Urban agriculture

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Urban agriculture is the cultivation (and sometimes the processing and distribution) of food in or near villages, towns and cities.[1] It can also involve animal husbandry, aquaculture, agro-forestry and horticulture.

Contents

Benefits

Plants in the city can

- reduce temperatures (combat the heat island effect) if planted in sufficient

numbers, reducing the need for air conditioning and improving quality of life
- provide fresh produce that potentially requires fewer resources to grow than produce transported from outside the city, and should be much fresher and thus better tasting - especially in the case of highly perishable produce such as salad greens
- improve the appearance and feeling of the surroundings
- provide insulation (in the form of a green roof[W])
- be used indoors as living walls[W] to help cure sick building syndrome (SBS)[W]

The transformation of cities from only consumers of food to generators of agricultural

products contributes to sustainability, improved health and alleviated poverty.

Urban agriculture

- assists to close the open-loop system in urban areas characterized by the importation of food from rural zones and the exportation of waste to regions outside the city or town
- transforms wastewater and organic solid waste into resources for growing agriculture products. The former can be used for irrigation, the latter as fertilizer
- can use vacant urban areas for agriculture production
- conserves other natural resources. The use of wastewater for irrigation increases the availability of freshwater for drinking and household consumption
- can help to preserve bioregional ecologies from being transformed into cropland
- saves energy (energy consumed in transporting food from rural to urban areas, for example)
- promotes local production of food that allows savings in transportation costs, storage and product, resulting in food-cost reduction
- improves the quality of the urban environment through greening and thus reduces pollution

Improving health, urban agriculture

- improves the quality of the urban environment

- is a very efficient tool to fight against hunger and malnutrition, since it facilitates access to food by the impoverished sector of the urban population

It is known that a large part of the people involved in urban agriculture is the urban poor. In developing countries, the majority of urban agricultural production is for self-consumption, with surpluses being sold in the market. According to the Food and Agriculture Organization of the United Nations (FAO), urban poor consumers spend between 60 and 80 percent of their income on food, making them very vulnerable to higher food prices.

Alleviating poverty, urban agriculture

- provides food and creates savings in household expenditure on consumables, thus increasing the amount of income allocated to other uses
- allows surpluses to be sold in local markets, generating more income for the urban poor[2]

Living walls[W] and green roofs[W] are space-efficient ways of bringing plants into the city.

These activities may impact poverty and food security.[3] Urban agriculture contributes to food security and food safety by increasing the amount of food available to people living in cities and by making fresh vegetables, fruits and meat products available to city-dwellers. A common and efficient form of urban agriculture is the biointensive method. Because urban agriculture promotes energy-saving local food production, urban and peri-urban agriculture is generally seen as sustainable practice.

Urban agriculture and education

Urban farms are an effective educational tool to teach children about healthy eating and meaningful physical activity.[4] An example of educational urban agriculture is Full Circle Farm, an eleven-acre farm located on a middle school campus in the heart of Silicon Valley. Like other educational agriculture centers, Full Circle Farm's acreage is used as a "living campus" where students get real-world, hands-on agriculture experiences that cultivate both healthy habits and environmental leadership.

Schools have foreseen the asset of local food production and are beginning to incorporate agricultural sections in their curricula and present it as a career opportunity.

Waste reuse

Urban agriculture helps us to close the loop on waste production and reuse. The production of waste and its reuse in agriculture are brought close together, and the mechanisms for reuse can be very compact and thus suitable for urban environments. Composting, vermicomposting and composting toilets require little space; greywater treatment requires more space but can still be incorporated into a city setting. Sewage treatment (for flush toilets) is most efficiently handled on a larger scale, and where industrial waste is included, the output may not be suitable for agricultural use. However, with appropriate separation and treatment, there is potential for this rich resource to play a role in urban agriculture.

This reuse must be carried out carefully - if proper precautions are not taken, or if they are inadequate and they happen to fail, it can result in the spread of disease. *See* Safety in waste reuse.

See also **No such thing as waste**.

History of urban agriculture

Ancient history

Community wastes were used in ancient Persia to feed urban farming.[5]

In Machu Picchu, water was conserved and reused as part of the stepped architecture of the city.[6]

Modern history

Allotment gardens came up in Germany in the early nineteenth century as a response to poverty and food insecurity.[7]

Victory gardens spread during the world wars in countries including the United States, Canada, the United Kingdom and Australia to reduce pressure on food production and support the war effort.

Community

Urban agriculture can take advantage of community, and in the process, it has the potential to build connections - that is, social capital.

A community garden in Western Sydney, Australia, brought different ethnic groups together to grow particular crops according to their strengths and traditions, and trade with others in the community.[8]Community gardens in most communities are open to the public and provide space for citizens to grow plants for food or recreation. An example of a well-established community garden is Seattle's P-Patch.

Community gardening is a valuable experience for children and can be incorporated into the curriculum of local classes.

The context of modern urban agriculture

- Fifty percent of the world's population lives in cities, and this number is growing.
- Eight-hundred million people are involved in urban agriculture worldwide and contribute to feeding urban residents.[9]
- Low-income city-dwellers spend 40 to 60 percent of their income on food.[10]
- To feed a city of 10 million or more, at least 6,000 tons of food are needed daily.[11]

Cautions

Soil contamination

Soil contamination is a potential problem in urban environments, particularly lead. The soil should be tested; if lead is present, increasing the pH can alleviate the problem. Lead can also be removed through phytoremediation with Indian mustard or spinach.[12]

The importance of local food is often overstated, as the manner of production typically has a greater impact than the manner of transport. This case does not negate the value of growing food locally, but perspective and analysis are essential.

Mosquito-borne disease

The impact of mosquito-borne diseases should be considered:

- Breeding grounds are created through standing water (even tiny amounts of rainwater may be enough for some species, such as the variety that spreads dengue).
- Resting sites for adults may actually be more important than larval habitats.[13]*suggested project.*

See also mosquito control.

Safety in waste reuse

Food safety requires certain measures:

- Both humanure and greywater should be used with caution, or even not used, especially on plants that are eaten raw. Both of these can contain human pathogens. "Night soil," or human waste used historically as fertilizer, is known to cause illness especially among those not accustomed to eating food grown in this way.
- Greywater reuse can be made safer by greywater treatment and by underground irrigation or at least spreading the water by drip irrigation under a layer of mulch. Application of greywater, even treated greywater, may be restricted for a number of weeks prior to harvest. Another option is groundwater recharge, to make use of the soil's microorganisms and natural filtering ability, and increase water availability without applying the greywater too close to the edible plants.
- Humanure from composting toilets is an extremely rich source of soil nutrients and soil microorganisms but must be extremely mature to be safe. Safety can be aided by applying the mature humanure to the empty garden bed first, then applying layers of safer soil and mulch.
- A safer place to use these resources is where the edible parts of the plant are well above the ground - fruit trees or vines on trellises, for example.

It is advisable to take several safety measures to minimize risk.

Movements and forces within urban agriculture

Movements and trends impacting the popular awareness of and interest in urban agriculture include

- the Transition Towns movement
- the popularity of ecovillages
- concern about peak oil
- the local food (or locavore) movement
- increasing interest in fresh vegetables, herbs and fruit for the sake of food quality and health
- modern planning and design initiatives that are more responsive to this model of urban agriculture because they fit within the concept of sustainable design. Frequently, it is tied to policy decisions to build sustainable cities[14]
- the popularity of green parties in some countries, which are more open to the idea of the above concerns and thus to urban food production

The importance of urban agriculture

Economic expansion

Urban agriculture is an industry that responds to the nutritional demands of a city from within that city, with the use and reuse of that city's resources. It provides increased income and employment, producing valuable products that would otherwise not be available, and saving household food dollars that can be used for different kinds of food or non-food items. These benefits are separate from other important benefits such as health, food security and community.

- Urban and peri-urban agriculture expands the economy of the city through the

production, processing, packaging and marketing of food. This expansion creates opportunities in entrepreneurship and employment.[15]
- By increasing supply, food costs are reduced.
- Wider choice and products of better quality can be made available.
- Women have more opportunities to be part of the informal economy of a city. Farming and selling activities can be combined more easily with household tasks and childcare.[16]
- Employment, income and access to food for urban populations contribute to relieving chronic and emergency food insecurity. Chronic food insecurity refers to less affordable food and growing urban poverty, while emergency food insecurity relates to breakdowns in the chain of food distribution. Urban agriculture reverses these insecurities, making food more affordable and providing emergency supplies.[17]

Such practices are widely seen as small-scale and part of the informal economy, but where inadequate, unreliable and irregular access to food is a problem, urban agriculture has been a positive response. Households and small communities use vacant land and contribute not only to their household food needs but also to the needs of their city.[18]

Local food movements provide work, and we could reasonably expect that unemployed populations in large cities and suburban towns would decrease if given opportunities in food production and processing. This is especially attractive in areas with stagnant economies, or that have been negatively affected by industrial outsourcing of jobs.

Some community urban farms are efficient and help women who otherwise find it hard to

get jobs in the formal economy find work.[19] Participation from women has a higher production rate, therefore producing the adequate amount for household consumption while supplying more for market sale.[20]

Energy efficiency of food transport

The current industrial agriculture system leads to high energy costs for food transport. The average conventional produce item travels 2,400 kilometers (1,500 miles).[21] While this cost is often much less than other factors (heated greenhouses and other energy use during production), reducing the food transport energy can be a valuable step toward reducing the ecological footprint of food.

Quality of food

The greater freshness of local food is very appealing, and many prefer the taste of local agricultural products, or organic food. This quality also reduces the need for preservatives and the use of modern varieties that sacrifice taste and quality for transportability.

Specific cities

Experiences and lessons from specific locations are described on separate pages, such as

- Urban agriculture in Beijing, China

- Urban agriculture in California
- Sustainable agriculture in New York City
- Urban agriculture in Shenzhen, China
- Urban agriculture in Cairo, Egypt
- Sustainable agriculture in Cuba
- Urban agriculture in Bangkok, Thailand
- Dr Doshi's space-efficient farming
- Mumbai Port Trust terrace garden

Implementation

Steps to promote urban agriculture include creating

- community gardens that can be shared with a school - in the planning, work and produce.
- highlighted local projects of various kinds, including balcony gardens, "lazy gardens" and edible landscaping.
- a community kitchen to encourage micro food processors.
- regulations to emphasize edible landscaping, requiring it in new building developments.
- educational programs for gardeners and school students -in the community to improve effectiveness as well as encourage people to make a start. Educating

students has an impact on their choices and actions, and also impacts their families.
- collection and reuse systems for stormwater, rainwater and greywater for groundwater recharge and irrigation for edible landscaping.
- space for farmers' markets.

Community centers

Community centers and gardens educate the community to see agriculture as an integral part of urban life. The Florida House Institute for Sustainable Development in Sarasota, Florida, serves as a public community and education center in which innovators with sustainable, energy-saving ideas can implement and test them. Community centers like Florida House provide urban areas with a central location to learn about urban agriculture and to begin to integrate agriculture with the urban lifestyle.

Other examples of community centers are Greensgrow Farm in Philadelphia and Northey Street City Farm in Brisbane, Australia. Greensgrow uses an abandoned site as an urban farm to teach the community how food is grown and how to grow their own food. Northey Street City Farm hosts weekly community activities to educate and involve local residents in agricultural practices.

Community-based models

Creating a community-based infrastructure for urban agriculture means establishing local systems to grow and process food and transfer it from farmer (producer) to consumer.

Some projects have collectively tended community farms on common land, much like eighteenth-century Boston Common.[W] These include the Collingwood Children's Farm[W] in Melbourne, Australia. Other community garden projects use the allotment garden[W] model, in which gardeners care for individual plots in a larger gardening area, often sharing a toolshed and other amenities. Seattle's P-Patch gardens use this model, as did the South Central Farm in Los Angeles. Independent urban gardeners also grow food in individual yards and on roofs. Garden sharing and yard sharing projects seek to pair producers with land - typically, residential yard space. Roof gardens allow for urban-dwellers to maintain green spaces in the city without having to set aside a tract of land.

Food processing on a community level can be achieved by centralizing resources in community toolsheds and processing facilities. The Garden Resource Program Collaborative, Detroit has cluster tool banks - different areas of the city have tool banks where tools, compost, mulch, tomato stakes, seeds, education and other resources can be shared and distributed with the gardeners of that cluster. It also strengthens the gardening community by providing transplants education on gardening, policy and food issues, and by connecting gardeners through workgroups, potlucks, tours, field trips and cluster workdays.

Farmers' markets provide a common land where farmers can sell their product to consumers. Large cities tend to open their farmers' markets on the weekends and one day in the middle of the week. For example, the farmers' market of Boulevard Richard-Lenoir in Paris, France, is open on Sundays and Thursdays. However, to create a consumer dependency on urban agriculture and to introduce local food production as a sustainable career for farmers, markets would have to be open regularly. The Los Angeles

Farmers' Market is open seven days a week and has linked several local grocers together to provide different food products. Its central location in Downtown Los Angeles provides interaction for a diverse group of sellers to serve their customers.

Large-scale intensive farming

Using high-density urban farming, vertical farms or stacked greenhouses, for instance, can achieve many environmental benefits on a citywide scale that would be impossible otherwise. These systems do not only provide food but also produce potable water from wastewater and can recycle organic waste back to energy and nutrients.[22] At the same time, they can reduce food-related transportation to a minimum while providing fresh food for large communities in almost any climate.

Difficulties and issues in urban agriculture

- The use of wastewater for irrigation without careful treatment and monitoring can result in the spread of diseases among the population.
- Cultivation on contaminated land also represents a health hazard for the consumers.
- The practice of cultivating along roadsides facilitates the distribution of products to local markets, but it is also a risky practice since it exposes food to car pollution.
- Agriculture and urbanization are considered to be incompatible activities, competing for the access and use of limited land. In reality, in urban areas there is important available space for agriculture use such as public and private vacant lots, and areas not suited for built-up uses (steep slopes and flood plains).

- Legal restrictions and economic impediments to accessing land and resources (such as reasonably priced water) are among the most common problems confronted by urban agriculture.
- Lack of security of tenure also acts as a preventive for farming due to the uncertainty in the use length of the land.[23]
- Urban agriculture has been criticized by those who believe that industrial farm production can produce food at larger volumes more efficiently.
- A major argument is whether urban farming alone - farming very intensively on small land areas - could replace land-extensive production in rural areas, which produce the bulk of our food products. Yet, hunger persists in both urban and rural areas (*see* food security), despite a subsidized industrial agriculture. The degree to which urban agriculture can address these food needs systemically is undetermined, though there are indications in some communities that it is an important source of food.
- Other opponents argue that localized food production and the introduction of common resources and common lands into the urban areas would produce a tragedy of the commons. Though, as referenced earlier, many urban farms and community gardens are managed privately or through other civil society organizations.

Municipal greening policy goals can pose conflicts. For example, policies promoting urban tree canopy (UTC) are not sympathetic to food-production gardening.

Land access and property rights

As these activities are often conducted on vacant municipal land, there have been rising concerns about the allocation of land and property rights. The International Development

Research Centre (IDRC) and the FAO have published the "Guidelines for Municipal Policymaking on Urban Agriculture" and are working with municipal governments to create successful urban planning policy measures.[24] Including urban agriculture in local plans and as proper land use will continue to help impoverished communities gain a better well-being while fighting urban poverty.

References

1. ↑ Bailkey, M., and J. Nasr. 2000. "From Brownfields to Greenfields: Producing food in North American cities," *Community Food Security News* 6.
2. ↑ Smit, Jack et al. 1992. "Urban agriculture for sustainable cities: Using wastes and idle land and water bodies as resources," *Environment and Urbanization* 4(2): 141-152.
3. ↑ Hampwaye, G., E. Nel, and L. Ingombe. 2009. "The role of urban agriculture in addressing household poverty and food security: The case of Zambia (http://www.gdnet.org/cms.php?id=research_paper_abstract&research_paper_id=15739) ," *GDN Working Paper*.
4. ↑ Lineberger, Sarah E., and J. M. Zajicek. 2000. "Can a hands-on teaching tool affect students' attitudes and behavior regarding fruit and vegetables?" *HortTechnology* 10(3): 593-596.
5. ↑ Vijoen, Andre, et al. 2005, Continuous Productive Urban Landscapes. Architectural Press, Burlington MA 2005
6. ↑ Ibid.
7. ↑ http://www2.gtz.de/Dokumente/oe44/ecosan/nl/en-allotment-gardens-cagayan-de-oro-2005.pdf
8. ↑ I think this was a Sydney Morning Herald article from the late 90s or early 2000s... reference? --Chriswaterguy
9. ↑ UNDP 1996, FAO 1999

10. ↑ IDRC/ UN-HABITAT."Guidelines for Municipal Policymaking on Urban Agriculture" *Urban Agriculture: Land Management and Physical Planning* (2003) 1.3
11. ↑ Drescher et al. 2000. "Urban Food Security: Urban agriculture, a response to crisis?" *UA Magazine* (2000) 1.1 >http://www.ruaf.org/index.php?q=system/files/files/Urban+food+security+-+UA+response+to+crisis.pdf>
12. ↑ Murphy K. (2009). For Urban Gardeners, Lead Is a Concern (http://www.nytimes.com/2009/05/14/garden/14lead.html?pagewanted=1&hpw) . *New York Times*.
13. ↑ Impact of urban agriculture on malaria vectors in Accra, Ghana (http://www.malariajournal.com/content/7/1/151) , *Malaria Journal*, 4 August 2008.
14. ↑ Fraser, Evan D.G., 2002 Urban Ecology in Bangkok Thailand: Community Participation, Urban Agriculture and Forestry, Environments, Vol. 30 no.1, 2002
15. ↑ Jack Smit et al. "Urban Agriculture for Sustainable Cities: Using Wastes and Idle Land and Water Bodies as Resources."
16. ↑ RUAF Foundation (Resources Centres on Urban Agriculture and Food Security). "What is Urban Agriculture?"
17. ↑ FAO (Food and Agriculture Organization of the United Nations). "Urban and Peri-urban Agriculture, Household Food Security and Nutrition."
18. ↑ Drescher et. al. 2000. "Urban Food Security: Urban agriculture, a response to crisis?" UA Magazine(2000) http://www.ruaf.org/index.php?q=system/files/files/Urban+food+security+-+UA+response+to+crisis.pdf>
19. ↑ "Issues in Urban Agriculture" *FAO Spotlight Magazine* January 1999
20. ↑ Mahbuba Kaneez Hasna. IDRC. CFP Report 21: NGO Gender Capacity in Urban Agriculture: Case Studies from Harare (Zimbabwe), Kampala (Uganda), and Accra (Ghana) 1998. <http://www.idrc.ca/fr/ev-2490-201-1-DO_TOPIC.html#gender%20and%20land>
21. ↑ Pirog, R. and A. Benjamin. *"Checking the food odometer: Comparing food miles for local versus conventional produce sales to Iowa institutions"*

(http://www.leopold.iastate.edu/pubs/staff/files/food_travel072103.pdf) , Leopold Center for Sustainable Agriculture, 2003.
22. ↑ Bosschaert, T *"Large Scale Urban agriculture Essay" (http://www.except.nl/consult/largescaleurbanargriculture/largescaleurbanagriculture1.html)* , Except Consultancy, 2007
23. ↑ Ibid.
24. ↑ IDRC/ UN-HABITAT."Guidelines for Municipal Policymaking on Urban Agriculture" Urban Agriculture: Land Management and Physical Planning (2003) 1.3

See also

- Sustainable agriculture
- Ecological sanitation
- Seed balls
- Living wall
- Permaculture
- Rooftop gardens
- Mulch
- Simple living
- Vertical farming
- Category:Urban planning#City-Country Fingers - a "starfish" form, with interlocking fingers of farmland and urban land.

Interwiki links

- Wikipedia:Good Agricultural Practices
- Wikipedia:Community Food Security Coalition

External links

- City Farmer News (http://www.cityfarmer.info/)
- Urban Agriculture Notes (http://www.cityfarmer.org/)
- Farming goes vertical (http://money.cnn.com/2007/09/10/technology/farming_vertical.biz2/index.htm?postversion=2007091105) (September 11, 2007). CNN.com.
- Skyfarming (http://nymag.com/news/features/30020/) (April 2, 2007). New York Magazine.
- Article about Chicago's City Farm (http://www.chitowndailynews.org/Culture/City_Farm_grows_jobs_knowledge_and_t
- Christensen, R. 2007. SPIN-Farming: advancing urban agriculture from pipe dream to populist movement **Sustainability: Science, Practice, & Policy** 3(2):57-60. http://ejournal.nbii.org/archives/vol3iss2/communityessay.christensen.html. Published online August 28, 2007
- Sustain: The alliance for better food and farming (UK) (http://www.sustainweb.org/page.php?id=431) Network for news on urban agriculture projects and research
- Growing Food for London conference (http://www.sustainweb.org/page.php?id=433) Proceedings of the 2008 Growing Food for London conference to tackle urban food security

- Capital Growth (http://www.capitalgrowth.org/) Programme to establish 2,012 new food growing spaces for London (community and commercial) by 2012
- Small, Green, and Good: The Role of Neglected Cities in a Sustainable Future (http://bostonreview.net/BR34.2/tumber.php) , a *Boston Review* article which argues that declining cities can use urban agriculture to provide local food sources
- Vertical Gardens: The Organic Wallpaper (http://www.worldchanging.com/archives/005734.html) - from Worldchanging.com
- Urban Agriculture in the Developing World (http://www.worldchanging.com/archives//004556.html) - from Worldchanging.com
- Upside-down tomato planters (http://www.surprise.com/hobbies_interests/gardener/upsidedown_tomato_garden.c srcLocal=GAWTA&gclid=CJ-E8cn164sCFRK1Ygod0H1zVQ) - commercial site.
- urban permaculture podcast (http://www.richsoil.com/permaculture/72-urban-permaculture-podcast-005/)

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