeholders sympathised most with the 'ecological side' of the figure and suggested using the concepts of Boerenbrink and Ecostad with elements of Agripel as the starting point for the design of a virtual peri-urban area: Agromere. Before starting the design of this area, stakeholders compiled and agreed upon several design principles (Jansma & Visser, 2011);
3. Workshop 3 (August, 2008) discussed the design of Agromere. Agromere was designed as a 250 ha peri-urban area with 70 ha for houses and infrastructure and 180 ha for agricultural activities. The district would cater to approximately 5,000 inhabitants (2,300 households) with 30 households per ha, which is a common density for new residential districts in the Netherlands (Jansma et al., 2010).

[2] The stakeholders included real estate developers, planners and policy makers of Almere and adjacent Zeewolde, NGOs, representatives from research & education, and entrepreneurs, including local farmers.

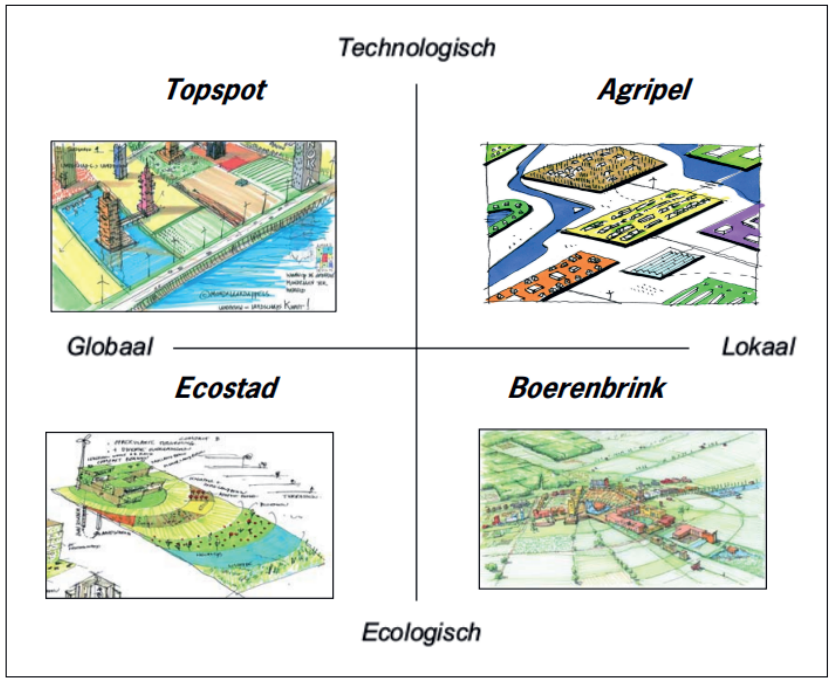


Figure 5.5. The four future scenarios: Topspot (Top left), Ecostad – Ecocity -- (Left bottom), Boerenbrink -- Farmers' village -- (Right bottom) and Agripel (Right top) of the first workshop with stakeholders, January 2007. (Horizontal axis: global versus local and vertical axis technological versus ecological).

A key consequence of the workshops was that the Almere planners became increasingly involved. Interestingly, most of the Almere planners interested in the Agromere project were relatively new participants hired by the chief councillor to support the Almere 2.0 planning. I invited one of these planners to be the keynote speaker of the third workshop. Raised and educated in South Africa, this planner had an open perspective on urban planning and turned out to be an important stepping stone towards the core of Almere 2.0 planning. The Almere planner clearly indicated that he saw the potential of urban agriculture in future Almere but stressed that it was still far from being included in the Master Plan Almere 2.0, which was to be finished in spring 2009. The first opportunity to discuss the possibilities of urban agriculture in Almere East with Almere 2.0 planners came in the summer of 2008. The planners invited me to co-design five potential pathways of agriculture and to link these to their three potential development routes of the Almere East area. This assignment resulted in a co-production that illustrated the potential contribution of a variety of urban agriculture to Almere East (Almere, 2008b). It was not so much the document that proved to be crucial in the process of bringing agriculture to the planners' table but the accompanying debate. Some of my contacts told me that the planners in my network started to organise and 'spread the word' in the townhall. Urban agriculture had hit the ground running in Almere.

Late 2008, I was invited by the Almere planners to join a design atelier of the Almere 2.0 Master Plan. After the meeting I jotted down: "To get right to the point... Almere East, as it appears now, is being designed as an Urban Farming Area with hamlets….. The overall area will be filled in and supported by urban agriculture!!!" Although enthusiastic by the idea of integrating agriculture into the development of Almere East, the planners saw a major hurdle in convincing the chief councillor and the head of the Almere 2.0 design team. Almere planners were thus looking for arguments to support their ideas on agriculture in Almere East. Arguments they presumed would support Almere's sustainability goals -The Seven Almere Principles- (Jansma & Wertheim-Heck, 2021), as well as the need to improve the local employment potential. Both the sustainability goals and local employment were high on the chief councillor's policy agenda. Concerning employment, I delivered some estimations how urban agriculture could improve local employment, which did not convince the planning team. However, in early 2009, I

was commissioned by the Almere planners to calculate the potential food production and associated reduction of carbon emissions of the future Almere East area. Although the report (Sukkel et al., 2010) was published in 2010, the planners used some initial data to support their arguments to integrate urban agriculture into the Master Plan Almere 2.0.

At a certain moment, inspired by Agromere, the chief councillor embraced the idea of urban agriculture, thus offering a critical stepping stone in the process. In the run up to the launch of the master plan, the chief councillor spoke openly about urban agriculture in a magazine for the administration and governance sector: "We did not include urban agriculture in the plans as an essential possibility for nothing. As an ideal, it is magnificent, then you have to think carefully about how to set it up so that it also has a structural perspective. Not just from a spatial planning perspective." (Binnenlands Bestuur, 2009).

Phase 2 ended with the launch of the Master Plan Almere 2.0, which positioned urban agriculture as one of the four pillars of ecological sustainability in future Almere. Urban-agriculture "breaks through the ostensible barriers between city and agriculture. City and agriculture form a contemporary combination. They enhance each other. Urban-agriculture makes the city greener and food production more sustainable." (Almere, 2009: 90). More specifically, the new area on the city's eastside, Oosterwold, was intended to be developed as a small scale landscape with room for housing, leisure and urban agriculture.

In short, in this second phase and under the banner of Agromere, I co-designed with the local network a virtual peri-urban area that centred around agriculture. At the same time, a survey was carried out in Almere that highlighted that respondents valued (urban) agriculture in their area. The design, the survey and the accompanying debate inspired Almere planners to contemplate the possibilities that (urban) agriculture offered future Almere East. Eventually, the Almere 2.0 Masterplan pivoted urban agriculture into the planning of future Oosterwold.

Box 2006-2009

Stepping stones

- 2006: Start of the Agromere project, which provided the (financial) space to expand the action research;
- 2006: New participants in the Almere planning team were the first to embrace the idea of integrating agriculture into the planning of Almere East;
- 2009: Chief councillor of Almere, who eventually embraced urban agriculture;
- 2009: Master Plan Almere 2.0, which mentioned urban agriculture 19 times, predominately in relation to the proposed development on the city's eastside: Oosterwold.

Methods

- Future scenarios approach in three workshops with local network (Jansma et al., 2010);
- An online survey using the Almere city panel (Engelen, 2007);
- Co-producing concepts of urban agriculture in Almere East with the planners of Almere (Almere, 2008b);
- Communication and publicity strategy: creating local attention and debate by issuing newsletters, documents, articles, organising local meetings etc;
- Stakeholder portfolio.

Funding

- Dutch Ministry of Agriculture, programme Multi-Functional Agriculture, project Agromere;
- The municipality of Almere.

Figure 5.6. Examples of creating publicity, excerpt of Agromere Newsletter, 2008 (left) and excerpt of an interview in a national newspaper, 2009 (right).

5.3.3 Phase 3: Advising & Monitoring (2009-2016)

I managed to have urban agriculture included in the Master Plan Almere 2.0. Moreover, this master plan reserved space for urban agriculture in the new peri-urban area Oosterwold. However, while the master plan outlined the intention, it did not mention anything about if and how urban agriculture could be implemented or deployed in future Oosterwold. The situation could still go either way. Yet, it was obviously the municipality of Almere and the precursors of the Oosterwold Development Authority (ODA) that took the lead and the mandate from me to integrate urban agriculture into Oosterwold. Hence, my role as action researcher changed. On the one hand, I had a more advisory role in phase 3 and, on the other hand, I still critically monitored the process of developing urban agriculture in Oosterwold.

Until 2010, I could still rely on funding from the research programme Multifunctional Agriculture commissioned by the Dutch Ministry of Agriculture. However, after four years of support, the Agromere project stopped (2011), and with the end of the project, the research and communication team ceased as well. I needed new sources of funding, which eventually came with assignments linked to my advisory position. These assignments were predominately commissioned by the municipality of Almere and the Oosterwold Development Authority (ODA) and its precursors.

To celebrate but still maintain pressure on the process, I arranged a full-page interview in a national newspaper in late 2009 (Figure 5.6). Shortly after its publication, I was invited to Almere's town hall. The article was considered interesting, but I was clearly told that the planners were now in charge of Oosterwold, urban agriculture included. Still, I was also invited to join the project team Oosterwold, which was then being developed.

In 2010, a small project team of planners who were predominantly recruited from outside the municipality staff and with diverse backgrounds (urban and rural) and expertise, including urban agriculture, formed my next stepping stone. The project team was commissioned by the chief councillor to produce the Master Plan of Oosterwold as a fairly open but low investment assignment due to the real estate crisis, which was prominent at that time. Their ambition was to build on the self-organising - DIY- capacity of future residents to create an attractive and multi-functional peri-urban landscape with low pre-investment from the municipality. Within this context the team gave urban agriculture an indisputable pivotal position, even though this position was not elaborated at that time.

When the project team Oosterwold was installed, I was regularly invited to join the team, primarily to advise on two major issues. First, they wanted me to specify how urban agriculture could contribute to Oosterwold's ambitions. In cooperation with the team, I organised a series of workshops to align urban agriculture with their ambitions and vice versa. The debate with the planners deepened our insights into the critical preconditions to develop urban agriculture in Oosterwold. The most critical preconditions I suggested were the following:

- avoid future speculation with farm land (e.g., organise a farmland trust that regulates the issuance of the land earmarked for urban agriculture);
- offer room to experiment and appoint a process coordinator for urban agriculture;
- connect Oosterwold with the rest of Almere;
- include urban agriculture in the zoning plan.

An accompanying desk study provided the team with an overview of the possible archetypes of urban agriculture and their significance (space, employment and turnover) for Oosterwold as well as how much food the future area could potentially produce (Jansma et al., 2011).

Second, because of the intended incremental planning of Oosterwold, the project team wanted to familiarise itself with the current farmers in the area and hear their thoughts about a development towards urban agriculture. In cooperation with a project team member and a colleague, I interviewed 15 farmers, an estimated one third of the farmer population in Oosterwold area at the time. Remarkably, even though they were mostly large scale dairy and arable farmers, about 80% of the interviewees were positive about the potential change of their area. A few even wanted to take action to change their business. The remaining 20% intended to leave the area as soon as the plans came into effect. More importantly, these interviews created an interesting momentum because it was the first time that the area's actual inhabitants shared their intentions with the project team Oosterwold. Despite the farmers' positive attitudes, this encounter between the project team and local farmers did not receive a follow-up nor did it impact the content of the master plan to come. Launched in 2012 and approved in 2013, the Oosterwold Master Plan (Almere, 2013) clearly demonstrated that the planners of Oosterwold took another turn. Although the plan launched urban agriculture into the place-making as well as into the area's future landscape, it focussed on developing residential plots with agriculture rather than on developing professional (urban) agriculture and/or on supporting the area's farmers alongside residences (Jansma & Wertheim-Heck, 2022). Still, Oosterwold was targeted to produce 10% of Almere's future food needs. This was confirmed by the master plan's requirement that residences set aside at least 51% of their land for food production.

In 2013, the newly established Oosterwold Development Authority (ODA) was appointed to operationalise the master plan into a zoning plan and prepare the new district for the first phase of habitation. The ODA coordinator, the so-called area director, hired me to support the ODA in operationalising urban agriculture. I was also asked to write guidelines for urban agriculture in Oosterwold for the future residents (ODA, 2014). Finally, in late 2015, when Oosterwold started to open up for habitation, together with the ODA I co-organised a national conference aimed at initiating and fuelling a national debate on Oosterwold's planning experiment (Figure 5.7). In one of the break-out sessions, the planning of urban agriculture in Oosterwold was debated. A concern explicitly voiced in this session was that the plots sold would mainly go to initiatives that would use them for spacious residences. The cost of the land proposed by the ODA was considered too high for professional (urban) agriculture, yet it was considered attractive for a house with a spacious garden. In that session, the anticipated risk was that the area would become so fragmented that this would hinder the future development of large-scale professional urban agriculture.


Figure 5.7. Impression of the 2015 conference of Oosterwold (picture right, the break-out session urban agriculture).

In short, in this third phase my position changed from an initiating role to an advisory and monitoring one. It was the Oosterwold project team and the later Oosterwold Development Authority (ODA) that took charge of reconnecting agriculture to this new urban development. The planners of Oosterwold opted for low-density DIY residential plots with agriculture rather than residential nodes with professional urban agriculture in between.

Box 2009-2016

Stepping stones

- 2010: The Oosterwold project team that fully embraced urban agriculture;
- 2013: The Master Plan Oosterwold, which formally approved that urban agriculture would be an integral part of the new area;
- 2013: The ODA and its precursors starting to operationalise urban agriculture;
- 2015: The Oosterwold conference, which initiated and fuelled a national debate on the planning experiment of Oosterwold.

Methods

- Communication and publicity strategy: sparking national attention and debate by issuing articles and documents, and organising a conference;
- Advising and supporting the ODA and its precursors to operationalise urban agriculture (Jansma et al., 2011);
- Stakeholder portfolio.

Funding

- The municipality of Almere, and the ODA and its precursors.

5.3.4 Phase 4: Re-exploring & Supporting (2016-2022)

When the first residents arrived in Oosterwold in early 2016, my role changed again. My advisory and monitoring role gradually disappeared into the background because the ODA's small staff was fully focussed on coordinating the issuance of plots to a soaring group of applicants. My interest now went beyond the ODA planning officials to the new residents. The first pioneers arrived in 2016 and the number soon grew to about 3,300 by 2022. These new inhabitants were ultimately meant to carry the urban agriculture practice of this do-it-yourself area. However, they were not at all involved in establishing the rule to farm at least 51% of Oosterwold nor were they involved in the ambition to produce 10% of Almere's food needs in Oosterwold. The procedure of acquiring a plot only prescribed that new residents had to briefly outline how they would meet the urban agriculture rule at their plot. The ODA left the practical implementation of urban agriculture entirely to the self-organisational capacity of the new residents. Although most of the new residents embraced the rule to farm their plot, they were inexperienced and unskilled

newcomers in urban agriculture (Jansma & Wertheim-Heck, 2022). I therefore considered it essential to explore urban agriculture with the new residents to experience what implementing urban agriculture really meant to them. I started by focussing on the residents' knowledge base on urban agriculture, but I also wanted to explore the residents' needs and future perspectives.

For the first task, together with a colleague, residents and ODA I co-organised two urban agriculture fairs: Oosterwold ontkiemt (Oosterwold germinates), in 2018 and in 2019. The fairs aimed to familiarise current and future residents with different aspects of urban agriculture. Both fairs attracted around 1,000 visitors. At the 2019 fair, I conducted a survey to evaluate residents' knowledge of, experiences with and needs in urban agriculture (Jansma & Wertheim-Heck, 2022). Because I observed that the new residents could benefit from local networks that supported a joint development of know-how and skills, I organised three online sessions. The sessions centred on three emerging local initiatives: (1) a consumers cooperative, which facilitated the collective purchase of organic food from local producers; (2) a new local farm that aimed to include Oosterwold residents in their community; and (3) a producers cooperative -- Cooperative Urban Agriculture Oosterwold --, which aimed to coordinate the marketing of the produce from Oosterwold farmers. The sessions offered a platform both to promote their intentions and to take lessons from comparable initiatives from elsewhere in the Netherlands. In addition, I coordinated support from the Wetenschapswinkel (Science Shop) from Wageningen University & Research to help the producers cooperative with improving their production and sales (Vijn et al., 2021).

Figure 5.8. Impression of the 2019 Oosterwold urban agriculture fair.

For the second task, I organised several debates between 2018 and 2022 on the residents' needs and future perspectives. Some 40 residents shared their first experiences with urban agriculture at the 2018 meeting. Here, ideas were exchanged and emerged on how to share knowledge and experiences and how to establish a physical market or online platform for produce. The ensuing debate revolved around the question of how to effectively organise and participate in local urban agriculture projects. Although the first Covid-19 year brought intended activities to a halt, I could still conduct an online survey that focused on residents' performance of urban agriculture, motivations, and means and knowledge of urban agriculture (Jansma & Wertheim-Heck, 2023). The survey's online presentation (autumn 2020) offered an opportunity to regain momentum 'en route' towards a shared vision of urban agriculture. With this momentum, in cooperation with colleagues, I organised and facilitated three successive meetings: one online (2020) and two in person (both in 2021). In these sessions I offered residents the opportunity to collectively discuss and develop a shared vision on the future of urban agriculture in the area and subsequently 'back cast' towards an agenda of specific actions. These actions included appointing an expert intermediary on urban agriculture, establishing a physical centre for urban agriculture, and developing a shared knowledge infrastructure. The ODA was singled out to organise these actions (Van der Gaast et al., 2023).

The year 2021 turned out to be a tipping point. I noticed that my action research in urban agriculture was no longer needed nor desired. Both residents and the officials (the ODA and the municipality of Almere) increasingly took the responsibility to promote and bolster the area's urban agriculture. The foreshadowing of the area's 2022 evaluation accelerated this development. The newly founded residents' platform (an unofficial residents board) established a working group on urban agriculture, which increasingly set the area's agenda on urban agriculture. In running the area evaluation, the working group commenced with advising the ODA on how to proceed with urban agriculture in the area. In addition, residents themselves organised the 2022 urban agriculture fair. On the other

hand, the ODA organised a series of debates with residents on setting an agenda for future urban agriculture in Oosterwold. Based on the 2022 evaluation, the ODA concluded that both better advice and support to residents are needed to improve the performance of urban agriculture in the area (ODA, 2023). Notably, the ODA commissioned the Cooperative Oosterwold to develop an app that would include the exchange of knowledge on growing and processing crops. In addition, the ODA and the municipality of Almere are considering creating an urban agriculture centre in Oosterwold where residents can share their questions, activities and concerns regarding urban agriculture.

In short, the arrival of the first residents gave new impetus to the planning of urban agriculture in the area. Most of these new residents were willing to but unskilled in practicing urban agriculture. While the ODA was fully focussed on coordinating the area's development, my role changed to exploring urban agriculture with these newcomers. By 2021, both the officials of the ODA and the residents increasingly took ownership for the future of urban agriculture in the area and for what was needed to achieve this future. This embrace of Oosterwold's urban agriculture agenda by these local stakeholders meant that my action research was completed.

Box 2016-2022

Stepping stones

- 2016 - : The residents started to reside in Oosterwold and to practice urban agriculture.

Methods

- Organising interaction and debate in Oosterwold: fairs, face-to-face and online workshops, surveys and meetings with residents and the ODA on improving the knowledge base of urban agriculture;
- Future scenarios approach to explore the residents' needs and future perspectives concerning urban agriculture (Van der Gaast et al., 2023).

Funding

- The research of this phase was funded from several sources: Flevo Campus, Rabobank, ODA, Wetenschapswinkel (Science Shop) of Wageningen University & Research and EU Horizon DESIRA (2019-2023) project.

5.4 Analysis

5.4.1 Reflecting on the action research in Oosterwold

I commenced this chapter with the question if action research can contribute to an integration of agriculture in peri-urban planning if there is ostensibly no felt need to change practices. In 2002, there was no societal concern -at least not in the Netherlands- about the marginalised position of agriculture in (peri-) urban planning nor a group of people voicing that this marginalised position was a concern. Although subject to change, the Dutch planning doctrine of segregating urban development from agriculture still prevailed. Urban agriculture was an uncharted field in Dutch planning practices. Tomkins (2012: 15) put this as "..little explored is how UA [urban agriculture] as an everyday practice may also question the actions of architects, planners, and professional designers in the creation of cities". Urban agriculture was also a relatively unexplored field in science 20 years ago. Hence, starting an action research to integrate agriculture in (peri-) urban planning resembled embarking on a sea voyage in the fog without a clear destination.

The voyage started with a researcher, me, sparked by concepts of future farming systems in and around urban areas. Although the voyage stemmed from my interest in the potential contribution of these new (peri-) urban farming systems to urban development, this chapter focuses specifically on the process of action research that emerged and developed with me. The stepping stones, like buoys at sea, gave the action research direction during the voyage that initially had no clear goal or purpose. The incremental development of my action research might contrast with the classic idea of a participatory process linked to action research. Action research is inherently considered a collaborative process in which research is carried out among equals (Braun et al., 2021; Chevalier & Buckles, 2019; Kemmis et al., 2014; Shani & Coghlan, 2019). Kemmis et al. (2014: 16) highlight that in critical participatory action

research "the responsibility for research is taken collectively, by people who act and research together". In this context, Greenwood (2015: 200) adds that collective research cannot be meaningful without practical action because "in a system of collaboration among all the stakeholders, there is not only no change but also no meaningful and sustainable theoretical learning."

Although this research started without a group of people acting purposely and researching together, the process that emerged in Almere certainly possesses characteristics of action research (Chevalier & Buckles, 2019; Dick, 2015). However, in contrast to 'classic' action research, the participants were not recruited beforehand but were engaged 'in the running' through a dynamic process that resembles a relay where one group of stakeholders 'owned' the action in one phase and recruited a new group for ownership of the next phase of action. The first action phase started with a diverse group of stakeholders that explored the meaning of urban agriculture in and around Almere. In phase two, after the event with the councillor, a selected group of people co-created and took the responsibility for the Agromere design. During the developmental planning phase of Oosterwold (phase 3), the project team Oosterwold took over the relay baton and developed a unique local approach to urban farming in Oosterwold. This local approach was eventually executed by another group of people, the area's new residents (phase 4). This action research process was thus an incremental process, in which each phase was carried out by different people. The action researcher's role resembled that of a relay team coach, that is, in recruiting a team of committed stakeholders that 'owned the process', in facilitating the participatory process in the subsequent action phases, in organising knowledge development within each action phase, in subsequently bridging the evidence (knowledge) to the next action phase and in monitoring the progress in each action phase. In short, the action researcher nurtured the "space for collaboration and joint knowledge production" Wittmayer and Schäpke (2014: 485).

The responsibility of the action research(er) thus comes with different roles for the researcher(s) in nurturing that collaborative process of learning and change (Coghlan & Shani, 2005; Dick, 2015; Kemmis et al., 2014). Roles move between a more distant reflective, analysing and observatory 'outsider' role and a more participative role as a process initiator and facilitator, or even a mandated 'inside' change agent (Bulten et al., 2021; Chevalier & Buckles, 2019; Wittmayer & Schäpke, 2014). Wittmayer and Schäpke (2014: 484) suggest five ideal-typical roles that action researchers fulfil in creating and maintaining space for collaboration and learning: reflective scientist, process facilitator, knowledge broker, change agent and self-reflexive scientist. These five roles resonate with those I practiced to navigate the different phases of my action process. In the first two phases, I alternated between the role of process facilitator, knowledge broker, and change agent. Subsequently, the design process and its results gave me the mandate to be invited as an insider in the planning office of Almere. As an insider in the planning of Oosterwold, I had to hand over these three specific roles to the planners and their logic. My role alternated from an active and initiating one to a more distant reflective one. When the new residents arrived in Oosterwold, my role changed again to that of process facilitator, knowledge broker, and change agent. I actively initiated and facilitated a process of co-exploring urban agriculture in Oosterwold.

This alternating role in the process of action highlights the need for self-reflexivity by the researcher, a role "with regard to one's own normative orientation and to internal and external power dynamics" Wittmayer and Schäpke (2014: 489). In my opinion, this self-reflexive role has two equally important orientations: a stakeholder one and a personal one. The stakeholder orientation I used to create reflexivity towards the stakeholders because the stakeholder orientation highlights "local actor perspectives on conflicting interests and alternative strategies aimed at mobilizing and meeting the interests of all parties" Chevalier and Buckles (2019: 246). The applied stakeholder approach was a useful tool to navigate conflicting interests and to generate alternative strategies in the running of the action. The personal orientation on the alternating role in the action process revealed a tension between knowledge and action (Bulten et al, 2021). This tension was reflected in my role, i.e., between that of a distant 'neutral' observer and that of an 'engaged' change agent. Action research goes beyond the traditional role and position of a researcher, which generates potentially unclear expectations about what role he/she actually has vis-a-vis stakeholders as well as academia. To deal with this tension, an action researcher must recognise and accept that (1) you have different roles in action research, (2) transparency about these different roles is paramount and (3) a normative position does not prevent you from producing reliable knowledge (Bulten et al., 2021). To navigate my position and role, I started to jot down my experiences and observations in a log that I used from 2005 onwards. I used both the log and the stakeholder portfolio to understand the underlying and conflicting interests of the relevant stakeholders and subsequently to determine the appropriate intervention methods. The log also supported me in reflecting on my role and position as an action researcher in the process of change.

Reflexivity in action research also leads to the phenomenon of serendipity. Serendipity is an expression for a broad and multifaceted phenomenon usually referred to as the emergence and development of observations or events created or evoked by happy chance (Florczak, 2015; Yaqub, 2018). Science is permeated with examples of serendipity; it is even a field of study (e.g., Yaqub, 2018). Without going into detail, I want to highlight that these happy incidents provided the action process with crucial stepping stones. I mention the chair of the local farmers association who directed me to Almere, the nearly-retired planner who introduced me to the origins of Almere planning, the ambitious new chief councillor arriving in Almere, etc. These happy incidents are impossible to determine in advance. However, the iterative action-reflection nature of action research offers the action process ample flexibility to anticipate (Dick, 2015). The stakeholder approach and portfolio were helpful tools to anticipate opportunities. For example, in the case of the councillor's arrival in Almere, I made a beeline to the town hall after stakeholders in my network alerted me to the fact that this person was crucial to the continuation of the process. I anticipated the arrival of the new councillor with organising an event at the Urban Farm of Almere that highlighted urban agriculture and where the councillor was the main speaker. With the councillor on the event's poster, many stakeholders, Almere planners included, registered for the event as they were curious to meet the new councillor.

The 'zeitgeist' is another element to anticipate in action research. The rising interest in both science and practice in the provenance of food and urban agriculture in the last two decades offered action research in this domain a growing window of opportunity. While in the first action phase urban agriculture seemed elusive and thus difficult to communicate, in the next phases the growing evidence of successful initiatives of urban agriculture in the Netherlands and elsewhere gave confidence to the process (Jansma & Wertheim-Heck, 2021). I could simply familiarise the Oosterwold planners with these initiatives, which made urban agriculture tangible and concrete for them. The 2008-2012 real estate crisis accelerated the urban agriculture practice in the Netherlands as city dwellers exploited derelict and undeveloped pieces of residential land for food production. Needless to say, another zeitgeist might have directed this action research in another direction.

Finally, an important but rather overlooked element of any action research is the organisation of funding to support the process. Research funding conventionally covers a limited period, which does not usually coincide with the long-term nature of action research. Moreover, most funding agencies expect applicants to adhere to their expectations regarding pre-set goals, methods and monitoring, as well as expected results and outcomes at the end of the project (Chevalier & Buckles, 2019). This action research process covered a 20-year period and consisted of many unforeseeable twists, routes, methods and results. Still, I was able to find or to link different sources to the action research process due to an anticipative and flexible orientation towards funding. For example, I could successfully link Oosterwold to an EU programme on assessing the socio-economic impact of digitalisation in rural and peri-urban areas, with the argument that digital means are crucial to developing urban agriculture initiatives in Oosterwold.

In hindsight, the stepping stones not only guided the progress of the research but also importantly supported persuading or enticing funding agencies. Funding thus reflects the importance and interest funders give to the process of action research. Interestingly, the sources of funding coincided with the phases of the action research. For the first two action phases, I could link the research to national programmes that aimed at system innovation of Dutch agriculture with the argument of searching for new pathways for agriculture. When the local interpretation and elaboration in Almere became concrete, funding sources also became local. However, the local orientation strongly influenced the mission and route of the process. The last phase partly resembled the first two. Because local sources were neither open nor able to support the exploration of the knowledge development and needs of the new residents, I had to rely mainly on non-local sources like the EU programme.

5.4.2 Crossing the valley of death in action research

In processes of change, radical innovations have to bridge the gap between action (ideas, concepts, or prototypes) and real world practices at a certain stage. However, crossing this gap is seldom a straightforward and clean process. Many ideas, concepts, or prototypes fail en route to real world practice - or succeed only after a long period of time. This apparent gap is understood as the valley of death in innovation processes (e.g., Ellwood et al., 2022; Raven & Geels, 2010). This action research eventually succeeded in crossing the valley of death in Oosterwold planning. Although this action research was unique, some general lessons can be derived from the way I successfully bridged this infamous gap between action and real world practice.

Take an iterative anticipatory approach

This action research started without necessity or people, but it evolved as a step-by-step process in which each new stakeholder(s), group(s) of stakeholders or knowledge collected contributed to the direction of the action. This step-by-step action research was not driven by predetermined goals, a methodology or a fixed duration but evolved based on an iterative approach of cycles of diagnosis, action, and evaluation (Dick, 2015; Wittmayer & Schäpke, 2014). This iterative approach offered the possibility to anticipate opportunities helpful to cross the valley of death. The stakeholder approach was a useful method to foresee and navigate the opportunities presented by each new group of stakeholders or new knowledge gathered.

Make use of successive and multiple ownership

Executing such a step-by-step evolution of action with a diverse and successive group of stakeholders affects the ownership of the action. In action research it is considered key to strive for a shared ownership of process and knowledge amongst stakeholders and research (Greenwood, 2015; Kemmis et al., 2014). However, this step-by-step evolution of action conveniently highlights that action is not necessarily a straightforward endeavour owned by one group of committed stakeholders. It shows that the successive and multiple ownership of different stakeholders can function as stepping stones in crossing the valley of death. Switching between the diverse stakeholders offered the action flexibility. If one route was blocked, another stakeholder or another group of stakeholders offered a new route. The crucial task of the action researcher is to effortlessly transfer ownership, the baton in a relay, between stakeholders and groups of stakeholders. The stakeholder approach was a useful method to understand the interests that could create and sustain ownership of the action.

Co-create shared and enticing future images

Action research is a process in which commitment, expertise and approval of the diverse stakeholders is considered crucial to generate transferable 'learning' narratives. Generating narratives in action is about creating space for a collaborative learning process (Braun et al., 2021). In creating such a space, the future scenario approach was highly valuable (Hajer & Pelzer, 2018; List, 2006; Van der Gaast et al., 2023). It essentially directed the learning of this action, i.e., in identifying the starting point of this action, in co-creating the Agromere agenda and in collectively imagining the future of (peri-) urban agriculture with the residents of Oosterwold. In each stage, stakeholders co-shaped images of future peri-urban agriculture, subsequently defined an agenda for learning, fed the narrative of urban agriculture in Oosterwold, and thus inherently created space for action. Envisioning the future of urban agriculture in enticing images became an important means of conveying ownership of urban agriculture to a new audience.

Acknowledge and accept that not every stakeholder or group of stakeholders is equal in action

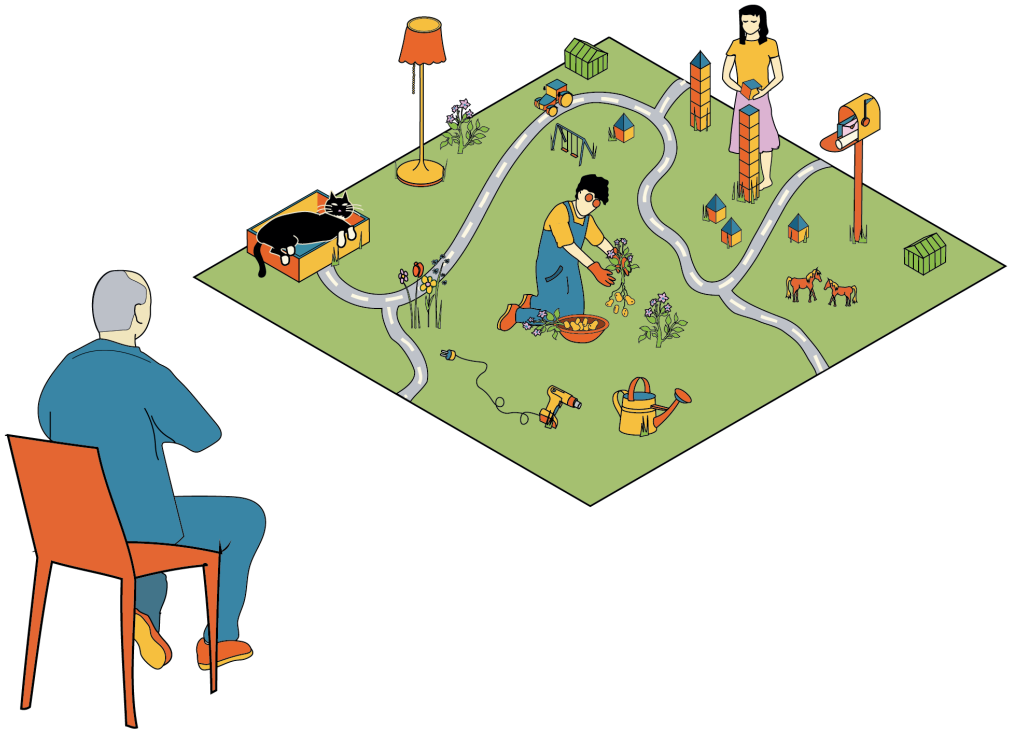
The action researcher is considered part of a pack of equals (Greenwood, 2015; Kemmis et al., 2014). However, is it always a pack of equals that creates the real world change? In Oosterwold, the ODA and its precursors took over the course of the process at a certain stage and linked it to the institutional logic of the Almere planners and authorities. Moreover, the leadership of the chief councillor should not be underestimated in taking this unconventional pathway in the planning of Oosterwold (Jansma & Wertheim-Heck, 2021). This logic, let alone the leadership of one person, does not always match the - pack of equals - attitude of action research. Because the councillor and the Almere planners played a crucial role in crossing the valley of death, they could strongly influence the action's course and direction. A direction that, desired or not, was imputed to the action research as a whole.

Chameleonic use of your competences

This action research highlights that the researcher needs to perform multiple roles to sustain the action (Dick, 2015; Wittmayer & Schäpke, 2014). Performing these roles requires practical and personal competences, like facilitating, reflecting and mediating (Bulten et al., 2021). Wiek et al. (2011) identified, alongside the traditional academic competences, four key skills -systems-thinking, anticipatory, normative, and strategic skills- and a fifth crosscutting interpersonal skill that an action researcher needs. Additionally, I would add the skill of exercising patience. Being patient refers to waiting until (you expect) the right opportunity arises, because, after all, change does not always have the dynamics and route that would be desirable from the point of view of the action. I would also add that action researchers need the competence to creatively arrange funding because action research does not often fit in

time, outcome or approach of conventional academic funding programmes (Bulten et al., 2021; Chevalier & Buckles, 2019). Unfortunately, fund raising is an often overlooked competence in academic education.

This action research emphasises that the action researcher utilises this set of competences like a carpenter uses his toolbox. However, it is not so much about the available set of tools and methods in the box but rather knowing when and how to apply them. Sometimes action needs a prudent diplomat, a patient chess player or sometimes a bold strategist. The action researcher, in fact, uses these tools like a chameleon, knowing when and how to change colour. The skill to apply the appropriate tool may be gained in practice rather than in the classroom, or as Greenwood (2015: 212) states "that the education of an action researcher is and should be an open-ended process of development". Keeping a log helped to sustain a reflexive attitude towards my personal development and efficacy in this action. Needless to say, not all competences and roles need to reside in one person but could rather be compiled in a team (Wittmayer & Schäpke, 2014). This action research made full use of process facilitators, cartoonists, journalists, copywriters, and other experts, moreover, it also gratefully deployed the knowledge, networks and expertise of its stakeholders.



Chapter 6

General conclusion

6.1 Introduction

The High Level Panel of Experts on Food Security and Nutrition -- HLPE-FSN -- (HLPE, 2024) recently highlighted the crucial role played by urban and peri-urban areas in shaping future city-region food systems. However, there is a tension between such aims and the actual reality: current urban and peri-urban areas contribute little to desired city-region food systems. Agriculture in urban and peri-urban areas must navigate a highly competitive environment where rampant urbanisation is threatening existing farmland, increasingly hampering the contribution local food producers may deliver to future city-region food systems. The question then arises whether urban planning can facilitate a new functional synergy between cities and agriculture in peri-urban areas, and if so, how? Currently, integrating agriculture into urban and peri-urban planning is largely uncharted territory, considering the dominance of monofunctional urban development often excluding agriculture (Ives & Kendal, 2013; Rolf et al., 2020).

In this thesis, I examined urban planning practices that explicitly aim to integrate agriculture into peri-urban development to increase our insights into the implications of urban planning for peri-urban agriculture. This thesis was guided by the following main research question:

How do planning practices that seek to advance the integration of peri-urban agriculture unfold?

Before discussing this main question, I first answer the four sub-questions posed in the Introduction (1.4). These answers reveal how the trajectory of change in agriculture-inclusive planning practices unfolded over time and scale from a traditional mode of control to a dynamic, non-linear mode. Chapter Two begins with a reconstruction of the relationship between urban development and agriculture in the planning of Almere from 1958 to 2013, describing how agriculture has been linked to Almere's planning since the city's inception. Chapter Three examines the actual unfolding of the planning process of Almere's new urban area -- Oosterwold -- and shows how the new residents started to engage in an open, iterative process of planning, and thereby contributed to changing planning practices. Chapter Four appraises how individual residents attempted to fit urban agriculture into their heterogenous everyday lives, and hence the Chapter unpacks the unruly nature of bottom-up participation in top-down planning practices. Chapter Five aligns with the three previous chapters in terms of time and scale. This Chapter offers reflections on how action research helped to extend the room of manoeuvre within an ongoing trajectory of unfolding planning practices.

Collectively, these Chapters illustrate how urban planning practices started as a traditional planning mode of control in which agriculture was merely considered as a precursor of urbanisation. These planning practices then evolved towards a dynamic mode of redistributed responsibilities that integrated agriculture into urbanisation. These agriculture-inclusive planning practices are the result of an iteratively evolving process that mobilises and redistributes responsibilities, a process that resulted in a unique and unpredictable spatial blend. Nevertheless, this type of planning has its limitations as well. Therefore, in this Chapter, I critically reflect on agriculture-inclusive planning practices. Additionally, I provide recommendations for further research and specific policy suggestions for the improved development of agriculture in peri-urban planning. This Chapter finishes with reflections and concluding remarks.

6.2 Answering the sub-questions

1. How did agriculture emerge in the planning practices of the Dutch city of Almere?

In this thesis, Almere's planning practices are reconstructed from the initial projection of the city in a national spatial plan to the presentation of the Oosterwold Masterplan, i.e. from 1958 to 2013. This historical reconstruction demonstrated that, although agriculture has been associated with Almere's development since its inception, its position changed over time. Whereas agriculture was originally considered a precursor of urban development, in the 1970s the human-centric perspective linked agriculture to the planned poly-nuclear layout of Garden City Almere. However, this position changed during the neo-liberal era of the 1980s and 1990s which emphasised commercial urbanisation, to ultimately appear as urban agriculture in the 2010s Oosterwold Masterplan. Chapters Two and Five highlight the re-appearance of agriculture in Almere's planning practices, as manifested in Master Plan Almere 2.0 which articulated the conditions under which the city could continue to expand. The masterplan

and its guiding seven Almere Principles allowed for a renewed interest in the city's quality. It linked (urban) agriculture to the historical lay-out of the city and its future sustainability goals, as well as to the ambition to empower people to self-organise urban development. The Almere 2.0 Master Plan formulates the agricultural contribution aptly, stating: "City and agriculture form a contemporary combination; They reinforce each other. Urban agriculture makes the city greener and more sustainable" (Almere, 2009: 90). Both chapters demonstrate that the agriculture-inclusive narrative of the masterplan mobilised city authorities to carry the change into the planning of a new peri-urban area, Oosterwold.

2. How did agriculture evolve in the planning practices of Oosterwold, Almere's new peri-urban district?

With the Master Plan Almere 2.0, urban policies mobilised change, with city planners integrating agriculture into Oosterwold's planning practices. They introduced a new approach, through which an open process is guided by two innovative living rules: self-organisation by residents and the mandate to devote at least 51% of a residential plot to food production. With this open process came the arrival of a new group of practitioners in the planning process, i.e. Oosterwold's new residents, who further moulded the development of the area's agriculture. Chapter Three demonstrated that contributions to the development of agriculture in Oosterwold were made at different scales. For instance, the new residents' low level of skills and knowledge had considerable impact on how the development unfolded. They influenced the unfolding of agriculture in planning practices by challenging the interpretation of the living rule and by introducing new features of agriculture. Political actions, particularly land pricing and the spatial allocation of different plot types, also significantly influenced the unfolding planning practices. In sum, where the planners expected a high diversity of agriculture initiatives to emerge, in reality the new residents predominately fulfilled the 51% living rule on a hobby basis.

3. How do the planning practices of Oosterwold intersect with the new residents' daily performance in agriculture?

To better understand the dynamics of integrating agriculture in peri-urban planning practices, Chapter Three explored how planning practices intersect with the residents' daily agriculture performance. In this Chapter, I show that the Oosterwold residents, as the new co-carriers of the planning practices, gave their own interpretation to the 51% living rule. In Chapter Four, I provide deeper insights into the perspective of the residents 'performances in agriculture, five years after the first residents moved into the area. I show that residents say they embrace the 51% living rule, however their saying does not match their actual doing. It appears that a kind of realism arises the moment they move into the area; a realism resulting from the experience that producing food is more complex to fit into their already demanding daily lives than initially assumed. Because of this experience, for many, the 51% living rule (provisionally) disappears. This realism illustrates the tension between the top-down rationality and expectations, and the complexity of daily realities coming together in planning practices. Under the guise of self-organisation, Oosterwold planners had strictly transferred all responsibilities for agricultural implementation to the new residents but these developed their own particular understandings of agriculture. Thus, true cross-fertilisation between planning and agriculture would imply establishing a new balance that redistributes (and aligns) the responsibilities of each carrier of the planning process.

4. How did the integration of agriculture into planning practices of Oosterwold come about?

In Chapter Five, I delve deeper into the trajectory of change of planning practices. The trajectory commenced without predefined goals, target groups, methodologies, or timeframes, and iteratively evolved as an action research (AR) process. In each phase of the process, agriculture was further integrated into Oosterwold's planning practices. As such, this process aligns with the trajectory of change in time and space described in the previous chapters. For example, Chapter Two showed AR was crucial in developing urban policies that embraced the idea that city and agriculture could form a combination in contemporary conditions, as formulated in Master Plan Almere 2.0. Chapter Three demonstrated how AR was applied to advise the team of planners in the design and implementation of agriculture in the Oosterwold Master Plan. Chapter Four described how AR was relevant in supporting residents to integrate agriculture in their daily practices. These examples highlight the significance of mobilising change in this trajectory of transformation with a dynamic constellation of carriers. The AR process was instrumental in the mobilisation of change by encouraging sequential and shared ownership of the changes over time.

6.3 Answering the research question

In answering the central research question -- *How do planning practices that seek to advance the integration of peri-urban agriculture unfold?* -- the importance should be emphasised of the temporal and scale dimensions intertwined with the trajectory of change towards integrating agriculture into planning practices. In my understanding, the temporal dimension refers to the sequence of events -- when did what happen -- over time, and the scale dimension refers to the physical extent of events -- who or what embodied them -- in which the change occurred. The analysis of both dimensions shows that the trajectory of change relied on mobilising and redistributing responsibilities in integrating agriculture.

In more detail, it should be noted that in the trajectory of change of planning practices, responsibilities shifted through a chain of action which started outside the planning practices. As Chapter Five showed, at some point in time the initial idea of integrating agriculture intersected with Almere's planning practices. On a small scale, practitioners who engaged with the idea of integrating agriculture started to feel responsible for sharing and circulating this idea. This change of perspective evolved further when the idea gained traction with a larger group of practitioners. This shows that a larger group can only emerge when key players start to take responsibility for transforming an idea into action. Chapter Two showed that the chief councillor played a major role in strengthening the support base for integrating agriculture. Embracing the perspective that agriculture could mean 'something' for the city, he showed leadership and moved the idea forward by endorsing the idea in Master Plan Almere 2.0. The resulting change of perspective also influenced the municipality's team of urban planners. They took over responsibilities for the design of a desirable urban future that includes agriculture, and subsequently for the implementation of agriculture in Oosterwold's planning. In opening up the area for habitation, responsibilities were then transferred to the residents. Chapter Four then showed that residents, as new carriers in the planning practice, reorient their responsibilities to implement farming. By questioning or even ignoring the rules, they challenged planners and policy to jointly bear these responsibilities.

Traditionally, planning practices are based on a linear process with a high degree of control over the process to achieve the desired outcome. Changing this process is complex because the change plays out at multiple scales and on different occasions, with a dynamic constellation of carriers over time as exemplified in the case study. Hence, mobilising and redistributing responsibilities at the different scales takes time. In the different Chapters, I showed how a process of mobilisation and redistribution of responsibilities accompanied the unfolding process. Chapter Five illustrated the time needed to build a network of articulate carriers, firstly outside and later within the municipality. Time was needed to develop shared images and knowledge of (urban) agriculture, but also to mobilise people around the perspective of its integration in urban planning. As noted in Chapters Two and Five, it then took time to convince the chief councillor to take leadership so that planners could move forward with this new perspective. Chapter Three showed that the planners also needed time to align agriculture with the existing ideas for Oosterwold. Integrating agriculture into the design and organisation of peri-urban planning at this scale was something completely new; there were no examples to fall back on. Knowledge was developed that allowed the planning process to continue, as highlighted in Chapter Five. With the arrival of the new residents, responsibilities for agriculture were transferred, however the new residents predominately turned out to be laypersons regarding agriculture. So, again, building their knowledge and expertise took time, not only for residents to experience how to cultivate their own plots, but also in organising mutual partnerships to share responsibilities. They started to organise themselves in formal and informal groups to exchange data, experiences, and knowledge but also to barter, process and sell products. Additionally, they took the step of drawing up desirable future images of agriculture in the area. Moreover, with the aid of the local authorities, they jointly organised supportive infrastructures and equipment, like a physical community centre for urban agriculture which also serves as a location to process, store, and sell products.

Thus responsibilities for agriculture shifted in the planning practices of Almere and Oosterwold. Intertwined with time and scale are the mobilisation, activation and maintenance of the trajectory of change. Chapter Five demonstrated how AR was supportive in mobilising (shared) responsibilities and ensured that the responsibilities were transferred from one group of practitioners to another. However, it is important to put the intentional contribution of AR to change into perspective. Some elements outside the local Almere context unintentionally influenced the trajectory of change. For instance, national planning policies increasingly gave cities and regions more room for manoeuvre spatial planning which allowed Almere to adopt a different perspective. Chapter Two

also showed that the financial crisis unintentionally gave Oosterwold's planning practices the time to unfold and develop the new perspective. In this context, it is also important to note that the land included in Phases 1a and 1b were state property. This made it easier to implement an entirely different form of planning because there was no need to involve private landowners. Lastly, the arrival of the chief councillor who left national politics to shape Almere's spatial planning was unintentional, but important in the context of change. Changing urban planning practices cannot be done by one city (or district) alone.

6.4 Contributions to science

In this section, I address the four major contributions to science. First, I add to the literature on Social Practice Theory (SPT) in two respects. Research on social practices is focussed on observing and describing phenomena of change without influencing or manipulating it (Shove et al., 2012). In this thesis, I analysed social practices both descriptively and exploratively and describe the change in practices to which AR has contributed. The value of this parallel approach is that practices can really be observed from within; trying to change a practice from within allows to truly understand the practice. As described in Chapter Five, a small coincidence, a conversation, a person, or an object can sometimes (un-)intentionally contribute strongly to a chain of events that induces a trajectory of change (Hui, 2017).

Second, I studied planning-as-practice. As indicated in the Introduction, studies on social practices are gradually making their way into different professional domains, including planning literature. There is a growing understanding that better insights into communities of practice will help improve planning designs and contribute to finding incentives for long-term engagement in the change process (Cohen & Ilieva, 2015; Lamond & Everett, 2019). My research builds on this notion, demonstrating that truly engaging local communities as co-carriers of planning practices mobilises a dynamic non-linear model of organisation, which can lead to a redistribution of responsibilities. This in turn supports to the call in the planning literature to move beyond the traditional linear model of organisation, order, and control (Albrechts, 2015; Albrechts et al., 2020). Although the planning of Oosterwold still partially derives from this traditional model of organisation (Chapter Two), I also demonstrate the significance of the dynamic non-linear model of organisation applied in Oosterwold (Chapters Three and Four). This non-linear model contributed to the inclusion of a local community in planning, leading to an open-ended process that redistributes responsibilities and that can have an unpredictable outcome.

Third, the thesis contributes to the understanding of planning of peri-urban spaces. With rampant conurbation globally, the importance of peri-urban areas as a necessary buffer to counterbalance urbanisation is increasingly being recognised (Hedblom et al., 2017; HLPE, 2024). Although a multifunctional use of the peri-urban zone receives public appreciation, it remains relatively uncharted territory in planning literature and practice (Langemeyer et al., 2021; Rolf et al., 2020). While planning can embrace multifunctionality, it still struggles with the issue of how to establish a synergy between urban and rural realms. Both urban and rural policies and planning have difficulties in understanding and including each-other's routines (Hedblom et al., 2017). In this thesis, I add a new perspective to the literature by addressing a hybrid urban-rural approach to the peri-urban space, moving beyond the traditions of urban containment and protected agricultural zones.

Fourth, I add to the debate on the role of agriculture in urban and peri-urban spaces. Traditionally, even in planning, agriculture is primarily considered as an activity of producing food. However, this perspective overlooks its other contributions. In Chapter Three, I characterise the diversity of peri-urban agriculture, thereby enriching the debate on the characteristics and trade-offs of agriculture in urban and peri-urban spaces.

6.5 Contributions to society

This thesis investigated a case to demonstrate how to integrate agriculture into urban planning practices. By doing so, we can gain a better understanding regarding the aspired role of (peri-)urban agriculture in future urban food systems, which currently remains largely theoretical in practice. Moreover, how to plan for this changed role remains uncharted territory (e.g., HLPE, 2024). The analysis of the Oosterwold illustrates the practical implications of reintegrating agriculture, thereby providing valuable insights for the formulation of future urban food policies.

The societal impact of this thesis on the new district Oosterwold itself is already apparent. The AR included in this thesis contributed to the realisation of a unique district, offering a growing group of residents a pleasant and distinctive living environment. The societal impact of this research extends beyond Oosterwold. As demonstrated in the Introduction, embracing urban agriculture in the Masterplan Almere 2.0 has inspired Almere to engage with agriculture in a city-region context on local, national, and international levels (Brons, van der Gaast, et al., 2022). Additionally, the impact of the AR included was not limited to Almere and Oosterwold as it mobilised attention to and knowledge development about (peri-)urban agriculture among municipalities and at national scale. For example, it led to the establishment of a national city network on urban agriculture, which has encouraged other cities and regions in the Netherlands to adopt urban agriculture (Jansma et al., 2015). This city network has evolved into a transdisciplinary network representing the interests of urban agriculture and regional food systems on a national scale (StadslandbouwNL, 2024).

6.6 Reflection on the methodological approach

A diverse array of methodologies was deployed in this thesis to observe and analyse change as well as to engage with it. This section reflects on three significant issues in this methodological approach.

First, it was demonstrated that AR can intuitively initiate societal themes, even in instances where these themes are ostensibly not rooted in immediate needs or concerns. The AR emerged spontaneously from an exploratory search without predetermined actors, paths, narratives, agendas, or destinations. It evolved through an iterative process that contextualised and connected people and their interests to the process of change. Ultimately, this process revealed needs, generated knowledge, developed pathways, constructed narratives, set agendas, and identified tangible outcomes.

Second, this research underscores that action processes need not be confined to a fixed group, but that the process can evolve through successive groups of actors who co-own different phases of the action. The role of AR as mobiliser of this iterative process is paramount. An exploratory and associative approach drives AR, persistently questioning actual practices, how it could be different, and who or what is required to effect the next step in change. For example, this exploratory and associative approach led to the use of high-quality aerial drone photographs to simultaneously observe the urban agriculture performance on an array of individual plots. Circumstances forced a creative search for an alternative method to study practices in situ. The good and longstanding relationship with the Oosterwold Development Authority provided access to these aerial photographs. The photographs give detailed insights into residents' activities that would have been inaccessible through the 'usual' interview and observation methods in SPT methodology. The value of this method lies in being able to observe social practices at the same time under the same conditions, by one or a few researchers. Without using this method, the number of observations obtained in this study would have required an entire team, which would have needed to be coordinated, financed and trained.

Third, it is important to underline that the research is highly contextual and singular, conducted by a single researcher (and research team) at one location over a span of 20 years. The prolonged engagement within this specific context afforded the researcher the opportunity to establish enduring relationships with local authorities and communities, foster a broad network, and develop a nuanced understanding of local dynamics and issues. However, this methodology carries inherent risks. A significant flipside is the potential of losing objectivity and developing tunnel vision. Although collaboration and support of like-minded individuals in the participatory action process is needed, this can exacerbate this tunnel vision. Hence, critical self-reflection must be systematically integrated into the iterative process of diagnosis, action, and evaluation that characterises AR. Chapter Five highlights the crucial role of self-reflection, emphasising both an outward stakeholder orientation and an inward personal orientation. An important way to organise self-reflection was the stakeholder approach applied (Bulten et al., 2020). The stakeholder approach teaches not only to engage with like-minded -- the movers -- but also, to engage with antagonists and dissenters -- the blockers -- to discover their interests and concerns with respect to the change.

6.7 Recommendations for future research

First, the methodological innovations presented in this thesis could be further developed. For instance, a drone photo method was developed to observe practices-as-performed. These drone photographs proved an effective means of observing (urban) agriculture activities on site. While the use of drone photography was relatively straightforward, further refinements in both systematising and standardising the technique and data analysis are needed. Moreover, these refinements have to comply with the relevant privacy rules. The method could also be performed sequentially, allowing a study of the development of practices over time, for example the progress in the performance of agriculture in Oosterwold. Although, the method gives an instant picture of agriculture performed, it says nothing about the underlying process, for example how the plot was developed, and with which intentions. For this, accompanying interviews are of still added value. Furthermore, it would be interesting to explore whether the method has added value in observing and analysing other practices than urban agriculture.

Second, further research is required to investigate whether the model of planning for agriculture chosen in Almere, can be a blueprint for other peri-urban areas around the world. Although the specific form in which agriculture can be integrated in peri-urban areas is contextually determined, this does not mean that there is no optimal (environmentally, culturally and economically resilient) spatial level for peri-urban agriculture. In this regard questions arise concerning what to produce, for whom and under which conditions? Answering these questions, although complex because of the multi-faceted nature of food production and consumption, requires further consideration. Many studies have been conducted on the potential food shed of various urban areas, as discussed in the introduction, but few demonstrate how peri-urban food production can really be integrated in urban food systems. With Oosterwold, Almere took a great step forwards, but here too, the question of how the city's aim of producing 10% of local food demand can be realised remains unclear.

Finally, the area of Oosterwold itself offers many opportunities for future research. This study revealed the first signs of the search for shared responsibilities in the area. This deserves further analysis regarding if and how a balance in sharing responsibilities can be found. These shared responsibilities go beyond food, because other features are included in the development of the area, like the self-organisation of public infrastructures. The future development of responsibilities should be monitored, now that the second phase of expansion of the area is imminent. How will new residents relate to the area's 'rules' and to the existing residents? Such an analysis offers new insights into the dynamics of planning and development of hybrid peri-urban areas.

6.8 Policy recommendations

The position of agriculture in the peri-urban areas is vulnerable, as discussed in the Introduction. The case of Oosterwold duly demonstrates that urban policies can carry responsibilities in strengthening that position. Three policy recommendations can help to redistribute responsibilities when positioning peri-urban agriculture:

1. **Facilitate debate about the role of peri-urban agriculture**

Policies can facilitate debate with the involved actors to develop a mutual understanding of expectations and how to achieve these. In Chapter Three, I show that excluding actors from the debate can be counterproductive. The debate should not only include the expected position of peri-urban agriculture, but also how to organise, share responsibilities, and sustain them. There is a need to ensure that this debate is recurring as areas develop, as well as to adopt to changed needs over time. These debates could also be used as a means to foster community building in and around peri-urban agriculture.

2. Facilitate the development of local knowledge and expertise in peri-urban agriculture

Knowledge on how to integrate agriculture as a vital component in peri-urban areas is still limited. In this thesis, I demonstrate that to enable agriculture to fulfil this role, collaborative knowledge development is essential. As exemplified in Chapters Three and Four, peri-urban agriculture has diverse manifestations that cannot be anticipated in advance. This diversity presents itself not only in its spatial interpretation but also in the agricultural and public services it offers. Stakeholders need to allow for this diversity in planning and regulation; knowledge development encompasses not only the practical implementation of agricultural activities but also the spatial design and the necessary supportive infrastructure. Furthermore, it is important to note that the need for knowledge is recurring as the area develops, as these needs will change over time.

3. Provide change with the necessary time

Mobilising and redistributing responsibilities in a process of change requires time and plays on various scales. It is necessary to investigate how to organise time and space with a different constellation of carriers and, moreover, in a societal and political climate of time constraints and volatile (policy) ambitions. AR created this time and room to mobilise the process of change by serving as an independent intermediary, knowing when and how to change position without losing sight of the end goal. Such an intermediary position should be created and facilitated.

6.9 Concluding remarks

In the emergence of city-states some 10,000 years ago (Scott, 2017), control over agriculture in the peri-urban buffer zone was key to their existence. Control meant establishing a secure buffer between the city and the 'barbarian' hinterland. Control over agriculture also meant access to and hegemony over food supply. The urban interest in having control over peri-urban agriculture has diminished in recent centuries. Yet, the HLPE-FSN report gives a new twist to the urban desire to gain control over the position of peri-urban agriculture. The report underlines that urban and peri-urban areas need to regain a crucial role in co-shaping urban food systems. It explicitly advocates for the integration of food into urban planning. This thesis illustrates that if the role of peri-agriculture is to partake in future city-region food systems, this role can only be fulfilled if it is part of planning practices that not only serve mutual benefits, but also mobilise and redistribute responsibilities, i.e. the synergy advocated by the Dutch Ministry of Agriculture 30 years ago.

Summary

In the emergence of city-states some 10,000 years ago, control over agriculture in the peri-urban buffer zone was key to their existence. Control meant establishing a secure buffer between the city and the 'barbarian' hinterland, it meant also hegemony over food supply. The urban interest in having control over peri-urban agriculture has diminished in recent centuries.

Today, however, a growing number of cities are advocating city-region food systems, with increasing interest in the governance of peri-urban food production. In spite of this interest, there is a tension between these urban aims and the practical reality: current urban and peri-urban areas contribute little to the desired urban food systems. Peri-urban agriculture has to navigate a highly competitive environment, as existing farmland is increasingly encroached on by rapidly expanding urbanisation. This significantly limits the potential contribution of local food producers to future city-region food systems. The question then arises whether urban planning can facilitate a new functional synergy between cities and agriculture in peri-urban areas, and if so, how? Currently, integrating agriculture into urban and peri-urban planning is largely uncharted territory, with a predominance of monofunctional urban and peri-urban development, prevailing a housing versus farming dichotomy.

In this thesis, I examine urban planning practices that explicitly aim to integrate agriculture into peri-urban development, providing unique insights into the implications of urban planning for peri-urban agriculture. This thesis was guided by the following main research question: *How do planning practices that seek to advance the integration of peri-urban agriculture unfold?*

To answer this and the four sub-questions, I applied the approach of Social Practice Theory (SPT) to discover how planning practices related to peri-urban agriculture unfold and who or what carries this trajectory of change. SPT is a sociological approach used to examine how social practices - patterns of performance, rules, norms, rituals, and routines - are created, maintained, and changed over time. It traces the trajectory of change of planning practices in time and scale; the temporal dimension refers to the sequence of events, while the scale dimension involves the extent and participants of these events. Hence, we used STP to understand the progression of the planning practices to reveal what was instrumental in the trajectory of change.

Given the absence of an empirical case that explicitly integrates agriculture in peri-urban planning I applied Action Research (AR) to actively shape a case. AR aims to change practices, the understandings of practices, and the conditions, motivations, and the rules and (social) relations under which they are performed. We used AR to mobilise change in planning practices of the Dutch city of Almere, more specifically Oosterwold, its new peri - urban area. The Oosterwold masterplan positions urban agriculture as the principal green core, earmarking at least 51% of the available land for (urban) agricultural purposes. Oosterwold thus offers a unique and innovative urban perspective on how to plan for peri-urban agriculture in the context of city-regional food production.

The thesis shows how the trajectory of change of the Oosterwold planning practices unfolded in time and scale, from a traditional mode of control to a dynamic non-linear mode that included agriculture.

In Chapter Two, I explore the evolving position of agriculture in the planning practices of Almere, through a historical reconstruction of the city’s planning from 1958 to 2013. This revealed that integrating agriculture into Almere planning practices has not been just a contemporary trend; agriculture has been a part of Almere's planning since the city’s inception. However, it has taken 55 years to fully integrate agriculture into Almere’s planning practices. I demonstrate that agriculture's role in Almere’s planning emerged within the framework of urban policies connecting agriculture to the city's historical -- Garden city -- layout with the aim of empowering residents to self-organise urban development. This agriculture-inclusive narrative in urban policies fostered leadership and created room for an interdisciplinary and unconventional approach to integrating agriculture when planning Oosterwold.

In Chapter Three, I focus on the unfolding planning practices of Oosterwold. I reviewed the literature to understand peri-urban agriculture in Northwest Europe and similar regions globally. This identified three generic typologies of peri-urban agriculture: (1) the garden, (2) the multi-functional, and (3) the conventional type. I then applied STP to

analyse Oosterwold's planning. Key to Oosterwold's planning is the emphasis on residents' self-organisation and urban agriculture. The planners specified a living rule that each resident should devote at least 51% of their property to food production. I show how the planning influenced new residents, as new carriers in Oosterwold planning practices, to contribute to a non-linear process of planning. Residents challenged planners to expand the definition of agriculture by questioning the interpretation of the living rule. Political actions, particularly land pricing and spatial allocation of different plot types, also significantly influenced planning practices. Although planners anticipated a variety of agricultural initiatives, we show that peri-urban agriculture in Oosterwold predominantly developed into hobby gardening.

In Chapter Four, I examine residents' agricultural activities five years after the first residents moved to Oosterwold. Using an online survey and aerial -- drone -- photo analysis, I reveal a tension between the top-down rationality of policy and planning and the residents' complex daily realities. While residents say they embrace the 51% living rule, their actions often fell short of this target. I show that it is more challenging to integrate the complexities of food production into daily lifestyles than initially assumed, causing many to temporarily abandon the 51% rule. Under the guise of self-organisation, Oosterwold planners transferred all agricultural responsibilities to its residents. However, the findings show that integration agriculture requires establishing a new balance that redistributes responsibilities in the planning process. A balanced approach requires continuous alignment with a shared vision, while supporting conditions iteratively created and evaluated.

In Chapter Five, I discuss the process of mobilising change in the planning practices of Almere and Oosterwold. This mobilisation began about 20 years ago with an AR process that evolved in four subsequent phases: (1) 2002-2006: Exploring & Substantiating, (2) 2006-2009: Designing & Co-creating, (3) 2009-2016: Advising & Monitoring, and (4) 2016-2022: Re-exploring & Supporting. Starting without predetermined goals, target groups, methodologies, or fixed durations, the AR developed iteratively through diagnosis, action, and evaluation. Eventually, it advanced the integration of agriculture into Oosterwold's planning practices. As such, this process is neatly interwoven with the trajectory of change in time and scale described in the previous chapters. In this chapter, I reflect on how this AR process anticipated serendipity and the zeitgeist, engaged stakeholders, and co-shaped actions, roles, competencies, and funding arrangements. I show the importance of mobilising change across different scales and moments and how the action process encouraged sequential and shared ownership, providing time and space for transformation.

In the concluding chapter, I return to the observation that although urban and peri-urban areas will play a crucial role in shaping future urban food systems, integrating agriculture in urban planning is still relatively unknown territory. I introduced an empirical case that integrated agriculture into peri-urban development, offering unique insights into the implications of planning for agriculture. I analysed how planning practices aimed at advancing the integration of peri-urban agriculture are evolving, highlighting the importance of temporal and scale dimensions in this trajectory of change. This analysis illustrates how Almere's planning practices began as a traditional planning mode of control in which agriculture was merely a precursor of urbanisation. However, it evolved to a dynamic non-linear mode of organisation that included agriculture in Oosterwold's planning practices. I conclude that the trajectory of change towards agriculture relies on redistributing responsibilities and is mobilised by both intentional actions and external influences.

Traditionally, planning practices are based on a linear process with a high degree of control. Changing this process is complex because the change plays out at multiple scales over time, with a dynamic constellations of carriers. Hence, mobilising and redistributing responsibilities at different scales takes time. In this thesis, I demonstrate that the trajectory of change involves building networks of articulate carriers, developing shared knowledge, and convincing key leaders to take action. Planners need time to gain knowledge and to align agriculture with existing plans for the area; a new and unprecedented endeavour. As responsibilities are transferred to new residents, they need time to gather agricultural expertise and knowledge, develop future images of agriculture, and organise local partnerships. The AR supported the mobilisation and transfer of responsibilities in the trajectory of change towards the inclusion of agriculture in Oosterwold's planning practices. I note that external factors, such as national planning policies, the financial crisis, state ownership of land, and the arrival of a new chief councillor, also unintentionally influenced the trajectory of change.

The chapter continues with recommendations for future research and policy. I suggest three avenues for follow-up research. First, the methodological innovation using drone photography to observe urban agriculture in situ can be

refined and standardised, and potentially applied to observing other practices. Second, there is a need to investigate whether the Oosterwold planning model for agriculture can serve as a stepping stone for other peri-urban areas globally, addressing questions about optimal integration and level of food production required. Finally, the ongoing development in Oosterwold offers opportunities to study the dynamics of shared responsibilities as the area expands, providing insights into the evolution of hybrid peri-urban areas.

I introduce three urban policy recommendations which help mobilise and redistribute responsibilities to improve the position of agriculture in urban planning. First, there is a need to facilitate debate among stakeholders to develop mutual understanding and organise shared responsibilities for peri-urban agriculture, ensuring these debates recur over time to adapt to changing needs. Second, local knowledge and expertise in peri-urban agriculture needs to be promoted, allowing for diverse agricultural practices and supportive infrastructure as highlighted in the thesis. Third, sufficient time is needed for mobilising and redistributing responsibilities, for example, an intermediary like AR can help to manage the process effectively within societal and political constraints.

In conclusion, if agriculture is to truly participate in future city-region food systems, this role can only work if it is part of planning practices that not only serve mutual benefits but also mobilise and redistribute responsibilities, i.e. practices that advocate functional synergies between city and agriculture.

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Appendix A Chapter 2: Planning documents analysed

	Document	Year	Issued by
1	Verkavelingsplan voor Oostelijk deel van Zuidelijk Flevoland	1965	FPDA
2	Verkenningen omtrent de ontwikkeling van de nieuwe stad Almere in Flevoland	1970	FPDA
3	De Planning van Almere, consept	1974	FPDA
4	Almere 1985	1974	FPDA
5	Functies van de Buitenruimte	1975	FPDA
6	Buitenruimte van Almere	1976	FPDA
7	Milieuvriendelijke landbouw in Almere	1977	FPDA
8	Ontwerp Structuurplan Almere	1978	FPDA
9	Landbouw in Almere nu en straks	1978	FPDA
10	Ontwerpstructuurplan Buitenruimte Almere	1979	FPDA
11	Landbouw om en in de stad: Koesteren en wegwerken?	1980	FPDA
12	De uitgifte mogelijkheden van definitieve landbouwgronden en van gronden	1981	FPDA
13	Structuurplan Almere	1983	FPDA
14	Ontwikkelingsstrategie voor Almere West en Oost	1987	Almere
15	Almere Buitenruimte	1987	Almere
16	Stadsplan Almere 2005	1992	Almere
17	Ruimtelijke Ontwikkelingsstrategie Almere 2015	1996	Almere
18	Almere-Hout van centrum naar centraliteit	1999	Almere
19	Structuurplan Almere Hout	2001	Almere
20	Structuurplan Almere 2010	2003	Almere
21	Toekomst Almere; integraal ontwikkelingsplan	2003	Almere, National and Regional administrations
22	Almere Hout; ontwikkelingsstrategie	2006	Almere
23	Mensen maken de stad; visies op organische stedenbouw in Almere Hout	2007	Almere
24	Van bouwstenen naar drie alternatieven, Almere 2030	2008	Almere
25	Drie ontwikkelingsstrategieën voor Almere-Oost	2008	Almere
26	The 7 Almere principes	2008	Almere
27	Almere 2.0; op weg naar een voorkeursalternatief	2009	Almere
28	Concept Structuurvisie Almere 2.0	2009	Almere, National and Regional administrations
29	Randstad Urgent RAAM brief	2009	Almere, National and Regional administrations
30	Almere Oosterwold Land-Goed voor initiatieven	2012	Almere, National and Regional administrations
31	Almere Oosterwold Intergemeentelijke Structuurvisie	2013	Almere, National and Regional administrations

Acknowledgements

One day, a fellow gardener visited my allotment. The conversation was about gardening styles and the nature of gardeners. I asked him what he saw in my garden. Without knowing me well, he explained that he saw an incremental and intuitively designed and developed garden. And that is exactly how I am in life, how I carry out my action research and how this PhD research came about as well.

About 20 years ago, the seed was sown. Back then, I lived with my young family in the Vinex neighbourhood Getsewoud (Nieuw Vennep) that was situated in an agricultural area, but completely cut off from it. I wanted to share my rural values with my children, but it seemed that the rural environment was not meant for us. That is, until we discovered De Olmenhorst, a multifunctional fruit farm that opened its yard and orchard to the public. Soon afterwards, I got an appointment at Wageningen Plant Research -Field Crops- in Lelystad. There, as researcher system innovation of arable farming, I got involved in programmes commissioned by the Dutch Ministry of Agriculture on the future of agriculture. One of the future scenarios outlined was about new farming systems in and around the city. That intrigued me, the idea of reconnecting city and agriculture grew incrementally in me, as elaborated on in Chapter five. Later, on a similar note, the idea slowly grew in me that as an action researcher, I should not only make a societal contribution. I also wanted to try to appraise the scientific value of my research in Almere and Oosterwold. Incrementally, a PhD grew in me. In this, I am indebted to Michaela, my coach in those days, who encouraged me to explore this further.

This PhD thesis, and the action research that underpinned it, covers a period of almost 20 years. Even though it may appear as my accomplishment, it is certainly not just that! This thesis is supported by a rich variety of people who have intentionally or unintentionally contributed. I am indebted to them all. A few I will single out, without overlooking others.

I start with Almere, the city I hardly knew 20 years ago, at most from the cliches that outsiders are familiar with. I know better now. It is a unique city, one that dares to be different, one that believed in the integration of city and agriculture and created Oosterwold. However, in the end, it is people as bearers of changed practices that make the difference, not institutions. This is why I specifically mention the local network, which later evolved into the Agromere stakeholder network, I gathered around me in the early years of the process. Without short-changing other participants of the network, I would like to mention Tineke and Tom from Stadsboerderij Almere. You were doing urban farming before I knew of its existence. I have fond memories of all those conversations we had about where to go with urban agriculture in Almere. In the end, Oosterwold has brought us both great things.

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These 20 years saw urban agriculture grow, not only in Oosterwold, but also in the Netherlands. I was closely involved in this development; together with all those pioneers, we laid a solid foundation. With Stadslandbouw NL-network, urban agriculture initiatives have gained a good national representative! Jean and Conny, and all the other participants of the network, the future of the network currently seems uncertain, but I have every confidence that it will turn out well. And Conny and Jean, many thanks again for making that survey a success for me at Oosterwold's urban agriculture fair a few years ago!

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I would like to express my deep gratitude to my supervisors. I took my first steps under the care of Arnold. You gave me the space to explore my path and at the right moment you handed me over to Leonie. Unfortunately, my stay under Leonie's wings was only brief. Leonie regretfully passed away. I will remember her as a vigorous and inspiring supervisor. With a smile and a tear, I sometimes think back to the supervision meetings at Leonie's kitchen table. The wit and speed of the conversations. I recorded them so I could listen to them again quietly at home, things don't go as fast with a Jansma. Peter, I am grateful to you for taking me in when I was left "orphaned". I was in many ways an atypical PhD candidate. Possibly you sometimes wondered if it was going to succeed. Your calmness, overview, and sharp and critical analyses gave me all the support I needed in my scientific endeavour. I recall with pleasure our excursion to Oosterwold. You normally visit your PhD students in exotic places around the world. Now you could take the bicycle! And Sigrid, you formed the connecting thread in my PhD career. Your sharpness, your eloquence, your enthusiasm and speed of thought make you a special person. We had many engaging conversations, about doing research, researchers, our university, Almere and world issues, as well as our gardens and our wonderful children. How grateful I am to have had you as my supervisor.

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fun things together again, visit bands, run, have a walk and play tennis, or just have a good chat together! Mama, with relentless interest you have followed my progress, it has strengthened me. Also, in the knowledge that papa is quietly, but proudly, watching. Mama from you I learnt to persevere, because: “Sizzen is neat mar dwaan is in ding!”. Sybe, de oandacht dysto altyd foar my hast en de soarch dysto sa no en dan toanst, “slagget it do noch?”, hawwe ik altyd tige wurdearre! Dear sisters, your brother has made it, be proud of me, just as I am proud of what you have achieved. Harrie, my dear friend ever since my university days, always good to bring me back to reality with your humour and keen observations. It once started with a bottle of Palinka and we still haven't finished talking. Tim, you have provided a haven for me in recent years, I feel at home with you in St Ulrich and, endlich wieder Zeit für tolle Gespräche und schöne Wanderungen im Schwarzwald! Thijmen, thank you for letting me drop by every now and then for a casual chat, which, by the way, often turns into a long conversation about all sorts of things that keep us busy, not to say our allotment garden.

This PhD thesis concludes an important period in my work, it is a lifetime achievement. I look back on it without any regrets, it was totally worth it. But, what is next? An old Frisian saying hits the nail on the head: “Set in froask op te stoel en hy ljept ornaris sa wer yn’e poel”. No worries, I intuitively pursue my path and find something new.

About the author

Jan Eelco Jansma (1965, Buitenpost) gained a BSc in Agronomics from the BHLS of Leeuwarden (1987) and obtained a Master degree in Crop Protection from Wageningen University & Research (1992). He began his professional career as a researcher integrated and organic flower bulb production systems at the Flower Bulb Research Institute in Lisse. After about 10 years in flower bulb research, he continued his career as researcher integrated and organic arable farming systems at Applied Plant Research of Wageningen University & Research in Lelystad. Soon, his desire grew to actively contribute to a better balance between agriculture and society as an action researcher. Over the past 25 years, he has been exploring and researching the various angles of urban food systems, with a key focus at (peri-) urban agriculture. In many cases the Almere city region served as a Living Lab. For example, Jan Eelco started and coordinated the Agromere research programme (2006-2011) that inspired Almere city planners to reconsider agriculture in city's urban and peri-urban planning and development. Jan Eelco co-founded and joined the Flevo Campus (2017-), a knowledge institute that joins scientists and entrepreneurs, policymakers and chefs to find innovative solutions to the current food dilemmas cities facing. His ambition to achieve a better balance between agriculture and societal needs was not limited to Almere city region. He initiated and carried out research, advised cities, and organised conferences, workshops and training programmes at national and international scale. For example, Jan Eelco founded and coordinated the Dutch City Network Urban Agriculture (2010-2017), that put urban agriculture at local as well as national policy agenda's. From 2017 onwards this network evolved to a transdisciplinary platform promoting urban agriculture and local food systems. He still is advising member of this platform. Also in international context Jan Eelco tries to contribute to a better connection between city and agriculture. He co-initiated and is work package leader in several EU horizon programmes on urban agriculture and urban food planning.

Publication list author

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WASS Education certificate

Wageningen School of Social Sciences

Jan Eelco Jansma
Wageningen School of Social Sciences (WASS)
Completed Training and Supervision Plan

Name of the learning activity	Department/Institute	Year	ECTS*
A) Project related competences			
Efficient Writing Strategies	Wageningen In'to Languages	2017	1.3
PhD research proposal	LUP/ENP/AERES	2018	6
Masterclass in Practise based approaches & environmental governance	WASS	2018	0.5
Scientific Writing	Wageningen In'to Languages	2018	1.8
English, Cambridge proficiency C2	Wageningen In'to Languages	2019	2
Paper review	Landscape and Urban Planning	2023	1
B) General research related competences			
Introduction course	WASS	2017	1
'Almere Oosterwold: A first glance at the planning of an Urban Food Scape'	AESOP -Sustainable food Planning- PhD workshop, Berlin	2017	1
'The planning of an Urban Food Scape through the lenses of Multi-Level Perspective on transition and Social Practice Theory: lessons of Almere Oosterwold (NL)'	AESOP -Sustainable food Planning- conference, Coventry	2017	1
'Thought for Urban Food Planning: the Oosterwold (NL) Experiment to Normalise Agriculture in Urban Planning'	AESOP Annual Conference, Gothenburg	2018	1
'Planning for the Desired Unknown: The planning practice of urban agriculture in Almere (NL)'	Summer conference, Lancaster University	2019	1
'A City of Gardeners: Planning with urban agriculture: the case of Almere Oosterwold'	EFUA Facts Conference, online	2022	1
'Space for peri-urban farming: residents lived experiences with agriculture in the planning of new peri-urban Oosterwold, Almere, The Netherlands'	AESOP Annual Conference, Tartu	2022	1
C) Career related competences/personal development			
AESOP-SFP PhD group organising committee (secretary-treasurer-organizing webinars, workshops, pre-conference meeting etc) app. 42 hours a year (2017-2022)	AESOP -Sustainable food Planning-	2017-2022	9
Organising comity of Almere 2022 AESOP -Sustainable food Planning- conference	AESOP -Sustainable food Planning-	2022	6
Total		**Total**	**34.5**

*One credit according to ECTS is on average equivalent to 28 hours of study load

Colophon

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Oosterwold