

Zed into the Mainstream

Summary

Zed into the Mainstream is an umbrella heading for two of BioRegional's main projects - their 'Z-Squared project' and their 'Continuing Professional Development Programme' (CPD).

These projects aim to expand on the experience of designing and building BedZED (Beddington Zero Energy Development), the UK's largest 'carbon-neutral' eco-village, and to disseminate this experience within the housing and construction industries.

BedZED was built by the BioRegional Development Group, in partnership with the Peabody Trust and Bill Dunster Architects in Hackbridge in Surrey. The development was designed to be 'carbon-neutral', both in its construction and occupation. Building materials were sourced locally, and heat and power for the residents is provided by renewable energy technologies. Recycling and composting schemes reduce its impact on the environment by keeping waste sent to landfill to a minimum.

Z-squared is a much bigger idea, a design for a 2,000 home, 'zero waste - zero carbon' community for the Thames Gateway, east of London. At present Z-squared is very much in the design stage, but if built it will contain a mixture of social and private housing, shops selling local goods, office space, a healthy living centre and a primary school. All the buildings will be highly energy efficient and will be powered by renewable energy sources. The development will have a car free core, with all basic amenities designed to be within walking distance of the houses, and will operate car clubs for those who need to leave the community. Z-squared will have a long-term aim of sending no waste to landfill - all waste being recycled, composted, or converted to energy.

The Continuing Professional Development Programme is a series of 'One Planet Living' seminars that are held at BedZED. These look at the issue of 'eco-footprinting', a way of measuring our impact on the earth's resources, and demonstrate the feasibility, and viability, of building a 'green lifestyle' development like BedZED.

The organisation

Alongside their innovative building projects, BioRegional is running many local and regional industry projects that support sustainable land use. These include a London based lavender project, a charcoal project, a tree station and urban forestry project, which provides somewhere for local woodland and tree managers to bring their woody waste for recycling, rather than sending it to landfill, and a 'Local Paper for London' project that collects and recycles paper from London offices.

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Context

It is estimated that over half of all resources consumed around the world are used in the construction and occupancy of buildings. (Brian Edwards, Rough Guide to Sustainability, 2002) The UK Department of the Environment, Transport and the Regions estimates that roughly one-third of Britain's carbon emissions come from buildings. Further, it is estimated that roughly 4.4 million new homes will be needed to accommodate the increased number of households in the UK by 2016. Z-squared will provide much needed affordable housing while directly addressing the challenge to curb carbon.

Thanks to a highly energy efficient design, and the use of renewable energy sources for heating, Z-squared houses will also address the problem of fuel poverty: ill health caused by lack of sufficient heating is estimated to cost the National Health Service around £3 billion a year.

Technology and use

Z-squared will improve on BedZED by aiming to be a 'zero-waste' community. The aim is to design a community that sends no waste to landfill at all. BedZED composts and recycles much of its waste, but some is still sent to landfill sites.

If possible, all waste from Z-squared will either be recycled, composted or converted to energy using new, clean, 'energy to waste' technologies. Z-squared designers are looking into the possibility of using new bio-digestion and gasification technologies for converting household waste to energy. To make use of these technologies economically, the community may need to import household waste from surrounding areas.

By cutting the amount of waste sent to landfill sites to zero, Z-squared will be helping to reduce greenhouse gas production (methane produced by decomposing waste is a powerful greenhouse gas), and so improve the community's 'eco-footprint'.

The Continuing Professional Development Programme (CPD) seminars are looking both at the construction of energy efficient buildings, as well as the broader issues of living a sustainable lifestyle. Held at BedZED, they offer a forum for groups of 12-15 people to discuss the definitions of 'sustainable living' and what sustainability means in practice. The seminars are currently run twice a month and have been attended by architects, planners, developers, local authorities, housing associations, construction companies and engineers from around the UK.

In April 2004, BioRegional will be expanding the CPD programme to include technical master classes. These will look at the different technological innovations used at BedZED, their associated benefits and costs, and how to improve on them. Topics planned include Combined Heat and Power systems, Green Water Treatment, and Car Clubs.

Based on the BedZED experience, BioRegional have produced two 'Carbon Neutral Tool Kits' for use by the construction industry. These are designed to provide information on the different aspects of designing and building a zero-carbon community. The first goes through the materials used at BedZED, and explains the reasoning behind the decision to use each of them, as well as listing suppliers. The second breaks down the costs involved in building BedZED, and looks at the cost efficiency of 'eco' installations like combined heat and power plants and water saving appliances.

Management, finance and partnerships

Building a community housing development like BedZED needs careful management from the outset. BioRegional have learned from the BedZED experience that it is important to involve those who will manage the day-to-day operation of community services at the design stage. That will enable them to contribute ideas that will make management of the site easier and more efficient.

Initial sources of funding for Z-squared have come from the Mark Leonard Trust, The Housing Corporation, Shanks First Fund, and WWF.

A major part of the funding for Z-squared is expected to continue to come from the Landfill Tax Credit Scheme that is operated by the Shanks First Fund. This enables landfill site operators to donate up to 6.5 per cent of their landfill tax liability to environmental projects, in return for a 90 per cent tax credit.

To date, the Z-squared idea has received a very positive response from many organisations involved in the Thames Gateway development. Support has come from the Office of the Deputy Prime Minister, from DEFRA (the UK Department for Environment, Food and Rural Affairs), from the London Development Agency, from Gateway to London (Gateway To London) and from local councils, including Barking and Dagenham.

BioRegional has a joint venture with WWF to set up 'One Planet Living' centres around the world. A private developer called Pelicano has just signed an agreement with BioRegional to develop and manage its Mata de Sesimbra eco-tourism site in Portugal following the One Planet Living principles. The site will include a '6,000-unit' community made up of holiday homes and hotels. BioRegional and WWF will work as advisors to the Portuguese project team over a period of ten years. Plans for Mata de Sesimbra have been approved by the local authorities and are soon to be put out for public consultation.

The Ashden Award money has been put towards the budgets for both the Z-squared and CPD elements of Zed into the Mainstream.

CPD seminars have doubled in frequency to two per month, and are much in demand.

The Z-squared project is on target to produce a report and a 'design concept' paper by April 2004. Norman Foster, who is part of the design team for the Thames Gateway development, has agreed to be the lead architect. The engineering company Kellogg, Brown & Root has donated 120 days of their design time, and the project is receiving strong support from several local community groups. A number of possible sites for Z-squared are under discussion and BioRegional have also started to talk to potential funding partners. It is estimated that the project will cost between £600 million and £700 million.

This report is based on information provided to the Ashden Awards judges by BedZED, and findings from a visit by one of the judges to see their work.

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