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Urban agriculture and urban transformation

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Articles in the media about *Urban agriculture* in the global north often draw pictures of a social movement, whose members build community gardens either as a political statement, for educational purposes or just for fun. In any case an economic necessity to produce food does not seem to play an important role.
Much less often media report about the potentials and chances Urban agriculture already plays in the global south and could play in de-growth processes of developed countries.
This text concentrates on discussing the diverse impacts of urban agriculture in a de-growth context. There will be no detailed discussion on organic farming methods, as I take them for granted. Discussions on this topic are easily accessible elsewhere.
When talking about agricultural products, I mean food as well as fibers, fuels, and raw materials (like oil).

Organic Farming + City farming = De-growth Farming

Why organic farming?

The currant intensive agriculture is characterized by a very large field size, an increased mechanization, a heavy use of energy, pesticides and chemical fertilizers relative to land area. This enables an increase in production (relative to field size, but not relative to input), but also increases erosion, poisons water with agricultural chemicals, decreases biodiversity and has several negative social impacts.
These named disadvantages of intensive agriculture we aim to minimize during a de-growth process.

Within cities gigantic fields don't exist – otherwise you would call it a rural area. Small sized fields or beds could fit well into cities, but don't work well with currant agricultural machinery. To spray agricultural chemicals or to let them drain into groundwater in urban areas isn't reasonable for ecological and health reasons.
Alternative forms of agriculture like organic farming offer more appropriate methods and concepts
for small-scale sustainable agriculture.

But why bring farms to cities at all?
This text deals with sustainable agriculture in or close to towns and cities, not with agriculture in rural areas. To my opinion, bringing agriculture into cities is as important as using organic agriculture methods. A de-growth process will not work without integrating at least parts of the agriculture into or around urban areas.

As far as I can see, the impacts of bringing agricultural activities into urban areas match the goals of other de-growth ideas and urban de-growth infrastructures in particular:
Economic potentials
The majority of all people live in urban areas today. And their number is said to further increase.[1]
To save natural resources it seems to be reasonable to minimize transports and produce(, process) and sell agricultural products locally – which means within or close to urban areas. 20 % of the world's food production is generated in urban areas today. There are only estimates about the percentage urban farmers might contribute to the cities food supply if cities started degrowing.
We might need 0,1 to 0,25 ha land to cover one persons needs for food, depending on the amount of meat consumption[2]. Todays cities design state might not offer enough free space for all inhabitants. But already today **idle land**, backyards and especially roof tops are underused resources[3]. In a car reduced future: **paved areas** and parking lots could be made available and streets transformed into alleys of food or timber trees. Most profitable for urban farming might be all more labour intense products like vegetables or honey, those products that profit from the warmer climate of cities or require fresh consumption (salads, berries).

Ecological impacts
Planting food (or let nature grow) helps to reduces a city's ecological footprint:

- **organic waste and human manure** don't have to be landfilled or transported long distances, but can be recycled to nutrients and reused by crop plants. This helps to minimize mineral fertilizer.
- **Rainwater** can be used for watering crops instead of being led into expensive drain systems.
- **Ecosystem service** like purification of water and air, reducing the urban heat island effect or conservation of biodiversity

Social benefits
Urban agriculture
- opens chances to re-install **common land** or community land

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1 http://www.who.int/gho/urban_health/situation_trends/urban_population_growth_text/en/
2 http://www.lel-bw.de/pb/site/lel/get/documents/MLR.LEL/PB5Documents/lel/pdf/w/Wie%20viel%20Fl%C3%A4che%20braucht%20ein%20Mensch%20um%20sich%20zu%20ern%C3%A4hren%20-%20Wakamiya.pdf
3 Toronto: 5000 ha flat roofs available for farming – that is 8 % of the total area of Toronto (http://de.slideshare.net/Fawn85w/green-roofs-for-urban-agriculture-university-of-east-london, p. 34). Berlin: 3.1 % of all flat roof would be suitable for commercial roof farming – this is 479 ha (http://www.cityfarmer.info/2013/12/26/map-with-potential-roof-surfaces-for-commercial-zfarming-in-berlin-online/)

- could help to **increase food security** as well as **food sovereignty** for poor city dwellers
- diminish the disparities in access to **healthy food**
- provides **employment to disadvantaged groups** in production, input supply, marketing and value-addition
- offers opportunities for (school) gardening education and for improving dietary knowledge

Short distances
Through minimizing transport distances:

- species don't have to be bred for long distance transportation demands
- crops can be harvested ripe and sold fresh
- loss of nutrients can be reduced
- packaging material can be reduced and simplified
- the use of fossil fuels for cooling and transport vehicles will be reduced
- alternative ecologically friendly transport vehicles like fright bicycles can be used

To produce and process agricultural products in urban areas means workers will have a shorter way from home to workplace. This

- reduces daily private transports
- enables the cultivation of human labour intensive crops
- promotes part-time employment: to work only a few hours a day, or working some hours in the morning and returning to the field after the midday heat pays off and helps people to organize their (family) life more individually.

Short food supply chain
Producing local food can lead to a shorter food supply chain with less middle men, especially when common land is used.
Possible advantages:

- consumers can pay **lower prizes** for their food (, fibre...) when buying directly from the farmer
- the farmers might receive **higher revenues** when selling on local markets
- less stages from producer to consumer means less stages where **food waste** can occur
- a closer contact to their consumers could allow farmers to produce more **demand-oriented**
- this could reduce the quantity of wasted food, too

Challenge for urban agriculture

Urban farmers will have to face different challenges. There are currant problems as well as possible conflicts of goals between different de-growth infrastructures in cities, we will have to think about.

- **Soil contamination** with harmful substances like lead and cadmium [4]: They can be absorbed by plants and consumed by humans. Contaminations are caused most often by human activities. If the land has been used or close to high traffic, industrial activity, gas stations, landfills. There are physical and biological remediation techniques, that differ in hight of costs and length of time frame. More research will be necessary.
- The FAO names **health and environmental risks**, like pesticides and raw manure leaking into ground water.[5] When sticking to organic farming methods, we should be able to minimize the use of pesticides.
  To make the **use of manure** more save currant public waste disposal system and waste water cleaning systems have to be developed. The aim of researches should be to enable the recycling and utilization of human manure and organic waste as well to gain fertilizers.
- **depaving areas**[6]: not just for receiving agricultural land but to allow rainwater to drain and nature to grow, which in return will support agriculture as well as human (mental) health.
- **An "optimal" size for urban fields** has to be thought about to match the goal of short distances.
- **Property rights** – the way, they are understood in our society, will have to be discussed: Even if a society accepts the ideas of de-growth and urban farming, still all possible agricultural space – backyards, unpaved land, rooftops... - belong to the state or private persons. How to enable all members of a society equal access to agricultural land?[7] [8]
- **Concerns of vandalism and crime:** integrating the neighbourhood and have a good relationship with neighbours can be a good "protection" of crops

[4] http://louisville.edu/cepm/publications/practice-guides-1/PG25%20-%20Urban%20Agriculture%20-%20Soil%20Contamination.pdf/at_download/file
[5] http://www.fao.org/urban-agriculture/en/
[6] http://www.barcelona.degrowth.org/uploads/media/richard-register-eco-cities_en.pdf
[7] http://www.barcelona.degrowth.org/uploads/media/Alexander_WG4_property_rights.pdf
[8] http://foodsecurity.org/PrimerCFSCUAC.pdf, pp. 14f.

For your own researches, numerous articles in the world wide web can give you a start. Here's a short list of links, I found interesting:

- fiveboroughfarm.org/impact/
- http://phys.org/news/2013-09-urban-agriculture-potential-food-cities.html
- http://unu.edu/publications/articles/japan-s-urban-agriculture-what-does-the-future-hold.html
- http://louisville.edu/cepm/publications/practice-guides-1/PG25%20-%20Urban%20Agriculture%20-%20Soil%20Contamination.pdf/at_download/file
- http://www.barcelona.degrowth.org/uploads/media/Alexander_WG4_property_rights.pdf
- http://foodsecurity.org/PrimerCFSCUAC.pdf
- http://de.slideshare.net/Fawn85w/green-roofs-for-urban-agriculture-university-of-east-london