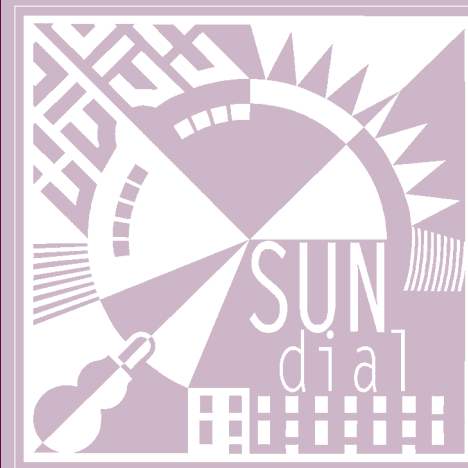


the Sustainable URBAN NEIGHBOURHOOD



Initiative

WELCOME TO THE SIXTH ISSUE OF **SUN DIAL**, THE JOURNAL OF THE SUSTAINABLE URBAN NEIGHBOURHOOD INITIATIVE

In this special double issue we set out a brief for a sustainable urban neighbourhood including environmental targets to be tested over the coming months. We also carry a special feature on recycling with articles by Keith Collins in London and James Horne in Yorkshire. Kieran Yates discusses foyers and Nicholas Falk the potential for housing in town centres.

INSIDE

- A brief for a Sustainable Urban Neighbourhood
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Tomorrow: A peaceful path to urban reform

It is 100 years since Ebenezer Howard published his seminal book, 'Tomorrow: A peaceful path to real reform'. The impact of this work and the early garden cities that it inspired on the public and professional consciousness cannot be underestimated. Howard saw cities as 'ulcers on the very face of our beautiful island' and for much of the intervening century many people in Britain have tended to agree with him.

The SUN Initiative has recently completed a report for Friends of the Earth which explores these issues. The report entitled 'Tomorrow: A peaceful path to urban reform' was published on

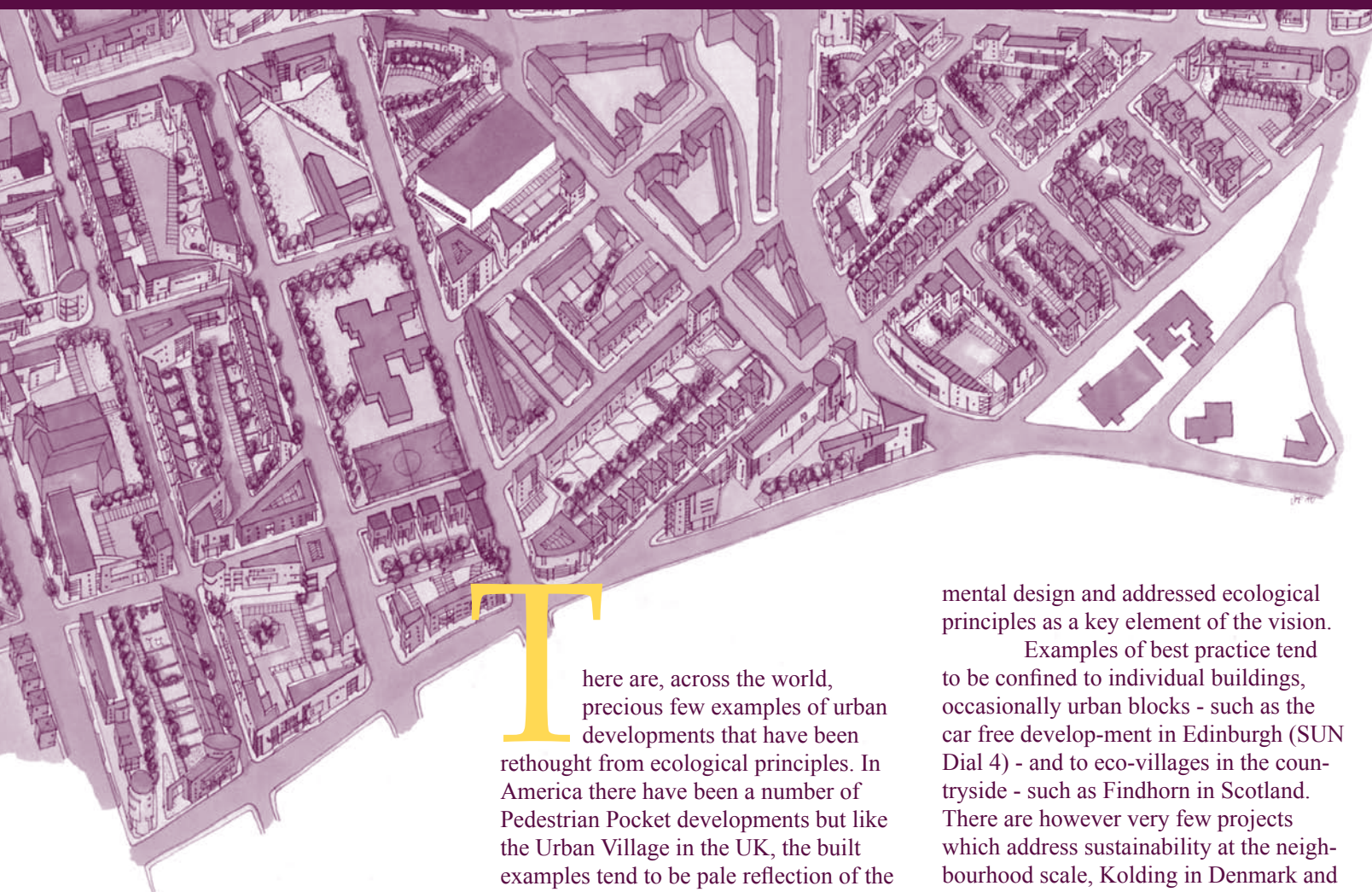
22nd April. It explores the implications of household growth and whether a greater proportion of new households could be accommodated in urban areas. The brief was to assess the feasibility of a 75% target for new homes in urban areas. This, the report does by looking at the historic rate of building on recycled land, the loss of population from urban areas and the urban capacity studies that have recently been undertaken. It goes on to collate national data on various forms of urban housing capacity, concluding that, in theory at least, there is the space to accommodate 75% of new households within towns and cities.

However the issue is not so much the physical capacity of urban areas but the willingness of people to live there, of developers to build there and of planners to allow it to happen. The report explores these barriers to urban development and sets out a series of recommendations

to bring about change. These concern the workings of the planning system, fiscal measures such as a greenfield tax and initiatives to promote urban areas. We conclude that there is a need to designate Urban Priority Areas as happens in Ireland to provide tax incentives for development on recycled land and to focus the efforts of public agencies.

At a time of increasing sophistication and complexity in everyday life, our towns and cities are being called upon to sustain greater social cohesiveness, economic dynamism and environmental balance. The rediscovery of urban living and the relearning of city building and management are vital if cities are to rise to the challenge.

Tomorrow: A peaceful path to urban reform is available from *Publications Despatch, Friends of the Earth* — 56-58 Alma Street, Luton. LU1 2PH. tel.: 01582 482297. mailto: info@foe.co.uk. ISBN 1857503201, code L432. Price £8.



There are, across the world, precious few examples of urban developments that have been rethought from ecological principles. In America there have been a number of Pedestrian Pocket developments but like the Urban Village in the UK, the built examples tend to be pale reflection of the concept as initially conceived. Hulme in Manchester and Crown Street in Glasgow remain perhaps the best example of a new approach to urban development in the UK, but neither has incorporated environ-

mental design and addressed ecological principles as a key element of the vision.

Examples of best practice tend to be confined to individual buildings, occasionally urban blocks - such as the car free development in Edinburgh (SUN Dial 4) - and to eco-villages in the countryside - such as Findhorn in Scotland. There are however very few projects which address sustainability at the neighbourhood scale, Kolding in Denmark and Halifax Ecocity in Australia being notable exceptions. Yet if we are to address the wider sustainability of towns and cities we need to think beyond the individual building and consider issues such as heat

and power supply, waste recycling, water treatment, car usage, walkability and public transport - all of which are probably more appropriately addressed at a neighbourhood level.

Diagnosing the problem

Our current use of resources needs to be converted from linear into circular systems so that wastes and outputs can be recycled as inputs. This has been shown to be possible in autonomous housing but, at the neighbourhood scale, the issues become more complex. The large scale supply infrastructure employed to solve the problems of the modern city relies on

Over the last two years we have been gradually sketching out the form of the sustainable urban neighbourhood. But how will it be built? **David Rudlin** and **Nick Dodd** describe a brief for an eco-neighbourhood to be used as the basis for a design exercise over the coming months

eco-neighbourhoods

A brief for a sustainable urban neighbourhood

large, inefficient, linear flows of resources that are inflexible and tend to store up and magnify environmental problems. Progress could be made at the neighbourhood level by maximising the use of local resources, both natural and recycled, and by bringing control of these supply systems back down to a more local and easily controlled level.

Bringing control of our basic services down to a neighbourhood level will require new skills and will probably, by its very nature, be more labour intensive. Environmental gains may therefore go hand in hand with local economic gains whilst in terms of 'whole life costing' the systems should be no more expensive. This has been demonstrated by a project in Kolding, Denmark, where a neighbourhood sewage restoration plant using solar aquatics techniques has been successfully installed. On a larger scale the Halifax Ecocity Project in Adelaide, South Australia, will provide self-sustaining infrastructure for a neighbourhood of 800-1,000 people on an inner urban site.

We must get away from the idea that sustainability is confined to eco-houses or eco-villages in the heart of the countryside. We will only achieve long term sustainability if we address the impacts on the towns and cities where the majority of people live. Models and strategies are required for eco-neighbourhoods in urban areas in order to practically demonstrate innovative and appropriate solutions which could be readily applied by other neighbourhoods. The recent announcement by John Prescott of a series of Millennium Villages across the country could provide an opportunity to do just this.

A neighbourhood model

The lack of practical examples means that when discussing the concept of the sustainable urban neighbourhood there is little evidence about the potential impact, cost and practicality of environmental measures. To address this, the SUN Initiative has been testing the issues raised on a practical level. Last year we used the central section of Hulme in Manchester to explore issues such as density and its im-

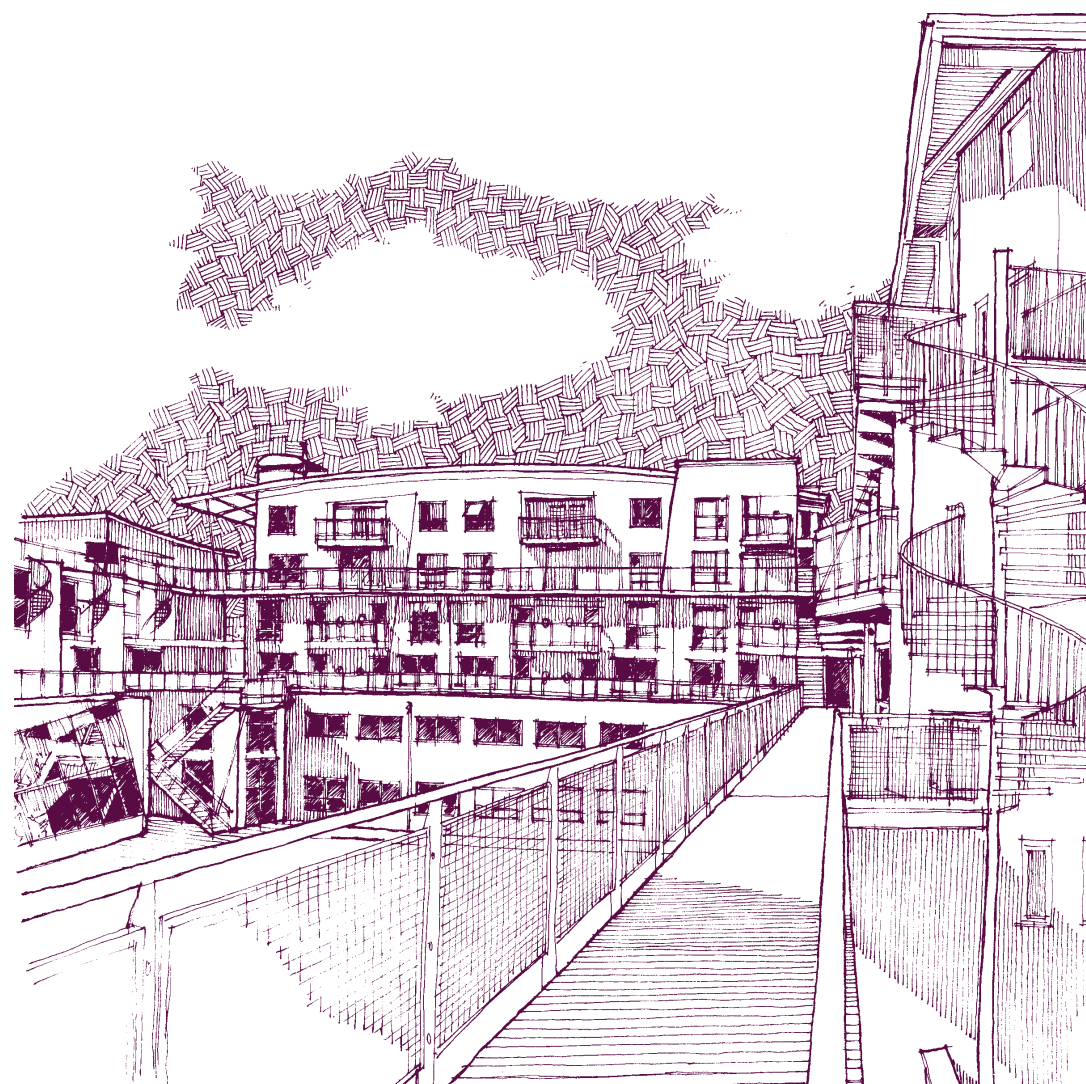
act on waste generation, walkability and the viability of district wide Combined Heat and Power generation (see SUN Dial 4). This, however, still left questions unanswered about the type of development that would be required to realise these benefits.

While it is possible to point to the Homes for Change building in Hulme (SUN Dial 2), this is only part of the solution. It is written-off by many people as a one-off so that, while it may win awards, its influence as a model has, as yet, been fairly limited. It was also not possible in the Homes for Change scheme to incorporate key features such as grey water restoration, passive stack ventilation and CHP - even though they were explored. Homes for Change may therefore represent a significant step forward, but the SUN Initiative is seeking to investigate what the next step might be. In doing this, our aim is to place ecological design concepts firmly in an urban context and establish a robust benchmark for best practice in urban design.

Developing an approach

If we are to make significant progress we must move away from 'weak' sustainability strategies to a more fundamental approach. It is not enough, for example, to increase energy efficiency or to install water saving toilets. We must look at the system of supply through to disposal so that fundamental resource issues are addressed. In doing this we must ensure that the neighbourhood remains a functioning, safe and healthy place live for both individuals and communities, as well as creating jobs and economic activity. To achieve this we will need to address a range of social and technical issues (see table), many of which will require innovation and learning to take place. Imposing engineered and planned solutions on neighbourhoods will not be enough and the approach will therefore need to be flexible and able to be managed and understood by local people.

To examine these issues from a practical perspective we are therefore developing a hypothetical scheme for a site in Manchester. The exercise will involve



SOCIAL	TECHNICAL
<ul style="list-style-type: none"> Car share Permaculture Kerbside materials collection Local enterprise culture Community planning and management 'Green' business culture LETS systems 	<ul style="list-style-type: none"> Combined Heat and Power Solar heat and power Solar aquatics sewage treatment Grey water systems Rainwater collection Materials recovery and remanufacturing

the following stages:

- A brief for the site which sets out both a mix of uses and a set of environmental targets and ecological principles for the site.
- A design exercise to develop this brief into physical proposals both to explore the practicality of incorporating them into a development and to illustrate how the result might look.
- An assessment of new forms of supply infrastructure and local service provision along with the management implications and the potential for job creation and enterprise development.

- A costing exercise to estimate the likely costs of this type of development and how it would compare to a more traditional scheme.
- Development of participatory planning approaches to assess how local people can be involved in the design and management of the neighbourhood.
- An evaluation of the social and economic benefits of the development in consultation with local people.
- A viability assessment to explore how this could be funded and to what extent capital costs could be off-set against revenue costs with whole life costing.

The intention is to make this exercise as practically orientated as possible by involving developers, technologists and innovators in the process. If the results show that the ideas are practical the hope is that some of these developers can be assembled into a consortium to take forward all or part of the scheme.

The Brief

The brief for the project has been developed based on the SUN principles (SUN Dial 1 and 4). It is split into two sections, the first looks at the form of the development and the second at a series of environmental targets that it should aim to achieve.

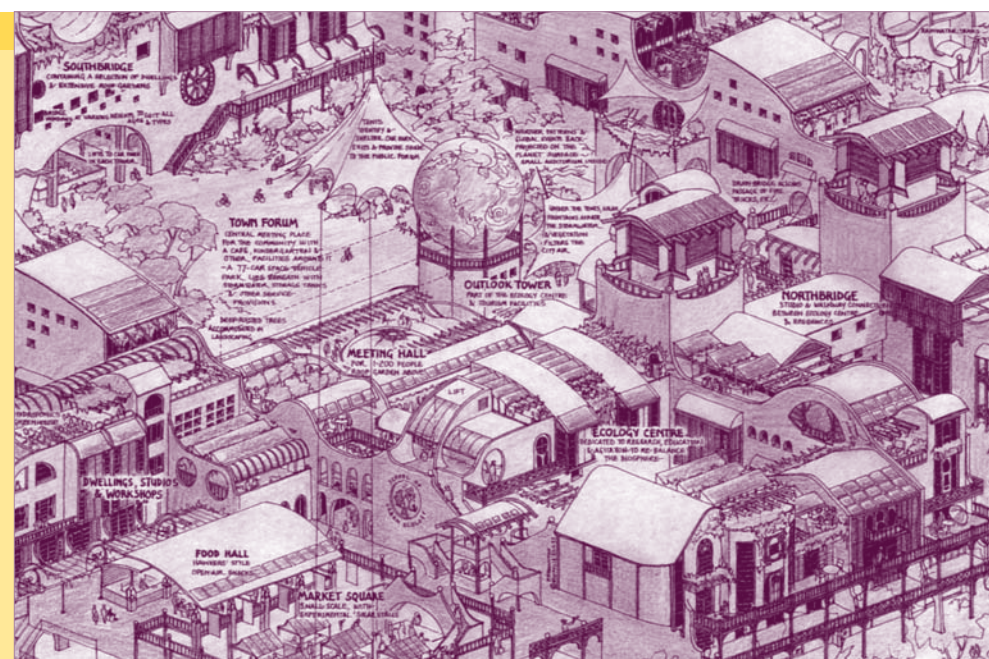
Development form: The form of the development is the same as that described in previous issues of SUN Dial:

- The neighbourhood will be built to a residential density of at least 120 bed

CASE STUDY: HALIFAX ECO-CITY

Halifax is an ecological development proposal earmarked for a 2.4 hectare, remediated brownfield site in the heart of Adelaide, South Australia. The development will be mixed-use in order to support cultural diversity and avoid a 'monoculture' of built form. It is expected to accommodate around 800 people and 30 businesses, along with various community facilities. A range of housing types and tenure aimed at middle to lower incomes will ensure affordability. The project will add value to the city as well as supporting and promoting appropriate economic activity and investment.

The project is underpinned by urban ecological development principles. State of the art solar architecture will be employed, with climate responsive design addressing passive gain, landscaping and ventilation, and this will be complemented by solar heat and power technology. Rainwater will be captured and all effluent (including sewage) will be biologically treated and recycled on-site using a solar aquatics treatment system. Courtyards and roof gardens will create ecological corridors and help to make the new urban environment healthy and attractive. Links will also be made with an area of rural land which will be revegetated and rehabilitated as part of a community



supported agriculture project.

The planning and design of every feature of the development has been worked up in partnership between architects, planning consultants and the community. A pilot project called Bourne Court has been initiated to trial the technologies and design strate-

gies to be employed on the main site. This comprises of five townhouses and is being developed by a privately financed, not-for-profit co-operative.

Contact: **Urban Ecology Australia**
 mailto: urbanec@metropolis.net.au
<http://www.urbanecology.org.au>

Public transport

Proximity to local public transport routes allows for mobility beyond the neighbourhood without promoting the use of the car.

Mixed-use

A mix of uses including housing, offices and workshops as well as potentially retail and leisure uses. Workshops are seen as particularly important to generate jobs for local people.

Permaculture

Individual blocks use their communally managed courtyard space for food growing using permaculture techniques to maximise yield. This would contribute to self-sufficiency, provide a cheap source of food and promote neighbourhood stewardship.

Light manufacturing

A sustainable B2 business park based around 'green' entrepreneurship, which stimulates skills transfer and local enterprise, as well as developing markets for appropriate technology. Businesses could include grey water plumbers, solar or CHP distributors, a local recycling company, an organic food retailer, repair companies, or goods manufacturers.

Neighbourhood works

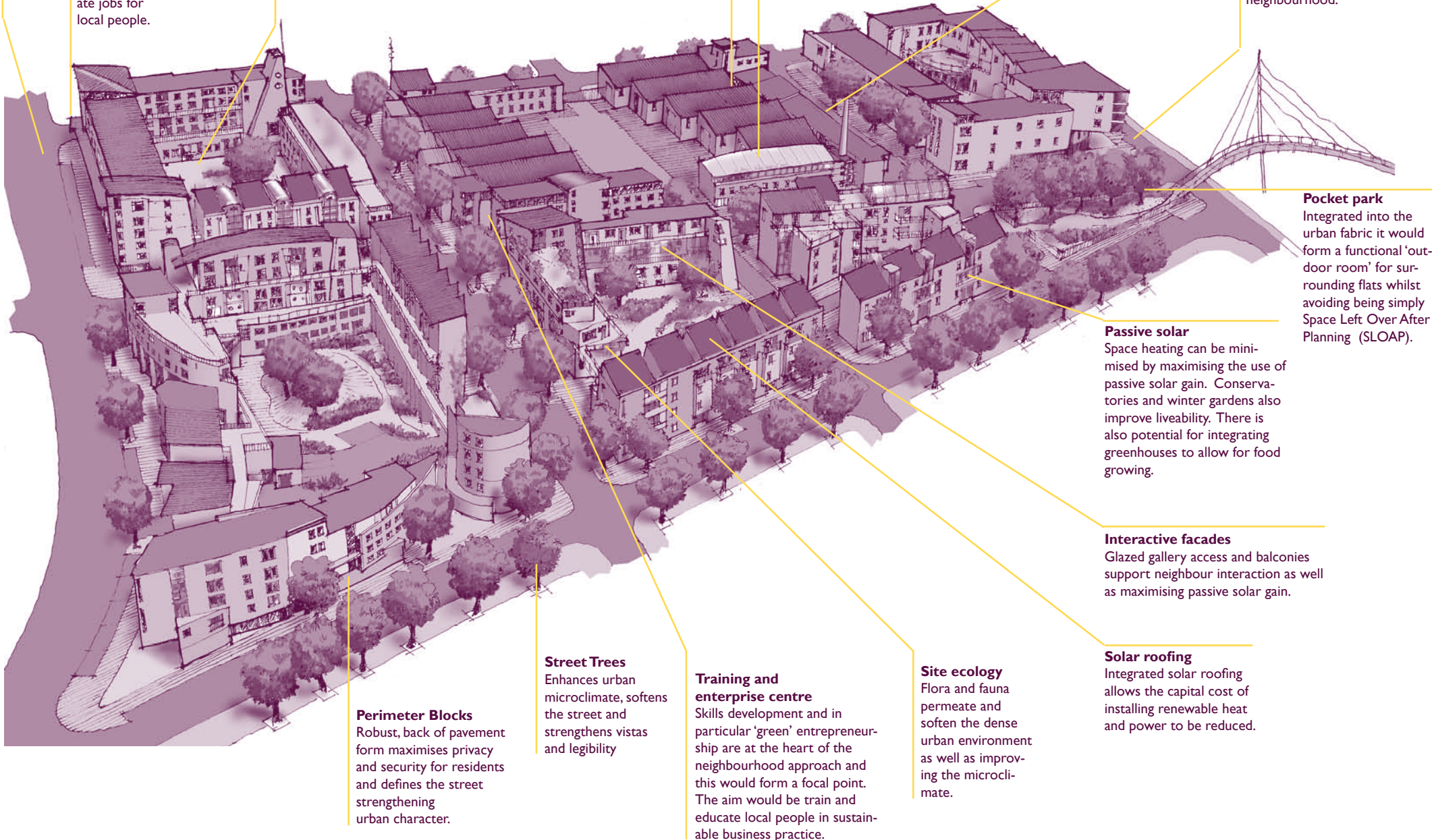
The works integrates a CHP plant and a solar aquatics sewage treatment plant into one unit. Both are appropriate solutions to the utility requirements of a high density neighbourhood. Placing these together allows the waste from one plant to form the raw material for the other, creating the possibility of zero emissions.

Car share scheme

A locally managed car pool where local people can hire a car at short notice as an alternative to owning a vehicle themselves.

Permeability

A framework of streets including the slip road of the adjacent primary road maximises the number of links between and through areas whilst making the area feel safer. Pedestrians are given a greater priority over other forms of mobility within the neighbourhood.

**Street Trees**

Enhances urban microclimate, softens the street and strengthens vistas and legibility

Training and enterprise centre

Skills development and in particular 'green' entrepreneurship are at the heart of the neighbourhood approach and this would form a focal point. The aim would be to train and educate local people in sustainable business practice.

Site ecology

Flora and fauna permeate and soften the dense urban environment as well as improving the microclimate.

Interactive facades

Glazed gallery access and balconies support neighbour interaction as well as maximising passive solar gain.

Solar roofing

Integrated solar roofing allows the capital cost of installing renewable heat and power to be reduced.

Perimeter Blocks
Robust, back of pavement form maximises privacy and security for residents and defines the street strengthening urban character.

spaces to the acre (288 to the hectare). This was identified from the previous exercise as sufficient to support high quality public transport and to maximise urban land capacity and is additional to other uses accommodated.

- It will incorporate a mix of uses including housing, offices and workshops. Workshops are seen as particularly important to generate jobs for local people. These uses will be mixed across the neighbourhood, within blocks and vertically within buildings to assess the optimum arrangement.
- It will incorporate a variety of tenures and housing types to create a mixed community including housing for sale, work homes and co-operative housing.
- It will be based on a permeable street pattern to create a series of urban blocks and a lively public realm.
- It should be acceptable to the local community and attractive as a place to live and work.

Environmental Targets: As part of the Homes for Change scheme an environmental brief was developed which included a series of 23 environmental targets. These were monitored throughout the development and it was concluded that 17 of the 23 were met in full and only two were missed entirely. These targets have

now been updated to more fundamentally address ecological principles and resource issues in a practical and cost effective way. The brief therefore incorporates the following targets:

- To reduce the eco-footprint of the neighbourhood to an ecologically sustaining level and to achieve a net balance of CO₂ emissions.
- To look at the lifecycle costs and impacts of the designs, technologies and materials used in the neighbourhood.
- To use ecological design principles and environmental purchasing criteria to minimise the eco-footprint of the development, maximise the use of recycled and recyclable materials and minimise embodied energy.
- To eliminate fossil fuels for power and heat by maximising insulation, airtightness, using passive solar gain and by incorporating an on site CHP system, fuelled by recycled waste or biofuels, and solar heat and power (including photo-voltaic cladding). As well as more radical solutions such as hydrogen storage with fuel cell generation.

The neighbourhood will demonstrate that urban development can address ecological principles and tackle fundamental resource issues in a practical and cost-effective way

- To create a closed water system by reducing usage and meeting the needs of the site with rainwater, grey water restoration and on-site sewage treatment.
- To explore local food growing, possibly utilising waste CHP heat, and incorporating an on-site permaculture project and training. Maximising opportunities for flora and fauna to permeate the urban environment to encourage bio-diversity and improve the micro-climate.
- To reduce car use to the practical minimum by providing no off-street parking and developing a car sharing scheme.
- To maximise added value from waste recovery and recycling by developing on-site collection, recovery and remanufacturing businesses.
- To develop a community planning approach to generate practical local sustainability solutions managed by and employing local people.
- To include business space for firms developing or using environmental technologies and activities.

Both the design principles and the environmental targets are seen as starting points for the exercise. It is accepted that they are set at levels which will be difficult to achieve and which will require an integrated approach. The scheme will not have failed if it does not meet all of these targets but the hope is that it will push the limits of urban development to show just what is and is not possible at present and how they could be tackled in the future. It will also assess the impact of this on viability and social acceptability of the neighbourhood and hopefully demonstrate that the truly sustainable urban neighbourhood is a practical goal.

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It was not so long ago that foyers were a novelty. They have come along way in the last few years, so much so that government can suggest that they want to see one in every town. They are a good example of the new forms of housing emerging as a result of demographic change. But how well have they translated from the French and are there still questions to be answered? **Kieran Yates** seeks some answers.



One in every town?

Young people face increasing competition and difficulty in securing adequate housing and employment. For some, a combination of factors can lead to homelessness, long term unemployment or a sense of falling out of the mainstream. Social exclusion comes at considerable cost to the individual and the wider community – demands upon welfare, policing or social services. Such expenditure does little to turn the problem around, but what else can be done?

Foyers offer an integrated approach to the needs of young people who cannot rely on a family household to provide for their needs in early adulthood. The concept has been transplanted from France where there is indeed a foyer in every town. In France they are a combination of a youth hostel and a student hall of residence and are aimed at young people who have nowhere to stay. However while French foyers

often have close links with social services there is less of the emphasis on employment and training that has characterised the UK model. In the UK they provide affordable housing combined with economic initiatives and support to enhance the independence, self-esteem and employment prospects of young people. In a nutshell, foyers attempt to break the spiral of social decline that has seemed intractable for so long – offering a way out of the no-job, no-money, no-home, no-job syndrome.

The Foyer Federation for Youth, the national umbrella organisation for foyers in the UK, is campaigning for upwards of 500 foyer schemes in Britain. This has been given support by the Labour government who have talked about a foyer in every town. Demand for the schemes has been considerable with over 120 local authorities expressing an interest in establishing foyers. There are currently 35 foyers either open or under construction and a further 41 are planned. Depending on their size of operation they can include the following features:

- they serve a population of around 40,000;
- they provide affordable self-contained accommodation;
- they include restaurant/catering facilities;
- they provide in-house training/counselling support services and management;
- they are located within walking distance of training and education facilities as well as other amenities and public transport;
- they provide communal space for residents;
- they may offer facilities to businesses;
- they provide residents with a 'Personal Action Plan' contract with the Foyer.

Several schemes have also succeeded in achieving the re-use of redundant buildings or sites that have proven difficult to develop and

Left: The inside of the award winning Swansea Foyer developed by Gwalia Housing Society and designed by PCKO Architects. This involved the conversion of a former working men's club and is based around an internal street. As with all Gwalia developments the scheme is built to the highest environmental standards with solar and photovoltaic panels, a highly insulated timber frame construction and natural thermal mass.

have also assisted in bringing people and economic activity into urban areas. The format can be varied to suit local requirements and location. Start-up business or workshop space is sometimes provided and some have a ground floor café which serves both the foyer and the public to generate revenue.

Foyers have not really been established long enough in the UK to fully assess their track record. However the feedback from the early schemes is very positive. They have achieved high levels of success in getting people back into both work and permanent housing. They have

Foyers have not really been established long enough in the UK to fully assess their track record. However the feedback from the early schemes is very positive.

also ended up provide quite short term accommodation because of the intensive support that they provide and the contract between the Foyer and each resident.

The one question that remains is over the long term funding of Foyers. Because they take a holistic approach to the needs of

young people, they cross funding boundaries. This relates to both capital and revenue funding. In terms of capital, Social Housing Grant cannot be spent on the non-housing elements and European funding cannot be used for the housing. Most of those that have been built have used a cocktail of grants, the key element often being City Challenge or the Single Regeneration Budget.

In many respects the revenue position is even less certain because the income from Foyers covers as little as a third of the running costs. Many of the Foyers now operating have short term revenue funding agreements with a variety of agencies. This may include Special Needs Management Allowance from the Housing Corporation, grants from TEC's and support from social services. However many are reliant on support from the SRB or City Challenge bodies that established them leaving a question-mark about what happens when these projects come to an end.

However Foyers remain a good example of the new forms of housing that are emerging in response to the growing numbers of single person households. They demonstrate how innovative housing provision can help mend the social fabric of our towns and cities and overall sustainability of urban neighbourhoods.

CASE STUDY: THE WIGAN FOYER

The Wigan foyer is one of the most innovative in the country. It has been developed by Grosvenor Housing Association and involves the conversion of the Coops Building, a 19th century warehouse on the edge of the town centre. This has been undertaken through a partnership between Grosvenor, the Employment Service, Wigan MBC, Wigan City Challenge and the Wigan Borough Partnership. The building is in three sections and each has been developed for different uses:

The Foyer - Developed in the left wing of the building, this provides accommodation for 16 to 25 year olds although the majority of residents are below 21. The scheme includes 42 units, 24 of which are one bed flats and 18 of which are bedsits. In addition to the living accommodation there is a communal lounge, a resource room and information technology suite, a meeting room which is also used for training, and a staff office. Part of the foyer is also leased to Social Services as a day care centre.

The Workspace - The central section of the building has been developed as a business enterprise centre with City Challenge funds. This totals 15,000 sq.ft. on six floors and is being let to mainly office-based companies.

Housing and Office space - The right wing of the building has been developed for Grosvenor's area office with flats above. The first floor provides 11 flats for social letting to single people and the second to 18 market rent flats, also for single people.



Kieran Yates is a planner and urban designer who has recently joined URBED's Manchester office to replace Christina Swensson. He was formerly with FPD Savills.



In the debate over where new houses should be developed, a strong case has been made that only suburban development can meet the aspirations and requirements of the majority of new home seekers. While there is little published evidence to counter these arguments URBED's own research suggests that we are at the point where the tide is turning; the examples of successful urban development provide clues as to how urban revitalisation and new housing choice can be achieved. Analysis by the Bartlett School of Planning for URBED's Vital and Viable Town Centres report suggested that the population was rising again in many urban centres even though the population for the district was declining. Manchester's Whitworth Street Corridor, Glasgow's Merchant City and Swansea's Maritime Quarter show that sustainable urban neighbourhoods can be achieved; yet resistance to major residential development within cities persists, why is this?

Urban development sites face different constraints and opportunities than those beyond the city limits. Matters such as site assembly, condition, cost and planning considerations vary considerably and are oft cited by the development industry as necessitating the release of green fields. It is presumed that the detached dwelling, as promoted at the Ideal Homes Exhibition is the unassailable ideal for living, and that city living is for the determined solo 'urban venturers' living amidst the 'urban have-nots'.

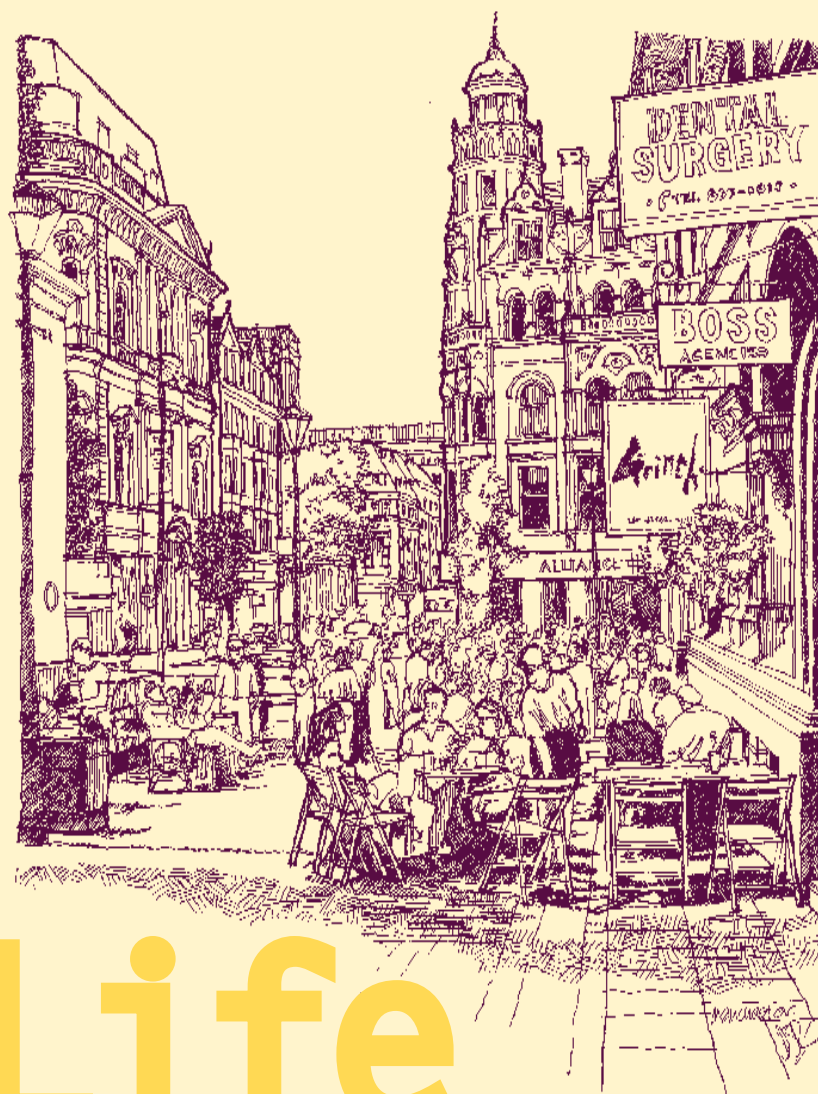
Critical to achieving an 'urban shift' is the need to pitch urban living to the hearts and minds - as well as the wallets - of a wider cross section of people. Urban liveability lies at the core of this question and that of sustainable development. Recent urban capacity studies identified greatest potential for new development in areas that are at the interface between town centres and the inner urban neighbourhoods. Such areas are within easy reach by foot or public transport to a wide range of services and employers in comparison to the nomadic life of the suburban exile. Whereas new estates may have had some notional exclusivity, this has been challenged by the emergence of urban chic and the desire for more distinctive neighbourhood living.

Whereas peripheral estates may be out of sight and out of mind, urban sites demand greater rigour in design and development standards than elsewhere. It is simply not good enough to build suburban house types at ever higher densities; inn-ovative yet robust housing solutions such as the Scottish tenement or US condominium need to be explored.

The conservatism of the volume house-builders is being challenged on all fronts. Consumers have become more discerning in their tastes, seeking places

The urban exodus appears to have finally abated. Pioneer urban communities have begun to recolonise depleted city and town centres. Of crucial importance is how a broader range of households can be seduced into urban living?

Nicholas Falk, URBED's founder Director asks what prerequisites are needed for urban repopulation and how this can achieve lasting gains for the sustainability of the wider urban area.



Above: Urban streetlife in Manchester city centre

Below: Brindley Place in Birmingham

City Life City Limits

that match their lifestyle or aspirations; household projections indicate a fragmentation of the market towards a diverse mix of individuals and living groups that require more flexibility in tenure, type and location. If we are to accept the need for increasing levels of urban orientated residential development, the question is how new insertions to the urban fabric can bring about gains to the wider area.

Urban regeneration, like life itself, tends to follow the principles of ecology. Good places evolve over time, rather than the result of one 'Big Bang', it is why new development must be responsive to its context in

order to retain the best of existing elements and to ensure lasting benefits to the locality.

Rather than a physical blueprint for the area, what is required is a set of principles that can guide development,

adapting and changing over time. This is of benefit not only to the immediate occupants as a wider choice of accommodation is available, but to future generations as

requirements change and the neighbourhood continues to be utilised. URBED calls this process Balanced Incremental Development and can take 10-20 years to nurture. The following points illustrate the principles of such a process:

Shared Vision: Effective regeneration must achieve a democratic consensus derived from local people and key stakeholders in the development process. Action planning and round table workshop techniques enable diverse groups of people to develop common ground. URBED have recently put these approaches into play at the Vision for Leeds initiative, seeking to find new roles and re-positioning of the city as a post industrial urban centre.

Impetus for regeneration: Selective enhancement projects can act as a catalyst for change over wider areas. Thus in Sowerby Bridge, a small Yorkshire mill town, the impetus came from establishing a canoe slalom course which opened up the river side for the first time, encouraging the conversion of a former mill building to flats.

Development Balance: Successful areas are those that offer a rich mix of uses, tenures, and spaces open to the public or private use. Bristol Docks demonstrates how early projects to open up the waterfront, upgrading buildings and public spaces led to imaginative housing schemes.

Driving force: The long term perseverance of local authorities or committed individuals lies at the heart of many schemes to bring about sustained regeneration. Where risks are considerable a development trust, a not for profit company can be created to take on direct management of buildings and organise finance. The ongoing work of Tendring District and Essex County Council at Mistley, is set to restore the quayside maltings to viable and appropriate new uses, securing the preservation of a landmark building, job creation and public access to the waterfront.



Implementation: Planning can no longer concern itself solely with ideal end states, regeneration of difficult sites often entails the partnership of public and private sectors, with the aim of bringing lasting benefits to the community. Development briefs can prime sites that have fallen by the wayside, introducing certainty and opportunity for the developer and guarantees of public gain, such as public space, affordable housing or other public facilities.

Conclusion

Town and city centres cannot and should not be expected to replicate suburban environments. New life can be found for run-down zones at the fringes of town centres due to their unique locational advantage, accessible on foot and public transport to unrivalled amenities and the potential to draw upon historic elements or urban character. The new urban dweller can enjoy a richer more varied quality of life to that of their suburban counterpart, only if the liveability of the wider urban neighbourhood is upgraded and the choice and quality of the development industry product is improved.

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London PRIDE

Keith Collins

The public perception of recycling is of grannies and greens dropping bottles in a bank - not as something real or important or economically significant. The way Britain's cities manage resources appears to the rest of the world as some form of strange cultural insanity. One foreign commentator put our treatment of these high-tech materials in the following light. "It is as though a family raised a child, fed and clothed it and kept it healthy, spent vast amounts on its education, right through university, helped it find its first job, and when, after a few months or years, the young adult leaves that first job, they are offered two options - burial or cremation." Materials, like humans, can do more than one job in a lifetime.



Our use of resources is based on a linear, 'once-through' approach which needs radical change. As Jane Jacobs envisioned thirty years ago, we must begin to 'mine' urban waste for raw materials. Yet currently relatively little of our household waste is recycled and given current spending by councils this shows little sign of improving. We have failed to foster a more environmentally responsible attitude to the waste we all produce. Household collection is the key to developing a culture of waste avoidance hand-in-hand with industry that can give value to the recycled waste.

Here we bring together two articles which describe these approaches. **Keith Collins**, a consultant for London Pride Waste Action, describes current work to develop cost effective materials collection. **James Horne** from Urban Mines then illustrates how this approach is being linked to job creation through the development of a new eco-business park in West Yorkshire.

Recycling

No longer just a middle

Recent developments in London (triggered by the work of a joint British-Canadian team) mark a new surge of activity and innovation in the recycling industry. They are also creating a set of tools which have the potential to rapidly improve the sustainability of urban communities - for transport, employment, the health & safety of estate housing and public spaces, CO₂ emissions and air quality, civic involvement, as well as waste management.

These tools are either already either being implemented (pedestrian-controlled electric vehicles and materials marketing consortia) or are under active development (eco-industrial parks and community-based environmental franchises).

A six month programme of 'action research' began the process 'from the ground up' and changed the mindsets of the London partners including Borough recycling officers, planners from LPAC, private industry, Demos, environmental groups, the community sector, the Environment Agency, DETR and the Government Office for London.

When asked about the barriers to recycling in the UK, most waste management professionals listed: weak and unstable materials markets; an uneducated or lazy population; a lack of start-up capital; the low-cost of landfill; a weak regulatory framework; and the cost of kerbside recycling collection. We found each - except the last - proved relatively easy to resolve. The surprise was what we found to be at the heart of kerbside recycling's high costs.

PCV's and kerbside collections

The incredibly high levels of traffic congesting London's narrow residential streets meant that kerbside recycling collection was vastly more expensive than in

North America. Congestion meant that the productivity of a vehicle and 2-3 staff dropped from 600-1200 households per day to just 200-600. We also found levels of road rage that are difficult to describe, other than to say that our drivers often had to flee the scene, releasing traffic, but leaving the crew stranded on the pavement! The process was not helped by the solid rows of parked cars along every street.

The solution required months of reorientation in order to see it, believe it, test it, and then fully implement it. What we saw were the street sweepers of London, a seemingly pre-industrial system of (largely) men with brooms pushing a cart down the pavements.

We undertook time-motion tests in

Haringey, breaking down the components of kerbside recycling: walking between houses, finding the box, walking to the collection vehicle, sorting materials into compartments, returning the box, and walking to the next house. As well as driver-time in the vehicle, inching it along the street. We began our trials by taping buckets to an old street sweepers cart, pushing it along the route, and sorting materials into the buckets - no huge vehicle, no hydraulics, no high-tech equipment. But we found that one person using a (modified) sweepers cart beat every other system by at least 30%, and the time per person (since no driver was required) was 60%-70% lower.

What at first looked crazy began to appear logical and we then went to work to improve on the original "cart plus buckets" and select an appropriate vehicle to put this into practice. A wide range of ideas came forward and the electrically powered Pedestrian-Controlled Vehicles (PCV's) was born and tested in Haringey's Green Lanes neighbourhood. The vehicle is radical in a number of ways. It is directed by a hand-drawn tiller and powered by batteries beneath the loading platform, producing no local emissions or noise. It is a human-scale, pedestrian-friendly vehicle, and thus travels along the pavements, rather than the streets.

It holds recyclables in six 'builders bags' into which materials are sorted at the point of collection. Once full, the sacks are left at drop points (taking up less than half a parking space) for collection by a larger vehicle (the 'mother-ship') for transfer to the Materials Recovery Facility (MRF). The 'mother-ship' can serve 5-10 PCV's, collecting 10-20 tonnes of material daily (versus 2-3 tonnes in a traditional system). It stops only briefly to load (thus reducing traffic blockage), and acts as the central supply, repair and carrier base for the PCV's and their operatives.

The result has been that the real-world performance of recycling has leapt ahead of the best-practice vehicles and systems in the UK - not just in environmental and transport terms; but in labour and capital productivity; operative health and safety; and public acceptability.

So what are the benefits of PCV's?

Environmental: PCV's require 10-20p per day of off-peak electricity and a battery replacement every 3-5 years. In the future we may fit photo-voltaic panels to the Materials Recovery Facility - or even the PCV's - to remove them from the grid altogether. Compared

The performance of recycling has leapt ahead of the best conventional systems - not just in environmental and transport terms; but in labour and capital productivity; operative health and safety, and public acceptability

to ANY other existing UK system for refuse collection, the emissions per tonne of waste are vanishingly small. They eliminate 80%-90% of the emissions of the street-based recycling vehicles; and reduce the collection time, emissions and (eventually) numbers of heavy refuse collection vehicles by between 10%-30%. As more material processing plants are built in urban centers, there will be additional savings

both in exports of waste to landfill and in imported virgin-based materials such as paper and aluminium.

Capital & Running Costs: PCV's cost around £9,000 and will last 10 years. We expect costs to fall to £5-6,000 as more are built. This compares to an average refuse vehicle at over £100,000, a kerbside recycling vehicle at £70,000 and the previous lowest-cost models at £30,000. The running cost of a PCV (electricity, insurance, servicing etc.) is approximately £300/annually.

Labour Productivity: PCV's have already achieved between 30%-100% increases in labour productivity compared to existing kerbside systems. Time-motion results show the reasons for this gain:

- the driver no longer sits in traffic waiting while sorting is done, but is able serve 5-10 operatives in the mother ship;
- operatives no longer have to carry boxes back and forth across the pavement to a street vehicle - an average distance of 20-30 metres per box;
- the PCV is low & small enough that sorting is faster than on a higher & larger vehicle;
- the PCV operative can act independently, there is no time lost through drivers and operatives waiting for one another.



ng class fad

Health & Safety: Perhaps the biggest surprise is that the recycler’s workload is made much easier, and the risks and strain reduced, even while handling more material. This is because:

- there is no need to carry boxes between parked cars and through traffic - cutting an average of 500 return crossings/day, or 250,000 such trips - and their associated risks - in a recycler’s working year;
- it reduces the distance a full box (weighing about 5 kg.) is carried by at least a 20 metre round-trip, 400 times a day, a saving of 4km a day with a full box, and the same with an empty box - 2,000 kilometres per year;
- it reduces the height at which the recycler has to lift and sort materials; and
- there is nearly a 100% reduction in exposure to vehicle fumes and noise.

Public Acceptability: The most powerful test was the use of PCV’s on the same streets that had resulted in road rage with a trad-itional street-based recycling vehicle. In three months the crews have reported no incidents, and the central Borough hot-line has reported no complaints. On the contrary, it is apparent that the public responds very differently to a PCV system. They ask the crew about recycling (what day? what materi-als?) and about the vehicle (where did it come from? what does it run on?) - with a high level of interest from children. Residents appreciate that the PCV’s are small, safe, clean and quiet - and are improving their neighbourhood and the environment. The PCV’s are also designed and 80% made in the UK, as well as be- ing a good candidate for recharging through renewable sources.

They also allow the decentralisation of recycling activities, since the vehicles can be stationed and serviced in depots throughout the community. With proper support, it is possible to even ‘franchise’ routes to community groups or local businesses. The Big Issue’s kerbside programme to be launched in Islington this Spring is likely to involve PCV’s, trained ex-vendors, and partnerships with community groups and ethical businesses.

Estates Waste & Recycling: One-third of London’s residents live on housing estates – conventionally considered unlikely to partici- pate in recycling. Research into estate waste manage- ment revealed that the cost per tonne collected was as high as £300, versus £40-£50/tonne for low-rise areas. This is because of refuse chutes and paladin bins which are inconvenient for residents and costly for local

authorities (some pay as much as £600,000 annually for staff to unblock chutes).

However, the waste from estate households is large enough, and contains enough recyclables to make doorstep recycling viable. The key is to take high volume/low weight recyclables (metal and glass containers, plastic bottles, board packaging) out of the chutes and paladins through recycling, reducing the waste volume by 40%.

A doorstep system which achieving even a 20% volume reduction would generate signifi- cant savings in: the number of paladins and the frequency of collection; the number of blocked chutes; the amount of overflow which cleaning staff must manage; and so on.

The next step was to implement a pilot scheme. Two blocks on a Hackney estate were chosen and residents and cleaning staff consulted. Open-top recycling baskets were distributed to every household with promotional materials and weekly doorstep collec- tions initiated. Recycling staff use a modified trolley to collect from the boxes outside each door weekly. Initial participation rates were 100% in the 3 storey terrace block, and over 50% in the 10 storey tower block. Capture rates of materials were around 100 kg per household per year, including both participants and non-participants - better than many kerbside collec- tions. Contamination rates were extremely low, and feedback from residents very positive. The cost are lower than for traditional kerbside systems - since carts cost about £100-£200 each; the distance between flats is small; and the materials are simply removed from the building for collection.

Such systems are now being implemented in Hounslow and Hackney and can significantly improve the quality of life on estates, reduce estate management costs, can be delivered cost-effectively, and with strong resident support. The myth that lower income residents won’t participate in something as ‘middle-class’ as recycling has been shown to be just that, a myth. The core principle - that providing a recycling service that is at least as convenient as refuse disposal will produce high participation rates - has again been proven. This sort of project can also lead to small-scale job creation and real community business opportunities - in com- posting, sales and distribution of reusable or refillable products (nappies, cleaners, etc.), and micro-MRF’ing of collected materials (e.g. sorting plastics or cans).

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CASE STUDY: HOUNSLOW

The London borough of Hounslow has been at the forefront of the introduction of inten- sive door to door recycling. The first target has been to reach a 25% recycling rate and counter the upward trend of household waste. The key to their efforts has been to recognise the limitations of ‘bring’ recycling banks.

A Flexible and ultimately self-financ- ing door-to-door recycling collection service has been made the objective. Existing waste collection contracts expired in 1996 and this created the opportunity to introduce this new form of collection using sub-contractors. Recycling services were gradually built up over a one year period with quality materials

Established in 1995, the Urban Mines Sustainable Growth Park is firmly rooted in the fundamentals of sustaina- ble development. Agenda 21 states: ‘Environmen- tally sound waste management must go beyond the mere safe disposal, or recovery, of the wastes generated and seek to address the root cause of the problem by attempting to change unsustainable patterns of production and consumption’. Based on environmental and economic trends (existing and anticipated) the aim of the Park is to reduce the consumption of primary raw materials by cir- culating waste, as secondary raw materials, back into the local economy. This, in turn, will reduce waste for final disposal, the need to transport both primary and secondary raw materials as well as benefiting the local economy through a more labour intensive activity. Whilst this may appear rather simplistic, it is based on a long, hard inspec- tion of the rudiments of recycling. This is not recycling for recycling’s sake, but an attempt to promote good resource management, built around a framework of economic regeneration, employ- ment creation and market potential.

Written in the early nineties, the Delors White Paper on Employment clearly identified, ‘The current model of the community is... charac- terised by an insufficient use of labour resources and an excessive use of natural resources, leading to a deterioration in the quality of life’. The em- ployment credentials of recycling based on figures from Stephen Tindale, Director of Green Alliance (see table) show that it compares well with in- cineration and land-fill. Thus recycling can go some way to bucking the detrimental trend identified by Delors. Moreo- ver it can help reinvigorate dwindling employment op- portunities in urban areas, in turn con-tributing to economic growth.

Another economic driver behind the vision is burgeoning environmental legislation, both domestic and European. This has created an increasingly level play- ing field for recycling and recycled materials in the UK. Most obvious is the land-fill tax which has sought to encourage waste minimisation, re-use and recycling. Increased in this months budget to £12/tonne, it is argued that the tax will not have the desired effect until it reaches somewhere around the £20/tonne mark. While 20% of landfill tax revenue is reserved for environmentally enhancing projects it has also been used to offset the reduction in employers National Insurance contributions.

This is one example of the increasing shift in taxation from labour to resources which will increasingly make the re-use of materials

Waste Disposal Method	Jobs/1 m Tonne of Waste
Landfill	50
Incineration	150
Recycling	500

being segregated at source using green boxes. 68,500 households are now serviced, including 1,500 low-rise flats (up to four storeys) and 200 high rise flats (in a pilot scheme).

Collections from tower blocks have been shown to reduce maintenance costs. The recycling contract was awarded to a not-for-profit company. Capital funding for the start-up of the scheme was successfully arranged and aspirational targets were set for achievement mid-contract.

Implementing door-to-door recy- cling borough wide helped capitalise on pub- licity. Quality service, promotion , education and household involvement have been the key to success.

Urban MINES

James Horne

A sexy topic it may be, but it is possible to count on the fingers of one hand the successful and truly sus- tainable projects dealing with waste in this country. Urban Mines hope this is all about to change as the groundbreaking ‘Sustain- able Growth Park’ initiative develops apace.

more financially viable. The introduction of a carbon tax would also make a locally delivered solution to waste disposal more attractive through a reduction in transportation.

The Park will reduce the consumption of primary raw materials by circulating waste, as secondary raw materi- als, back into the local economy creating eco- nomic activity and jobs

Legislation from Brussels is falling thick and fast, most significant has been ‘Pro- ducer Responsibility’ which shifts responsibility to the producer for prod-ucts that have reached the end of their useful life. This led initially to packaging regulations, but will soon be applied to batter- ies, tyres, electronics, white goods, end of life vehicles and construction and demolition waste. Each area is ripe for resolution and will be under- pinned by legal recycling

requirements, reducing the risk on the part of the recycler. The EU is a particularly strong advocate of market instru- ments to make current economic patterns more sustainable. Taxes on primary raw material - with obvious price advantages for secondary materials - have been discussed, together with differential product taxes according to the amount of secondary materials used. The Urban Mines project has pre-empted much of this legislation, and each new environmental directive strengthens the case for this type of economic development.

Although the project continued to de- velop through 1995 and 1996, it was not until the end of the second year that truly significant steps were taken. A feasibility study was commissioned by Job Creation Ltd in October of that year which proved to be an intensive and crucial insight into the concept and provided a much clearer vision of the Park. With funding from English Partner- ships and Calderdale & Kirklees TEC, the study was completed in November 1997. It helped to establish a project management team for the Park with a remit to establish the first demon-stra- tion Sustainable Growth Park in the Yorkshire and Humber area. Significant funding was also provided by the Environment Agency allowing the recruitment of two full-time staff.

In essence the Park will be a ‘green’ industrial centre dedicated to the use of second-ary raw materials. It will include a Materials Recovery Facility (MRF), material reprocessing facilities and on-site manufacturing organisations able to use the steady supply of secondary raw materi- als in their production process. The Park will be linked to the local authority’s waste collection system. Waste materials will be sorted into type

Continued page 8

and fed through the reprocessing facilities to be returned to a workable secondary raw material for use by the on-site manufacturers. Once sold to, used and disposed of by local consumers, the waste product is collected by the local authority and the cycle begins again. It is this model which forms the basis of sustainable waste management and the efficient use of global resources.

Alongside facilities for dealing with waste, the Park will provide educational and training facilities to encourage environmental best practice in the use of raw materials and waste generation within the local business sector. It will also offer technical advice, promotional assistance and laboratories for development of new uses for traditionally recycled materials. All are crucial to the success of the Park.

It is predicted that the Park will be able to deal with 40,000 tonnes of waste per year, will create around 300 jobs and, crucially, develop a range of new markets for waste material. This will allow collectors to get better prices for secondary materials which are of standard specification and quality. Over time such materials will be regarded as commodities for sale in competition with primary raw materials.

As David Dougherty of the Clean Washington Center, Seattle noted in his talk at the National Recycling Forum Conference last year: "[Markets] remain the Achilles heel of the recycling industry. Whilst local governments are responsible for collection, no one is responsible for the most difficult challenge - market development."

Herein lies the key. To be successful a recycling venture needs a prevalent market. Such a market cannot exist without a widespread change in attitudes towards recycled materials by consumers and manufacturers, along with a general acceptance of the quality of such materials. The Park attempts to address this problem by providing facilities for on-site manufacturers, offering an outlet and market for the recycled material. In the course of its work, Urban Mines is also carrying out projects looking

into sustainable design and consumer attitude in respect of the use of secondary raw materials.

One example of the type of manufacturing opportunities presented by the Park is in the use of green glass. The UK manufactures and exports mainly clear glass (wrapped around whiskey for example), but imports a lot of green and amber glass (in the form of wine bottles), most of which is returned via bottle banks. One of the UK's leading collectors and suppliers of glass cullett, has a stockpile of 30,000 tonnes of green glass for which it cannot find a reasonable price from the container manufacturers. Establishing a pilot business making green tableware and gift items containing recycled glass would provide a much needed outlet for these stock-piles. There is a similar Spanish project which has enjoyed tremendous success in

the space of a few years, growing from 100 employees to a significant industry employing several thousand. It is estimated a similar project located on the Park would initially create in the region of 16 jobs with potential for growth to 130.

Finding a location for the Park has recently become an issue because there is doubt over the original site and local author-

ity partner. However this is a minor setback, since the Park is easily applied and replicated elsewhere. Indeed, once the success of the pilot has been monitored, it is hoped individual Sustainable Growth Parks can be developed throughout the UK and into mainland Europe.

As a tool to achieve urban sustainability the Urban Mines Sustainable Growth Park does not provide a pre-packaged solution. Whilst it cannot ensure material flows are purely cyclical in a local context, it can progress the sustainability cause significantly. The Park is a major step towards developing the cottage type industries that take their materials from the detritus of local urban life and return to that locality a usable commodity. It is such industries that will not only be essential in achieving future urban sustainability, but will also provide a local solution to society's problem of resource



and waste management. Of equal importance is economic regeneration. The Park provides a serious opportunity for economic regeneration, employment creation and the development of new manufacturing industries to an area.

Along with material gains, the Park will also help stop the unsustainable drain on raw materials as well as stemming the continuous flow of CO2 emissions from transportation. But one cannot be completely altruistic, whilst the importance of the environment cannot be underestimated, the Park has to be financially self-sustaining and the businesses on the Park have to be viable. What is needed is a shift in emphasis from the use of primary raw materials to the use of secondary raw materials. Ultimately this means a culture change on all levels and it is hoped the Urban Mines Sustainable Growth Park can provide a catalyst to this change.

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The Sustainable Urban Neighbourhood Initiative is supported by the Department of the Environment, Transport and the Regions' Environmental Action Fund, and URBED

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The views expressed in this newsletter do not necessarily represent those of the Department of the Environment Transport and the Regions or any of the project's sponsors

This news sheet has been researched, written (unless otherwise credited) and designed by URBED which is a not for profit urban regeneration consultancy set up in 1976 to devise imaginative solutions to the problems of regenerating run down areas. URBED's services include consultancy, project management, urban design and economic development. The SUN Initiative further develops URBED's growing involvement in housing development and continues the work of the 21st Century homes project.

WHY NOT GET INVOLVED?

The SUN Initiative has been established as a broadly based network of organisations and individuals interested in the sustainable urban development. We do not have a membership but people can get involved in a number of ways...

MAILINGS: If you did not receive this newsletter by post please contact us and we will add you to our mailing list.

CONTRIBUTIONS: We would welcome letters or articles for future issues of this newsletter.

EXAMPLES: We are compiling a resource base of good examples of sustainable development nationally and internationally. We would therefore welcome details of projects that might be of interest.

SPONSORSHIP: We are seeking sponsors for future issues of this newsletter and for exhibition material. Details are available on request.

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Density or town cramming:
There is a great deal of confusion over housing density. Hulme in Manchester was home to 130,000 people in the 1930s. However there is a perception that it was too dense in the 1970s as illustrated by central sketch. Yet the central figure ground plan shows that it was anything but. It was in fact only marginally above garden city densities (15 houses to the acre) and combined the worst of both worlds by appearing to be crammed but lacking the population to support local facilities and to make the area feel safe. The illustration of Edinburgh New town shows that dense urban areas can create attractive places to live, something which the current Hulme redevelopment is seeking to achieve by doubling densities.



The great SUN presentation

These images are taken from the recently launched SUN presentation. This is now available as a set of 35mm slides which have recently been used at presentations in Northern Ireland, Liverpool, Preston and Manchester. The slides are made up of a series of black and white line art images. Together they outline the history of urban development and the roots of the low density suburban sprawl that characterises many of our towns and cities today. It then looks at the influences on the future and develops this into a justification for the sustainable urban neighbourhood.

The slide show is available from the SUN office along with an exhibition which covers the same ground. We are happy to make presentations to organisations interested in sustainable development provided that expenses are covered. For details, please contact David Rudlin or Kieran Yates.

