



ICESD 2012: 5-7 January 2012, Hong Kong

Civic Agriculture: Towards a Local Food Web for Sustainable Urban Development

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Abstract

The past decades have seen an accumulating body of studies assessing the benefits of smaller-scale enterprises on the level of civic and community welfare in the United States and elsewhere. In the context of producing subsistence, agriculture practice is now under a transition from large scale commodity enterprises to small scale self-sustaining civic activities. In practice, recent urban development projects emphasized the production of local food within the urban development site to promote a healthy, ecologically and economically sustainable lifestyle. This is of particular importance to the United States where more than 20 per cent of petroleum consumption goes to food processing and transportation due to the contemporary industrialized agriculture practice. This paper uses a housing development project in the United States to exemplify that civic agriculture can be integrated into urban development in the forms of community supported agriculture (CSA), kitchen gardens, farmer's market, and so on, to create a local food web, which will provide a working farm as a civic amenity on the site, allowing community members the opportunity to interact with each other and with nature, and become actively engaged with the new sustainable ways of living. The study suggests that neighborhoods that embrace a community-based environmental capitalism model of housing development can enhance the level of civic engagement among their residents, contribute to rising levels of civic welfare and socioeconomic well-being, maintain the landscape authenticity, enhance local and regional ecosystem services, reduce carbon footprint, and ultimately, promote long-term sustainability by reconnecting farm, food, and community.

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Selection and/or peer review under responsibility of Asia-Pacific Chemical, Biological & Environmental Engineering Society

Keywords: Community supported agriculture; Urbanization; Housing development; Sustainability

1. Introduction

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It is not uncommon today that one can purchase at his local food market vegetables and fruits that were grown thousands of miles away. The globalization of food production has substantially changed the structure of the food system [1]. Supported by government policy and low transportation costs, food production and distribution systems went through the centralization and integration processes, gaining economics of scale efficiencies, while replacing local and regional food networks with national and international ones [2-3]. As a result, eating locally is no longer an obvious possibility to individuals living in major urban areas [4]. However, the last decades have also witnessed unprecedented critical scrutiny surrounding the nature and development of our contemporary food provision systems, reflecting the overwhelming societal concerns on issues of food safety, increasing hunger and malnourishment, and other public health dimensions of industrialized farming practices which have largely depended on mechanization, fuel, fertilizers and pesticides, resulting in many environmental problems such as deforestation, cropland exploitation, soil and water pollution, and biodiversity loss [1][5-6]. In the global wave of debate of sustainability, local food production has received increasing attention. It has been perceived as a potential solution to problems associated with the globalized food system, and promoted as a strategy to achieve agriculture and urban sustainability by many practitioners and academics [7-10].

1.1. Local food production and foodshed

There are debates around the terms in which “local” is defined. One popular way to delineate “local” is circumscribing a circle of arbitrary radius around a chosen center point. The “100 mile diet” is one such popular definition [1], considering the area of many metropolitan regions in relation to their surrounding rural landscape which is frequently used as agriculture land to produce and supply food for the urban population. United States Department of Agriculture (USDA) uses a 400 mile (644 km) boundary to define local in some of its loan programs [11]. Meanwhile, many counties or states prefer to use the political boundaries to define “local”.

The foodshed is another, less arbitrary, way to discuss local food systems, describing the regional sources and distribution flow of food. The term “foodshed” was coined as early as 1929 [12] but not received much attention only until it was reintroduced by Getz in 1991 [13], when the idea of foodshed immediately triggered a wide range of unexpected insights and evocative associations [4]. A foodshed is the region that produces the food for a particular population. Like its analogue the watershed, the foodshed can serve us as a conceptual and methodological unit of analysis that provides a frame for action as well as thought. Food comes to most of us today through a global food system which is destructive to both natural environment and social communities [4].

In practice, the University of California’s longstanding Sustainable Agriculture Research and Education Program defines local food system as “a collaborative effort to build more locally based, self-reliant food economies - one in which sustainable food production, processing, distribution and consumption is integrated to enhance the economic, environmental and social health of a particular place” [14]. The Urban Design Lab, part of The Earth Institute at Columbia University, is a research group of architects, landscape architects, urban designers and planners, who also have engineering, public health and social expertise. This interdisciplinary group’s projects regarding the foodshed in New York City evaluate the effectiveness of the regional integrated foodshed concept wherein most of the food for a region is provided from a defined geographic area, with particular emphasis on understanding the environmental, economic, health, and infrastructure impacts [15].

While the above-mentioned definitions of foodshed and local food production systems by different people are all different but there is one common ambition in these projects, that is, sustainability. The creation of a sustainable local food system is perceived as not merely a delineated geography or a flow of consumer goods from production to consumption, but rather as natural and social networks formed

through common knowledge and understanding of particular places, embedded in their localities [1]. Local food production is increasingly considered as a sustainable strategy in many urban growth plans by urban designers, city planners, and other governmental decision makers.

1.2. Ecological urbanism

As a critique of the current ongoing increasing (sub)urbanization processes, the theory of ecological urbanism draws from ecology to incubate and inspire an urbanism that is more socially inclusive and environmentally sensitive. Ecological principles are applied in many urban development projects [16-18]. However, our modern cities are generally built as giant machines that consume huge amount resources (input) and generate large amount of waste (output) (Fig. 1). On the contrary, a sustainable city is perceived to be able to keep the urban processes going with less amount of input of resources and less amount of waste production thanks to the recycling of key life-supporting materials within the city [19].

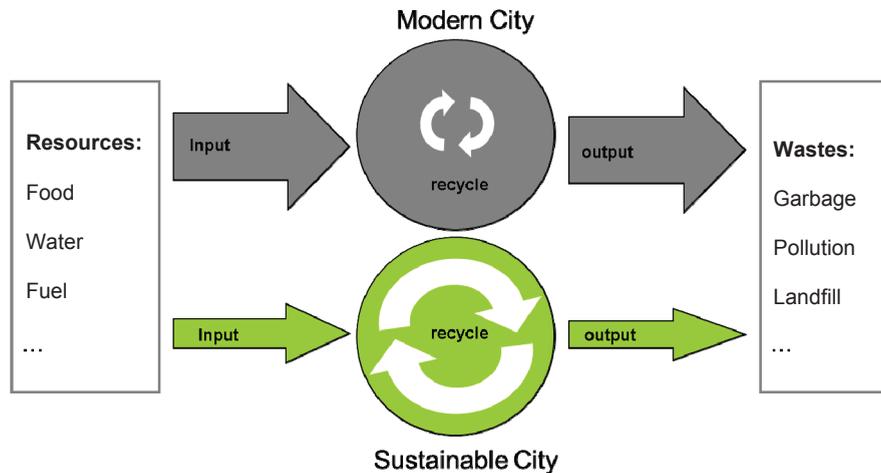


Fig. 1. Recycling of materials in an urban ecosystem reduces resources input and waste output. Modified from Turner [16]

The recycling process within an urban region closes up the loops of energy and material flow and is perceived as one of the underlying ecological principles for the design and planning of sustainable cities. The local food systems can be integrated into broader urban issues to create more environmentally progressive solutions in urban development [20]. In the sections that follow, this paper details how local food production can be linked with both natural and social components to re-construct the relationship between farm, people and community (civic agriculture in these terms), using the case of the Hudson Housing Development project in Montgomery, Alabama.

2. Site Condition of the Case Project

The Hudson housing development project was initiated in 2008 as a response to the booming real estate market in the southeastern U.S. The project site, Hudson Farm, was previously used for agriculture production. Hudson Farm is located on the Black Belt (Fig. 2). Originally the term Black Belt describes the prairies and dark soil strip of central Alabama and northeast Mississippi; however, it has long been used to describe a broad region in the American South characterized by a high percentage of African Americans. It is regarded that the Black Belt covers large areas of Central Georgia, North Florida,

Western Mississippi, South Central Alabama, East Central Louisiana, Eastern North Carolina and Southeastern Virginia. Hudson Farm is right located on this land of cultural and historical significance, to the southeast of Montgomery, the capital city of the state of Alabama (Fig. 2). Chen [20] and Zaslavsky [21] have detailed descriptions of the project site and background.

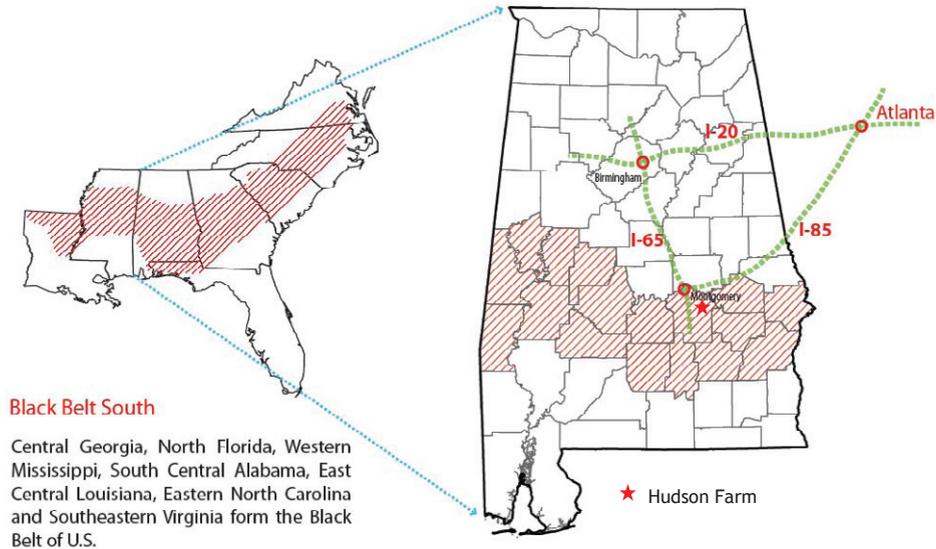


Fig. 2 Location of Hudson Farm and its regional context (Left: The Black Belt; Right: Hudson Farm and the triangular megapolis formed by Montgomery, Birmingham and Atlanta, which are linked by three interstate highways)

The site manifests a strong agrarian landscape in the southeastern states, where the rural or suburban landscape is remarkably characterized by linear strips of hedgerow trees and groves. The hedgerows form a series of network of patches, creating a landscape of low fields surrounded by high vegetal materials. Historically hedgerow's primary function in the landscape is to serve as limits, mark boundaries and borders, and provide products for human in his pursue of food, clothes and shelters. The improvement of the visual quality of the rural landscape is another important function of hedgerow. Many of the functions of hedgerow can be assessed in the relationship of one another [22-23]. Hedgerows are important habitat for wildlife such as bird, mouse, butterfly, etc. Meanwhile, hedgerows functioning as ecological corridors maintain the connectivity of the landscape; thus they are important to protect and improve biodiversity. Taking into consideration their cultural context, hedgerows not only give a strong sense of place in the rural landscape but also invite an intimate emotional association with the American countryside, which provides both a challenge but also an opportunity for designing a place demonstrative of landscape authenticity and cultural uniqueness.

3. Civic Agriculture: Integrating Farm, Food, and Community

The term "civic agriculture" was coined at the 1999 Rural Sociology Society Annual Meeting by Thomas Lyson, Professor of Development Sociology at Cornell University. Lyson argues that a counter trend toward localizing agriculture and food production has appeared in the U.S. against the American food and agriculture system following a decades-old path of industrialization and globalization. Lyson

call this rebirth of locally based agriculture and food production “civic agriculture”, because these activities are tightly linked to a community’s social and economic development. The organizational manifestations of civic agriculture such as farmer’ markets, community garden, and community-supported agriculture are not monitored by most federal or state agencies, so what we know about this new form of agriculture and food production comes mainly from the civic agriculture community itself[24]. However, Lyson ignores the spiritual association with the agrarian landscape of the farmers. The engagement with the vernacular landscape in everyday life, the linkage between indoors and outdoors activities for children and adults can be fostered through the creation of civic agriculture, in which the productive land becomes a civic space for its inhabitants and settlers.

The design of such a civic agriculture community can be considered at three different levels:

Level 1 - comprehensive town planning at the entire site level, where larger patches of land (1-5 acre) suitable for agriculture are identified and preserved, and not be used for residential development (Fig 3). These are relatively larger scale of agriculture operations which could be owned by local business which will provide job opportunities to the local community. Thus at this level it is a semi-commercial and semi-community supported.

Level 2 - Community Supported Agriculture (CSA) at the neighborhood scale (Fig. 4). The Hudson housing development project is divided into 5 neighborhoods; each is within a 15 minutes pedestrian shed [20-21]. At this level, land of about ¼ acre can be identified and further divided into smaller patchworks at about 3 by 4 meters for the nearby residents to grow vegetables.

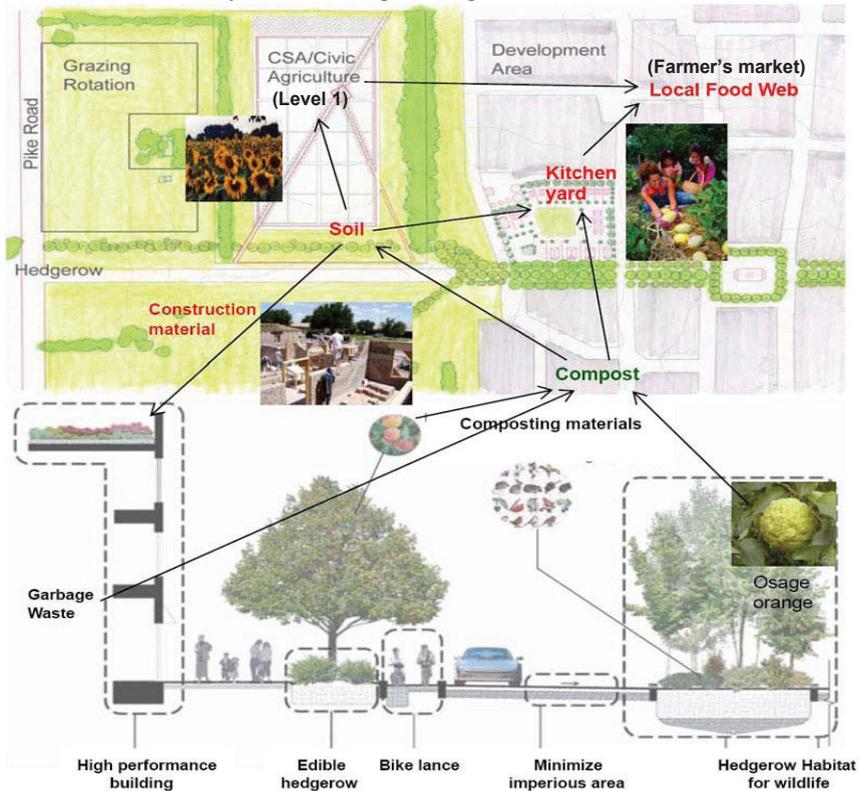


Fig. 3. Civic agriculture and the sustainable design framework integrating composting, earthen construction and local food web

Level 3 – individual household-based kitchen garden or vegetable garden (Fig. 4). It may take forms of roof garden or vertical planting system. At this level, people, aged or young, can enjoy easily accessible and productive outdoor activity. Depending on the uniqueness of each household, such as the topography of each lot, the architectural design, and other taste of its inhabitants, such as the color and smell of plants, kitchen gardens may be integrated into the design of the residential landscape to achieve a sense of tradition, an extension of interior space, and serve as the central feature of an ornamental, all-season landscape. It is ideal to be used as a source of organic and fresh herbs, vegetables and fruits.



Fig. 4. Civic agriculture scheme at neighborhood scale and individual household scale (modified from Shu, 2009)

Van der Ryn and Calthorpe [25] argues in their proposal for the Marin Solar Village in Marin County, California that 30 per cent of fruits and vegetables consumed by the community can be grown by the on-site commercial truck farm and additional home production can increase this figure significantly. In Hudson Farm, a carefully planned crop and vegetable regime integrating the three levels of local food production can similarly provide more enormous amount of food at all seasons thanks to Alabama's humid climate and the fertile blackbelt soil. Furthermore, Fig. 3 provides a more interesting and thorough examination of civic agriculture strategies with other widely-used sustainable or ecological urbanism strategies, such as using locally-available earthen construction materials to reduce the carbon footprint, and harvesting hedgerow fruits for compost (or biofuel) production to improve the soil, which in return benefits the local food systems [20] along with other biodiversity conservation considerations. Civic agriculture is pivotal in the framework for designers to rethink sustainability as well as educate the public for a shift in their attitude perceiving and facing environmental problems as well as looking for systematically innovative solutions. The civic agriculture strategy brings measure of production into the community thus residents can re-achieve a connection to the vital roots of existence in today's denatured technological world. This is important because most people today do not have the ability to control the essentials they need to survive and they are merely powerless fragmented consumers of the products of vast centralized recourse system and unseen networks [25].

4. Conclusion

This study uses the Hudson housing development project to demonstrate how civic agriculture at different scales can be integrated with other sustainable strategies in urban development to achieve more environmentally responsive and progressive outcomes. The productive rural landscape is understood as part of that community; and human activity is shaped to conform to the biological and physical capacity of the landscape. Even these local food systems do not currently represent an economic challenge to the conventional agriculture and food industry, and it is unlikely to pose a challenge in the near future; however, it does include many innovative ways to produce, process, and distribute food. Furthermore, it represents a sustainable alternative to the socially and environmentally destructive contemporary industrialized agricultural practices [4]. Civic agriculture discussed in this paper provides a way to solve the problem by living with the problem - everyday confrontation but also higher degrees of association with the local land system, which is not only used for food production, but also as a way to create jobs, encourage entrepreneurship, and strengthen community identity, as well as provide civic space where people can spend their spare time, socialize, and engage with a more environmentally friendly and healthier lifestyle. Recognizing the ecological and social destructiveness of the globally-based food system, future endeavors to explore the feasibility of more efficient local food systems are urgently needed.

Acknowledgements

This study was generously supported by the Early Career Research Grant from the Faculty of Architecture, Building and Planning and Melbourne Research in the University of Melbourne. Professors Michael Robinson and Jack Williams at Auburn University also offered generous help during my years at Auburn where this study was carried out. Thanks Joao Xavier for his help and company for the field work on Hudson Farm. Special thanks go to Chad Adams, Colin Franklin, and Carol Franklin (Andropogon Associates), Nick Murray, Nick Koncinja and Frost Rollins (Urban Villages, Inc.), Fitz Hudson and Nan Hudson (Hudson Land Development Co. Ltd.), and Victor Dover and Joey Kohl (Dover, Kohl & Partners). Thanks to Professor Richard Sutton at the University of Nebraska-Lincoln for many insightful conversations on hedgerow.

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