architecture sans frontières UNITED KINGDOM

Report compiled by Sarah Ernst & Caroline Dewast

ASF-UK SUMMER SCHOOL WORKSHOP '09

Architecture Sans Frontières - UK's primary objective is to make global agenda issues, in particular those impacting on disadvantaged and vulnerable people, integral to the practice and teaching of architecture. Through workshops organised around grass roots activities and lecture programmes, ASF-UK promoted ethical practice, particularly in poverty habitats.

ASF-UK 's 5th annual summer school 'Edible Places: Agriculture, cities and development' took place at the Eden Project from the 29th of August to the 3rd of September 2009, and looked at urban agriculture and the built environment.

We believe that building professionals have invaluable knowledge to contribute in the international development arena. By raising awareness and supporting networks with local partners, in the UK and abroad, we aim to foster conditions in which individuals and organisations can be more effective, appropriate and meaningful.
ASF-UK is teaching these skills through a programme of international workshops, events and publications.

This workshop has been organised and facilitated by Melissa Kinnear, Sarah Ernst, Caroline Dewast, Mina Simagooei and Peter Newton.

CONTENT

DAY ONE

Friday 28th of August

Welcome at the Summer School Workshop

HOWARD JONES
EDEN PROJECT

Howard Jones, a director at the Eden Project kicked of the Edible Places Summer School 2009 with a warm welcome to participants and the ASF-UK team.

'This is a great piece of work, and I take my hat off to what is achieved each year'

Howard explained the significance of the Eden Project's relationship with ASF-UK, and how it ties in closely to their guiding principles of education and regeneration. Eden is not just about plants, but people – and works to raise awareness about the challenges that face human kind. Although a relatively small organisation, through partnerships with organisations like ASF-UK they can reach a wider audience and work to include the marginalised and disadvantaged sectors of our community.

Tour of the Eden Project by Mark Paterson & Karen Dawkins

DAY TWO

Saturday 29th of August

CAROLYN STEEL

HUNGRY CITY

Carolyn Steel took the participants on a journey; exploring the relationship between food and cities, starting with a historical perspective to explain how we have arrived at where we are today – and how food is missing from the current debate about cities.

Through a range of powerful images Carolyn highlighted the current reality of brutalised landscapes to support ever growing cities. She explained the evolving perspectives on the natural environment – from a fanaticised hinterland in the holy city of Rome to the beginnings of efficiency in farming and monoculture in the early 19th century. The images portrayed the dichotomy between fantasy and reality – the idealism and detachment of city dwellers.

As agricultural processes became more industrial, the early mechanised processes brought with them ruthless efficiency. Carolyn used meat production and consumption as an example of this growing efficiency where every part of the animal was rendered useful. This period brought an increase in consumption and a reduction in cost.

"19m hectares of rain forest **lost every year"**

"20m hectares of existing arable land degraded **every year"**

"every calorie of food takes 10 to produce **WE ARE EATING OIL"**

"half the **food produced** in the USA **is wasted** (this is 1/3 in the UK)"

Transportation of food

Carolyn then took the group on a brief detour to the very beginning – and the development of the 'fertile crescent' (Egypt, Jordan and Turkey) 10,000 years ago when the ice age receded. The food crisis generated by the melting of ice forced the people to look to grasses as a possible food source. Early trade routes were established in order to feed the growing cities. Rome discovered that transporting by sea was easier than by land and Sicily and later Egypt became the bread bowl of Rome. 13th century London had the benefit of being able to sail grain into the city from grain markets in the Midlands, and Hertfordshire. The City of London structured itself around the arrival of food into the city and the distribution of food in markets. Markets selling food were also important public spaces and areas for congregation and celebration and agrarian seasons dictated periods of carnival.

Carolyn explained that the arrival of the first railways in 1840 liberated the city from its geography. Cities grew and by the 1930s, landscapes were organised by rail and car. The scale of supply and demand saw the beginning of monoculture and the increase in severity of droughts, such as the catastrophic incident in the 1930s.

"a billion people worldwide are **obese**, while a **BILLION PEOPLE STARVE"**

Monopolies and waste

By 1960 the 1st shopping mall opened in America and food distribution centres soon followed with computers replacing people. Carolyn illustrated that we now live in a reality where monopolies control food production and 80% of grain is controlled by 3 companies and there are just 3 days of fresh food in the country. The more we eat the more we waste, and different cities need to develop strategies for tackling this growing problem. She used Dubai as an example where there is no ecological framework, and where the sleek city creates an illusion of a place with no waste, but in reality landfill lorries remove all waste from the city and dump it out of sight.

A way forward

Carolyn introduced the concept of 'sitopia' (from the greek sitos = food, topos = place) as a reaction to Thomas More's 'utopia'. In order to achieve this alternative vision we need to look at a range of solutions, and explore sensible ways of how to feed cities. This will involve getting less and less further from a field and aiming towards 80% self efficiency and only 20% imports. This will be essential as we pass the point of peak oil and move towards dwindling oil supplies. Previous crises and war have made populations more resourceful as food becomes more important. The Dig for Victory campaign during World War II and the Permaculture movement in Cuba in the 1990s are good examples of this.

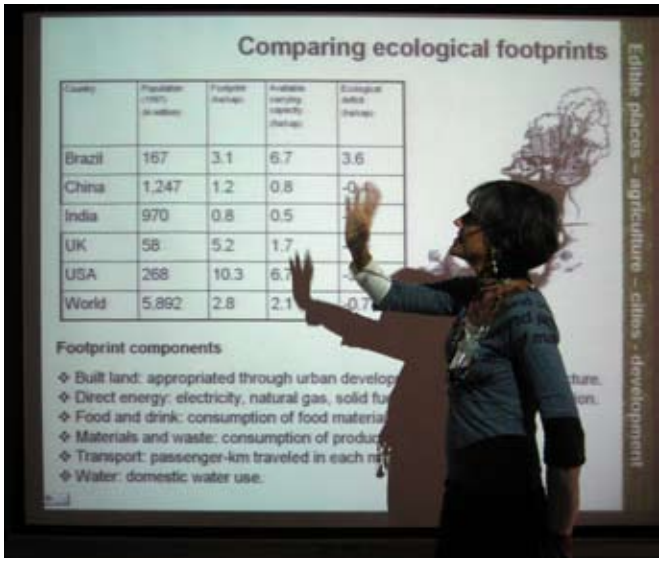
Carolyn brought her stimulating lecture to an end with a look to the future. What will happen when the shanty towns of today become tomorrow's cities? How will their infrastructures develop to serve their needs? She suggested that high tech and low tech solutions needed to be considered. High tech solutions are sometimes necessary but we can learn a lot from how things were done in the past.

It is crucial that we see cities in relation to their hinterland, rethink cities and farming and remember that we are what we eat.

ADRIANA ALLEN

AGRICULTURE, CITIES, DEVELOPMENT: THE HIDDEN LINKS

Adriana began her talk by introducing 5 key areas to consider when discussing agriculture, cities and development. They included rapid urbanisation, urban primacy, social inequality, urbanisation of poverty and living between two worlds.



She drew the group's attention to the reality of the current climate – with 2.3 billion people already constituting the urban population, and a predicted 5 billion by 2050. This astonishing rate of growth puts pressure on land and accommodation to cope with the numbers, is changing the rural/urban interface and is creating increased social inequality. Adriana highlighted the plight of those citizens who are part of the 'informal city' with precarious rights, and vulnerable to forced evictions, relocation and extreme poverty. 60-70million people are expected to be victims of eviction between 2000 and 2020.

Cities and the environment

Adriana then moved on to explore some of the environmental implications of cities growing at such a pace. From 1990 onwards we have been exceeding the carrying capacity of the land and living on the basis of nature's capital and not her interests. She referred to the methods for calculating the ecological footprint of a place or individual, and explained how while cities only occupy 2% of the 11 billion hectares of the earth bio-productive land they produce 75% of the worlds waste. Cities are gluttonous – benefiting at the expense of others from cheap food and draining precious resources such as water.

Cities in the global south however are more prone to feeling the impact of the rising sea levels, connected to the growing emissions in the north and so-called 'developed nations'. Out of the 3351 cities vulnerable to rising sea levels 60% are located in the developing south and 30% in Asia alone. And to compound the issue, low-elevation coastal zones have high urban populations.

Adriana explained that the distance consumers have from producers hides the very social relations and environmental impact that make food production possible (Eden, 2007). Not only are we disconnected from where and how the food is produced, but most wealth generated by the food sector in the north is in value-added in the North and will not benefit the producer at all.

Built in resilience in Dhaka: Urban grassroots

Adriana then used Korail, in Bangladesh as a case study to illustrate the challenges of population growth. With over 100,000 on 90 acres of government land, Korail is considered to be one of the largest slums in the world. It is very vulnerable to flooding and experienced major floods in 1988, 1998 and 2004. Korail is not necessarily the poorest slum in the world with most inhabitants self-employed or in service jobs.

She introduced some of the ways in which people currently adapt to and cope with the challenging environment that they find themselves in. Building on the water, on stilts with high level storage is one of the main trends, with natural ventilation, canopies under the roof and rain gutters where possible. 50% of households are now members of saving groups and inhabitants have looked to diversify income sources to improve their economic security. Research has shown that around 37% of people are part of some form of social network, whether this is through community groups, religious networks or other associations. There is also evidence of an accumulation of assets in some form or another – for example, saleable household assets, building materials and investment in children's education.

Adriana explained that conditions change overnight regarding land ownership and the challenge is how to make the most vulnerable groups resilient in a climate of high uncertainty.

Why urban agriculture?

Adriana suggested that urban agriculture can provide opportunities to build resilience of vulnerable communities. Urban agriculture could assist in satisfying hunger, supplement family income, supplement an otherwise excessively starchy diet and reduce expenditure on food. At the same time this kind of activity will bring with it livelihood opportunities, and up to a 1/3 of families in the global south are engaged in agriculture. In Dar es Salam, for example, urban farming is the second largest employer. Food security and self reliance are also added benefits.

The environmental benefits of food production in urban areas are many – ranging from an increase in green areas, enhanced biodiversity, reduction in CO2, packaging waste, energy and chemical load in food stuff. It enables the continued production of fruits and vegetables displaced by uniform commercial production and international marketing.

The socio-economic, cultural and political benefits are also significant; lowering operating costs to farmers and food prices to consumers, creating new business and employment opportunities, as well as benefits to health recreation and education. This kind of activity also offers opportunity for renewal of communal urban life.

Resilient cities: away with the grey

The final part of Adriana's talk brought together a series of positive examples of where cities have succeeded in developing a green urban vision. Cities, such as Curitiba in Brazil where the population has grown from 600,000 people to 2.5 million over 20 years, has succeeded in increasing green spaces from 5 to 50sqm per person at the same time. Other cities have developed local food initiatives, climate mitigation and adaptation strategies and awards to celebrate the best urban agriculture.

In London's Capital Growth Programme, 2012 pieces of land were identified to be transformed into green space to grow food by 2012 as part of the Climate Change Action Plan. Adriana showed the example of a study in Elephant and Castle in London where 21 hectares of grass and public space were identified. If just 27% of this available land was made productive 26% of vegetables for locally consumed could be locally produced. This small step would remove 162 tonnes of CO2 emissions from the current food distribution system.

So there is a huge amount of potential for cities across the world to become more productive and less dependent on food travelling vast distances to reach the dinner table. This step has immediate positive implications for both developing and developed nations, in terms of environmental, social and psychological change.

NADIA HILLMAN

GROFUN

Nadia introduced herself and gave a personal context to her work at Gro-fun. She was inspired to set up Gro-fun in Bristol after taking a course in 'Permaculture and Practical Sustainability' in a small Irish village called Kinsale. Kinsale was the first 'transition town' – a town taking positive steps to address climate change and peak oil in relation to their community.

The course inspired her to think more about food security, the degradation of cities and community spirit, and the accessibility of good, fresh food. She was keen to see what she could do on a local level, and set up GROFUN (Growing Real Organic Food in Urban Neighbourhoods) to help people get started growing food in their gardens and then share in the produce. It seemed to Nadia a potential way to bring people of all ages together to learn new skills. The project had the potential to trigger a wider range of positive impacts too – from valuable life skills to biodiversity, horticulture therapy (mind, body and soul), control and pride, shortening food chain, and fostering closed loop systems.

GROFUN started in Bristol in 2006, showing some films in the community, talking to local people on the doorstep and holding a public meeting for interested people. In the first year they spent 8 days making over gardens ready to be planted and shared meals and experiences. In the second year they worked on 9 garden makeovers, and got involved in a 'learning by growing' programme in schools in Bristol.

With the model being adopted in Birmingham in 2009, by Alys Fowler, one of the programme's presenters, they have received recognition in newspapers and on 'Gardener's World'. Nadia explained that they are now trying to formalise some of their work to form a business development plan to use for funding. Their main challenges are keeping people engaged and getting people to buy-in to the idea of 'give and take' and skills exchange. More groups are keen to follow in the footsteps of GROFUN in other parts of the UK to bring communities together through the process of growing, sharing and eating food.

DAY THREE

Sunday 30th of August

HOWARD JONES

EDEN'S OUTREACH WORK AND RELATIONSHIP WITH ASF-UK

Howard Jones joined the group again to give a more detailed background to the establishment of the Eden Project, and the range of outreach work they have been involved in and the ongoing relationship with ASF-UK.

The Eden Project was the vision of Tim Smit and others to regenerate the post industrial economy of Cornwall. Since mining had left the area, and vegetable production and fishing were greatly reduced, tourism was the main source of revenue left. Through a combination of European funding and millennium projects match funding, £150 million has been invested in their vision. Howard explained that the project team have had to deal with a high water table through pumping out of water, and have installed grey water recycling. Howard explained that there had not been enough forward thinking about renewable energy, the gas and biomas boiler is not working as fully as intended. Geothermal technology is now being revisited.

Howard talked through some of the projects that Eden has initiated under their remit of public education. They have engaged with ex-offenders at the HMP Dartmoor Resettlement Unit and together designed and built productive walled gardens – and helped to set up a vegetable box delivery service to elderly and poor families in the community. They have also helped to establish CISCO web education in hostels and prisons.

The Eden Project, ASF-UK, the Homes and Communities Agency, Communities and Local Government and Homeless Link together worked on a show garden for the Royal Horticultural Chelsea Flower Show in 2009. The garden and pavilion did the unexpected – involving over 200 prisoners, homeless people and people at risk. The project highlighted the work of Places of Change, an £80m capital improvement funding programme managed by the Homes and Communities Agency which seeks to improve services for people who are homeless.

Poets, artists, gardeners and craft workers around the country who have been or remain homeless all helped in creating a place of hope, aspiration and community within a garden whose main theme is homelessness, as part of 'The Key' show garden design at Chelsea. Through the Koestler Trust, an arts organisation working with vulnerable people, an artist and art thief created a piece of artwork expressing a personal life journey of offending, homelessness and redemption. Waste materials were transformed by people who have themselves experienced social exclusion through homelessness and who are now being trained at St Edmunds Society in Norwich and Noah Enterprise Centre in Luton.

The garden was awarded a silver medal and came 3rd in the people's choice award. Next year the Eden Project has been asked to undertake the biggest ever show garden at Chelsea and plan to focus on skills and employability.

Howard explained that the theme of this year's summer school is very close to his heart –in particular the challenge of engaging with all aspects of horticulture in a human way, and looking at how architecture and engineering play a part. Howard suggested that the group learn from the lessons of the green wall developed at Chelsea and develop innovative solutions to encourage people to grow edible walls and roofs in urban areas.

JODIE GILES

GROWING FOR LIFE

'A great day out' is a project part of the 'Growing for Life' Programme to give prisoners, homeless and excluded children a day out at Eden. Eden are keen to be open about issues such as homelessness and drug addiction and have a 'Through the gates' opportunity for ex-offenders to develop skills, education and employment potential when they leave prison to stop them falling into re-offending.

Jodie took the group on a walk similar to the kind she does

with her groups on the 'A great day out' programme. She showed the group the community allotments, discussed strategies for dealing with pests and getting the most out of the growing experience. Back in the classroom she

gave participants the opportunity to have a go at planting some seeds in different recycled containers and answered questions on different strategies for urban agriculture.

SARAH ERNST & MELISSA KINNEAR

GROWING A COMMUNITY

Sarah Ernst led a series of activities looking at the notion of home and community and how we engage with the communities that we live in. Through participatory tools the group explored the potential barriers preventing their green roof and walls concepts from taking off, and the tactics for overcoming these. They then trialled methods for prioritizing tactics, and thought about potential action plans to scale up successfully.

The first exercise 'My house' was an individual exercise to draw one's house. This activity enabled a discussion to then take place about what people drew, what they left out and the contrasts between drawing styles.

Sarah explained that the next tool 'Bricks and Hammers' was a good participatory tool to work out solutions to problems and a useful tool to move people from problems to solutions. (tool adapted from reach ability)

Pairwise ranking was then used as a tool for prioritising the potential solutions for making the green roofs and walls a

success. Sarah explained that it is a structured way of voting among options, as one choice is compared to another in a systematic way. It is useful when a series of options need to be prioritised. Once each option is compared against all the others, the scores are added to give the ranking.

The session was concluded with an evaluation of the tools used and a brief introduction to other potential tools for establishing and prioritising problems and developing plans to take potential solutions forward.

DAY FOUR, FIVE

& SIX

Monday 31st of August

SARAH ERNST

AN INTRODUCTION TO GREEN ROOFS: PAST, PRESENT AND FUTURE.

Sarah started her presentation with a quick introduction to the concept of green roofs. She explained that a green roof was any roof with plants growing on its surface, from small plants to a roof garden. Green roofs vary from Intensive; roof gardens, like a garden –with thick soil, substrate and artificial irrigation to extensive; less maintenance, minimal modification, and no artificial irrigation.

Through a series of images Sarah illustrated a mini history of green roofs from the hanging gardens of Babylon (500 BC) to Viking settlements in Newfoundland. In Scandinavia and Newfoundland green sod roofs were used to improve insulation and this is still apparent in the Faroe Islands. Although people created roofs to save energy – the concepts of sustainability and energy efficiency were only coined in the 20th Century.

Green roofs took off in the 1980s and 1990s in and around London when architecture practices, such as Architype, associated with the Walter Seagal Trust, began to receive commissions for green roofs. The architects had adopted the philosophy of 'footprint replacement' first introduced by Malcolm Wells the American Advocate of earth sheltered building.

Sarah outlined the following as positive outcomes of green roofs:

- Visually attractive with a range of flower and foliage effects.
- Low maintenance with little or no artificial irrigation requirement.
- Improved rainwater management. Volume and rate of rainwater run off from the roof is reduced dramatically.
- Improved building thermal performance. The building is insulated from heat loss in the winter and heat gain in the summer.
- Reduction in sound transmission through the roof.
- Improvement of air quality by removal of carbon dioxide, release of oxygen and water vapour, deposition of particulate pollutants, and absorption of organic volatiles.
- Reduction of the "urban heat island effect".
- Provision of habitat for wildlife

Sarah explained the difference between sedum roofs, which are plug-planted succulents with a fully established root system used for visual impact, and bio-diverse roofs which use local plants and alpines with locally sourced growing materials and talked through the basic construction of both types of roof.
Now that green roofs have become more popular there is potential to take the concept in new directions. Sarah

showed some examples of green roofs that connect with their surrounding landscape, that use a variety of larger varieties of plants and that have edible roof gardens.

She showed one example of a company called Rooftop farms, started in December 2008, by a couple who were running a green roof business. They approached an owner of some warehouses in Greenpoint, Brooklyn with the idea of farming on her rooftops. They got advice from someone from the Botanical gardens in NY and an engineer to sign off the weight-bearing limit for the roofs. With a special light soil mix, beds irrigated by rain, an army of volunteers have planted corn, salad greens, radishes, herbs, nasturtiums, and peppers, to name a few. Local restaurants give scraps for compost and are starting to buy the produce.

In conclusion, Sarah said that as green roofs become steadily more popular, people are experimenting with new directions to make them more productive, effective and efficient. It is only a matter of time before the enthusiasm for green roofs is mirrored in that for green walls.

CAROLINE DEWAST & MINA SIMANGOOEI

GREEN WALLS

Caroline Dewast and Mina Simangooei presented some historical and contemporary green wall systems focusing on lessons learnt from contemporary systems and suggesting ideas for low maintenance systems. The talk served as inspiration before the participants got stuck into their wall and roof system designs and gave an opportunity for questions to be asked and common concerns discussed.

Caroline introduced some historical examples of green walls and explained that traditionally green walls have naturally occurred as a result of climbing plants. These were sustained for aesthetic reasons but also had cooling benefits in some climates. She showed the example of Wisteria on a college in Oxford growing in ground level soil irrigated by rain and maintained by seasonal pruning. She also showed other examples of vines and pear trees requiring similar maintenance.
Today green walls are used for a variety of reasons. They are sometimes part of an aesthetic strategy for a building or a desire to reconnect with nature. Or they are used as educational, to raise awareness about environmental issues and have a positive impact on the internal and external environment of the building (by assisting sustainable urban drainage systems, enhancing biodiversity, purifying air, acting as Insulation).

A contemporary example of a green wall is Paradise Park Children's Centre in London by DSDHA. Here the growing medium is soil in panels with irrigation through pipe work in the panels. Nutrients are added to the water and electricity is needed to run the irrigation pumps. The maintenance needed is high although the accessibility needed is low. Mina explained that it is really important to learn from existing examples and in particular where things have not turned out as expected. This example has most of the benefits of a green wall, but needs energy and maintenance to survive. The pump system has proved complicated to maintain and the water does not distribute evenly. Unfortunately rainwater is not utilised and the water and nutrient drain away at the bottom of the wall. Simple improvements to this system could be to use renewable energy to meet the energy needs and design a system to re-use the water that drains at the bottom

Musée du Quai Branly, Paris, by Patrick Blanc was another contemporary example shown with a growing medium of polyamide Felt with manual and external Irrigation. The energy consumption is high due to irrigation from mains water and fertilisation, as is the maintenance and accessibility. Again the example has most of the benefits of a green wall and unlike the first example is lightweight as there is no soil. The disadvantages are similar as the wall needs energy and maintenance to survive. The nutrients are carried in the water but currently drain away at the bottom of the wall and are not captured and fed back into the system. There are only minimal biodiversity benefits due to extensive use of tropical species in the wall.

The Urban Agriculture Curtain in London is a very different response to the brief of a green wall. This is an internal wall with soil as the growing medium and irrigation with a nutrient rich water supply. The energy consumption is high due to irrigation from mains water and fertilisation and the maintenance and accessibility is reasonable. This solution quadruples the growing internal growing space as it is stacked and the plants are edible and feeds the building's café. The use of water and nutrients is efficient there is no waste and the system is very accessible for purpose. The disadvantages are the energy needed for it to survive, and the human input and attention.

Caroline and Mina concluded their talk with some ideas to think about in relation to designing a green wall. They asked the groups to consider what the features are of their ideal edible green wall and how it can be self-sufficient. They also suggested that it was important to consider at this stage how much maintenance will be needed, where the water will come from and how the nutrients will be distributed – in particular nitrogen, potassium and phosphorous.

Construction of a Green Wall or Green Roof Prototype

The Summer School ended with a flurry of creativity and productivity as the groups pulled all of their ideas together, perfected their edible walls and roofs and worked out how to present and sell their ideas to the rest of the group.

All the experimentation with materials and development of

the designs had taken place in the pit at Eden - right next to the main stage, allowing members of the public to stop and stare and ask questions. The piles of rubbish and different designs were a good talking point and people were keen to know what we were up to with all the plastic bottles, tyres and planting trays. All of the walls and roofs had to be designed to be transportable - so that on tuesday they could all be moved up to the 'Building Plot' opposite the Waste Neutral Centre where they would remain. Despite heavy rain, and lots of walking, lifting and carrying backwards and forwards, all of the designs were transported by tuesday evening. On wednesday the designs were planted up, and each group refined their sketches to tell the story of their creation. Each group presented their work, answered questions and shared their experience with the rest of the group. The products of the summer school were amazingly different, creative and clever, responding to the brief they'd developed with their client and using the waste materials available to their full potential.

Everyone left in the rain (yes, it was raining again) after an amazing week of trying new things, meeting new people and testing materials and ideas.

CONSTRUCTION

of Green Walls & Green Roofs
5 teams 5 prototypes