

# HEALTHY HOUSING: PROMOTING GOOD HEALTH

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## THE HOUSING ENVIRONMENT IN A GREEN-SCAPE PERSPECTIVE

### - A review of Danish studies

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#### ***Introduction***

An evaluation of a Danish 900-dwelling residential development, Egebjerggård, built in the 1980s in the Copenhagen suburb of Ballerup was published in November 2002 (Attwell et al., 2002; Petersen). It is one out of many evaluations of residential developments carried out by the Danish Building and Urban Research (former Danish Building Research Institute) since the 1970s. Egebjerggård comprises mainly terrace housing and low residential blocks. The overall intention was to build an optimal modern suburban living environment. The evaluation covered studies of the physical outcome as well as a comprehensive survey of the resident satisfaction with the area. The survey comprised the respondents ranking the qualities of the area that relate to satisfaction with their living situation.

The main finding of the survey was that the green-scape, i.e. the areas inside and around the residential development received the highest score of all qualities listed, including e.g. architecture, quality and size of dwelling, transport and shopping, art and safety.

The Egebjerggård evaluation is new but what about the main finding? Does it provide new knowledge about the importance of green-scape for residents' satisfaction with their living environments? Is Egebjerggård special due to its well planned and ample greenspace or do residents in general pay attention to the green-scape - or lack of - in their housing environments? Do the different types of residential schemes, e.g. areas with single-family houses, terrace houses and multifamily blocks, generally have enough space to provide for the green-scape qualities residents want? And last: is green-scape quality important enough for residents' satisfaction with their living environment to justify investments in the construction phase as well as in its long-term maintenance?

The paper will draw on research findings related to outdoor recreation and the benefits of green-scape as well as on housing evaluations and other studies on the living environment from mainly Denmark. Part of the theoretical framework that relates to residential green-scape dates from the 1960s and 1970s, when the consequences of the building boom of the western societies were first analysed. The studies on residential environments cover the time from 1970 till today. Most of the studies presented comprise greenscape, but do not specifically focus on it. Some of the recent studies have only been published in Danish or have short English summaries that do not include the findings related to green-scape. Communicating this knowledge in English is a main aim of this paper.

The paper comprises a short introduction to the theoretical background of the older studies on housing environments and recreation, a presentation of selected studies referring to specific housing schemes, other related studies and, finally, a discussion and a conclusion on the findings presented.

#### ***Residential green-scape in a theoretical perspective***

Over the last decades research has provided new evidence in support of urban greenspace. Benefits to urban climate in relation to heat, air movement and humidity and to adsorption of airborne particles and CO<sub>2</sub>

fixation (e.g. Oke, 1978; Landsberg, 1981; Rowntree and Nowak, 1991; McPherson and Rowntree, 1993) as well as benefits to urban wildlife (e.g. Agger, 1989; Gilbert, 1991; Jørgensen, 1991) are strong arguments in current efforts to balance urban growth and green. Recently the direct benefits of greenery to health as shown in studies on length of hospitalisation (Ulrich and Simons, 1991) and on child health and emotional status (Grahn et al., 1997) have become a prime argument.

These new arguments, which build on a natural science research approach, have been adopted by the field of landscape architecture, the practice of which may be counted responsible for the green-scape design of a large part of the residential developments in Western Europe since the 1950s. But they seem to remain arguments. Main approaches to planning and design - and to evaluation of residential environments - still appear to be e.g. recreational experience, zoning in private-public domains, visual quality and culture-historical green-scapes, all of which are inscribed in social science architectural traditions.

### **The Recreational Approach**

An old, but still valid definition of recreation from an environmental psychology perspective is: a state of mind. Driver and Tocher (1970) differentiated between *re-creation*, which required active physical engagement, and *re-creation*, which required passive dis-engagement. This could be experienced by for instance natural stimuli *re*-plenishing energy. They argued that the need for change, complexity, and other stimuli in the outdoor environment must be fulfilled to avoid stress. Further communicated by Kaplan & Kaplan (1970), this approach has influenced landscape research in Denmark and Sweden (e.g. Holm, 1998 and Grahn, 1997). Almost simultaneously, the Danish environmental psychologist Ingrid Gehl in her book *Living Environment* (Gehl, 1971) introduced the *need for experiencing*, the *need for activity* and the *need for aesthetic stimulation*, all of which are in concordance with the *recreational approach*.

In relation to the residential environment the *recreational approach* may be used to suggest that "The areas next to the dwelling unit provide for the most readily available "nature" and, therefore, the most obvious spaces for people to use and manipulate to obtain their recreation experience."(Bertelsen, 1977, p.14).

### **The Freedom of Choice Approach**

Another approach, which has influenced planning and design of residential environments since the 1970s, is what may be called the *freedom of choice approach* (Ibid., p.14). It comprises concepts such as privacy and territoriality. Privacy includes a need for contact as well as a need for isolation and (Gehl, 1971, p.168-169) and a freedom to choose between them. Territoriality refers to persons or groups of persons "defending" an area, which is particular for them, i.e. they feel responsible for the area and act accordingly (Sommer, 1969, e.g. p.43). Proshansky in 1970 argued that to maximise their freedom of choice residents must spatially be able to control their level of privacy. Restrictions may cause frustration.

The relevance of this general approach to control of the immediate housing environment seems clear.

Demarcation of private, semi-private, semi-public and public domains or *areas of responsibility* (Chermayeff and Alexander, 1963; Newman, 1973) may be operationalised through a conscious hierarchical structuring of greenspace. This structuring becomes an important means of allowing for *freedom of choice* of behavior and activities and thus a basic part of a healthy outdoor environment.

### **The House as Symbol-of-Self Approach**

Territorial behaviour as described above is closely connected to establishing and maintaining identity, i.e. the symbolic communicating of status, values and lifestyle to your surroundings, which is the essence of the *house as symbol-of-self approach* (Bertelsen, 1977, p.18). Territorial behaviour implies that you will more easily defend an area that carries your identity. The *house as symbol-of-self approach* has the opposite point of departure: that you will more easily personalise an area if it can easily be defended. Also in this approach the demarcation of private and semi-private spaces becomes important in contrast to areas close to the house that are not considered private and cannot easily be made so (Ibid., p.18). The image-building quality of the residential environment was researched and discussed by e.g. Robert Gutman and Clare Cooper in the 1970s. Gutman argued that the physical health aspects of a house may be perceived as less important than the social status value of the house. Cooper (1974) talked about the house as an extension of self, i.e. that its symbolic value is important to residents' image of themselves. Again, the approach focuses on the house, but includes the outdoor spaces. And in areas with uniform houses and dwellings, it is obvious that the outdoors constitute the most readily available opportunity to personalise your living environment.

In the past decade studies on housing frequently refer to a more recent theoretical background than the approaches mentioned above. A recent study on housing choice by Ærø (2002), which is presented below, builds on e.g. Pierre Bourdieu, Mary Douglas and Thomas Højrup (Ærø, 2002, p.166). However, there seems to be no contradictions in the works of those authors that require the theoretical approaches to green-scape presented above to be revised. Still, their more anthropological approaches offer a supplementary perspective that may enrich the theoretical green-scape approaches: the lifestyle perspective. It helps to point out that different lifestyle groups may ask for different living environments. To some groups, e.g. the group that considers their home as a kind of "station" (Ærø, 2002, p.170), it may be assumed that the green-scape qualities are less important than for instance transport facilities and that the need for active recreational engagement in the residential outdoors is minimal. Still, for all lifestyle groups the image of their residential area influence satisfaction (Ærø, 2002, p.171), and green-scape frequently has an important impact on the visual image.

### ***Green-scape findings in living environment evaluations***

Evaluations of existing housing developments in relation to how the residents feel about them is based on the assumption that residents' satisfaction reflects an optimal solution to housing questions. Evaluations attempt to emphasise a concern for the way people like to live instead of just how the houses and the greenspaces look – a design problem that was already pointed out by Constance Perin in her book *With Man in Mind* from 1970. Or from another point of departure: evaluations attempt to underline a concern for the living environment instead of just how low the building costs are that was pointed out 30 years ago by Norcross (1973). Norcross concluded from a study of 49 townhouse projects that the developers who put the most emphasis on profit ended up with developments at or near the bottom of a satisfaction scale, which measured residents' satisfaction with the projects. In consequence of these reflections, the expression *housing environment* is in the following replaced by *living environment*.

Danish studies on or comprising residential green-scape questions are presented below in order to highlight their contribution to the current knowledge about the subject.

#### **High-density low-rise developments<sup>1</sup>**

One of the early Danish living environment evaluations focused on developments of rows or clusters of terrace houses, which had at that time become a favourite alternative to both modern multifamily blocks and single-family houses (Jensen, C.N. et al., 1971). The evaluation aimed to map the relations between the physical and the social environment. The theoretical point of departure of the work was not presented or discussed specifically. However, the environmental psychologist Ingrid Gehl, whose work on the living environment is referred to above, guided the research design. Her influence, for instance the explicit focus on environmental stimuli as a basis for (recreational) experience and behaviour, zoning in areas of responsibility, and resident satisfaction as a relevant planning parameter, can be traced throughout the report. The evaluation was part of a large research and planning concept action on housing, especially high-density low-rise housing, which was carried through in the early 1970s by the Danish Building Research Institute. It included publications on policies, planning, implementation, a publication of best practice examples and a planning concept competition<sup>2</sup>.

The comprehensive evaluation covered 11 owner-occupied developments built between 1949 and 1967 in the Copenhagen suburbs. Most areas have below 100 dwellings, one about 450 and one about 800 dwellings in 1-2-storey houses. All have a small private garden/terrace and most have shared greenspace.

The evaluation comprised about 500 questionnaire responses and about 40 personal interviews<sup>3</sup>.

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<sup>1</sup> Another expression used in Ærø, 2002, is "dense-low-residential areas".

<sup>2</sup> SBI-reports no. 71 – 77 and 82 – 83.

<sup>3</sup> The green-scape was part of this study and is discussed in the report, but unfortunately it is not referred to in the very short English summary of the report.

A main finding of this evaluation was that the private outdoor areas were highly valued – especially if they were sunny and sheltered for privacy by vegetation or walls. The small size of these areas (in relation to a garden<sup>4</sup>) was also valued, which was found to suggest that the residents liked a private outdoor living space that did not require much work. The shared greenspace was found to be very important - unless the development was neighbouring on a nature area, sports grounds, a park etc. where there was room for especially the older children (school age) to play. It was a general finding that even if shared greenspace was available, there were too few challenges/facilities for his age group, which was a main reason for residents' dissatisfaction with their living environment.

This finding was in line with an earlier study on garden residences - single-family as well as row and cluster houses (Gehl and Vedel-Petersen, 1968, p.267) - which stated that many people move to a garden residence out of consideration for well-fare of their children. This was again in line with the knowledge that children in houses with a garden started playing outside much earlier and spent double the amount of time outdoors than children in multi-storey housing schemes (Morville, 1969a,b).

Satisfaction with the living environment was also found to depend on the presence and size of shared greenspace, the path system, the possible activities and the variety of form and vegetation in this greenspace. It was found to be optimal if the outdoor spaces of the development appeared semi-public and not public. A semi-public shared greenspace was interpreted as positively influencing the feeling of the residents of belonging to the area.

The general conclusion was that a high level of satisfaction with the high-density low-rise houses living environment correlated with a high-quality green-scape.

The evaluation report became well known. It influenced the Danish architect/landscape architect professions and education and became a model approach living environment evaluations.

Inspired by the 1971 living environment evaluation, a study of a similar development of rented row-houses was carried out in Wisconsin, USA, in 1977 (Bertelsen, 1977). The study focused on the private areas<sup>5</sup> of the housing environment and the implications of residents personalising these areas. It was found that the level of personalisation, i.e. growing plants in the ground and in containers, adding artifacts etc. in the private, fenced back garden, corresponded with the level of satisfaction with the living environment. Once the closed off garden had become personalised also the entrance area was personalised. However, this front area was not demarcated and here there was no correlation between level of personalisation and overall satisfaction. This finding was argued to suggest that demarcation is important to a perceived feeling of ownership – and opposite, that if you want residents to personalise their outdoors, it must be demarcated (Ibid., p.120). Additionally, the study indicated that the feeling of 'ownership' supported by a demarcated zoning supported the level of maintenance of these areas – with consequent implications for the general appearance of the whole development.

The evaluation of the high-density low-rise development, Egebjerggård, which was mentioned in the introduction (Attwell et al., 2002), was not so comprehensive as the above evaluation of 11 developments in relation to the green-scape survey, nor so focused as the personalisation study of private outdoor spaces. It is, however, clear that findings on green-scape in Egebjerggård support the findings from 1971 and 1977, and so indicate that in spite of the changes in society the green outdoor environment in the high-density low-rise residential developments is as important to the residents as it was 30 years ago. A previous evaluation of a similar development, Blangstedgård, shows the same top rating of the green areas in the development as well as of adjacent nature areas (Ambrose and Gottschalk, 1988, pp.58-59).

Unfortunately, the green-scape still appears to have a low priority when building. In an evaluation of a recent government-funded model development of rowhouses that was planned for a high level of sustainability, it was found that the green-scape expense was reduced in favour of extra spending on the construction of the houses. This disposition left a minimal greenspace design that far from met the intended quality (Attwell et

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<sup>4</sup> In Denmark the size of property for single-family housing generally ranges between 700 and 1000 m<sup>2</sup>.

<sup>5</sup> Comprised a fenced terrace in the back of the house and a small entrance area without demarcation.

al., 1999, pp.71-75). Although exceptions are seen the 'shaved' green-scape model is experienced to appear frequently.

The funding is considered to be a general problem in relation to green-scape in all residential schemes. Limited space, however, is a special problem in high-density areas, whether low-rise or high-rise. Vegetation areas in the very fragmented terrace housing schemes are limited unless there is a large coherent shared greenspace (Attwell, 2000, p.149). The fragmentation created by the proportion of built land in the high-density low-rise developments moreover means that there is little room for vegetation that have a visual impact, i.e. trees, unless a large shared greenspace is included in the scheme. Already in 1971 the presence of shared greenspace in this housing scheme was found to reflect positively on resident satisfaction (Jensen, C.N. et al., 1971).

### **Low-density high-rise<sup>6</sup> developments**

The early living environment evaluations on high-density low-rise developments presented above inspired studies of also the apartment developments that were built in the 1960s and 1970s to meet the increasing demand for modern housing. This kind of housing was made possible by the technological development, e.g. assembling pre-cast concrete components on site. It is known in most parts of the world, but it must be added, that the Danish examples do not match the schemes found in many other countries in relation to size of development, building height and quality of green-scape. Still, they are in general less popular than other housing schemes (Ærø, 2002, p.103 and 164). Owner occupied apartment developments exist, but a majority of the developments were built by non-profit housing organisations, which are responsible for the major part of social housing in Denmark. The residents are frequently the less well off parts of the population, today including the majority of immigrants. The developments have been built with large well equipped apartments, often provided with a balcony and almost always with shared facilities including spacious green areas, which were frequently designed by the growing number of landscape architects Attwell et al., 1998, p.4).

In 1972 a study was conducted (Holm and Hansen, 1972) to survey the residents' use of the shared facilities in the apartment development, Værebroparken, north of Copenhagen. The open spaces – all shared – were included. The conclusion on the liveability of this very typical apartment development of 4000 residents was harsh. On the basis of about 250 questionnaires and additional observations in the area the researchers concluded that it was hard to find reasonable explanations that would justify building this kind of residential development. About the outdoor spaces they noted that the areas provided for parking were about seven times larger than the areas intended for play and that the large lawn areas – there was little other vegetation - were hardly used. *"This is perhaps because people do not like to sit down in an open field, but like to have something at which to settle down"* (Ibid., p. 129). The residents had created a small place for socialising with benches and a small garden pond, and they had tried to persuade the architect to have more plantings in other places, but with no result. It would spoil the design (Ibid., p. 78). There was a strong indication that the residents were dissatisfied with the green-scape quality and therefore did not use their immediate outdoor environment for recreational purposes.

Already in the 1980s developments like Værebroparken became problem areas. They had developed into concrete slums that struggled with crime, physical decay and a poor image, which kept potential renters away and so worsened the economic situation.

The Danish Government in 1985 launched a large-scale programme to 'hedge' the decay. The programme included the necessary financial support for physical, social and economic improvement.

In 1988 the Danish Building Research Institute was asked by the Government to evaluate the results of the programme, including the physical as well as the social improvements as well as the benefits of the total costs in relation to resident satisfaction with their living environment.

The study focused on 9 developments that had had their blocks renovated (facades, roofs, entrances etc.), flats renovated and the outdoor environment improved (Christiansen et al., 1993). The cost of the

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<sup>6</sup> Another expression used in Ærø, 2002, is "high-open-residential area"

improvements in the shared outdoor spaces ranged from about 3 – 15 euro per m<sup>2</sup><sup>7</sup> and comprised improvement of playgrounds, meeting places, paths systems, bicycle parking, greenery etc. and introducing new elements such as community gardens and art.

It was found that the green-scape improvements influenced residents' satisfaction more than any of the other improvements. The worse before renovation the higher the satisfaction (Ibid., p. 77). The consequent interpretation was that lack of investments in providing for and maintaining a quality outdoor environment in apartment block housing may well influence resident satisfaction negatively due to e.g. the consequent poor and neglected visual image (Ibid., p. 297). Resident satisfaction was shown to influence turnover rate. As the greenspace improvements had the highest rating, this indicates that it pays off to provide a satisfactory green-scape.

Another interesting finding was that only children spent more time outdoors after the renovation – except where a ground floor terrace or a community garden were provided, which supported the adults' outdoor stay. This supports the relevance of the zoning theory, but also suggests that an important benefit of green-scape renewal is the visual image.

A large number of other Government supported renovations of apartment block developments were carried through in the 1980s and 1990s to amend the poor building quality and the poor green-scape quality of this modern residential scheme. The architectural result of 23 renovated developments was evaluated in 1997 (Bech-Danielsen and Varming). The visual quality of the green-scape was included<sup>8</sup>. A new finding of this study was that variation, which will stimulate experiences in the outdoor environment, is important to the residents – much in line with the critique of the monotonous outdoors described in the study of Værebroparken, which was presented above (Hansen and Holm, 1972). But also the functionality was found to matter: e.g. well-functioning outdoor meeting places with benches, play grounds, bicycle parking, garbage disposal/recycling etc. Community gardens and private terraces for the first-floor flats, which in some cases required new stairs from the flats to the ground, were appreciated new elements.

In this study a new concern for a sustainable housing environment appeared under the heading of urban ecology, and the outdoor spaces were found to offer good opportunities to implement such efforts, e.g. to combine surface water retention/infiltration and a more nature friendly design/maintenance with recreational interest. Especially children were found to appreciate that – maybe because they are the most frequent users of the shared greenspaces of residential developments (e.g. Morville, 1969a,b).

The positive findings in the living environment study from 1993 (Christiansen et al.) on the importance of green areas to resident satisfaction inspired a specific study on renewal of the green-scape of apartment block developments from 1950-1980 (Attwell et al., 1998). It was the first study to only focus on the outdoor part of the residential living environment.

The study built on a field survey of about 250 developments in the whole country that had received public funds for renovation, some including renovation of the outdoor environment. 60 developments were chosen for further analysis and, finally, 15 of the best examples were chosen for description in an illustrated publication. The aim of the study was to map the green-scape situation, which had been found to mean so much for residents in this kind of residential scheme, and to inspire further renovations by presenting successful green-scape examples.

In about half of the 250 cases the greenspaces comprised little but lawn. Renovation was mainly limited to hard surfaces. Only one fifth had used the opportunity to create a new and inspiring green-scape. The maintenance level, which the residents in the 1992 evaluation also found important because of its impact on the visual image of a development (Christiansen et al., 1992, p. 65), was found to be poor in a third of the 250 cases. This finding included the playgrounds, which is not only a visual problem, but also a safety problem.

There was a clear connection between the quality of the green-scape and the use of landscape professionals in the original design and the re-design: the most successful examples were always handled by a landscape

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<sup>7</sup> Two estates were more expensive due to removing and converting underground parking into shared greenspace.

<sup>8</sup> The green-scape is not discussed in the short English summary.

architect and the poor examples were not. This indicates that it pays off to use professionals in the planning of residential greenspace. The renovation costs ranged between 1,5 and 44 euro per m<sup>2</sup> in the cases analysed, but the cost did neither reflect the level of satisfaction, nor the visual quality of the improvements (Attwell et al., 1998, p. 27).

Another general finding was that poor maintenance increased the level of decay and so the intervals and accumulated costs of renovation over the years. It was concluded that low maintenance of the shared areas is a mistaken policy.

The critique of the Værebroparken report (Hansen and Holm, 1971) of the monotonous modern housing developments was found to be a general reason for the green-scape renovations. The modern principles of simplification practised in the 1960s and 1970s were found not to comply with today's residents' needs and wants. They ask for variety instead of monotony, for flowers instead of lawn, for places to use not only places to pass, for areas to manipulate not only areas to look at and they ask for their home to have a positive green image. A trend of meeting all these needs by zoning the greenspaces into private, semi-private and semi-public areas were found to be successful, thus supporting that the green-scape theories of the 1970s presented above are still valid.

A follow up of the green-scape study was carried out through researching one of the example cases from an anthropological point of view (Olesen, 1997). The focus was the immigrants' use of residential greenspaces. The study concluded that due to stereotype images of each other the immigrants and the other residents did not mix much, but that conflicts in the ways of using the greenspaces were minimal. Due to family size and a tradition for socialising in the shared outdoor spaces, the immigrants used the outdoors more frequently and appeared in larger groups. It is suggested that this finding is included as a planning parameter for apartment block developments.

Although frequently not exploited apartment developments do offer spatial opportunities for a shared high-quality green-scape. The space per person is generally lower than in other mid and late 1900 housing schemes, but due to the high-rise buildings the greenspace is larger and moreover more coherent than in all other types of housing (Attwell, 2000, p.149). In best practice examples in Denmark the vegetation volume, which may be used to map the greening, proved to be much larger than in any other residential schemes and urban parks.

### **Urban renewal areas<sup>9</sup>**

The residential greenspace provision is much more limited in the denser parts of old cities, which are often mixed-use, and so the greenscape quality is even more essential than in the housing schemes discussed above. In the old parts of Copenhagen and in the three largest cities in Denmark<sup>10</sup> buildings typically range between 3 and 6 storeys and in other provincial town centres between 1 1/2 and 3 stories. These areas have in the last two to three decades been subject to large privately and publicly funded urban renewal efforts some of which have included the courtyards of the urban blocks.

One study focuses on the results of the courtyard renewals (Thuesen et al., 1996). The aim of the study was to map the results and to inspire the continued renovation efforts. From a basic amount of about 200 courtyards renovated between 1983 and 1994, 54 cases were chosen for further studies and, finally, 14 best practice examples chosen for further analysis and description.

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<sup>9</sup> Another expression used in Ærø, 2002, is "high-dense-residential areas".

<sup>10</sup> Århus, Ålborg and Odense.

In general the renovation of these limited open spaces, which were former utility areas, was found to improve the greenspace situation of these dense areas considerably. It was also concluded that in spite of the physical constraints it is almost always possible to create an outdoor environment that is attractive to use and to look at from the apartments<sup>11</sup>. Also in these 'urban gardens' variation was preferred and zoning in semi-public, shared spaces and semi-private 'back stair terraces' were seen to support the use.

### **Other studies including the residential green-scape**

The most recent study on the urban green-scape, which relates to living environments, focuses on the green-scape efforts in the current *area based urban regeneration* programme. The programme aims to improve run down urban areas physically, socially and environmentally and it is supported by large Government funds. The areas comprise residential as well as industrial, commercial, institutional, parks and mixed zones. A main characteristic of the programme is that residents of the area are involved from the beginning in defining the initiatives and are hoped to remain active throughout the process in order to induce a lasting responsibility for their residential area. The first 7 areas chosen for regeneration comprise dense centre areas in Copenhagen, apartment block developments from the 1970's and a mixed area with a majority of detached single-family houses.

The green-scape study was initiated due to the surprising observation that in all areas <sup>1/4</sup> to <sup>1/2</sup> of the funds was to be used for green-scape and related projects, many in or in relation to residential areas. Greening of the urban environment is what everybody can agree on in spite of social differences and problems and level of professionalism.

Only the pilot study is finished (Attwell et al., 2001). The main study is in its final stage and will be published in 2003. So far the preliminary findings of the pilot study seems to be confirmed: e.g. that the main aim of most green-scape projects suggested by the residents is visual enhancement of the local neighbourhood, especially the residential areas. Greening, it may be concluded, is an important part of area based regeneration, and managed well the green-scape improvements may over the years become the visual symbol of the former regeneration efforts (Attwell, et al., in progress).

A recent PhD dissertation explores housing preferences in Denmark (Ærø, 2002). A questionnaire survey comprising about 800 newcomers to residential areas in Århus, the second largest city in Denmark, was conducted in order to map reasons for choice of housing. In all types of housing and for all lifestyle groups green areas close to the dwelling were found to be a basic quality in determining where to live (Ibid., p.97). As greenspace thus could not help explain housing choices it does neither occur in the statistical model of the study, nor in the English summary, which only discusses explanatory variables.

Another interesting finding was that a high degree of privacy has a high rating in most cases. It may relate to the outdoors, especially when considering that the image of the area and a nice entrance area also has a high rating.

It was also interesting to note that many people prefer to live in the same kind of development as they grew up in and that the dominating dream of residence – in spite of actual housing choice - was a detached single-family house with a garden (Ibid., p.170).

This new research builds on mainly Pierre Bourdieu, Mary Douglas and Thomas Højrup (Ibid., pp.165-166). Due to this theoretical approach the study on housing choice was embedded in lifestyle theories including the habitual perspective and residential choice as a search for distinction. As pointed out earlier, the lifestyle approach is believed to enrich the traditional approaches to green-scape research.

### **Discussion of main findings**

The studies presented cover more than three decades and address the green-scape issue at various levels and in various detail. However, combined the results draw an interesting outline of the importance of residential and adjacent greenspace.

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<sup>11</sup> The importance of the view from apartments was confirmed in Ærø, 2002, p.98.



In spite of the time span the results coincide in underlining that the green-scape of the immediate living environment is a much more important aspect of housing than the status measured by costs spent and political, professional and administrative attention indicates.

In the 1970's satisfaction with the living environment was clearly influenced by the quality of the structuring and design of the outdoor areas and maintenance of the shared spaces. Around 2000 the level of importance of the green-scape had risen to a rate higher than any other living environment quality. This indicates a growing interest in and awareness of the green outdoor environment.

Active use – especially by children - and a green visual image are still the prevailing reasons given by the residents, which, however, do not explain the indicated growing awareness. Maybe the general environmental interest, which was embedded in the political concern for sustainable development for a number of years, or a growing concern for children's well-being and health, which was of major importance to families, offer parts of a possible explanation. Another explanation may be found in a growing interest for health and fitness, which suggests frequent outdoor exercise. Attractive green areas next to your house were in Egebjerggård found to motivate getting out.

In the low-rise housing schemes, which originally had gardens or terraces, these areas were highly appreciated for active as well as passive recreation. It was found that the small size of these areas was appreciated in the high-density terrace housing, which suggests that this type of residence met a demand for low-rise housing that did not require as much work as a single-family house with a garden. This supports the notion that different lifestyle groups choose different housing schemes. The level of privacy of the terraces influenced their use, but on the other hand, closed-off terraces are found not to be optimal for use as a zone for socialising, nor for influencing the adjacent shared green areas through visible variety in e.g. vegetation. Residents asked for colourful flowers in the formerly mainly green-spaces. The flowers in the private terraces were in some developments of great importance to the general appearance of the shared greenspaces – without influencing the shared maintenance costs.

The terraces of the low-rise developments were also appreciated for providing a place to leave young children to sleep or play outside. Former research documents that this opportunity was used and there is no reason to believe that it has changed since the 1970s. Except in one aspect: more children presumably spend more time in day-care and so less time at home during the day than in the 1970s. This is the case for many children in Denmark until they are about 10-12 years. Still the surroundings by their home are important. They are the most frequent users and the shared greenspaces are valued for providing space for the children to play. The experienced quality is crucial. In a couple of developments the main reason for renovating the shared greenspace was trying to minimise problems with vandalism committed by children. Both cases proved successful (Attwell et al., 1998, pp. 54-61), and moreover the result was appreciated by the adults because it created variety and a satisfying green image.

The popularity of the private terraces found in the 1970s in the low-rise developments was used as a concept in the renovation of many apartment developments and urban renewal courtyards. Except for some problem areas, where some terraces are not in use and very neglected, the new opportunity to go out into 'your own' space from the flat or from the back stairs of the old city block is seen to be popular. The areas are frequently highly personalised and appear to be an appreciated change of zoning of the former shared spaces, which indicate an added quality of life for the users. It may also have implications in relation to experienced safety, as other people do not get so close to your windows with this demarcated semi-private zone. This is a question that needs to be explored.

The problem of some terraces being neglected has been seen to be solved by either renting the first floor flats to only persons wanting to use it, by organising neighbours to help out with the maintenance or by adding a maintenance cost to the rent if the maintenance is neglected.

The maintenance level of the shared areas was important to the image of the developments and so influenced satisfaction with the living environment. However, it is frequently a neglected aspect in new as well as renovated developments. The maintenance aspect of vegetation is crucial in relation to the planning and construction of greenspace: if not handled professionally, the efforts and the investment may easily be lost in

vegetation with a less than optimal growth and therefore visual, biological etc. impact. It was evident that the expertise, not the cost, was a main reason for differences in maintenance standard, a problem that a few housing associations have solved successfully by choosing and training staff in service for this job (Attwell et al., 1998, p.37).

In some renovations also the cost in itself caused a problem: when the cost that derived from increased maintenance had not been estimated prior to the implementation of the project and later turned out not to be available. Only a few years of failing maintenance will cause a loss of the investment made and a disappointment for the residents.

The housing scheme that had the poorest quality green-scape was the apartment block development. Some have had their greenspaces renovated for a better visual image and improved functions including for children's play, but many other monotonous 'green deserts' still exist. Best practice examples demonstrate that space in these areas is abundant and therefore that opportunities for improving the green-scape situation for the satisfaction and psychological benefit of the residents do exist. The spatial opportunities to improve the outdoor environment are less in the terrace housing and the old city centres, but somehow the quality of renovation projects appears higher in these areas. Maybe landscape architects have a longer tradition for handling the limited urban yards and shared spaces in these areas than for handling the large greenspaces of the apartment block developments, which are neither urban space, nor garden, nor landscape.

In terrace housing with no shared outdoor spaces the residents expressed that this was a reason for dissatisfaction with their living environment, a fact which has implications for design.

One factor that has only been touched upon in this paper is the influence of resident democracy on the greenspace practice. It was important in the 1970s living environment, but has not been a main focus since then, although attitudes, rules and administrative regulations may cause barriers to an optimal use of residential greenspace. However, in the recent evaluations of the *area based urban regeneration* projects, this issue has re-surfaced as a research topic much in line with the current interest for communicative planning. Maybe the communicative turn will become a new approach to future living environment efforts, in practice and in research.

## **Conclusion**

The recreational experience is frequently connected with outdoor activities and to stimuli in nature, man-made or not. For the majority of people the areas next to or close to where they live are the primary source of interaction with the natural environment, the lack of which may cause frustration and increase discomfort due to lack of physical exercise. In some housing schemes the areas next to the dwelling satisfy a need of many residents to personalise their close living environment in accordance with their *image of self* – if the territorial structure is clear. This emphasises the need for conscious planning efforts. Of course the level of these needs vary with lifestyle, position in life cycle etc., which have been verified recently. Opposite, a positive visual image is important to all resident groups in Denmark and green-scape is frequently an indispensable part of this image, often more so than the architecture of the houses. These facts emphasise the importance of the immediate residential green-scape as an indispensable feature in everyday life with implications for physical and psychological health.

Improving green-scape influences resident satisfaction in Denmark as much today as it has done previously, but it is a new finding that the residents in the recent living environment evaluations, e.g. in Egebjerggård, consciously rank their immediate green-scape as the most important quality of their living environment. When added to the facts that spatial problems do not appear to be a limitation for satisfying results in even the dense housing schemes and that the costs are limited compared to other actions there seems to be sufficient arguments for the benefits of investing in residential green-scape quality.

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