

FOOD IN SUSTAINABLE DEVELOPMENT

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ABSTRACT

The concept of sustainable communities in the UK has lead professionals in the built environment to embrace ideas about energy efficiency, waste recycling and water use with direction on these being included in policy documents such as UK Building Regulations. These regulations have begun to impact on designs for new developments within sustainable communities. As yet food, although being identified as a scarce resource in a period of rising population and climate change and despite being a significant contributor to carbon emissions rarely features in government policies or is even considered by built environment professionals in their designs; it still being the assumption that people will buy their food. Drawing on a three year evaluation of Harvest Brighton and Hove a lottery funded project to improve access to local food and embed sustainable food policies within an urban community and following on from a paper presented at Cobra 2010 this paper identifies how the urban food movement is beginning to influence policy makers in Brighton describing the new Planning Advisory Note and other key project outcomes. It provides planners, designers and developers with some innovative ideas about how food can successfully be included within the design processes for buildings and landscaping in the urban realm.

Keywords: built environment, food, innovation, sustainability, urban communities.

INTRODUCTION

The climate change debate combined with rising urban population has hi-lighted the significance and contribution of food miles to the carbon foot-print of cities and urban environments due to dependence on global, rather than local networks for food supply (Deelstra and Girardet, 2008). In addition the contribution that urban agriculture makes to community cohesion and health and well-being is increasingly recognised and bio-diversity of urban form is increased when significant areas of vegetation are added (Jean-Pierre,L 1998). So what are the obstacles facing those who try to embed urban agriculture into our cities? What do Built Environment researchers need to consider to preserve food supplies and biodiversity within the increasing urban sprawl?

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The report from the 3rd (SCAR) European Commission Standing Committee on Agricultural Research Foresight Exercise Feb 2011 concludes with the following relevant main messages:

1. The increasing scarcity of natural resources and destabilisation of environmental systems represents a real threat not only to future food supplies, but to global stability and prosperity.
2. Many of today's food production systems compromise the capacity of the earth to provide food for the future
3. Drastic change is needed in regard to both food demand and supply
4. The average Western diet with high intakes of meat, fat and sugar is a risk for individual health, social systems and the environmental life support systems
5. Coherence between food, energy, environmental and health policies and across all levels of governance are pre-requisites for a timely transition to sustainable and equitable food systems
6. Sufficiently –orientated research, innovation and communication must become the new priority
7. A radical change in food consumption in Europe is unavoidable to meet the challenges of scarcities.

Between now and 2050 a growth in global population and changing diets in emerging countries are expected to bring about a 70% increase in food demand, as an average of all different possible scenarios (Freibauer et al 2011). At the same time depletion of fossil fuels will increase the demand for bio-fuels, natural resources are being depleted and climate change is affecting the global productivity of crops how then can more resilient and sustainable systems feed a global population rising to nine billion people?

To the Built Environment Professional it is interesting to note that against this backdrop of European concern for resource depletion, the new requirements, driven by policy makers for example UK Building Regulations or the Code for sustainable homes (UK department of communities and local government 2006) or BREEAM ratings (BRE) provide a set of sustainable design principles 'rating the whole home' under design categories which fail to recognise food as a scarce natural resource instead they focus on items such as:-

- Energy and CO2 emissions
- Water
- Materials
- Surface water run off
- Waste
- Pollution
- Health and well-being
- Management
- Ecology

Whilst there is consideration of provision for low energy transportation (bicycles) and the opportunity to use private out-door space, and water butts they fail to give consideration to food, accepting the age old belief that people will 'buy' their food but it is time to consider where from and the impact of the importing of food into urban spaces against each of the above criteria.

Within Built Environment research it is clear that with increasing urban populations there is a need to engage in a coherent and innovative debate about food, energy, the environment and health.

This paper looks at the on-going evaluation of a project which has been running in Brighton and Hove to increase the amount of food grown within the city and considers how some of this learning can be translated into more resilient food systems for urban city dwellers.

Incorporated within the project are the following aims:-

- *‘Increasing the amount of food produced locally by increasing the space available to produce food, enabling communities to manage land sustainably and increasing the productivity of the land.*
- *Improving access to local food by increasing opportunities across the city to grow, taste and buy local produce*
- *Increasing Skills and confidence of local people in growing food and*
- *Improving awareness of the benefits of growing, buying and eating local produce across all sections of the community.’*
- *‘Ensuring strategies and guidance that support land use and infrastructure for urban agriculture are developed and implemented within the city and elsewhere’.*

HARVEST BRIGHTON AND HOVE

Harvest Brighton and Hove is a 4 year £0.5M Beacon lottery funded project funded to increase the amount of food produced within the city as a result of global concerns over increasing urbanisation, expanding population and climate change. (Madgwick 2010)

It considers the need to refocus on the use of photosynthetic processes in cities which can provide a host of benefits to urban residents (Deelstra and Girardet 2008) most notably environmental benefits e.g. preserving biodiversity, tackling waste and reducing transport, social benefits e.g. environmental awareness, education and community engagement and financial benefits e.g. supporting local economies in line with localism agenda where food has become a common entry point for consumers to think about the impact of their choices on the local economy.

The evaluation of the first year of an urban growing project (Madgwick 2010) aimed to consider how the project developed in the first year against a set of outcomes identified in the Business plan as above, this current paper considers further the outcomes.

Methodology

GIS is used to record information on a map to indicate the changing position regarding Open Space and its use within the City boundary. Further evaluation of the project which is extensive and broad comprises both quantitative and qualitative tools for project partners and stakeholders in the form of questionnaires, some specifically adapted to capture information which is relevant to the five distinct goals listed above.

Project Outcomes

New growing spaces

There are currently nearly 60 projects identified within the city boundary where food is now being recorded as produced by community groups. These range from small vegetable plots in public parks, to community allotments often being run as community support schemes for individuals who are marginalised, schools and gardens of care homes etc.

Out of the 60 projects identified, the vast majority take place in allotment sites or in gardens of existing properties where service users, vulnerable people, or people with learning difficulties are encouraged to grow to develop social skills and learning, in addition there is a plot where students are carrying out growing, a small orchard which has been planted through local fruit futures and a vegetable garden at a children's centre.

Grow your neighbour's Own

The project has resulted in 27 gardeners gardening 17 gardens in other people's homes. The learning around this project appears to indicate the difficulties in seeking successful matching pairs which is more complex than originally envisaged, this is sometimes due to location, since those home owners with the biggest gardens tend to be outside of the city.

There has been much made of the scheme in the local and national press, yet it appears that it is difficult for people to give up their own garden to complete strangers. This could benefit from further research.

Scrumping project

The on-going picking of fruit trees in public spaces, dilapidated orchards and in private gardens by trained volunteers, who then use the food for education, for re-sale or for turning into chutneys continues. Fruit collected included apples and pears, cherries, cherry plums and walnuts. All of this is undeniably 'local' produce which contributes to healthy eating programmes through-out the city.

The weight of fruit in total collected in the second year was 3000 k; and this continues to grow; lack of volunteers being the limitation in expansion as more trees are already identified for the on-going continuity of the project.

A new direction for the project; given that financial sustainability is part of its core driver may be to consider picking from those trees with the greatest yield.

This project serves to illustrate the part which trees can play in feeding urban populations since trees are often part of new developments in towns. It is well established that municipal authorities in the UK provide staff to take care of the their parks and gardens, maybe taking care of the fruit and nut trees within our city boundaries is a future requirement. The project has been able to secure some premises within a local park with direct access onto the South Downs, when fresh juice has been sold at these premises, for example on summer weekends this has proved popular with cyclists and walkers this leads to more sales and less pasteurisation required. This builds on other research (Madgwick, Ravenscroft 2011) which determines that local food becomes more attractive when located in a position which is conducive to its consumption.

Allotments

Allotments are generally better used around the city and when new ones have become available a number of them have been given to community groups which have

essentially increased their production. Brighton and Hove now has 36 sites with 2,800 tenants.

In addition learner plots have been created, which are small plots to enable people to learn to grow on. With on-going support from the Local Authority another 100 new allotment plots have been created in the city and most redundant plots have been brought back into use.

The plots are being inspected regularly to increase food production and the local authority is working on provision of adequate water supplies to new and existing plots.

Breaking new ground

Much time has so far been invested in supporting local projects to set up new growing spaces. As identified in 3.1 a number of derelict plots of land have been resurrected as growing plots.

New projects are springing up over the City where the motivation is individuals and groups wanting to produce food. One example is a group of residents living near a station which approached Southern Rail about growing food in some of the neglected spaces around the station and along the railway line.

In addition, support is being given to a group of tenants who wish to set up a 'patchwork garden' around the base of their tower blocks. Ecological impact and social impact will be interesting to note.

Training programmes and communications

The Team at Harvest excel in promoting training events. Some are held in-house and others take place in the established community gardens around the city There are up to 20 events taking place within the city every month, though it is hard to evaluate the impact of these courses, particularly in any long term way.

In excess of 100 further people have attended courses. Everybody who attended the courses stated that they were more confident growing food. One stated that they had 'renewed enthusiasm for growing vegetables' another stated that they would put their name on the allotment list and start growing on their balcony.

In addition training courses have been held on bee keeping and bio-diversity. The web site hits continue to increase and media interest in Harvest continues from both local and national press and television.

The small grants scheme

Applications were received from 50 groups. Harvest have been able to fund 34 projects in schools and communities 20 of them encouraging participants to eat more local food and grow more of their own. The other 14 projects focus on improving cookery skills and increasing healthy eating

Local food events

There have been a number of local food events held around the city. The local food week in September has become a success with around 20 businesses taking part and demonstrating creative ways of growing vegetables in urban spaces and a local food picnic being held in a park. In addition events continue at a rate of around 10 per month such as:

- Seedy Sunday where seeds are brought and sold
- Cook ability

- Container gardening
- Seed-bomb workshops

Brighton, with the only green MP in the House of Common makes much of its local food culture and restaurants and fairs advertise their connections to the local food agenda.

Demonstration garden

The demonstration garden has doubled in size after discussions with the Local Authority. New volunteers have offered support and the garden provides invaluable advice to members of the public around growing in small urban spaces.

A regular blog keeps people informed of developments in the garden suggesting what to sow and when and it is assumed that this is copied in various gardens around the city.

The demonstration garden produces a wonderful marketing opportunity for harvest and has provided inspiration for work in other parks around the city which have set up similar schemes, pumpkin patches and herb beds etc.

In addition, it is hoped that it has influenced people to start growing within their own back.

Community composting

Through a community association there has been established two locations where around 45 house-holds compost their un-cooked vegetable, fruit waste, tea bags and coffee grounds. It has been estimated that this saves 3 tonnes of organic waste from landfill per year.

INFLUENCING POLICY

Since one of the aims of the project were to ensure strategies and guidance that support land use and infrastructure for urban agriculture are implemented within the city and elsewhere, there was a discussion held with city planners around how the project could best be used to influence policy. As result of this there was a suggestion that a Planning Advisory note (PAN) could be drawn up, this would provide some basic technical considerations as well as offer inspiration on how food may be incorporated into new proposals. Consultation was sought from groups representing the following: Allotments, Ecology, Arbiculture, Environmental Health, Healthy Urban Environment Group, Housing Development and Economic Development. As a result of this and out-comes of the project to date a draft was drawn up which was adopted by the local authority in September 2011. The PAN is the first of its kind nationally and is designed to be an innovative model that other Local Planning Authorities might adopt.

Planning Advice Note

The Planning Advice Note applies to new build commercial, residential and mixed use developments and it is intended to be used as a guide to what is achievable depending on the context of the development.

Technical and Practical Considerations

It was agreed that the initial considerations should be of the following:

- Land:

- Use of building
- Aspect and light:.
- Water:
- Wind:
- Soil/growing medium:
- Compost:
- Contaminated Land:.
- Access:
- Storage:
- Management:

Planning and Design Regulations

Depending on these practical and technical considerations there are several design options which are referred to:-

- **Rooftops**
Intensive accessible green roofs can be used for edible plants subject to adequate design for loading capacity.
- **Balconies**
Design of balconies can provide small spaces for individuals to grow a limited selection of plants and are particularly suited to high density residential developments. It is critical to consider aspect.
- **Walls**
Vertical growing on external and internal walls, the latter usually in atriums or courtyards, can be adapted for food production. Maintenance of productive green walls is high, as they will require harvesting and seasonal replanting, and therefore will need to be accessible.
- **Internal atriums/courtyards**
Designing buildings with atriums or courtyards with adequate exposure to sunlight can create deliberate opportunities for food growing allowing high value tender plants such as tomatoes and citrus fruits to be cultivated. Ground level beds or planters can be used, as well as living walls. Care must be given in internal spaces to providing irrigation systems and allowing for water run-off.
- **External landscaping and integrating ornamental with edible planting**
Depending on the land available around the building or on the site various options are available. Cropping can be integrated within areas of soft landscaping with a minimum cost outlay.

It is still early to comment on how the plan has been received by local developers and whether it is likely to be implemented by other authorities. Results may be small scale: the provision of allotment space within residential developments; landscaping with edible plants; planting fruit trees in place of non productive varieties.

CONCLUSION

There is still much to do learn regarding embedding sustainable food consumption within the city in its wider context but there are certain things which are beginning to happen :-

An urban growing programme such as harvest can start to make better use of some of the land in urban areas if food is seen as a priority. In Brighton, much of this land to

date has been local authority land and existing gardens but with increased research and innovation and using the Planning Advisory Note there is the as yet unexplored potential to develop this to private or commercial land and buildings. In addition the community composting scheme provides invaluable resources from existing city dwellers to ensure nutrients are fed back into the land and thereby continue to make it rich and fertile and Seedy Sundays encourage the swapping of seeds

The development of resilient new food systems in the city may add to its productivity. In reducing transport and packaging costs the growing of food within the city may help to conserve the fossil fuels.

With its wide remit for education, harvest has not only tried to teach people to be better at growing but additionally encourage people to eat more healthily and respect biodiversity, it aims to add to, not replace an existing agricultural supply of food currently delivered to the city and can therefore assist in the increased demand which comes from the rising population.

The Harvest project works with schools providing education on growing and on healthy foods, individual projects such as the scrumping project, regularly presses fruit at schools to demonstrate to children the pleasures of drinking fresh juice without additives. The wide extent of new community allotments encourage people to become more active and lead healthier life styles, the more people engaging in growing the more opportunities to cook from fresh and to understand fully the implications of eating high levels of meat, fat and sugar.

Coherence between food, energy, environmental and health policies sits at the very heart of the project and policy influencing is a key out-put being achieved by academic evaluation critical appraisal and understanding of the key drivers behind the project.

Certain plants which can be grown in cities may well become established as local products whilst it is still accepted that vast amounts of food will still be brought in to the city. Harvest produces via its web site a central place to co-ordinate activities regarding local food. In addition, increasing green roofs, balconies and green walls and creating green pathways through cities can increase bio-diversity.

This paper aims to encourage researchers in the Built Environment to critically evaluate existing literature and ideas on 'sustainable communities' so that this research can be extended to contribute to the developing urban form.

A radical change in food consumption in Europe is unavoidable to meet the challenges of scarcities Consumption and production is at the heart of Harvest Brighton and Hove in both the production of new food systems and the education of the wider community.

To add to this; one of the challenges facing the Built Environment professional is to try to engage others in the notion that food as a scarce recourse needs to be considered along with water and energy in design codes for new developments if we are to be able to feed the growing urban population over the next 30 years.

REFERENCES

Brighton and Hove City Council (2011) PAN 06 *Food Growing and Development Planning Advice Note*

Deelstra, T and Girardet H (2008) Urban agriculture and Sustainable cities. *Thematic Paper, Leusden : Resource Centre on Urban agriculture and Forestry.*

- Department for Communities and Local Government (2008) *The Code for Sustainable homes-Setting the standard in sustainability for new homes.*
- Freibauer,F et al ‘Sustainable food consumption and production in a resource-constrained world’ *European commission-standing committee on agricultural research (SCAR) The 3rd SCAR Foresight exercise.*
- Food Matters (2011) Brighton and Hove CSA: Feasibility Study
- Jones,J Comfort,D 2004 ‘A case study of local food and its route to market in the UK’ *British Food Journal* Vol 106 No.4 pp 328-335
- Jean-Pierre,L et al 1998 ‘Biodiversity concepts and urban ecosystems’ *Landscape and urban planning* 48 pp131-142
- Madgwick D (2010) Harvest Brighton and Hove: *Evaluation of the first year of an urban growing project* COBRA Paris Sept 2-6 2010
- Madgwick, D. and Ravenscroft, N (2011) ‘What’s local?’ Access to fresh food for older people *Local Economy*, 26 . pp. 122-133. ISSN 0269-094