

Urban
ECOLOGY
FOCUS
EUROPE
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Urban Ecology Focus Europe

A workshop and a conference with this theme took place during the period 22-24th May in Oslo and Drammen in Norway. It was organised by NABU (Norwegian architects for sustainable development) and the Hållbara Hem- (Sustainable homes) project, a joint venture between Boverket (the Swedish National Board of housing, building, planning) and the city of Malmö.

The conference in Drammen 24th was preceded by two intensive days of workshops run by NABU in Oslo. Here teams from projects around northern Europe sat down together and exchanged experiences and made comparisons.

about

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Participating projects

New city districts on brownfields:

Bo01, Malmö - New city district in the western harbour of the city, partly brownfield

Hammarby Sjöstad, Stockholm - New city district in brownfield area on the seafront

Pilestredet Park, Oslo - Redevelopment of on former hospital area in the centre of the city to a new city district

Distrikt Vauban , Freiburg - Redevelopment on former military area to a new city district

Loretto/Südstadt, Tübingen - Redevelopment of former military area to a new city district

New city districts on greenfields:

Gemeente Culemborg - Development of former water protection area to a new city district, to be integrated in existing urban fabrics.

Viiki, Helsinki - Development of new urban city district on farmland and natural area, 7 km's from the city centre close to nature

Kronsberg, Hannover - New city district on fertile farmland outside the city

Redevelopment of existing housing area:

Fairfield, - Redevelopment of a run down housing estate

Conference report

The following is a report on the contents of the conference in Drammen.
The first part contains brief overviews, thematic challenges and a workshop report.
Followed by an overview of the presented projects.

Einar Skalstad

Deputy mayor Drammen

Greeted the participants and opened the conference. He also declared that the city was proud to host it and that the city had ambitions to get sustainable develop-

ment and city planning started, and that the conference therefore was a great opportunity to listen and learn.

Chris Butters

Architect and project leader NABU, Norwegian architects for sustainable development

Sustainable development implies a healthy relationship between culture and nature. No society can exist without a healthy natural base, hence environmental awareness and efficiency are crucial. But for society itself to be healthy and sustainable, factors such as participation, equity and democracy are just as crucial. Thus sustainability is not just about environmental design and technology, but has three main aspects: these are the ecological, the economic and the social. We must also remember that city limits are not natural system limits, and that urban ecology must be seen in connection with the larger region and rural surroundings. Town and countryside are interdependent.

Material sustainability - the quantifiable part - concerns all levels, from the molecular chemistry of building materials up to global climate. Similarly, social or cultural sustainability contains all levels, from the individual up to questions of global equity. And the economic

aspect is not just a question of what things cost, but of the overall economic system and of the processes with which we manage the world.

The urban development projects participating in these workshops can, loosely, all be called urban ecology projects in the sense that they concern large sections of urban fabric, and therefore address not just ecological building design, but wider issues of urban infrastructures, social qualities, the organisation of work, planning and participation processes.

Our profession has a major responsibility. In our age architecture is not complete, and is certainly not good architecture, if it is not reasonably sustainable. Two comments about sustainability:

One: Sustainability is not a style. It has more to do with processes and content, than with form. It's a

question of making durable solutions - the word durable implies the time dimension - as well as of many things that are invisible, below the surface - such as the contents of building materials. The architectural style can vary.

Two: Moving towards sustainability is to work in a certain direction. People ask what absolute sustainability would be in terms of a definite goal. There is no answer to this, even though Factor Four-type scenarios are useful for us at this point in time. We take steps, and we do know that we move in the right direction. Sustainability is always relative - to a specific historical context, place and time.



Fredrik von Platen

Deputy Director General, The National Board of Housing, Building and Planning (Boverket)

Sustainable Cities - an introduction

Fredrik von Platen gave in the opening speech an overview picture of the work going on in Sweden and the European Union to create sustainable cities.

One generation from now some 90 % of today existing buildings will still be standing. The long life span of buildings means that actions must be taken in the existing building stock to attain a sustainable built environment.

Even if existing buildings are to dominate for decades to come, it is not unimportant from an environmental viewpoint how we design our buildings today. It is important that new ideas show the way.

It is necessary to treat the entire building stock as an entity in a single system regardless of whether the buildings are old or new. Boverket has observed important advantages of the moderate-sized city with 50 000 - 100 000 inhabitants. The moderate-sized city has proven

to combine many of qualities essential for a decent everyday life, including education and job opportunities, public and commercial services and cultural activities. The moderate city has good chances of making public transport economically feasible and of reducing the need for every day car commuting. Moderate cities also have the basic capacity to improve the eco-cycle symbiosis with the surrounding countryside, through biological production for local needs, and options for biological breakdown and recycling of surplus products, sewage and compost.

Ultimately our city environment is governed by our own behaviour in the city. The design of the city is of great importance. If my city is attractive, then I want to be there, do my shopping there. If I do my shopping there instead of driving to out-of-town shopping centres or neighbouring towns, then the customer potential will increase and services improve. A positive spiral will be initiated.

Joachim Eble

Architect and planner of Culemborg, Netherlands

Joachim Eble has worked with a wide span of different projects - from small and large buildings to forming whole concepts of landscape and ecological urban planning.

Eble illustrated how the interrelations between different parameters are the interesting starting point of the sustainable/ecological design process: energy, transport, water cycles, wastes, climate, noise, landscape, urban structure and social aspects. When we start thinking of how these connect - for example the energy use to the landscape planning and transports - exciting and inspiring possibilities emerge. The synergies and combinations also lead to a very large potential for economy.

The Berlin project is a large urban renewal scheme in collaboration with American architect Daniel Liebeskind. His task was to make Liebeskind's urban concept more sustainable, focusing on building form, solarisation, urban ventilation, vegetation and water management. Eble stated that a city area such as this could be a power station, as opposed to urban areas being massive consumers of energy.

How could Liebeskind's concept be changed? A whole new water concept was conceived, where water is used in green climatic zones between the buildings to cool the area. This includes active use of rainwater, and infil-

tration of storm water. Active and passive solar energy provides a potential for coming close to heating self-sufficiency. For the buildings themselves natural ventilation systems were introduced, also cooling the buildings with underground ducts.

Prisma in Nuremberg is a large building project of Eble's, where many of these solutions have been proven in practice. It is a dense urban mixed-use block with offices, flats, kindergarten and stores. Here natural ventilation is also used in the whole block, including in the very large glass atrium. Energy saving construction, vegetation, natural materials and running water all contribute to the solutions.

A recent EU-funded study showed that Prisma, despite all its ecological features, is actually cheaper than comparable conventional buildings. This is because of the advanced integration achieved in ecological design. The link between urban structure and individual buildings fascinates Eble. To realise the links between the planning level and the building level is the key to building high quality housing, with a high ecological quality, which also costs less.

A large project outside Rome illustrated sustainable land planning on an even larger scale, integrating the rural and the urban. Water resources, energy farming, waste cycles and building form combine in what is no less than a new approach to the design of human settlements. Bioclimatic and other planning tools are used in ways that are new to conventional urbanists.



Summary

Frederica Miller, architect: summary of the workshops on Urban Ecology

Two days of workshops took place in Oslo prior to the conference. 35-40 participants from nine different urban ecology projects in Europe discussed methods, results and problems experienced, and debated future priorities and challenges for urban ecology. The purpose of the workshops was an in-depth exchange of information and experience between experts.

Frederica Miller, architect in the GAIA group and process leader for the Oslo workshops, was given the difficult task of formulating a summary of the workshops for presentation at the conference.

Quantitative factors:

The first workshop session concerned the material or quantitative aspects of sustainability. A lot of similarities between projects were noticed. Here are some top achievements:

Energy - different ways to calculate make comparisons difficult. Housing energy use as low as 65-70 kWh/m²/year is not uncommon, including as low as only 15 kWh/m² for space heating. There are also “plus-houses” which produce more energy than they consume. At the urban level, a 100 percent renewable energy system has been achieved.

Transport - car free areas, carpooling systems, priority for cyclists and pedestrians and high service level for public transport are proven solutions, but their combination in an integrated strategy is essential. Reductions of 30-40% in car ownership are achieved, with the concept of “car-free living” being popular with many groups of users. Getting rid of cars is not a target in itself, equally important is the quality of urban space one can achieve without cars.

Water - 20-40 percent reduced use is not uncommon. Collection and use of rainwater is becoming more widespread, as well as runoff infiltration to the ground. One greenfield project shows that the groundwater regime after urbanisation is almost exactly as it was when undisturbed countryside, i.e. the ecological footprint in this case is almost nil as regards the water impacts.

Wastewater - cleansed locally. Blackwater treated in a “living machine”. Solutions of this kind are becoming

more viable, also economically.

Solid waste - 30 percent reductions and more; wastes sorted in many fractions- perhaps sometimes too many. Vacuum systems are working.

Biodiversity - productive permaculture and the usage of green points.

Urban climate - low noise levels, high air quality and good microclimate.



Materials - eco labelling systems are used. But many existing systems are difficult, and the need for a standardised system is obvious. It may be better with informed subjective “expert panels”, because choice of material is often a subjective decision, and very many materials are not fully tested.

Indoor climate - difficult to measure. Many parameters can be measured and finally it's the health of inhabitants that tells us how well we have succeeded.

Conclusions:

Quantitative goals are essential to document effects, but eco-efficiency is only a starting point and not a final goal when planning a neighbourhood. Standards should be set as minimum requirements. On top of this

architectural quality and social considerations must be added.

Eco-correctness can be a trap if it's considered to be the BIG GOAL. One might end up with a neighbourhood where no one wants to live, since it's too ugly or unsocial.

Indicators of life quality should be decided by people themselves.

It is essential to have indicators showing progress of an area over time. Inhabitants themselves must decide on priorities - must decide the indicators. An example from Seattle: when the salmon return to the bay and when

the connecting leads to interesting design concepts. An example is Joachim Ebles Prisma building, as well as many features of the other projects participating in the workshops.

The question is not how many "eco-points" one can tick off, but how well integrated they are and how appropriate they are in a particular place and project.

Workshop members asked for a matrix where the different projects and the parameters of ecology would be listed. This way one would easily compare different aspects and projects. This was not made during the workshop, but we plan to do it, though it will of necessity be simple and approximative..



we can see the mountains from the city centre - these were the priorities decided locally in the first stage of a sustainability initiative in the city.

One must stop talking about "participation" and patronising inhabitants. "Partnership", working together with users/planners/consultants/developers, may be a better word, although it also has its traps.

So, what do we want?

We need to broaden the criteria which determine what is a good quality urban plan or building design. We need to increase complexity and quality of life, and create a healthy society for people, plants, animals, yes - the planet. We are discussing an integrated life space!

How do we integrate planning and design and connect the different parameters and qualities? We believe that

Sustainable projects - for whom?

The time has come for big urban ecology projects that will have a big impact on the environment. Smaller ecovillages were the first attempts made, and now we can work in a bigger scale. At the same time we have to broaden perspectives. Ecovillages are full of enthusiasts who occasionally make big sufferings because they believe in the cause. Large urban areas must work for everyone, not just the committed ones.

So, urban ecology is not just for "greenies" - it can be convenient and pleasant for anybody to live in a sustainable neighbourhood: teenagers, families, grandparents...

Density is a question that awakens strong feelings among the members of the workshop. Building height and density are often confused. It was stated that sustainable projects can be very dense (Tübingen 2.5-4.5). But the question of Manhattan's sustainability ended up discussing how big an ecological footprint the New Yorkers make? Is New York possible without severe consequences for other parts of the world? The city is totally dependent on a very high import of resources and export of pollution. (NB! Manhattan has the same built area and density as six stories all over...)

Qualitative factors:

It is important to compare political, cultural and social differences, because these provide varying obstacles as well as opportunities.

Water and vegetation are important qualities for human well being.

Time saving: less time should be used for transport of self, children

Cost efficiency - including social housing

Integration of work and living - more sociable spaces, less transports, etc.

Transparency: it should be easy to follow processes and results. There must be openness.

Beauty

Efficient use of space is important: reduce use of area. Reduce use of green field sites. Reduce space use in buildings. And: high urban density demands higher quality of urban space.

After the goals of the welfare state, what are the basic goals of urban ecology? Quality of life could be described as “WC, PV (Volvo PV-model) and TV” in Sweden in the fifties. Now it’s rather time, health and quality of place which are important qualities of life. So a new variant was suggested: “NP, NP and NP”: no pills - no pain - nice place!

How do we achieve all this?

Lessons learned? The members of the workshop had many concrete recommendations concerning processes. Here are a few of the main points put forward!

- Process - we have to be inventive! There is no “one-method”, all sites and situations are different and call for different approaches.
- Top down and bottom up perspectives have to be combined!
- Continuity in the process is cru-

cial: in the planning process, the built project and in use. Secure the organisation and the staff (people who will deliver green solutions).

- Set up clear targets and a solid framework!
- Have clear contracts and fight battles early to nail things down - create responsible partnerships.
- Enthusiasts and champions are essential for the success of projects, at least at this stage.
- Define what is a public task and what can be private - you might be surprised to find new solutions. But: private markets will never provide mixed tenure - this needs public intervention.
- Closed Budgets - feed income back into the project.
- Offer carrots, not sticks. Incentives and benefits are best for people to make green choices. (Freiburg example: no private car: 50 % reduced price train; reduced price for house without parking made visible to buyers).
- Steal ideas from others! There are many good examples already, we don’t need to experiment all the time.
- Have patience. Green takes time.
- Need to re-program architects and builders. Make programs that insist on ecological solutions and they will build green programs. They don’t have to be dedicated, just motivated.
- Good communication - workshops and seminars.
- Education - the need to educate clients and administrators about sustainability and about the complexity of successful delivery. This needs more resources than conventional planning, but: if you think education’s expensive - try ignorance....

Finally, the most important practical advice from one of the members: J F D I - Justdo it!



Rie Öhlenschlaeger

Danish Center for Urban Ecology

No Danish projects were presented at the conference, it was stressed that there is a lot of work being done on ecological design in Denmark, but there is no project at quite the same scale as was the focus of the workshops. Rie Öhlenschlaeger, Danish architect and manager for the Danish Center for Urban Ecology gave some short comments concerning the work for sustainable building and planning. Five different issues were stressed.

Her first remark was about information. She stated that there is a lack of channels and networks in this field of interest. Here there is much still to be done, and this conference was an important step.

Secondly she pointed out the need for declarations of building materials and components. There should be an international standard with eco-labelling.

Thirdly the need of new products was mentioned. Still there is a lack of smart sustainable building products. Inventors must be encouraged.

Fourthly she called for more benchmarking. There should be international standards set for deciding environmental values of the different projects, and for evaluating results.

The last and fifth point concerned taxation and economics. If sustainable building would be less expensive than the conventional it would be preferred on a wider scale. A way of achieving this could be to put an environmental tax on unhealthy products.

Klas Tham

Professor and responsible for the plan at Bo01, Malmö, Sweden

Klas Tham discussed property value in economic terms. He stated that the location is the wholly dominant factor for deciding property value. But value is also connected to the attractiveness of the building and its surroundings, the technical quality and the usability. In a less attractive spot architectural quality can improve property value and make a significant difference.

Tham explained that if you don't build attractively enough, you might soon face decline. People won't pay enough care and attention to buildings or spaces they don't feel attached to, and this will lead to need for refurbishing and renovation projects with short intervals. In the end this will prove to be more expensive. In the long term the project has cost twice as much as an attractive one would have done!

What are the challenges for architects? Klas Tham stressed the importance of the built environment in terms of giving support to the individual's needs. It provides strength to fulfil our full capacity. He referred to Belgian architect Lucien Kroll: Sustainability starts with equality. How does the environment affect us psychologically?

How can city plans and design support sustainability? There are all the well-known quantifiable aspects concerning houses oriented to catch passive solar energy,

dense building etc. But there are also social aspects that have to be mentioned. The need of consideration for children, disabled, old people. This should be done for both human and economic reasons. Good design for disabled is a benefit for everyone, the environment is improved for us all.

Finally there are the less quantifiable aspects, the sensual and emotional ones. Man has a need for order, but also of complexity, mystery and surprise. Nature and foliage have proven to be very useful tools to create these values, and the vegetation is a very important part of the Bo01-project.

-If we really want to build a wonderful city we must learn more about these less quantifiable aspects, Klas Tham said. We must argue for and find convincing architectural designs that strengthen people and make them feel well. This should make sustainable building "trendy" and demanded.

According to Tham there is absolutely no contradiction between sustainable architecture and high-class architecture.

Presented projects

Bo01

Malmö, Sweden, Christer Larsson, City Architect, City of Malmö

Bo01 is an entirely new, ecological district with room for 600 dwellings as well as offices, shops and other services. The area is the first development stage of Västra Hamnen (The Western harbour) one of Malmö's prioritised urban development areas. When the area is fully developed it will house 10.000 residents and 7.000 workplaces. The area is typical of urban redundant industrial land with contamination and affected environment. The area has, at the same time, many positive aspects in its location by the sea and next to the beach and the city centre.

A fundamental ecological approach to planning, building and construction is a key tool in the creation of the district. Innovative ideas and new techniques will enhance the environmental standard of the area. In order to realise the environmental ambitions a quality programme has been worked out as a consensus document between the city, the expo organisers and the developers. The programme defines the quality standards that have to be met by those who participate in the construction and building process, as standards for energy use, material use and green issues. The quality programme is directly linked to the agreement on the granting of land between the developers and the City of Malmö. This means that the requirements of the quality programme are accepted by the developers and are part of all of their commitments concerning the individual building project.

The environmental measures work together with architectural qualities far beyond the ordinary. The developers hire well-reputed Swedish and international architects to guarantee the highly set targets for the architecture.

Man's interaction with the environment is a fundamental factor in the planning of the district. The district is designed to be ecologically sustainable. It will also be socially sustainable. Access to green areas and water,

utilisation of daylight, and varied visual and auditory impressions create an environment where people feel well.

The new district is provided exclusively with energy from renewable sources.

The energy supplier Sydkraft has worked out a concept of supplying the area with 100 % locally produced renewable energy. The demand for 100% renewable energy means that there is a balance between production and energy use on an annual basis. Energy used in the area should, at some point in time, be produced there. The new electricity grid and district heating network is linked to the existing systems of the city in order to bridge the time-lapse between the point of production and use of energy, without the need for specialised equipment for energy storage. The city's system is used as an accumulator and as a reserve supply.

The structure of green space has a central role in the creation of an environmentally sustainable district. The aim is to create a green and pleasant area which optimise biodiversity, despite the dense nature of the building. Tools to reach the aim are a "green space factor", "green points" and creation of biotopes in a newly constructed park.

Emphasis has also been put on traffic issues with priority given to pedestrians and bicycles, and establishment of a mobility office that gives residents and companies in the area advice about environmentally sensitive transport. A carpool is established and there is a filling station for gas and electric vehicles in the area.

www.malmo.se

www.ekostaden.com

Hammarby Sjöstad

Stockholm, Kerstin Blix, Environmental manager, City of Stockholm, Henrik Holmgren, project co-ordinator, City of Stockholm waste management administration, Kerstin Ekbohm, project co-ordinator, Birka Energi

In Hammarby Sjöstad a run-down port and industrial district is being transformed into a modern, ecologically sustainable part of the city. The district is being transformed into a modern city area that will form a logical extension of Södermalm, with 8,000 apartments housing a population of 20,000. After completion of all parts of the project in 2010 there will be 30,000 people living and working in the area.

Hammarby Sjöstad will have an inner-city character with new, exciting architecture. Unique qualities and opportunities flow from the waterside location and the proximity of both the inner city and the Nacka Nature Reserve.

The aim for the area is that negative effect on the environment should be halved, compared with that of other modern developments. New solutions and the commitment of the residents are necessary to reach the goal.

An ambitious redevelopment programme was implemented before the start of the actual construction work.

Hammarby Sjöstad will have its own ecocycle model with its own sewage treatment plant, where waste water will be treated, the heat will be recovered and any nutri-

ents will be recycled using new technology to enable them to be returned to agricultural land. Surface water will be cleaned locally and will not impose a load on the sewage treatment plant. Energy will be produced in the district heating plant in the area and will be based on renewable fuels. Combustible waste from the area will also be recycled in the form of heat.

This model for energy, waste and water management is known as the Hammarby model. It was developed jointly by Birka Energi, Stockholm Vatten and Skafab.

The commitment of the residents is essential to this environmental work. Good practical arrangements for the sorting of waste products at source and recycling are necessary, as is the ability to monitor one's own energy and water consumption via the internal data network. Energy consumption is accurately adjusted. For example, lighting and ventilation are switched on only when someone enters the room.

Information technology is being applied to minimise the need for transport within Hammarby Sjöstad. Public transport will take priority with the new Tvärbanan tram service and a boat service into the city centre. A car pool is being established, and residents will be able to join this and request a car when they need one. The cars in the car pool will also be modified to run on biogas from the sewage treatment plant. An Environmental Information Centre will be opened to provide residents with help.

Considerable concern for the environment is also being shown in conjunction with the actual construction of Hammarby Sjöstad. As much as possible of the oak woodland on the Sickla Udde headland will be preserved, and an ecoduct - a "green" and broad viaduct - will link this part of the city to the natural environment of the Nackareservat nature reserve.

www.hammarbysjostad.stockholm.se



Pilestredet Park

Erik Engeseth, Project leader Statsbygg

Pilestredet Park is a large urban renewable program in the centre of Oslo, with urban ecological aims. The project is developed on the old hospital area left empty when a large new hospital complex on the outskirts of Oslo was completed. The area covers 7 hectares and consists of all the old hospital buildings with various degrees of quality or decay. It contained approximately 11.000 m² of floor space, and will consist of 85.000 m² new construction and 5.000 m² of renovation of existing buildings. The area will contain about 650 dwellings, offices and commercial premises. The outdoor area to be landscaped as public spaces.

As a starting point an Urban Ecology Program was formulated which points out seven main focus areas; Urban environmental qualities, Infrastructures, Selective demolition, Maximum reuse of existing of existing buildings, Integrated design of urban areas as urban ecology park, Environmental architecture, Energy conservation.

An environmental assessment program has been developed (MOP), as a concrete tool for achieving the

environmental targets. It stipulates procedures to be followed in the process to which ensure good environmental planning and quality control. The program is an obligatory agreement that is part of the contract of sale to the developers, and is binding for Statsbygg's own projects.

The project has by 2002 mostly consisted of selective demolition with careful waste management of the buildings selected for demolition. One interesting project to be realised is a project where reused and recycled materials from the demolitions are going to be used in a new building containing 45 flats.

The outdoor spaces are being planned as an integrated landscaping project applying ecological principles.

www.pilestredetpark.com
www.statsbygg.no/prosjekter/pilestredet/
 (both with information in Norwegian only)

Vauban

Freiburg, Christian Sperling, Forum Vauban

District Vauban is being built on an old military area. The area is 38 hectares will consist of 2000 flats for 5000 inhabitants. Planning started in 1993 and the first districts have been constructed, construction will continue till 2006.

The area is constructed by private investors, and co-building groups. The project is organised with co-operation between the city and NGOs. The city is responsible for the planning process, Forum Vauban is an organising body for extended citizen participation. Citizen participation is important in both building projects and public and green spaces in the area. And citizens with a high degree of environmental awareness inhabit the area.

Main focuses for the project is energy and transportation and traffic. The target 65 kwh/m² is set for energy use for heating in buildings. In addition about 100 units with passive houses (15kwh/m²) or "plus energy" houses that actually produce more energy than they consume has been built and more are planned.

Solar panels (about 450 m²) and photovoltaic (1200 m²) help provide the energy needed. Energy for the area is provided mainly with a co-generation plant operating on wood chips that will be implemented in 2002 and connected to the districts heating grid.

Inhabitants are urged to sign a car free treaty, and 40 % has already done so. The costs of parking are separated from the costs of the flats, so that car users have to pay extra for parking spaces. The area consists of different neighbourhoods, a part of it is totally car free, promoting a different use of the areas in front of the houses and the streets. Parking is possible at two points in the area, one solar garage with photovoltaics has been constructed.

www.vauban.de
www.forum-vauban.de

Südstadt - Tübingen

Cord Soehlke, Project leader

Südstadt is a former French military base 3 kilometres from Tübingen city centre. The planning for the area aims to create a dense and diverse urban structure. New buildings are added to complement the existing barracks from the military era.

The area is divided and sold in plots of different sizes in order to get as mixed group of inhabitants in the area. The high demand for plots has given the City of Tübingen the opportunity to choose to whom they wanted to sell the plots. No big developers have been given opportunity to buy plots in Südstadt. Building co-ops and so-called "baugruppen" has priority to the plots to commercial developers. Potential plot owners with the best concepts have also been given priority when land has been sold.

Small-scale building projects with the lack of strong commercial developers have resulted in reduced construction costs. The non-commercial actors construct houses with just the comfort demanded by the tenants in the same time as costs for marketing is avoided.

The preferences to sell to developers with strong concepts have created a diverse area. There is a co-operatively run home for elderly; there are solar houses and so on. Some houses on the other hand are where ordinary and some are ugly, in the eyes of architects.

The potential developers have been forced to fill the bottom floors of the houses with commercial activities in order to get a living city district and an urban atmosphere.

The density makes it necessary to keep cars away from the area. Parking garages are built in the fringes of the area. The cost of the properties is separated from the cost of parking in a way that non-car owners don't have to pay for the building and maintenance of the parking facilities.

Environmental conditions are agreed upon when the City of Tübingen sells plots to the developers. Minimum conditions on, for example energy use, in the buildings are regulated in the contracts.

Solar cells for electricity production and solar panels for production of heat water are popular in the area. 20 % of the buildings are equipped with solar energy production units.

The maximum use of heating in the buildings is regulated to a maximum of 65 kWh per square metre.

www.inro.tno.nl/transland/cases_nonprio/T%C3%BCbingen.PDF



Gemeente Culemborg

Joachim Eble, architect and planner

A new housing area is constructed on a former water protection area 2 kilometres from Culemborg city centre. The 40 acre big area is planned to be well integrated in the city landscape. Culemborg is a small dutch city of 25.000 inhabitants, and the new district will house 2.000 inhabitants.

A developing master plan with a framework for possible actions and measures is the base of the project together with a quality programme. The area display mixed use with a combination of offices and dwellings, the office blocks situated on a close by highly trafficked road as a shield for the interior housing area.

Gemeente Culemborg will be self-sufficient with 100% renewable energy through sun, wind, ground water and biogas, and the houses are constructed to be energy neutral. Passive solar architecture as well as solar production units are applied on the houses.

Resource management is one of the key elements of the area. Different measures are taken to close the ecocycles as locally as possible. Permacultural design is used to

integrate landscaping and local treatment and cleaning of rainwater and wastewater. Grey and black wastewater is managed locally and nutrients are recirculated in the area in the same permaculture system, which provide the area with food.

A strong participation of the tenants is one of the characteristics of the projects. The project is lacking big commercial developers. The developers are responsible for the maintenance of the area, through membership in an association for companies and developers in the area

Parts of Gemeente Culemborg are car free. A care sharing system is set up in a order to make private car ownership unnecessary.

The environmental standards and targets reached are higher in the project than new governmental proposals and guidelines for new sustainable development and building.

www.eva-lanxmeer.nl (Link to one project in the area)

Viiki

Helsinki Finland, Riita Jalkanen, City Of Helsinki

Viiki is a new city district 8 km from Helsinki centre in an agricultural area close to nature. The total area is 65 hectares big and will contain a science park, and residential areas. The science Park is the centre of the area. It will consist of a University campus, university facilities, business incubators, shopping centre, residential blocks, public buildings and parks. The area will care for 13000 inhabitants, 6000 work places and 6000 students when it is fully developed 2010. In the largest residential area Latokarto, there will be a special experimental eco-neighbourhood of about 24 hectares, for about 1700 residents, by 2003.

The environmental characteristics of the eco-neighbourhood are guided by a set of eco-criteria drawn up by an interdisciplinary working group. The eco-criteria define the minimum level each project is required to achieve in relation to five different aspects; Pollution, Natural resources, Health, Bio-diversity and Growing food. The criteria set the standard of 20 % reduction of Co2 emissions, and use of water. Energy use is set to 105 kwh/m2 /year for heating and 45 for electricity which is 60 % of normal energy use. Toxic or dubious building

materials are avoided.

The extra financing needed to achieve the requirements is estimated to be around 5 %, which will be recovered during use.

A special district solar heating project provides half the heating needed for hot water and 13 % of heating. A Garden centre and a local park containing an Eco-park for children and youngsters will be established. The landscaping aims at retaining both agricultural and existing landscape features and are integrating rainwater management through a wetland area with a moved and restored stream. The use of native plants ensures bio-diversity. Potential for growing food in the area is ensured by planting edible species and the inclusion of allotments integrated in the area.

The Viiki project ensures social mix through national regulations on percentage of rental flats.

www.hel.fi/ksv/English/projects/Viikki_Kivikko/viikki.html

Kronsberg

Hannover,

The Kronsberg district is constructed on agricultural land close by the Expo site in Hannover. The district will when completed contain 6000 dwellings for 15000 people. The area covers 140 hectares. Planning process started in 1990 and construction ten years later. The project developed after the agenda 21 document was launched in -92.

The district is realised through existing economic conditions, on market demands and with normal solutions. Economic support has been given through EU funding of a solar district, and the area contains social mixed housing.

Important sustainable issues in the project are sustainable land use, Urban design with green qualities and reduction of CO2 emissions.

As the project is constructed on very fertile land the good quality topsoil has been taken care of and been reused in the landscaping. Water, soil and vegetation have been used as elements in the quality of life in the area. It has been important to secure the existing ground water levels through infiltration of rainwater in an open permeable run off system. Landscaping and

green areas enhance natural production and biodiversity. The area contains a larger diversity after the exploitation than before.

Urban design has been equally important, with urban structures combined with green features as green fingers into the urban structure and neighbourhood parks,

Environmental impact assessment has been used as a tool to reach the aims when choosing construction methods, materials and technical solutions.

60 % reduction in CO2 emissions compared to current standards for conventional residential buildings is a target for the district. This is reached through Low energy building methods, energy provision by two co-generation plants, integrated wind and solar energy projects. Reduction after 2 years is 50 %.

Communication on the project with residents and visitors is considered important and a special communication agency (KUKA) is established in the area.

www.hannover.de/deutsch/wohnen/planen/aktu_pla/krons.htm

Fairfield Housing Estate

Howard Liddel, Gaia architects, Scotland

The Fairfield Housing Estate was built in the nineteen thirties. The area got as time went a bad reputation and the social problems in the area increased. The conditions in the estate got dramatic worse in 1972 when the housing company paved the gardens in front of the houses with asphalt.

Gaia architects got involved in Fairfield in the mid eighties and have been working since with a regeneration process in the area. Crime rates, number of unemployed, and other kinds of social problems has decreased in the same time as the as the outdoor environment have been improved. An active involvement of the inhabitants of Fairfield has been the key to the success of the project.

The work in Fairfield and similar projects has resulted in the development of a Model for Sustainable Development. The aim of the model is to:

- Assist regeneration of communities
- Assist communities to become intelligent clients, participating in and taking ownership of the process of safe, healthy and sustainable community development, through defining and auditing indicators
- Demonstrate practical applications to community clients, designers, developers and others.

It is intended that the model will be developed into

a generic tool for broad dissemination in the light of feedback from work into sustainability indicators, re-visiting of existing development projects, practical experience, workshop discussion, peer review and validation.

The work is underpinned by a commitment to respect stakeholders and to provide a safe and healthy built environmental specification at the same cost as conventional alternatives.

The model balances bottom up approaches to sustainable development (locally determined) with top-down

(European & International commitments & priorities) in order to encourage an inclusive and participatory approach. It promotes self-identification of sustainability indicators and self-auditing of year on year improvements.

The key experience from the project is that time, continuity and patience is needed to succeed in redeveloping projects like this with tough social conditions. Also that it is equally important to follow up the actions taken afterwards.

There has been no consciousness amongst the residents on environmental issues, but an acceptance of the actions taken as the landscaping on permacultural principles and renovation of the buildings with environmentally sound materials because of a strong confidence in the architect. The latest phase will be to erect new buildings specially adapted to suit asthmatic people with sound materials and dynamic insulation.

The area's crime rate has fallen to zero (1999), employment has increased dramatically, the population has increased from 400 in 450 flats to 1200 in 400 flats, and the wish to move away from the area has fallen from 75 % to 5 %.

www.gaiagroup.org

