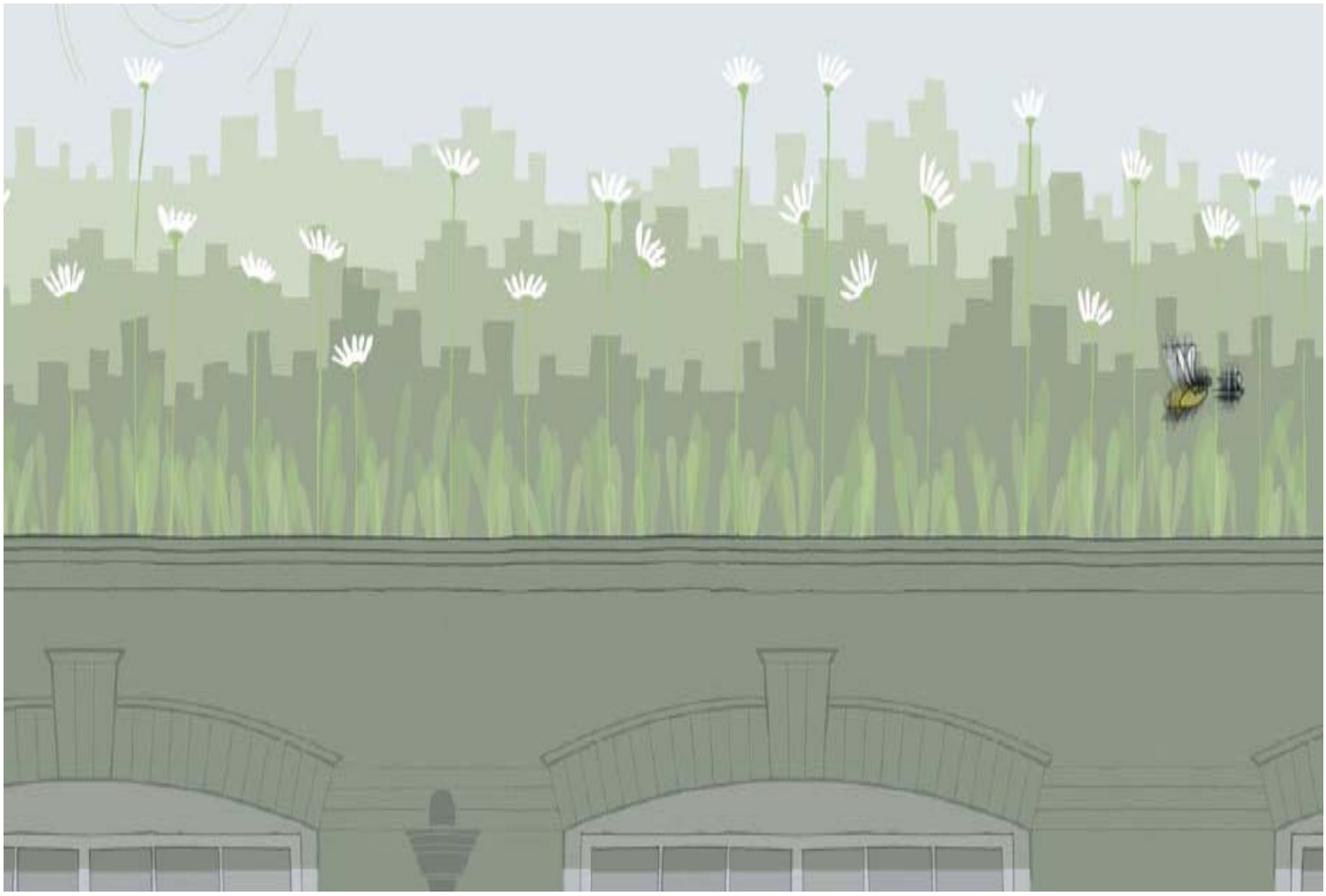
BIODIVERSITY, DESIGN AND DEVELOPMENT

Friday March 17 2006



1 Introduction

An event was hosted by Arup at their offices on the morning of Friday 17 March 2006. The purpose of the event was to present the latest thinking on the incorporation of ecology / biodiversity into the development process and to highlight some of the opportunities, challenges and examples of this.

We are grateful to our speakers who made this event possible and for their enthusiasm in the preparations leading up to this event. We are also grateful to all of the participants listed below who helped make this event a success.

Based on this, we are planning on holding further events that cover topical issues of development and the environment; we will keep you informed about these.

1.	**ADAM INGLEBY***	**London Wildlife Trust**
2.	Andy Bascombe	Arup
3.	Anita Konrad	Groundwork
4.	Bronwen Fletcher	LDA
5.	Camilla Finlay	Farrells
6.	Dennis Hill	SMS Architects
7.	**DUSTY GEDGE***	**Living Roofs**
8.	Gary Meeking	RBS
9.	Hazel James	Groundwork
10.	Helen Foster	Arup
11.	Jenny Scholfield	London Wildlife Trust
12.	Jo Smallwood	Arup
13.	Jonathan Ducker	TEP
14.	Michael Pawlyn	Grimshaws
15.	Mike Harris	White Young Green
16.	**NITA PATEL***	**BARCLAYS**
17.	Neil Harwood	Arup
18.	Neil Marlow	Arup
19.	Paul Read	Alumasc
20	Paul Roebuck	TEP
21.	Peter Massini	English Nature
22.	Peter Scott	Biotope
23.	Ronnie Murning	NIRAH
24.	Shaun Williams	Alumasc
25.	Stephanie McGibbon	Arup
26.	**TOM DUFFY***	**KUD INTERNATIONAL**
27.	**VICKY SMITH***	**ARUP**

*** speakers**

2 Presentations

2.1 Peter Head - Arup

Peter Head, a Director of Arup, opened the events proceedings by highlighting the close linkages between biodiversity and sustainable development. The opportunities to be gained by integrating sustainable solutions are more than aesthetically desirable, they are a necessity to address environmental problems that we are confronted with, such as climate change.

Peter made the point that we need all the help we can get from the natural world to help combat climate change and it's impacts. Bringing bio-diversity into cities can do this very effectively, for example reducing heat island effects.

Peter highlighted the opportunities and importance of incorporating biodiversity into development in relation to global issues like climate change and how taking such an approach can become a positive catalyst for greater awareness, greater expectations and better design and development.

2.2 Vicky Smith - Arup

Vicky Smith, senior ecologist within Arup's Environmental section, emphasised the importance of early consideration of biodiversity. This is important not only in terms of addressing adverse potential impacts arising from a proposed development but to also ensure that positive opportunities for enhancement can be harnessed and integrated effectively into development.

Vicky outlined commonly used terms such as biodiversity ("*The sum of all the different kinds of organisms inhabiting a region, such as the entire earth, the African continent, the Amazon basin, or our own backyards"*) and ecology ("*The study of the interactions between organisms and their environment"*). She also set out the context of relevant legislation and policy guidance.

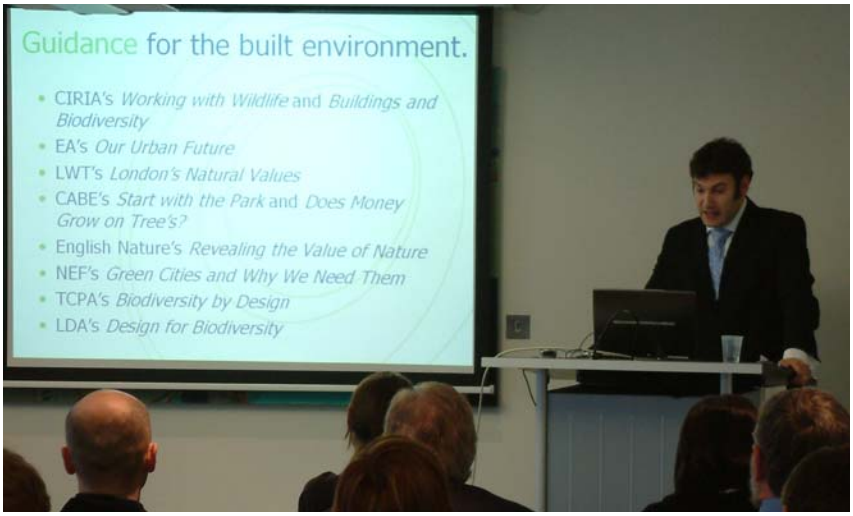
The role of the consultant in working with others (developers, allied bodies and professionals and regulators) was described, and again, the importance of early and ongoing dialogue was stressed. The Environmental Impact Assessment process (EIA) can often be an effective vehicle for this and can be followed up with an Environmental Management Plan. For development where an EIA is not required, a specific ecological assessment or appraisal can be carried out.

In those areas where there may appear to be little of ecological merit, there is always the potential for improving things with a variety of measures that can actively enhance the scope for ecology and for improving local amenity that users can enjoy. The case of Dalston Lane South in Hackney was described where the provision of well designed landscaped areas and green roofs generated open space and "green value" in an area that is acutely lacking these amenities and which has high levels of deprivation. As a result, integrating such a resource has particular value.

The key messages from Vicky's presentation are:

- Early consideration of biodiversity within development plans
- Maximising opportunities for the inclusion of biodiversity design features
- Realisation of a wide range of benefits
    - Biodiversity
    - Landscape
    - Economic
    - Social
- Sustainable Development

2.3 Adam Ingleby - London Wildlife Trust



Adam focused on the role of biodiversity within London and how this can be improved. He described the layers of guidance that exist and how these are inter-related.

Guidance for Built Development from CIRIA was considered to be a useful and practical guide that can be used by developers in constructing projects such as what to do if they come across a particular species.

Simple and easy measures can achieve dramatic improvements; by changing the mowing regime in Westbourne Green in West London near Paddington there was an enhanced opportunity for improving biodiversity. In this way, inclusion of ecological measures can be cost effective, manageable and highly effective. Adam gave a range of other inspiring examples – green walls at the Oval Cricket Ground, Paradise Park in Islington and the IMAX cinema near Waterloo that has a covered walkway forming an attractive canopy for users.

Adam's role with the London Wildlife Trust means that he is well placed to advise developers and local authorities on ideas for incorporating biodiversity into development as well as the practical measures to achieve this.

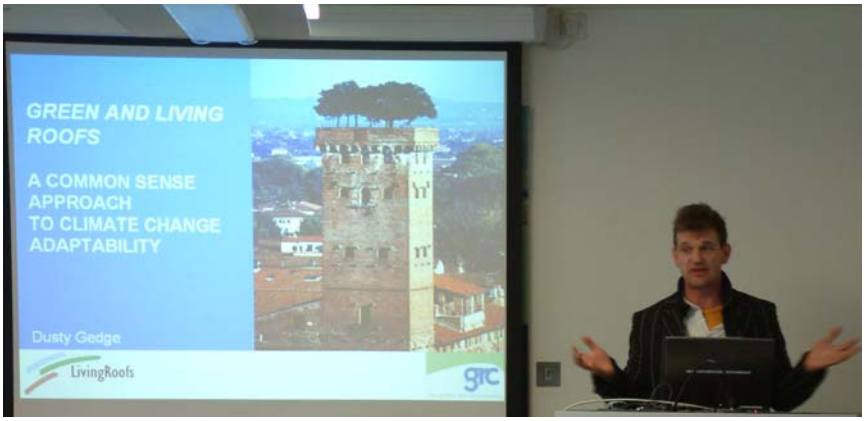
As with Vicky's presentation, Adam also emphasised that there are wider social benefits from taking a more integrated approach to sustainable development such as:

- Reduction in stress
- Increased levels of concentration
- Reduction in time needed to recuperate after illness

Also, tying in with the comments made during Peter's introduction, recognition was given to the urban heat island effect that exists in dense urban areas which can be 5^0C warmer than surrounding areas. As a result of this, any vegetated surface is beneficial in regulating temperature as well as absorbing run-off.

A hands on approach to Adam's presentation included display materials such as a bird box and a bat brick that reinforced the message that careful inclusion of biodiversity measures can be simple, straightforward and inexpensive.

2.4 Dusty Gedge - Living Roofs



Dusty's dramatic opening slide of trees growing aloft an old tower in Sienna indicated that this is perhaps not as new as we thought and that anything is possible.

Climate change and adaptability were a recurring and forceful theme from Dusty. Removing the fixation with grass opens up lots of opportunities for creative, imaginative and sensitive alternatives including green roofs and brown roofs (which are green roofs only designed for other types of ecology.)

Managing to virtually avoid the "B (iodiversity)" word throughout, Dusty's presentation nevertheless demonstrated the ease with which green roofs can be integrated into new developments or indeed fitted retrospectively and can have many benefits.

Green roofs in places tucked away in central London (Canon Street station) demonstrate that habitats are already being integrated into our environment although we may not realise this.

Outside of the UK, some countries, notably Switzerland and Germany, have taken an earlier and more progressive approach towards green roofs which have become common place. The provision of financial incentives must also have contributed towards their successful take up.

Possible reasons presented for developers not wanting a green roof include concerns with:

- Maintenance
- Structure
- Visual aesthetics
- Costs

However, experience has demonstrated that costs can in fact be cheaper, that green roofs are aesthetically pleasing, that loading and structural issues are rarely a constraint and that maintenance issues are negligible. Reasons for a green roof are numerous:

- Energy savings (and therefore cost savings)
- Green roofs maintain an ambient temperature, itself positive and also enabling the more efficient operation of photovoltaics
- Reduction in CO_2 emissions.
- Storm water savings
- Good for wildlife
- Commercial benefits – people like and are prepared to pay for a better environment

There is concern that developers are vulnerable to advice telling them what is or is not achievable. While bespoke measures can be cheaper and more effective across the environmental board, contractors may not be familiar with these and may have an 'interest' in off the shelf solutions.

Dusty's closing message…"Are you a yes *but*… or a Yes **AND**."

2.5 Tom Duffy - KUD International

"*I suppose I'm the developer*" was less an apology than an open recognition that more enlightened developers such as SQL/KUD provide the essential leadership of the development process and hence can achieve effective design that integrates biodiversity.

From Tom's experience as a developer, he stated that matters such as biodiversity must be viewed as an opportunity not as a threat and that this was a key approach in successful development schemes. By way of example, Tom described the process that led to the Silvertown Quays planning approval located in east London close to London City Airport.

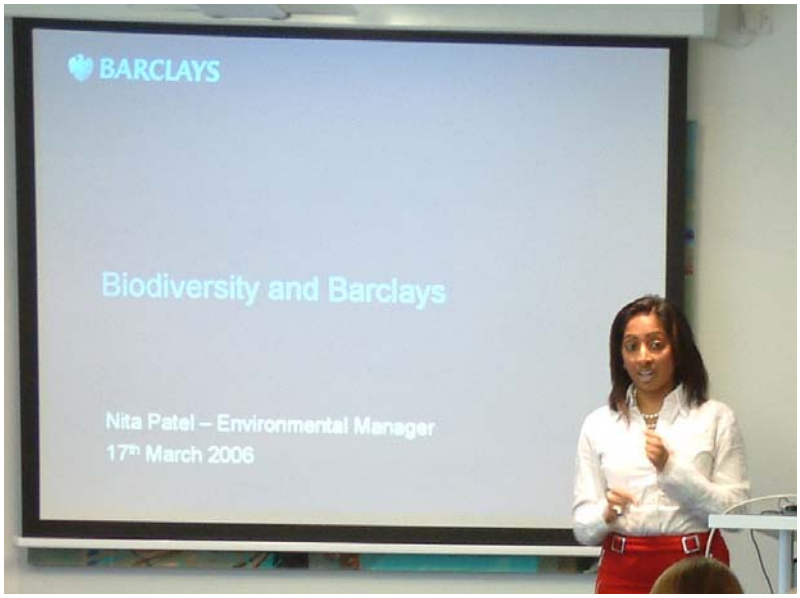
The Silvertown Quays proposal seeks to capitalise on infrastructure improvements, notably the extension of the Docklands Light Rail, on the development of Thames Barrier Park and on the dockside location of the site. These elements feed into a carefully crafted masterplan that integrates well designed amenity space and ecological measures into the future development.

An imaginative approach was taken to external constraints. Thus, a strip of land within the site that forms the public safety zone for the airport and where development cannot take place has been designed as an area of open space to provide habitat for black redstarts. The masterplan also includes areas of semi-natural habitat as well as formal landscaped areas that will provide a mix of amenity space. The environmental impact assessment process of the scheme was carried out by Arup who took a cross-disciplinary approach to encompass open space, landscape measures, hydrology, biodiversity, recreational land use and design.

Looking ahead, an Ecological Management Strategy has been prepared by Arup for the Silvertown Quays development with input from the local authority and English Nature. This will be the vehicle for ensuring that the aspirations and measures emerging from the EIA process and from subsequent consultation can be realised.

The key message from Tom's presentation is that ecological measures are not a cost driven exercise in development schemes but an integral and essential element of good overall design.

2.6 Nita Patel – Environmental Management, Barclays Plc.



Nita's presentation was about a specific green roof, recently fitted on top of their headquarters in Canary Wharf. Although the green roof was designed primarily for biodiversity rather than aesthetics, it was not part of the original plan for the building. It came about following a chance meeting involving Dusty and a predecessor of Nita's (Chris Reynolds) whose enthusiasm for the idea at the time was in part to do with his interest in spiders!). Stakeholder management was convinced of the idea, admittedly after some initial reservations at what was then a relatively novel idea for major corporate HQ in London.

The green roof has been a major success with Barclays staff keen to weed and water the roof. Unfortunately, because the building is at its absolute development limit, it is not possible to put railings on top and therefore wider staff access to the green roof has to be restricted. However, the team is keen to harness this enthusiasm and has been running a series of competitions and incentives to allow a selected few to visit the roof for themselves. Plans are afoot to install a webcam with live picture feeds to allow wider access to less mobile staff. Moreover, the roof is an addition to environmental considerations already planned for the building, such as centralised print hubs rather than lots of printers, bottles of water are refilled rather than disposed of and replaced and there are recycling facilities available on every floor. However it is through the process of "*changing hearts and minds*" at a front-line level that Barclays can continue to take a more considered approach towards their consumption of resources.

This interest has been achieved by effective communication; by engaging staff in the process that has taken place and the finished (and ever changing) result. Nita acknowledged that green roofs are in fact not that far reaching. She and her team are now looking to provide kingfisher boxes and to continue to explore other measures to contribute to Barclay's role in promoting biodiversity.

3 Discussion

Q1 Were there internal challenges to achieving buy-in to a green roof for Barclays?

Nita commented that once there was an understanding of what the green roof meant, this was not such a challenge. It was also recognised that there were added benefits to Barclays in terms of corporate kudos. However, Dusty added that the problems reside more with the contractors who perhaps take a more conservative stance and then need to be persuaded that it can be done.

Q2 What are the opportunities for integrated ecology with other specialist areas such as drainage and engineering?

Vicky responded that certainly within Arup, there are many benefits from being able to work in an integrated way across different disciplines and throughout the various stages of a project and that this has major benefits in being able to offer an integrated service.

Q3 What is Arup doing in terms of longevity of development and climate change?

Vicky responded that there is a dedicated team in Arup looking at sustainable solutions and life cost development so that a long term dimension to development together with an understanding of the implications of climate change can be understood and responded to.

Comment from Dusty that green roofs as well as the benefits listed above, also have the effect of providing noise insulation and can be effective in addressing noise emissions from aircraft flyovers.

Suggestion from Peter Massini – following on from the event today, a workshop orientated towards professionals working in this area – hydrologists, ecologists, etc. would be welcomed.

4 Contact Information

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