

# Urban densification: An innovation in sustainable urban policy?

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Paper presented at the conference *Area based initiatives in contemporary urban policy*, Danish Building and Urban research and European Urban Research Association, Copenhagen 17-19 May 2001.

## Summary

*Planning policies in many European countries advocate for the Compact City or some sort of compaction process, as a strategy to obtain a more sustainable urban development. It contrasts the car-oriented urban sprawl of many modern cities, creating longer distances between urban functions, poor access to facilities and services, less efficient infrastructure provision, loss of open land, social segregation, etc. A Compact City policy in contrast should by regeneration and densification of the urban area create the opposite, thus contributing to a more sustainable development in its broadest sense, social, economic and environmental. This paper explores the implications of such an urban policy. Based on a case study of a Copenhagen district, the paper will show how the local authorities in their planning, has handled this densification and the impacts on the urban environment. The casestudy will be used to conclude whether densification and compact city policies in reality leads to innovation in urban planning as claimed by many national governments and researchers?*

# The turn in Danish planning policy: Towards Urban Regeneration and higher densities in the 90ies

Danish national government has supported a sort of densification policy since 1992, where changes in planning legislation made it possible to build high density developments again<sup>1</sup>. During the 70ies and 80ies planning legislation contained a threshold on building densities/plot ratio in local development plans. This threshold together with the urban renewal process lead to a decrease in densities in central urban districts<sup>2</sup>. The general idea behind the threshold in plot ratio was to increase living conditions in central urban districts by securing green areas, light and air (Skovbro 2000). But a second aim behind the threshold in density was to promote decentralisation of urban growth. By hindering further urban growth in central districts the hope was to promote growth in other urban centers. Thus the ideals behind the legislation was very much related to Howards Garden Cities and early modernism, to decentralise urban growth and functions and creating healthy urban environment.

The turn in 1992 towards higher densities in urban areas was happening due to several circumstances. First of all the idea of creating higher densities was linked to the idea of sustainable urban development and the Brundtland report from 1988. Urban planning was seen as a vital component in order to achieve a more sustainable urban development. But the focus of the suggestions was on the functioning of the urban area and on transport. By creating higher densities it would be possible to support efficient infrastructure, create shorter distances between urban functions and thus all in all improve the energy efficiency of the urban area in the transport- and energysector<sup>3</sup>. Urban planning were seen as an essential component in order to halter the continuing increase in the need for transport. Thus in the Copenhagen region this was coupled with a policy aimed at concentrating urban development (especially new offices) around metro stations in order to support public transport and access.

Secondly, it was important to halter urban sprawl and the negative effects on the social and economic development of central urban areas: the movement towards the fringe of residents and business created social segregation and financial problems in an urban area as Copenhagen which is divided into several municipalities. An essential part of the idea of urban densification, has been that this could lead to better urban districts, through creating more diverse social life, better local services due to the higher population densities, thus in general an urban lifestyle as known earlier in the century.

Finally there was a wish from the conservative headed government to liberate planning legislation. Urban planning should mainly be a local task and national regulation should work only on a more general level.

All in all the change in planning policy at this moment reflected a change in planning policy from a decentralisation policy to an urban policy aimed at

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<sup>1</sup> The paragraph on maximum plot ratio in the national planning legislation was abolished.

<sup>2</sup> Local plans containing a plot ratio on 110% was made even for built up high density areas during the 70ies. Thus when being renewed the plot ratio had to be obtained.

<sup>3</sup> The energy policy in Denmark had for a longer period been aiming at securing national energy efficiency through central district heating. Thus this turn in planning policy supported energy policy.

achieving multifunctional urban areas with urban qualities. The ideals behind this change in urban policy was very much inspired by the Green Paper on the Urban Environment (EC 1990), by the ideas of Krier and the Compact City policy in Holland. The wish of returning to the classical European city. The Spatial Planning Department<sup>4</sup> saw the change as an innovation in urban policies and as a recognition of the need for a more sustainable urban development.

## Impacts of densification

There was some concern among civil servants in the Spatial Planning Department, whether such a change could lead to overcrowding in some urban districts and about possible local environmental consequences as noise, traffic, air pollution etc.

These concerns have been shared by researchers in the debate on compact city policy throughout the 90ies (Jenks et al 1996). There have been many claims and counter claims on the benefits of the Compact City.

The dominant argument for the strategy has been related to energy conservation. Research has demonstrated a close correlation between high urban density and low energy use for transport (Newman and Kenworthy, 1989; Næss, 1994), and between high urban density or compact urban form and low energy consumption for space heating. A more compact urban form support efficient district heating systems (Owens, 1992), while multi-storey housing has lower energy consumption pr. square meter for heating than detached single family housing (Næss et al, 1996).

In addition to these energy saving arguments, the EC, in their Green paper on the urban environment, has argued that a more compact city will create a more liveable urban environment and that urban concentration will support local services (CEC, 1990).

A final argument that has gained support in recent years is the "loss of land" argument. Continued urban sprawl will lead to a continuing loss of land, and often valuable agricultural land. This speaks in favour of a concentration of urban development within the current urban fabric. The Foundation for Protection of Rural England has been one of the major proponents of this position which is also supported by researchers involved with biodiversity issues. They have stressed that from a biodiversity point of view, large green areas outside the city are more valuable than many small green spots within the urban area (Nyhuus and Thorén, 1997).

The compact city strategy, has also been criticised. The critique has focused partly on the relation between energy consumption and urban structure. Gordon and Richardson (1990) have pointed out that variation in petrol consumption the cities studied by Newman and Kenworthy, is due mainly to differences in lifestyle and travel behaviour (cited in Breheny, 1992). Others have mentioned that more compact city development causes increased traffic congestion, which leads to greater air pollution in urban areas.

Breheny and others have put forward a critique on the more basic concept itself; which picture of a sustainable city does the compact city concept produce? Is this the kind of sustainable city that people would choose to live in? When it is claimed that the compact city will foster social and cultural diversity and activity and provide a livelier, safer, and socially equitable environment, the counter arguments are that higher densities lead to more crime, noise and pollution, and that the compact city is not socially acceptable due to perceptions of overcrowding and loss of privacy (Burton et al 1996). Thus, the critique has focused on the quality of the urban

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<sup>4</sup> The Spatial Planning Department is a part of the Ministry of Environment and Energy and thus responsible for national planning guidelines.

environment that a compact city strategy would produce and has questioned whether this urban environment will be seen from a local point of view as sustainable and desirable (Breheny, 1992; Thomas and Cousins, 1996). Breheny (1992) has stressed the fact that the dominating choice of life-style is suburban. Furthermore, Næss has conducted a survey that supports the resistance towards a densification of housing areas and a desire towards new residential developments in country-like surroundings (Næss and Engesæter, 1992). Hence, there could be a conflict between densifying the urban fabric and the preferences of its inhabitants.

Others pointed at the possible wider social impacts. Smyth (1996) has argued that a compact city policy possibly will have the same social impacts as urban renewal projects: The disadvantaged will suffer more from the resulting high land prices and social segregation will continue due to the higher price level in the urban districts with urban regeneration projects.

It has also been claimed that there is a contradiction between the compact city and a green city (Breheny 1992). The EC, in their document "Green Paper on the Urban Environment" (ECE, 1990), has advocated more compact urban development and at the same time for urban greening. Environmental organisations such as Friends of the Earth have done the same thing, though the latter have recognised the conflict between more compact urban development and achieving a green city. The importance of green space in the city has been related not only to the recreational value (Breheny, 1992; Grahn, 1991; Thorén and Nyhuus, 1997) but also to the ecological needs (Thorén and Nyhuus, 1997; Orrskog and Snickars, 1992). Furthermore, Rådberg (1995) has stressed the need for green areas or space for recycling waste in urban areas.

Most of this debate has occurred after compact city policies has been implemented in several European national planning guidelines. There has been a lack of empirical research assessing the actual consequences of a compact city strategy. This paper is based on a ph.d. project aimed at providing this empirical knowledge. But as mentioned there was some concern among Danish practitioners in relation to these changes in planning legislation. In Denmark the Spatial Planning Department was confident that the municipalities would be able to handle such problems and concerns in relation to their municipal plans.

The following case study will address whether this has been the case. In the assessment of the densification process I will address the impacts of densification on:

- Housing provision
- Local employment and commuting
- Every day life of the new residents
- Transport and local environment
- Green areas and recreation

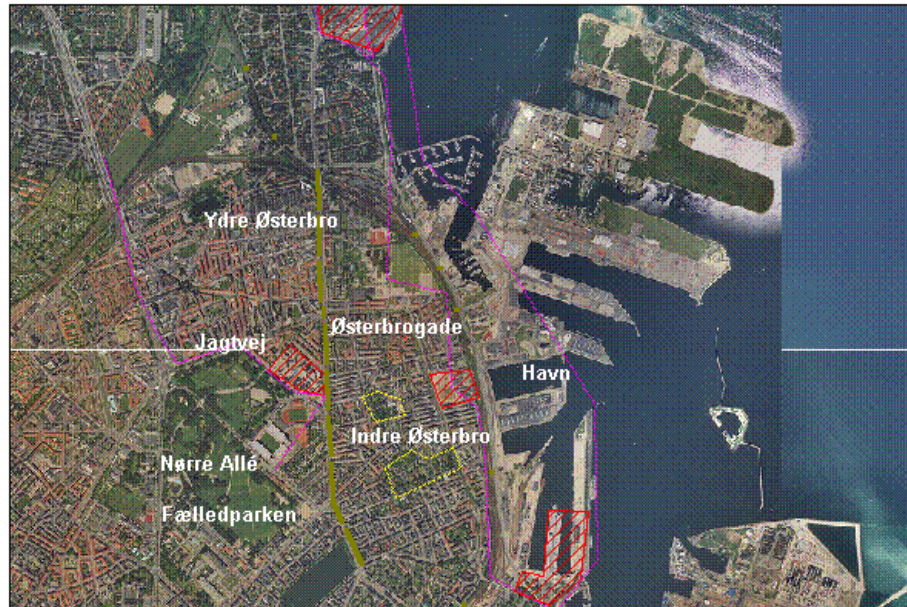
In addition to this I will show how the local authorities has handled the planning process through this densification process in order to show what their main interests and concerns has been. This explains partly the impact of urban densification.

## **Densification in Copenhagen, the case of Østerbro**

The municipality of Copenhagen was very much interested in having the possibility of building with higher densities and during the 90ies Copenhagen has seen a higher level of building activity and the possibility of building high density developments has been used to a large extent.

The Copenhagen district of Østerbro has in the past decade experienced the highest level of building activity of all Copenhagen districts. The district, located next to the old central district of Copenhagen, was built during the period of 1880 - 1920. It contains three main areas: a housing district of 5-6 storey closed blocks, interrupted by small spots of remaining detached houses or villas; a park area where public facilities such as hospital, university and sports stadium have been located; and the port area where a substantial redevelopment is currently taking place.

In the district of Østerbro, 76.000 square meters of housing and 150.000 square meters of offices and retailing has been built during the 1990s.



The areas being redeveloped are former harbour areas, derelict sites, old military barracks (Marked with red), but also smaller sites (marked with yellow) in the part of the urban districts with lower densities.

The high level of building activities has led to an increase in population density in the district by 5.9% which is higher than the increase for the municipality of Copenhagen generally. Part of this increase is due to an increase in household size in the existing households in the district.

Some of the redevelopments are related to the metro stations thus following the national and regional planning guidelines.

## 1200 more flats, but for whom?

According to the municipal plan there is room for additional 1200 flats in the district. The existing housing in Østerbro consists of a larger proportion of large flats than other Copenhagen districts. This trend continues in the new housing developments, which are mainly flats with several rooms and many of them with a quite high price level. Thus many of the developments are for high-income groups, although there is a need for housing for elderly, students, kindergartens, etc. according to the municipal plan for Copenhagen.

Especially the housing developments on the harbour front are primarily large expensive dwellings, whereas those dwellings built in the central parts of the district and have more reasonable price levels. This development in housing is in line with the municipality of Copenhagen's policy of attracting families and high income groups. In addition to this policy, the Municipality of Copenhagen has stopped building low income, "social" housing.



The urban spaces created are exclusive, and the flats built especially on the waterfront are expensive, and generally large flats.

A more detailed study of some of the new housing developments in the districts has shown the diversity of groups attracted to these central housing developments:

- On the harbour front, high-income elderly couples, younger couples and singles. No children.
- In the housing developments in the center of the district middle to high income couples with children, single parents and singles.

The residents of Østerbro in general have a higher income level than other Copenhagen districts.

## **Social inclusion?**

One could question whether the current trend results in social diversity, as some have claimed in light of the compact city. Some of the developments support continuing social segregation in the city. The policy of the local authorities has been to attract families and high-income groups back into the city. Among others, Smyth (1996) has pointed out that the compact city policy and urban gentrification in inner city districts may lead to social exclusion. Higher price levels in inner districts, a result of urban renewal and gentrification, have led to displacement of the disadvantaged out of the core and inner districts into the transitional zone. Smyth underlines the evidence of this trend, which has been observable since the mid-1980s, when gentrification of inner city districts began to accelerate. In Copenhagen, the current urban development supports this trend, and the new housing developments which have led to densification, along with the stated housing policy, have certainly supported this trend. The question is whether this is a sustainable social development.

On the other hand, the dispersal of the urban area that we have witnessed in the past decades has increased gender, age and socio-economic differences. Thus, Nystrøm (1995) has concluded that dispersed urban development is not socially sustainable. The problem of current urban development rather, is that it continues to support trends in the socio-geographical pattern, but with the opposite geographical direction. In some

areas this may lead to higher social diversity, but in others it will not. Again it depends on the scale on which one studies the transitions.

The social imbalance that the expensive housing could create has been a central issue in the objections of politicians and local residents to some of these developments. The social acceptance of these projects and the densification can be studied by examining the objections raised in the period of public hearings about the local plan. In relation to all the projects there have also been several objections to the high density of the developments and also objections to the functioning of the area. In general, however, redevelopment of the areas has been agreed upon. The question, as mentioned before, is how high a density should be accepted. Perhaps the acceptance of densification is higher in already high density districts, as indicated by Finnish research (Lehtonen 1996).

## **Choice of dwelling and everyday life**

The residents in the new housing developments have chosen to live in a central urban location due to several circumstances, but in general it has been a deliberate choice. The elderly couples moving in from the suburbs to the harbour front wanted to enjoy urban life and were tired of house and garden. Other households mentioned the importance of living without a car, and urban living was a way of doing this.

But there are many differences in the way these new residents use the urban district. The high income groups on the harbour front does not relate to the district of Østerbro. In general they don't work, shop or have any leisure activities there. And when asked, they do not relate to them selves as being a part of the urban district. They work all over the region, they shop either down town or in the more exclusive northern part of Copenhagen. And of course they primarily drive by car to these activities.

This is a quite different every day life than the residents in one of the other development, which work in the district or in the center of Copenhagen. They do their shopping in the local district and use the leisure facilities near by.

These choices are related to lifestyle, a larger proportion of residents on the harbour front has moved from the suburbs to the center, than the case is in the other development. But the difference is also related to urban design. The harbour front developments are not integrated in the urban district or the urban structure. The main relation to the rest of the world is by a 4 lane road built in relation to this redevelopment. So why don't we go by car?

## **Increase in local employment?**

Generally the densification process has led to an increase in jobs and a small increase in local employment. There was a small decrease in jobs in the beginning of the 1990s, but since 1994 more than 2000 additional jobs (equivalent to an 8% increase) have been created in Østerbro.

The increase has especially been in relation to the service sector and finance. Residents in Østerbro in general are mainly employed in the health sector, service, education and childcare. Still, only about 15% of the residents are locally employed. The increase in local employment is mainly in relation to the finance sector. Thus there is an increase in the number of commuters out of the district, and especially out of the municipality.

## The need for transport

It is no surprise that transport is increasing. It has been argued that densification will have several environmental benefits: reduced need for travel, lower level of energy use for heating in dwellings, better efficiency of infrastructure, etc. During the last decade there has occurred an increase in the level of transport on the main roads of the district. The higher level of transport on several of the main roads has consequences for local air pollution, noise levels, and the physical and visual barriers that substantial traffic create. The new road along the railway to the port areas has reduced traffic on other roads but at the same time has created an additional physical barrier between the district and the port areas.

There has been an increase in traffic accidents during the period 1994 - 1996 when the major redevelopment started. These accidents have taken place on the roads where there has been an increase in traffic, but also on the main shopping streets in general. So the correlation is not a simple one.

Why is this increase in transport in Østerbro occurring, when all theories on the compact city suggest that central localisation should lead to a lower transport level? If we study the volume of transport for some of the new housing developments in the district, we find that a central location of housing developments does not necessarily lead to a lower volume of transport. In three large new housing developments in the district, we find substantial differences in the volume of transport. These differences are probably related to the income level of the households, the location of workplaces, and the general lifestyle of the different households.

In general, traffic has increased in the municipality. This is due to several factors, including an increase in workplaces in the municipality. Furthermore, there has been an increase in car ownership in the Copenhagen districts. This is probably related to the fact that the Municipality of Copenhagen have succeeded in their policy of attracting families and high income groups. This stated policy has been effectuated through urban renewal, where flats were enlarged, and through building large flats in the new housing developments. Some of these high-income groups may not change their transport behaviour substantially when moving to central districts. Their workplace may be located far from public transport and their leisure activities probably do not change due to their new residence, if they have moved in from the suburbs. The increase in commuters out of the district indicates this. We thus have some explanation for the increase in transport in the district, and can conclude that densification of housing does not necessarily result in a more sustainable city, in terms of reducing transport. Lifestyle is an essential factor in environmental issues. From a regional point of view, the question is whether these groups would have a higher volume of transport if they lived in new housing developments in the urban fringe.

## Urban greening?

There have been conflicts between local and municipal interest, especially when it comes to the need for parks and access to the harbour area. The densification of the district has not caused a major loss of recreational areas. In fact some of these re-developments may lead to an increase in *accessible* green space, due to the fact that derelict sites, defence areas, etc. not were either green or accessible before.

However, densification is not only a question of how dense an area becomes, but also a question of the loss of possibilities. On the former industrial site located next to one of the metro stations, redevelopment is taking place with an office building being built nearest the station and a 6 storey housing development on the rest of the site. The offices are

completed, but no investors have so far been interested in the housing part of the project. Although the area has never been accessible to the public, the redevelopment project has encountered resistance in the local district. Local recreational interests in the district have fought for a new park, the area being poorly served with local recreational facilities. The distance to the nearest park is more than 1 km. Local residents overturned the fence running along the development area when the housing project where delayed. Subsequently, they bought plants and trees for the area.

Development of this site is an example of the conflict between regional and local interests, and in the current urban development of Østerbro, local interests lose. For the residents, the redevelopment scheme is an example of lost possibilities for creating a local park. On the port sites, recreational interests are also having a hard time. Many of the proposed developments have a high proportion of offices and are designed as closed blocks around the port area, creating a wall against the housing district. Thus, the current urban development does not support the general aim of the local authorities to provide public access to the quays as part of the recreational policy.

Green areas in relation to the new housing developments are also hard to obtain. In relation to one of the projects, the local authorities had to sell a local municipal square to the developer, due to the fact that he was not able to fulfil the demands of the local plan proposing a maximum plot ratio of 150%. Thus, the residents lost the possibility to obtain more open space in the part of the development where the housing was located. In another development, the local authorities agreed to regard the development area as a single land register number. The result is that the open space of the area can be calculated as a whole. Consequently, the housing area has some of its open space 500 meters away! When the local authorities make agreements like this, the quality of the housing provided in the compact city decreases. And this may be a problem if we are to create quality examples of compact city developments.

## **Innovation or business as usual?**

Overall, the municipality has not seen densification in an environmental or social context. Thus some of the possible benefits of such a process is not achieved. So has the change reflected in national policy, focussing on how a concentrated urban development and integrated environmental concerns could benefit the environment, resulted in innovative municipal urban planning in reality?

This case study of the current densification of a Copenhagen district, indicates several problems in relation to the local urban environment, when applying a compact city policy. An essential cause of these problems may be found in the way the local authorities have handled the development projects, and less so in the compact city policy itself.

In studying the current urban restructuring of Østerbro, interviews with local authorities have revealed the pressure placed on them by developers when negotiating local plans. The result has been that the developers interests have been favoured and the public interests suppressed. We have seen this in connection with public areas, green areas and cultural heritage sites. Local residents have called attention to this fact in relation to the planning of these projects. But this has not altered the final result. These conflicts are not new, but in the current development of cities in a competitive era, the conflict seems to be more severe.

The way the local authorities has used the opportunity to build with higher densities until now, mostly reflects their narrow economic interests in attracting new residents and office locations in Copenhagen. The case study has shown that private financial interest and the local authority have been

the key actors. How local interest get a part to play in such a process, with huge financial interests at stake, is still an open question. So there is still more *business as usual*, than innovation in municipal urban planning.

One can see the concentration in light of gentrification of inner city areas, or in light of the economic processes of change. However, from a planning point of view, one historical fact is especially interesting. Copenhagen has had a long-standing interest in building as many housing developments as possible within its municipal boundaries. This fact has become more significant after the resignation of the 1960s, 1970s and 1980s, when the municipality experienced a considerable decline in population and a corresponding loss in tax revenue. The current increase in population should also be seen in light of this decrease during the past decades. In Greater Copenhagen, there is an ongoing competition between the municipalities to attract taxpayers and commercial activities. The current concentration of activities in Copenhagen can be seen in this light. This goes hand in hand with interests in densification of the urban fabric due to environmental concerns, but we must question whether these concerns will be fulfilled if current developments continue.

In order to have a co-ordinated planning and transport policy, a co-ordinated planning action and administrative organisation in the urban regions is necessary. During the restructuring of the Danish municipalities in 1970s, the main argument used to define the municipalities, was "one town - one municipality". Except for Copenhagen. The greater Copenhagen area still consists of 50 municipalities and 5 regional authorities (the central municipality of Copenhagen has a dual function as local and regional authority, as does the neighbouring municipality of Frederiksberg) and now also a new Greater Copenhagen Council co-ordinating regional planning. The question is whether the current organisation of the region is sufficient in order to have a co-ordinated planning. The current urban development, with both urban sprawl and urban densification, do not provide sustainable urban development. Nor do these trends accord with the intentions of the National Planning Guidance.

## Conclusions

Several lessons can be learned from this case study of current densification of a Copenhagen district. The conflict between regional and local environmental interests has been discussed in relation to the compact city, but competition, organisation, and the conflicts of implementing this strategy have rarely been discussed thoroughly.

This case study has shown that the critique of the compact city concept has had some legitimacy. The compact city strategy has a regional perspective on urban development, focussing in a Danish context on the well-functioning urban region. There are many good intentions, but they show little success on the part of the local authorities with the current situation in Denmark. The local authorities do not work with the compact city strategy as their overall planning strategy and does not relate this to a strategy for sustainable urban development. And the case study has shown the kind of conflicts that arise when implementing a compact city strategy without having a co-ordinated planning approach, comprising housing, transport, environmental and social issues. Furthermore, the case study has shown the conflicts between urban densification as it is now occurring, local environmental and social concerns and the interests of developers. Anderson (1998) has described this phenomenon as “the illusion of urban renewal as an integration in which the basic attribute of the urban space is a richness and variety of relationships between people from different social and consumption groups falls down because of solutions dictated by the power of capital”. If the compact city is to provide a more sustainable urban development, local and regional authorities must balance the strong financial interests in current urban development. And as densification is now occurring, this is not the case. In relation to densification in England, Breheny (1992) has pointed out that “the town-cramming that we have witnessed is the result of a piecemeal, largely unplanned activity, carried out without regard for environmental consequences.” We can conclude that if urban densification is to bring more sustainable development to our cities, a more thoroughly planned densification process is an urgent necessity, consisting of both local and regional perspectives.

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