



City of Rotterdam

Food & the City

Stimulating urban agriculture in and around Rotterdam

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Information

Town Planning, Urban Planning Department

www.rotterdam.nl/stadsontwikkeling

Contact persons: please see page 40



**R'damse
OOGST
Festival**

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2010

HEEMRAADSPLEIN
ROTTERDAM

Urban agriculture:
green+initiative+food



Urban agriculture:
people+contact+food



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Preface

The Rotterdam municipality has high ambitions in the field of sustainability. The mayor and aldermen want to make Rotterdam cleaner, greener, and healthier. The city must become more attractive to live, work, and recreate in. The aim is to enhance the ties the current inhabitants have with the city and to attract new groups. They are making increasingly higher demands on their living environment: pleasant places to spend the time in the city, varied facilities and good access to an attractive countryside near the city. Therefore, investments in the outdoor space and sustainability are of great importance for the economic future of Rotterdam.

The mayor and aldermen presented the Rotterdam ambitions for a clean, green and healthy city in the Programme for Sustainable Rotterdam in May of 2011. The Rotterdam municipality aims at an optimum balance between social, ecological and economic interests in the development of the city. The municipality wishes to achieve this in collaboration with the inhabitants and the private sector. The Programme Sustainable includes efforts made by the municipality to support initiatives in the field of urban agriculture and the marketing of regional products. I am convinced that Rotterdam will become more attractive due to a variety of new types of food production in and round the city.

Fortunately, we already have many tangible projects that give substance to our ambitions. Sometimes, the municipality plays the role of partner in this, but it is not always the initiator. Many initiatives were started by citizens and entrepreneurs. I welcome this, and I hope that many more are to follow in the coming years. So, both commercial initiatives and non-commercial projects (such as neighbourhood vegetable gardens, which usually have a social background) are facilitated by the Rotterdam municipality. It is my ambition that, in ten years, a significant part of the fruit and vegetables eaten by the Rotterdam inhabitants, will be grown in this region. It is my dream that we will have several urban farmers by then, who have taken up the challenge of producing food in the outskirts of the city for the city dwellers. Furthermore, it is my wish that the ten least green neighbourhoods will have become substantially greener by then through the creation of neighbourhood vegetable gardens and schoolyards with vegetable beds. I expect that this greening will improve the health of the inhabitants of these neighbourhoods significantly, because they will eat healthier food and have more physical exercise. To me, urban agriculture is an important means of making Rotterdam more attractive and healthier.

This memorandum describes how the municipality wishes to give substance to its role in promoting urban agriculture in the years to come. In addition, it contains a number of striking examples of urban agriculture in and around Rotterdam. I hope that the present memorandum and further actions will contribute to a strong impact of urban agriculture on the city and the region.

Alexandra van Huffelen, alderman for Sustainability, Inner City and Outdoor Space



Urban agriculture:
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What are Rotterdam's aims with urban agriculture?

The concept of urban agriculture

Cities and agriculture have always been closely connected to one another, but food production and food consumption have drifted increasingly apart during the last 150 years (since the industrial revolution). This is especially true for the Netherlands where, with its efficient agricultural and horticultural sector and its strong urbanization, the worlds of producers and consumers are strongly separated. As a reaction to this, a new form of food production has developed that tries to mitigate this separation: urban agriculture. This concept is defined as the production of food in the city (intra-urban) and in the outskirts of the city (peri-urban). The production can be both commercial and non-commercial. The concept also comprises the trade, processing and distribution of food. It is characteristic for this type of agriculture that it uses products and services from the city and provides products and services back to the city.

Social development: sharp growth of initiatives for urban agriculture in and around Rotterdam.

An increasing number of commercial and social initiatives for the production of food for the regional market or for private use appear in and around the city of Rotterdam. Rotterdam has a long-standing tradition of gardening and food production on the many allotment complexes that lie scattered throughout the city. However, today's city dweller is often not prepared to become a member of an allotment association and usually prefers a location nearer home, where vegetables and herbs are grown, either individually or in cooperation with other residents. Development locations that are temporarily not used are much in demand for this purpose at present. These locations are available for a longer period than they used to be, due to the stagnation in the construction of office buildings and houses.

Furthermore, in particular in the suburbs, a large part of the green areas is used little and is of mediocre quality. In these areas, citizens, housing associations and civil society organizations develop initiatives for creating vegetable gardens. In the more densely built-up districts, projects for edible green were started in courtyards and in undeveloped sites. There are also entrepreneurs who want to produce food in urban areas on a commercial basis. All these initiatives have many positive effects on social cohesion, health and the greening of neighbourhoods with few green areas.

The 2008 Green study has shown that a relatively small group of Rotterdam inhabitants frequently visit the regional parks. Areas such as the coast and the Rotte lakes are visited far more often than the agricultural area north of Rotterdam. Especially young people and members of ethnic minorities do not often visit the recreational areas outside the city. The 2010 Omnibus survey showed that Rotterdam people appreciate Midden-Delfland as agricultural landscape: 25% of the city's inhabitants visits this area at least once a year.

Elaboration of the food strategy in a few metropolitan areas
Most cities (London, Chicago, Toronto) have set up their food strategy thematically. The most important themes:

- Health: London, Chicago, Toronto
- Sustainability: London, Chicago
- Economy: London, Toronto
- Food security: London, Chicago
- Hunger reduction: Toronto, New York, Chicago
- Preservation of scenery around the city: Vancouver, Toronto

The food strategies of New York and Vancouver have a cyclic setup according to the sequence: production - processing - transport - consumption - recycling / waste processing.



Another striking development is the sharply increasing number of shops and restaurants that sell products from the Rotterdam region directly or process them. This often concerns food of ecological origin, but not always. A growing group of consumers likes to buy traditionally-made products with a recognizable origin: honey from Rotterdam allotment complexes, apple juice from the Buytenhof in Rhoon (south of Rotterdam), ground elder-pesto from Park Zestienhoven (new housing area) and crisps from the Hoeksche Waard (south of Rotterdam).

In spite of the strong urbanization in the past decades, there are still authentic landscapes in the immediate vicinity of Rotterdam, such as Midden-Delfland, where farmers are responsible for the countryside and produce high-quality food. Part of the agricultural entrepreneurs sells products to customers at their farms, starts a care farm, provides recreational facilities on their farm or supplies products directly to the restaurants or shops in the city. In all these forms of 'diversified agriculture', the gap between city dwellers and farms is narrowing. The Rotterdam municipality considers this diversified agriculture also a type of urban agriculture.

A recent development in the rural area is the policy change in respect of regional green areas. Plans have been developed for the creation of new nature conservation and recreation areas with financial support from the central government, the province of Zuid-Holland and the Stadsregio Rotterdam. These plans include areas such as the Oranjevuitenpolder (to the northwest of Rotterdam), the Vlinderstrik and the polder Schieveen (both north of Rotterdam). However, the current government economizes strongly on the creation and maintenance of new green areas. That is why the Rotterdam municipality and the Rotterdam urban area are searching for new ways to make the countryside around the city more accessible for city dwellers. Large-scale land purchases from farmers will be discontinued. Instead, agricultural environmental management will be promoted and the recreational attractiveness enhanced by stimulating urban agriculture and recreation on farms.

Global trend towards sustainable food

In the past few years, there has been a development in society in which the quality and authenticity of food are key elements. In Europe, the Slow Food movement, which advocates the preservation of authentic regional products, plays an important role in this development. Rotterdam has a Slow Food branch too. Cittaslow is based on the example of Slow Food: municipalities that wish to preserve authentic landscapes by making regional products. The Midden-Delfland municipality has joined this movement.

Urban agriculture in Programme for Sustainable Rotterdam

The Programme for Sustainable Rotterdam of the Rotterdam municipality describes ten tasks that will be carried out until 2014 in order to make the city more sustainable. One of the tasks is making the city greener (task 6). Initiatives in the field of urban agriculture and marketing of regional products will be supported in the framework of this task. The municipality will set a good example by extending the proportion of regional products in the municipal cafeterias. This will increase the outlet for farmers in the vicinity of the city. Private initiatives for urban agriculture will receive assistance. Furthermore, the municipality will indicate where urban agriculture is possible in Rotterdam, and where it is not. If necessary, obstructing rules will be adjusted. The municipality also wants to play a role in bringing buyers and producers together. Young people can get more involved in food production through education about nature and the environment.



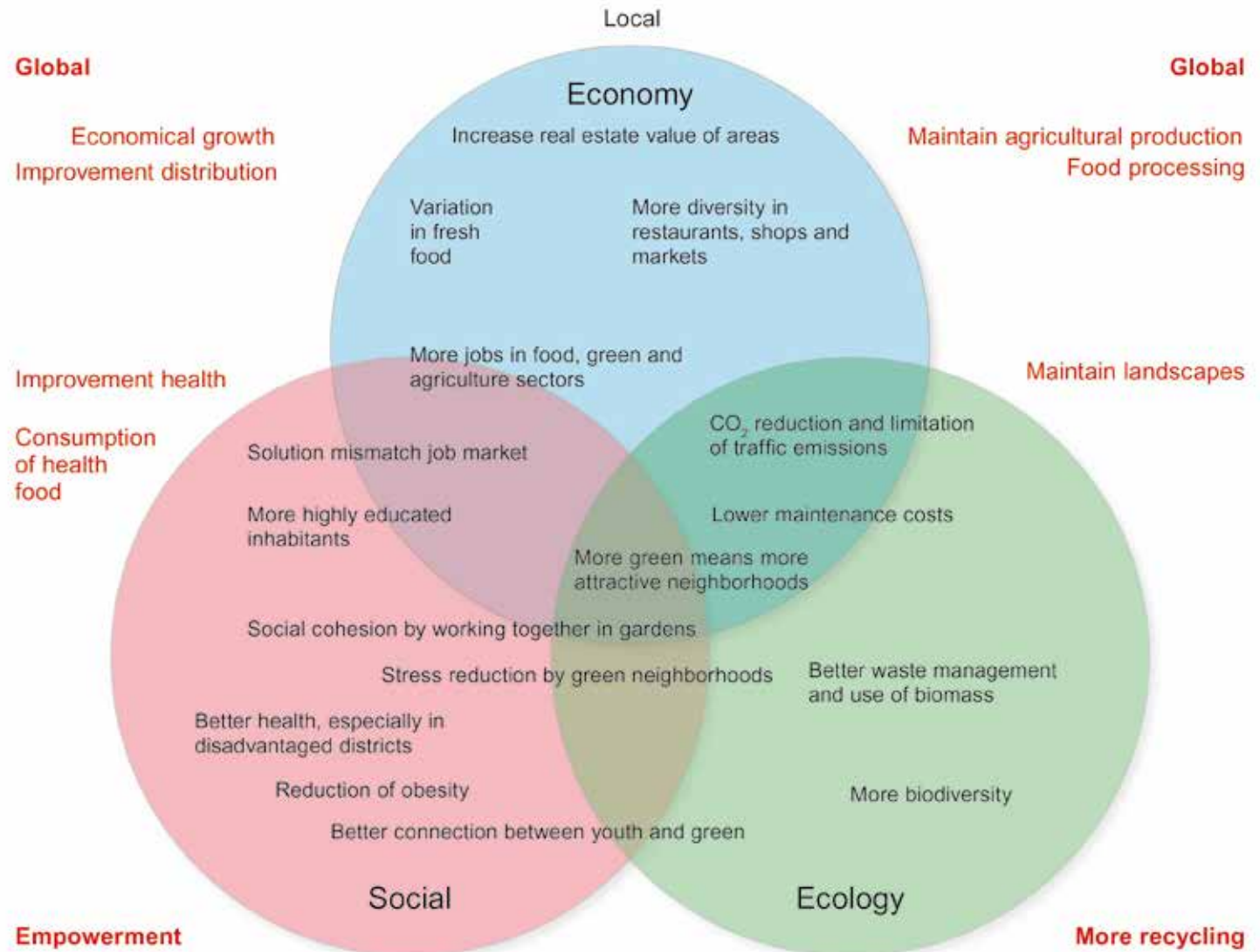
Yet another movement that is involved in sustainable food supply is Transition Towns. Transition Towns are local groups of citizens who make a personal effort to make their way of life less oil-dependent and more sustainable. From a globally perspective, there are about 500 Transition Towns by now, including one in Rotterdam.

Big cities such as Toronto, Vancouver, Chicago, New York and London have set up an ambitious food strategy. Toronto considers food a key element in order to improve its citizens' health, to enhance social cohesion and to strengthen the economy. Vancouver supports agriculture in order to preserve the landscapes round the city. It is striking that in many American cities food strategy is seen as a means to reduce hunger. The London food strategy stresses the importance of good and affordable food for public health, a reduction of the impact of the food chain on the environment and opportunities for the local food economy. For many foreign metropolitan areas, the long distances that both food and waste materials must travel, are a reason for trying to find ways of moving the production closer to the consumers.

Proeftuin Amsterdam ('Amsterdam test bed') is strongly aimed at improving relationships between the city and the country. Other municipalities in the Netherlands are also considering their role in the production and sale of food. They do this in *Stadslandbouw*, a network of cities and the Ministry of Economic Affairs, Agriculture and Innovation (EL&I), of which Rotterdam is a member. At present, Rotterdam has not yet opted for a broad food strategy because food security and food miles are no important issues as the Westland (the world-famous area with greenhouses) and other production locations are near. In due course, an expansion of the current approach towards such a food strategy is conceivable, and in particular the quality and the accessibility of wholesome food that has been produced nearby in a sustainable fashion would be basic principles.

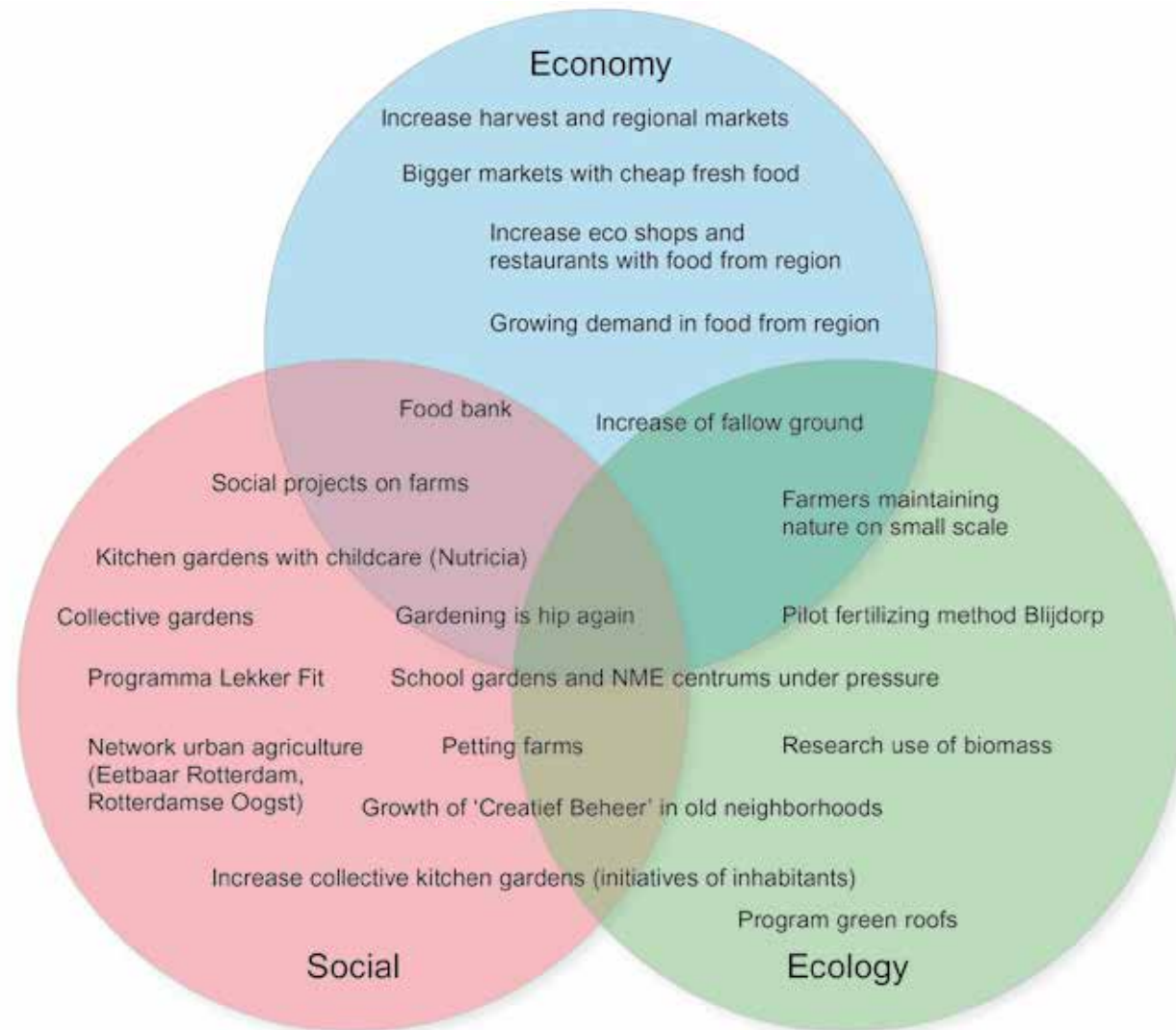
Contribution of urban agriculture to the Rotterdam municipality's policy objectives (1)

The figure shows the Rotterdam policy objectives that are connected with urban agriculture, based on the sequence people-planet-profit. They are indicated within three circles, representing the aspects social, economy, and ecology. The policy objectives of food strategies in other metropolitan areas are indicated (in red) outside the circles.



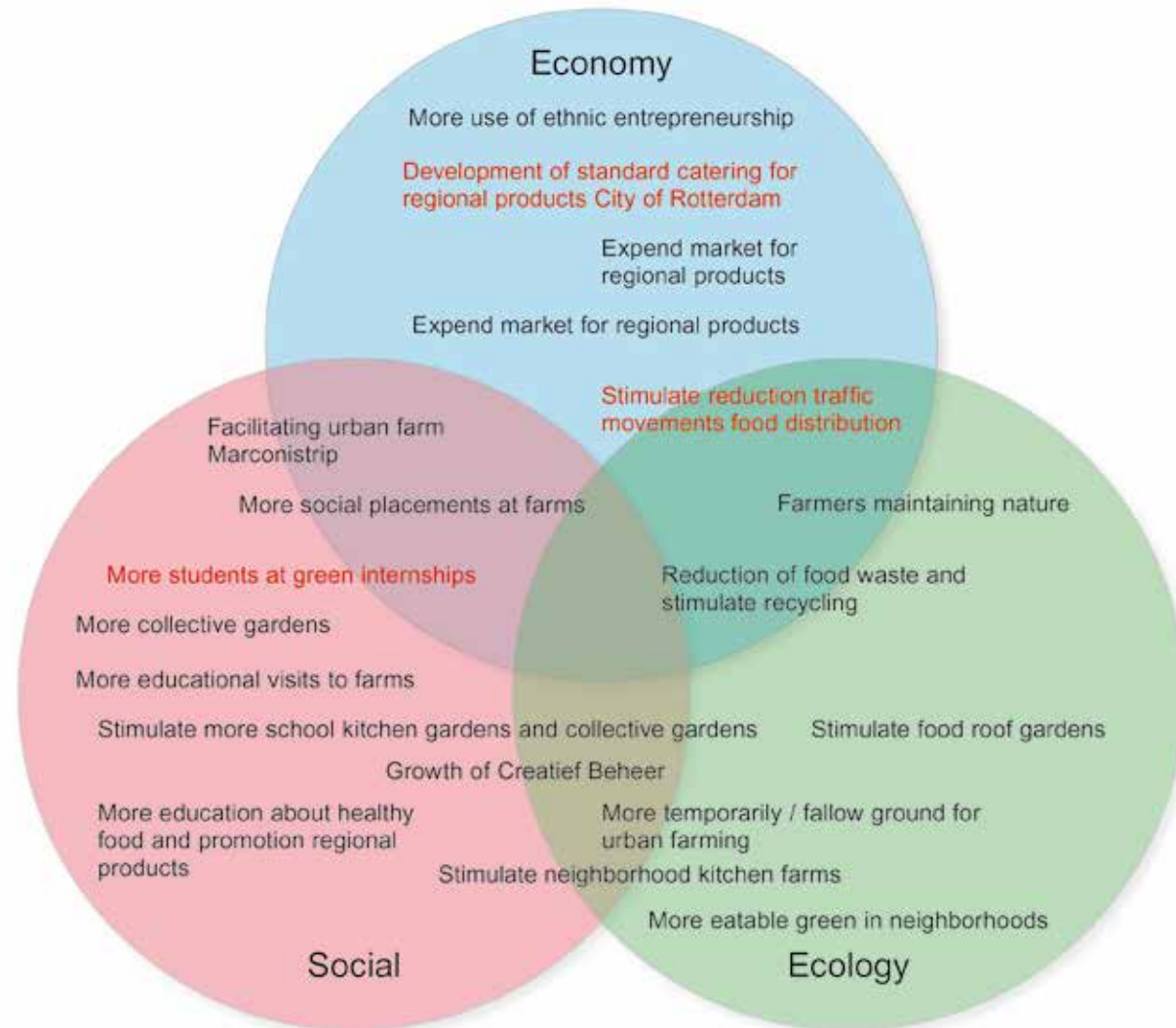
Contribution of urban agriculture to the Rotterdam municipality's policy objectives (2)

In the present situation, there are already many developments related to urban agriculture that contribute to the Rotterdam policy objectives. In the figure, they have been arranged according to the three perspectives.



Contribution of urban agriculture to the Rotterdam municipality's policy objectives (3)

In order to accelerate the expansion of urban agriculture in and around Rotterdam, new projects and some additional policies could be elaborated. In the figure, the new policy effort is indicated in red, and the expansion of existing projects is indicated in black.



Focus of the Rotterdam municipality

The needs of the Rotterdam inhabitants and entrepreneurs are a key element in urban agriculture in the opinion of the municipality. The city's main task is to increase the availability of sustainably produced food of high quality for broad strata of the population. For the purpose of urban agriculture in and around the city, the Rotterdam municipality will focus on the themes 'health', 'sustainable economy' and 'spatial quality'.

In respect of these three main tasks, Rotterdam has the following reasons for stimulating edible green in the city and regional food production in the surroundings of the city:

- 1 Improving the health** of the residents of our city. The average Rotterdam resident has a poorer health than the average Dutchman. People have a one-sided diet, are often overweight and do not have sufficient physical exercise. An improved diet with fresh products, combined with more exercise, may reverse this trend. By getting personally involved in growing vegetables, city dwellers with low incomes can eat more healthier food at a low price.
- 2 Enhancing a sustainable economic development.** This may be achieved by, among other things, giving food producers better access to the urban market, for instance through farmers' markets or direct sale of produce at farms. As the middleman is cut out at several levels, farmers receive a better price for their produce and the consumers receive fresher food for an attractive price. The city also offers opportunities for new entrepreneurs, including immigrants, due to small-scale production and the sale of special vegetables and herbs.
- 3 Improving spatial quality.** A new form of agriculture, in which the agricultural entrepreneur focuses much more directly on the nearby urban customers, offers extra opportunities for the preservation of valuable landscapes around the city. Furthermore, by creating vegetable and fruit gardens in the city, the living environment can be made greener. This will be an addition to the existing allotment complexes.



In addition to these three main tasks, urban agriculture may contribute to achieving other policy objectives, such as improving social cohesion and reducing food miles. Experience in Rotterdam and other cities has shown that vegetable gardens have positive effects because people cooperate and share experiences. Using food from the city or the region reduces the emission of CO₂ by traffic. Closed loop recycling, when residues are reused in the region, will also contribute to a reduction in the CO₂ mission. This is an important objective of the

A few recommendations from the network meeting

- A possible application of close-knit logistics is the creation of several central locations in the city where regional products can be supplied /collected;
- It is attractive for a purchaser of food if a variety of products is sold at the same location: dairy products, vegetables and meat;
- A cooperative association of producers is an interesting model, but these need to be large enough to be able to react to the demand for regional products from the city;
- The government could play an important role in combining the demand from the city;
- Develop a joint vision on both the availability and the suitability of land (map of opportunities) and convey this information to private parties.

Rotterdam Climate Initiative (RCI). Urban agriculture may also contribute to the wealth of species, in particular if vegetable gardens with permaculture are created in the urban green areas, and if agricultural environmental management is applied in combination with urban agriculture in the countryside around the city.

Think tank on urban agriculture

A 'think tank on urban agriculture' was set up in the municipal organization in 2010; it advises the alderman for Sustainability, Inner City and Outdoor Space about the promotion of urban agriculture in Rotterdam. In addition, the think tank has a role in the build-up of knowledge and the exchange of information. Representatives of the municipal departments, the municipal programme bureau Sustainable and an expert from the Agricultural Economics Research Institute (LEI) / Wageningen University & Research (WUR) participate in the think tank. If necessary, they are supplemented by experts of the regional environmental service DCMR and other relevant organizations. The think tank focuses mainly on the possibilities for urban agriculture in the public and semi-public space and the countryside around the city (small-scale non-commercial and large-scale commercial).

The think tank has held round-table conversations with researchers, agricultural entrepreneurs, urban customers and initiators of urban projects. The general picture emerging from these conversations is that innovation is stagnating due to limitations in logistics and communication. As a follow-up to the round-table conversations, a network meeting was held on 18 September 2010, during the second Rotterdam Harvest Festival. Some 70 stakeholders (farmers, business people, residents, civil-society organizations) participated in thematic meetings about the logistics and communication problems:

- The pros and cons of a cooperative and any alternatives;
- The conditions for sustainable farming around the city;
- Small-scale farming in the city.

A meeting with districts was hosted in the summer of 2011, and new network meetings will be held in 2012, including one with the Rotterdam housing associations.





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Strategy for promoting urban agriculture

Stimulating initiatives from citizens, companies and organizations

The municipality wishes to maintain the current, spontaneous character of urban agriculture. This concerns mainly grass-roots initiatives, both from groups of citizens and from professionals who are already involved in this topic. Organizations such as the Eetbaar Rotterdam association, Transition Towns and Rotterdamse Oogst play an important role in this. In the city, organizations such as Buurtlab and Creatief Beheer are increasingly combining social activation and gardening. Especially in districts which lack green areas, the vegetable garden projects are contributing positively to the greening of the streets. The school gardens and children's gardens can also develop into neighbourhood vegetable gardens.

Where necessary, the municipality is prepared to help think or to get things going. In the municipality's view, Rotterdam urban agriculture will be a special combination of citizens' initiative and entrepreneurship. There are particularly good opportunities for mobilizing entrepreneurship and knowledge among the city's multicultural population. In this approach to urban agriculture, Rotterdam distinguishes itself from other Dutch cities, which often aim at the highly educated residents.

The strategy that the Rotterdam municipality wishes to use for the promotion of urban agriculture has been drawn up on the basis of the three main tasks on which it focuses: health, sustainable economy and spatial quality. The municipality's actions will chiefly be aimed at creating good preconditions for initiatives from third parties, providing information, contributing to research, and bringing different parties together. Initiatives that contribute significantly to the municipal objectives may (if necessary and desired) expect extra assistance from the municipality. If tangible results fail to materialize for an extended period, the municipality will withdraw from the initiative.



1 Health

This principal task consists of two components that are closely connected: 'healthy nutrition' and 'new community gardens'.

1a Healthy nutrition

Between 1980 and 2010, the percentage of young people (2 - 21 years) who were overweight rose from 6% to 14% on a national level. About 15% of the adults is expected to be obese (serious overweight) due to bad eating patterns by 2015¹. That is why the municipality wishes to stimulate the consumption of fresh food (as much as possible unprocessed 'real food') from the city or immediate surroundings. It is necessary for this purpose that affordable vegetables and fruit become available for all income groups. City dwellers must become more aware of the provenance of products and of the seasons. In combination with more physical exercise, for instance through gardening, the increase of obesity and other physical complaints that are connected with a one-sided eating pattern can be slowed down.

Action: the municipality will increase the provision of information about wholesome food, for instance by way of the GGD (Municipal Health Service) and Sports and Recreation (project Healthy in the City).

1b New community gardens

Growing food has been shown to contribute to better physical and mental health. It has also become evident that community gardens contribute to social reactivation of local residents, and to stronger social cohesion. A few community gardens have already been created in Rotterdam.

Action: the municipality wishes to increase the number of care institutions with gardens in which food is grown, and other community gardens. This effort is especially made in the ten least green districts in the city.

As the basis of bad eating patterns is laid in early childhood, schools play an important role in learning to eat wholesome food. In Rotterdam, primary school De Bloemhof plays a leading role in this approach by instructing children to grow vegetables in the schoolyard and involving them in the preparation of these vegetables. This improves



¹ Data from Groen Loont, about social and economic advantages of urban green areas, Tom Bade, Gerben Smid, Fred Tonneijk, 2011

Growing evidence for positive effects of vegetable gardening on health

Several American and Western European² studies show that people who personally grow food, feel better, physically and mentally, due to the gardening activities. Other studies indicate that people who have more knowledge of fresh food and get into touch with it, also start to eat more consciously. People who grow their own food, demonstrably eat fresh fruit and vegetables more often. Comparative studies also show that school programmes about food have actual positive effects on schoolchildren's health. In addition, children who grow their own food eat more fruit and vegetables. They have a stronger tendency to keep doing this, also when they grow older, than people who did not grow food during their school years.

² Conclusions in this section in respect of health effects come from the report Health Benefits of Urban Agriculture, Anne C. Bellows et al., 2004. This report summarizes the conclusions from many studies on the effects of urban agriculture.

children's knowledge of wholesome food. The children have been monitored for some time by the Verwey-Jonker institute for social scientific research.

When this monitoring has been carried out over a longer period, it will become clear what result may be achieved with this approach in the Rotterdam situation. This is also important for other schools.

Action: the municipality will set up a network for exchange of knowledge between schools about vegetable gardening and food.

2 Sustainable economy

The economic main task comprises four components: 'vital landscape', 'enhancing sales', 'green job market' and 'reduction of food miles'.

2a Vital landscape

The municipality wants to offer entrepreneurs with an opportunity to develop and expand existing and new activities in the field of the production, sale and processing of local, sustainably produced food. This will contribute to broadening the economic basis of the city and to a vital countryside around it.

Agricultural entrepreneurship in the region surrounding the city may receive a boost when farmers gain better access to the urban market. For this purpose, it is recommended that the number of farmers' markets and direct sales through shops and restaurants increases.

Action: the municipality will conduct research into the possibilities of urban agriculture in the region, together with the Stadsregio Rotterdam and the province of Zuid-Holland. Research will focus on the supply side in a 40-to-50 km zone around Rotterdam. The researchers will draw up an overview of the existing initiatives for urban agriculture, the available land, and the available methods to expand these initiatives. The study will also focus on any impediments, which are supposed to arise mainly from agricultural schools and planning regulations.

The municipality can promote urban agriculture on the land it owns by including relevant conditions in contracts for land allocation and the sale or lease of property. Involvement of agricultural entrepreneurs in present and future recreational areas around the city can also be increased.

Agricultural developments in the region around Rotterdam

There is a wide variety of agricultural and horticultural businesses around Rotterdam. The Westland (greenhouse area) is very important for the export of vegetables and, to a limited extent, fruit (traditionally grapes) to other countries. The proximity of the Westland and other horticultural areas ensures a constant supply of fresh products to Rotterdam. It is a highly efficient way of producing aimed at a maximum yield per hectare against low cost. The Rotterdam port ensures the import of large quantities of tropical and subtropical fruits. As a result, compared to other metropolitan areas, fruit and vegetables are abundantly available against relatively low prices.

In respect of the agriculture that is dependent on the soil, there is a striking difference between the products from the peaty soil in the north (Hof van Delfland and the Groene Hart) and the clayey soil in the southern and the western part of the region (Voorne-Putten, Hoeksche Waard, IJsselmonde). In the peaty soil areas, where pastures predominate, milk and beef and other meat are the major products. The clayey soil produces potatoes, vegetables, fruit (apples and pears) and - to a limited extent - cereals. The number of farms in the immediate vicinity of the city has decreased sharply due to urban expansion and the creation of green areas.

Roughly a quarter of the agricultural enterprises in Zuid-Holland³ uses diversification such as environmental management, direct sales to consumers at their farm (often of regional products), care provision on the farm, or education. In particular in the Groene Hart and Hof van Delfland this percentage is higher because many farmers are involved in agricultural environmental management there. The direct sales of the producers' own products declined in Zuid-Holland between 2003 and 2008, whereas they increased on a national level in 2007-2009. The number of care farms has grown >>

Action: the municipality will use its own land as much as possible for urban farms and will examine the possibilities of including relevant conditions in lease or sale contracts.

In addition, the municipality will help the land managing organizations in the region with developing ideas about the involvement of agricultural entrepreneurs in such management.

Zoning plans sometimes leave insufficient room for new activities, or other planning rules impede the growth of agricultural farming. Amending these rules is sometimes necessary to provide entrepreneurs with more flexibility.

Action: the municipality will amend the rules that hinder the growth of urban agriculture, provided the municipality is responsible for these rules. If rules set by other authorities obstruct these developments, the relevant authorities will be urged to adjust the rules.

2b Enhancing sales

At present, most agricultural products are sold through large purchasing organizations and international companies. Often, several intermediary links are involved, as a result of which the relationship between products and consumers is unclear. An essential improvement in the sale of regional products would be to set up a new logistic system in order to shorten the logistics chain used for getting the products into the city.

Action: the municipality will enhance the sale of regional products by facilitating a farmers' and neighbours' market. In 2012, the annual Harvest festival will expand into a quarterly market for regional products. The ultimate aim is a three-weekly farmers' and neighbours' market in the Rotterdam inner city, after 2012. Several municipal departments and Rotterdam Festivals are involved in this.

Action: the municipality will facilitate the process of external parties for setting up a logistics system for regional products. The municipality will examine what organizational form is best suited to this end (from the suppliers' perspective). A rough estimate of the potential demand from the city will be made for this purpose: from institutions, the hospitality industry and the retailers.

Action: the municipality will organize new network meetings of producers and existing and potential customers.

>> considerably both on a national scale and in Zuid-Holland. Education is still a limited source of extra income for agricultural entrepreneurs.

On a national level, the total turnover of diversified agriculture has grown by about 28% in the period from 2007 to 2009, whereas the total turnover of the primary production businesses decreased by 3.4%. In 2007, the total turnover of diversified agriculture amounted to 322 million euros. The national government and the province of Zuid-Holland stimulate diversification in order to reduce the gap between the country and society and to improve the economic basis for the agricultural sector.

There are insufficient statistics available about the specific agricultural production around Rotterdam and the city dwellers' needs in order to be able to calculate what percentage of food consumption can be covered by supply from the local region.

³ These data are based on the reports Kijk op Multifunctionele Landbouw of LEI/WUR (2010), De Grondgebonden Landbouw in Zuid-Holland of LEI/WUR (2010) and Kijk op Multifunctionele Landbouw, omzet en impact 2007-2009 of LEI/WUR (2010).



By imposing standards in invitations to tender for the catering of municipal restaurants and restaurants of other institutions, the sale of regional products can be enhanced considerably. Therefore, this allows the municipality to directly impact the sale of regional products.

Action: in invitations to tender for catering contracts, the municipality will include a percentage of regional products that must be provided and it will stimulate other institutions, such as hospitals and schools, to follow this example.

2c Green jobs market

In the wider Rotterdam region, there is a mismatch between the supply of labour and the demand for labour in the green sector (horticulture, agriculture, green space management). The jobs market and work must be matched in a better way so that unemployment will be reduced and vacancies will be filled more adequately. Proper education is an important precondition.

Action: the municipality will conduct a survey of the green jobs market and education and will make recommendations for improvement.

2d Reduction in food miles

Reduction in the number of miles that food travels between the producer and the consumer will contribute to a reduction in CO₂ emissions. Purchasing raw materials as much as possible in the region and selling products in the region will limit transport movements. In processing the residual products, transport can also be substantially reduced by keeping these products as much as possible in the region. Finally, by more efficient transport planning (transport management) agricultural food transporters can save on fuel, reducing the emission of CO₂ and of particulate matter. The use of clean, possibly electrical vehicles may also contribute to this.

Action: the environmental agency, DCMR Milieudienst Rijnmond, will draw up a project to reduce the emission caused by traffic (such as CO₂, particulate matter, NO_x and noise), together with agricultural food transporters and partners in the region.

3 Spatial quality

The main task of turning Rotterdam into an attractive city for all residents to live in, consists of two components: 'facilitating initiatives from residents and civil organizations' and 'the new green'.

3a Facilitating initiatives from residents and civil organizations

Urban agriculture can contribute to more varied green in the residential districts and more involvement by the local residents in public space. The municipality wishes to facilitate initiatives from groups of residents and civil organizations for creating neighbourhood vegetable gardens in undeveloped sites and in rarely used parts of public green areas. The municipality wishes to give priority to the ten least green districts in the city to create vegetable gardens, because the yield in terms of spatial quality, social cohesion, health and employment is expected to be highest there. Further greening of schoolyards through the creation of vegetable gardens is also recommended. In order to stimulate citizens to start a vegetable garden, it is necessary that the phenomenon of urban agriculture, the actual possibilities and the preconditions become better known. Better and unequivocal communication between the citizens and the municipal institutions about urban agriculture is also recommended.

Action: the municipality will design a location plan showing the available sites for urban agriculture.

Action: in its own programmes, the municipality will make a maximum effort to realize vegetable gardens in the ten least green neighbourhoods.

Action: the municipality will produce a brochure describing the possibilities and the preconditions for creating vegetable gardens, including soil aspects.

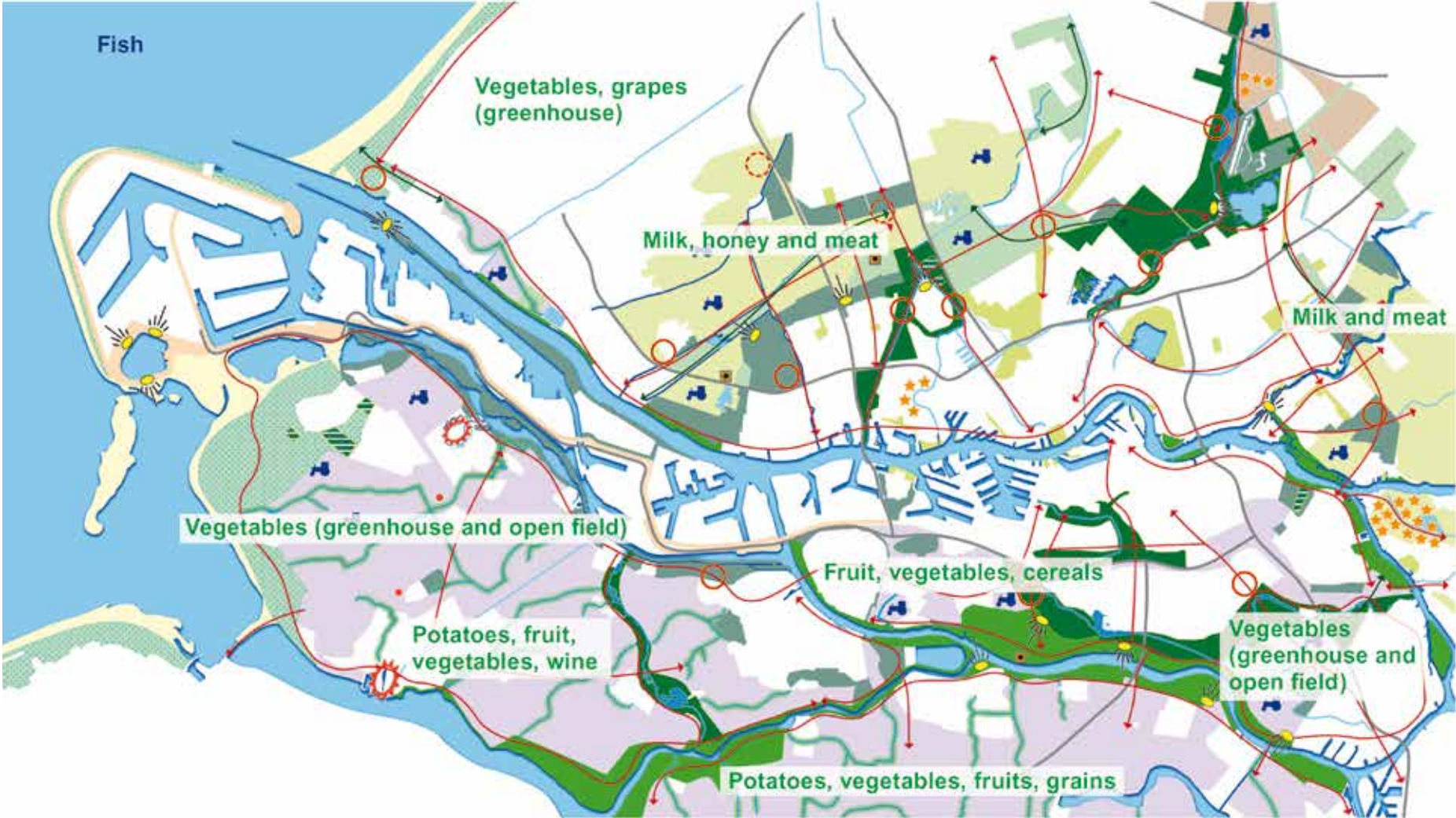
Action: the municipality will draw up a standard contract for making land available to residents' groups and civil organizations.

Action: the municipality will organize an annual competition for the best citizens' initiative for urban agriculture.

Experience with existing vegetable gardens and initiatives has shown that it is difficult for citizens to gain insight into the procedures that have to be followed sometimes or the permits that are required. On a limited scale and as much as possible through districts,



Agricultural products from Rotterdam area



the municipality wishes to help initiators get started by means of support from the civil service. A possible way to realize this would be to use 'vouchers' entitling to a number of hours of support from officials, as was done in the district of Prins Alexander.

Action: the municipality, in cooperation with the districts, will draw up in detail the proposal for 'vouchers' to be used for help from municipal experts.

In the inner city, rooftop vegetable gardens can contribute to greening large flat rooftops and increasing the public's awareness of urban food production. In addition, a rooftop garden can retain water longer. On account of this aspect, a financial contribution from the municipal Green Rooftops programme is feasible. The municipality wishes to act as an intermediary and make technical knowledge available. The realization and running of the rooftop gardens will be left to the private sector or other initiators.

Action: the municipality will promote the creation of rooftop gardens with food production in the inner city by making knowledge and a financial contribution from the Green Rooftops programme available.

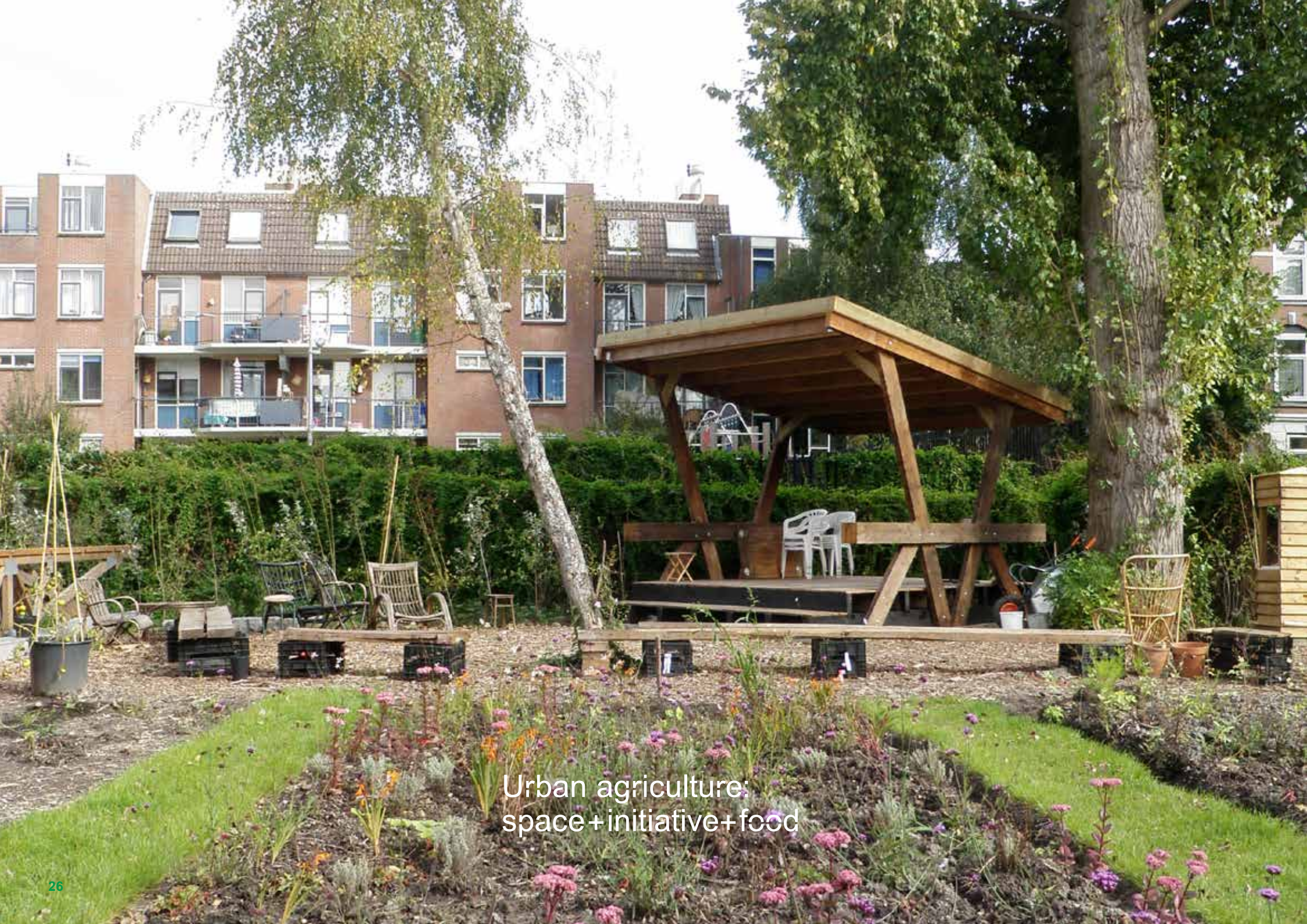
3b The new green

Within the municipal organization, there is as yet only limited knowledge of urban agriculture and new forms of green space management in which the residents play an important role (the new green). Technical innovation is recommendable in order to be able to support citizens' initiatives properly.

Action: a clear point of contact for urban agriculture will be set up within the municipal organization, and a programme for professional knowledge exchange will be elaborated. This will link up with Creatief Beheer.







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Examples in Rotterdam

The examples of well-known initiatives are subdivided on the basis of location: in the city or in the country. Furthermore, the city projects are subdivided on the basis of the nature of the project: neighbourhood vegetable garden (small-scale residents' initiatives), social project, commercial project, school project and project with edible green in the public space. There are also organizations that are engaged in a more general sense in the theme of urban agriculture or sustainable food chains. The overview gives an inspiring view of the energy that exists in the city at present. There is a great deal of variety in the way the projects come about. There are initiatives of groups of residents that decide jointly to convert a dull garden or shrubbery into a vegetable garden. There are projects that give a future building site or other undeveloped site a temporary use. Housing associations are mostly involved in this. These associations and other social organizations, such as the reception facilities for addicts, consider vegetable gardening a means for activating people and for improving social interaction. In all these initiatives, the municipality is only involved from a distance. In the case of major initiatives, such as the conversion of a public green area, the municipality or district is more closely involved and imposes conditions under which a proposal can be carried out. Sometimes, the municipality itself initiates and carries out a plan for urban food production. Rotterdam municipality is only involved in projects outside of the city if they concern its own land. However, there are often developments in the territory of a neighbouring municipality that may be important for the residents of Rotterdam.

Organizations that are involved in urban agriculture

Edible Rotterdam



Eetbaar Rotterdam (Edible Rotterdam) started as a network of people whose profession or hobby has to do with food. Early in 2010 it became an association. Its members wish to gather and spread knowledge in the field of urban agriculture. Their purpose is to make the food chain visible again in the city. *Eetbaar Rotterdam* seeks the incorporation of urban agriculture into town and country planning, so that enterprising residents will be given the opportunity to carry out projects in which the food cycle is the key element.

Rotterdamse Oogst foundation



The aim of the foundation *Rotterdamse Oogst* (Rotterdam Harvest) is to reinforce the local food chain on the basis of the region's own identity: multicultural, metropolitan and green. It tries to achieve this by means of a long-term campaign and the organization of a programme of activities. The best-known activities are the successful *Rotterdam Oogstfestivals*, which were held in 2009 and 2010. These are continued and expanded into a frequent farmers' and neighbours' market.

Transition Town Rotterdam



Part of an international movement of villages, districts, towns and cities that want to become independent of long supply lines as much as possible. Transition Towns started in England as a 'grassroots movement' in which people personally take action to change their environment. The idea is to build up a more resilient, local economy with a drastic reduction of CO₂, in which the production of food, energy and materials is better integrated into nature's ecological cycles. The Rotterdam branch functions as a network that organizes lectures, discussion evenings, and film evenings and exchanges information on internet.

Urban non-commercial initiatives: neighbourhood vegetable gardens and social projects

Vegetable garden on the brink of the river Maas



A number of residents has created a vegetable garden at the head of the Müllerpier. This piece of land has remained unused for a long time because the planned houses have not been built yet. Initiator Judith Kuypers started sowing vegetables here in 2008, with permission from the district of Delfshaven. In 2010, it was restarted and more and more people got involved and agreements were made with municipal departments. Residents at the Müllerpier can apply with the initiators if they wish to participate.

Vegetable garden in the Bergwegplantsoen



This is an initiative of Transition Towns Rotterdam in cooperation with local residents. A former park near the Humanitas building on the Bergweg (in the north of Rotterdam) has been converted into a neighbourhood vegetable garden with fruit trees and shrubs. There are also vegetable beds. The principles of 'permaculture' are put into practice here. This means that the natural ecological system is imitated as closely as possible and that biological methods are used. Transition Towns is also involved in a vegetable garden along the Oudedijk in Kralingen, a vegetable garden on De Esch (DWL grounds) and the educational garden De Enk.

De Tussentuin garden in the Gaffelstraat



As a result of the demolition of Gaffelstraat 70-88, an open space was created between streets and existing houses, for a two-year period 'in between'; the open space is used by residents as a garden, the *Tussentuin* ('Between garden'). The layout of the garden tells the story of the houses that once stood there: every house became a plant-bed that is used as a flower garden and/or vegetable garden. The entire site has been laid out by residents (with or without their own gardens) and is also maintained by them. The owner of the land, Woonstad (housing association), put the land at the residents' disposal and paid for the purchase of plants.

Urban non-commercial initiatives: neighbourhood vegetable gardens and social projects (continued)

Picking garden Essenburgsingel



At the initiative of a group of residents of the Essenburgsingel in Delfshaven (a district in the west of Rotterdam), a plan was made for the creation of an orchard, herb garden and meeting place on an unused site next to the football club JHR. The group of residents resists development of this site. The oldest school garden of Rotterdam is also in this area. A contract for the temporary use of the site has been concluded with the district of Delfshaven. The laying out of the picking garden, which will be public, was started in May 2011.

Vegetable garden Pompenburg/Couwenburg



The temporary day shelter for the homeless and drug addicts of the Nico Adriaans foundation (affiliated with the Paulus church) is located behind the former Shell building on the Hofplein. A vegetable garden has been laid out around the building, where, visitors of the building grow vegetables under supervision of Jan Blankers. Organic manure from Midden-Delfland is used. Prorail and the Rotterdam municipality are the owners of the land. The day shelter is to be closed down in May 2012; it is still unclear what will happen to the vegetable garden.

Dante garden in Lombardijen: food production



Building company Dura Vermeer, housing association Com-Wonen, and care provider De Stroom Opmaat Groep (Partners for Healthy Cities) have set up a pilot project for food production and processing in the Lombardijen district (in the south of Rotterdam). Early in 2010, the garden near the Dantestraat was opened officially. In 2011, two more gardens were developed in Lombardijen. The Municipal Health Service (GGD) supports this initiative and also other municipal departments, such as Sports and Recreation department. The idea is that in this variant of urban agriculture several municipal objectives are combined: social reactivation, better health through more exercise, more involvement in the living environment and a focus on wholesome food.

Urban non-commercial initiatives: neighbourhood vegetable gardens and social projects (continued)

Food garden for the Food bank



Behind the building of the Food bank in the Keilestraat (on the filled-in Keile harbour), the foundation *Voedseltuin Rotterdam* ('Rotterdam Food Garden') has created a garden for growing vegetables and fruit for the Food bank. The design and layout are based on permaculture. The garden is maintained by about 15 people who find it difficult to get a regular job. As such, the initiative also contributes to reactivation of clients of the Food bank and psychiatric patients.

Community gardens Oudeland, Hoogvliet and Schiemond, Delfshaven



In the Hoogvliet district, there is a widely supported collaborative project of the district, the municipal service Social Affairs and Employment, Roteb, housing association Woonbron, schools and childcare facilities to start a community garden on an unused piece of land. The initiative is aimed at promoting contacts between residents, education and the creation of jobs. A garden committee supervises the daily activities. Social Affairs and Employment and Woonbron have created a comparable community garden in the Schiemond district in Delfshaven.

Vegetable gardens in Schiebroek-zuid



A number of residents of Schiebroek-zuid has asked the housing association Vestia to convert some common gardens into vegetable gardens. Subsequently, Vestia asked Caroline Zeevat, who has experience with growing food in other places, to draw up a plan. In the Vestia garden, shrubs have been cleared in order to create good soil for agriculture. A total of three plots of land behind the Blecourtstraat and the Wilgenplaslaan is used for urban farming now. There is a mixture of trees, flowers, vegetables and fruit here. It is of course intended for food production, but also for gardening and as an educational location for the Schiebroek children.

Urban non-commercial initiatives: neighbourhood vegetable gardens and social projects (continued)

Wollefoppenpark



The Wollefoppenpark protrudes like a wedge from the Rotte into the Zevenkamp district (in the northeast of Rotterdam). Although the green area is potentially an attractive link between the city and the country, it has not had a use that is fitting for this linking role so far. It is mainly used as an informal football pitch for young people and for manifestations. A group of residents, who call themselves Wollefoppen & Co, has taken the initiative to develop a neighbourhood garden here, with flower fields, tall fruit trees and a vegetable garden. The existing main structure, with rows of trees along the edges, will remain unchanged. There is wide support among the local residents for this redevelopment. Wollefoppen & Co wants to work as much as possible according to the permaculture principle, which follows natural ecological systems. The Prins Alexander district has approved the initiative and promised financial support on condition that other financiers are also found.

Fruit trees and park keeper in Park Zestienhoven



On the north side of Rotterdam, Park Zestienhoven (a housing area) is being constructed. The first houses of this luxurious green district have been completed. The residential areas are built between a few old allotment complexes, a sports park and a parklike wood that is converted into a modern country estate. Within the austere parcelling, so-called ‘inner worlds’ are developed, where the houses sit around a common green area. On the north side, in the Reijsendael district, these green areas will be given a countryside nature with small orchards and pastures for sheep. The existing allotment complexes will be surrounded by publicly accessible small dikes with fruit trees. People will be allowed to harvest the fruit here. While the neighbourhood is still being developed, the park keeper Gina Kranendonk will organize temporary activities for the actual and future residents and neighbours. For example: guerrilla gardening (sowing seeds in a disorganized manner), pop-up greenery (cold-frames for growing vegetables), green events and cooking with natural ingredients.

Urban initiatives: school and children's projects

Eco-3 at primary school Bloemhof



Within the Physical Integrity project, primary school De Bloemhof pays extra attention to food. The basic thought is that by eating good and healthy food, children will develop self-respect. Children can see how vegetables and fruit grow in the school gardens, and they may smell and taste in the 'herb corners'. Any food produced in the garden is prepared and eaten in the school. In this way, about 300 children will be served a warm meal at lunch time during six months. In order to show that this approach influences the children's behaviour, the entire project is monitored by the Verwey-Jonker institute.

De Enk educational garden



De Enk is a municipal garden that is managed by the Rotterdam Sports and Recreation department. The garden is used to provide education on nature to children and adults. In addition, an extensive permaculture has developed. An existing green strip is converted into a 'food forest', where something edible can be found the year round. Transition Town Rotterdam supports the garden and the activities.

COOLzaad



COOLzaad is a means for stimulating contacts between children and their parents in a neighbourhood in the city centre and it promotes sustainable contacts. Green makes the people in the neighbourhood grow towards each other! The core of COOLzaad is a neighbourhood greenhouse. In addition, children can grow vegetables and herbs at home in mobile children's gardens. They receive 'green lectures': lessons about the way in which plants grow. A savings scheme enables them to get green presents. Furthermore, there are activities such as making bird boxes.

Commercial projects in and outside of the city

Residential farm Marconistrip



The foundation *Uit je Eigen Stad* ('From your own city') has taken the initiative to create an urban farm on the Marconistrip. This is a former marshalling yard near the Merwe harbour in the Stadshavens area, which will be developed into an area where people live and work in the medium term. Meanwhile, the Marconistrip will serve as a location for temporary uses, such as a farm. The foundation has the ambition to bring food production back to the city dwellers. The initiators work on the basis of a partner model with the authorities, educational institutions, the private sector and the academic world. The project can also offer opportunities to people who participate in reintegration procedures. The first two years will be devoted chiefly to testing (while the business is also in operation), after which the operational phase will start. At present, the plan is developed into a business plan in consultation with the project group for Merwehaven. The farm will include a combination of vegetable and fruit growing with aquaponics (combination of fish and vegetable farm), composting and a chicken farm.

Slow food and agricultural environmental management in Midden-Delfland



The municipality of Midden-Delfland (north of Rotterdam) is the first Cittaslow municipality in the Netherlands. By now, more than 80 European municipalities participate in this network. With this, Midden-Delfland wants to project its identity as a living and working environment where the characteristic peaty soil pasture landscape keeps its high quality, attention is devoted to cultural history, and authentic regional products are made. In Midden-Delfland, Vockestaert, the association for agricultural environmental and landscape management, is also committed to preserving the historic landscape. At present, 90 agricultural entrepreneurs are members. In addition to environmental management, the farmers are focusing increasingly on the city dwellers' recreational wishes and on providing information about sustainable food production. *Groen Goud* is another organization that is committed to marketing products from Midden-Delfland.

Buytenhof Rhoon



The Buytenhof is a mixed farm near the village of Rhoon south of Rotterdam. In 2000, the regular farm was converted into a care farm, which is partly open to the public. The Buytenhof now consists of orchards, hay-fields, pastures and fields for crops. The tall tree orchards include old fruit varieties such as *notaris* apple, star apple and yat-pear, but also nut trees. Sheep, cows (Blonde d'Aquitaine) and black pied pigs are ranging freely in the pastures. It has a vegetable garden where biological vegetables and fruit are grown. These include 'forgotten vegetables' such as purple beans and yellow carrots. There is also a strawberry field, a flower garden and a herbs garden where visitors are allowed to pick produce. The shop sells the produce of this farm, including meat, which is much in demand. Volunteers and care clients also lend a hand on the farm. The Buytenhof will be incorporated into the future landscape park Buijtenland van Rhoon.



Urban agriculture:
picking garden+recreation+food

Appendix 1 Urban agriculture and area development

A recent study of the relationship between urban agriculture and area development⁴ showed that urban agriculture may enhance social sustainability, ecological sustainability, economic sustainability and spatial quality of an area. It is based on an analysis of three different projects in the Netherlands, including the Dantetuin in Lombardijen. Sometimes, one project comprises all four components, but in general a few of them are present. The Dantetuin failed to obtain a high score on the social component, because only a limited group of residents has been involved so far. However, this component may become more important. The scope of the project is still limited from an ecological, economic and spatial point of view as well. It has not played an important role (so far) in the redevelopment of the Lombardijen district. The study also shows that urban agriculture projects in an urban environment can be very useful for projecting the identity of an area that needs to be redeveloped (for instance, an old industrial site) and for making the planned new development widely known. A successful example is Villa Augustus in the city of Dordrecht, which functions as a crowd puller in the city centre project *Stadswerven*.

A second study⁵ outlines the possibilities for urban agriculture in Rotterdam from the viewpoint of spatial planning. This study distinguishes between four types of food production in the urban area: edible forest garden, intensive horticulture on small lots (also known as SPIN farming), hydro culture in greenhouses on flat roofs, and combined fish and vegetable farming (also known as aquaponics). The study tried to determine the best location in the city for each type of farming.

4 Stadslandbouw en duurzame gebiedsontwikkeling, Arienne de Muynck, graduation thesis Master City Developer, Erasmus University Rotterdam, 2011

5 Ruimte voor stadslandbouw in Rotterdam, Paul de Graaf Ontwerp en Onderzoek 2011

An important issue in the promotion of urban agriculture is the question whether the soil quality is sufficient, whether the soil is clean enough for growing vegetables and fruit. This entails the question what responsibility the Rotterdam municipality has in this respect when citizens, civil organizations and commercial businesses are stimulated to grow food in the city.

Soil quality; legal framework

There is no specific legislation in the Netherlands for urban agriculture. However, the Soil Protection Act (Wbb) includes standards for maximum permitted contamination of the soil when it is used for the functions 'living with garden' and 'vegetable garden'. The basic principle here is that any risk that the intended use of the soil entails is assessed for humans (in this case). This is done on the basis of the calculated total exposure due to the consumption of home-grown vegetables and fruit.

In the case of commercial food production (farming for third parties) the new Netherlands Food and Consumer Product Safety Authority checks for maximum permitted residues of pesticides and other contamination. However, it does not check for soil quality. The Food and Consumer Product Safety Authority is an agency of the Ministry of Economic Affairs, Agriculture and Innovation. The basis for the inspections is formed by the national Commodities Act Regulation on contaminants in food and the European General Food Law.

Proposed method

Roughly three types of use can be distinguished: gardens against house fronts, private vegetable gardens and agriculture for a local market or buyers. The gardens against house fronts are not suitable for growing leafy vegetables or tuberous plants for other reasons, and due to their small volume, do not carry a concrete risk for the consumption of fruits. In respect of the other variants, soil quality can affect the health of the users of the gardens and the people who eat the plants. In case the products are sold on the local market, the Food and Consumer Product Safety Authority is responsible for supervision of the quality of the plants. If the municipality is involved in an initiative, for instance because the municipality owns the land, it is necessary to establish that its use entails no risks. The below instructions for use were drawn up for this purpose.

Preliminary examination

A preliminary examination, in accordance with Netherlands Pre-Standard 5725, in the municipality's environmental archives must show whether activities have been carried out on the site that may have caused contamination of the soil. If this is not the case, and the soil quality map shows that the soil in the spatial unit meets the Local Maximum Value for dredged mud / agriculture as provided for in the Active Soil and Dredged Mud Management memorandum (pending), then the site will be suitable for urban agriculture.

Exploratory survey

If the above situation does not exist, the survey data of the top soil of the site itself must be used for the assessment. This may be done by conducting a soil survey in accordance with NEN 5740, but also by an examination of the results of previous soil surveys, the quality data of soil that has been dumped or a decontamination result. The basic principle is that no activities have been carried out after the survey that may have affected the quality.

If the survey data meet the Local Maximum Value for dredged mud / agriculture, then the site is fit for agriculture. If the values meet the urgency criteria for allotment/vegetable garden (Sanscrit, circular on soil decontamination), then no risks for the users are to be expected and the site will be temporarily fit for urban agriculture.

In case of serious soil contamination

If the contamination of the soil in the site exceeds the intervention values or the urgency criteria for allotments/vegetable gardens, then the soil must be decontaminated in order to make it suitable for agriculture. It is possible to draw up a decontamination plan within the framework of the Soil Protection Act or, alternatively, to decontaminate on the basis of a notification under the Uniform Remediation Standards Decree. In case the site is made available on a temporary basis, pending the implementation of development plans and if the contamination is only diffuse, then, by way of temporary measure, it is possible to opt for dumping half a metre of soil that meets the Local Maximum Value for dredged mud / agriculture, or for growing in cold-frames.

Suitability certificate

On the DCMR environmental department Rijnmond website (www.dcmr.nl/bewoners/bodem), there is a reporting form that can be used to have the reports and any plans assessed. In the reporting form, applicants must indicate that the site will be used for urban agriculture.

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