In areas where restructuring activities in the housing stock are planned or are already taking place, the objectives of these interventions are not only related to physical aspects such as technical condition and dwelling size, but also to essentially non-physical aspects such as social integration, ‘liveability’ and sustainability. Restructuring is expected to contribute to more agreeable neighbourhoods, not only in the physical sense (better dwellings etc.), but also in the social and the economic sense (crime, social cohesion, employment etc.). As in many European countries, housing is seen to play a vital role in trying to solve the social problems of the modern city. But to what extent are these expectations realistic?

Seen as a form of urban renewal, restructuring is not new per se, but has been preceded by many housing improvement schemes in the past. In the last decades, many studies have been carried out about the effects of the physical environment on non-physical issues concerning the respective neighbourhoods and their inhabitants. Although these studies may give different and even contradictory answers about the strength and the nature of this relationship, we expect to find useful information in literature about the non-physical effects of large-scale housing improvement schemes.

The present restructuring in the Netherlands mainly concerns the housing stock built in the years 1945-1965, so in the first two decades after the Second World War. In this kind of restructuring, a lot of attention is paid to income diversification on the neighbourhood level. In Dutch government policy (and also that of several other European countries) income diversification is regarded as a key instrument to improve the liveability and sustainability of deprived neighbourhoods. This paper presents an overview of research in this field to assess these expectations. In addition, we present a more general review of the literature on the relationship between the built environment and the liveability of neighbourhoods.
1. **Introduction**

The ambitions of today’s urban renewal in the Netherlands as well as several other European countries are not only related to physical aspects like the technical quality of housing stock, but they are broader and also include creating attractive, pleasant-to-live residential environments and promoting social cohesion and social security. The term ‘liveability’ or its respective equivalents in other languages are often used in this context. The Dutch national government has defined three central quality aspects of urban renewal (Ministry of VROM, 1997):

- **physical**: technical quality of the housing stock, urbanistic quality, quality of public territory, physical appearance;
- **social**: social security, crime, vandalism, (other) anti-social behaviour, social cohesion, mix of population groups;
- **economic**: (un)employment, economic activities.

Central in present government policies in the Netherlands is the creation of a socio-economic mix of the population in deprived neighbourhoods through housing diversification and, largely related to that, through allocation. Demolition and new building (replacing old housing for new, modern housing), sale of homes and eventually a modification in rent level and/or allocation rules are, at least in theory, the instruments that can be used to promote such a population mix. Advocates of this policy argue that this population mix will contribute to a more liveable neighbourhood. So, interventions in the characteristics of the housing stock are believed to be an effective means to reach social objectives. To what extent is this expectation true? Three relationships are central in this context:

- a direct relationship between the physical characteristics of the housing stock and liveability;
- a relationship between the physical characteristics of the housing stock and the socio-economic characteristics of households;
- a relationship between the socio-economic characteristics of households and the liveability of the neighbourhood in which these households live.

**Figure 1** Supposed relationships between physical housing characteristics and liveability

From these relationships, we formulate the two central questions of this paper:

1. To what extent do physical interventions in the housing stock affect liveability?
2. What is the role of socio-economic diversification of the population in this relationship?
In answering this question, we distinguish two geographical scales: the neighbourhood level and the local level. The distinction of a higher geographical scale is relevant because the housing improvement may not only affect the liveability of the neighbourhood in which the property is situated, but also of other areas. It can be argued that urban renewal only relocates people to another neighbourhood, so that it is effective in improving liveability on the neighbourhood scale, but ineffective on the local scale. In other words, liveability problems may not disappear, neither if people move to another neighbourhood, nor if they return to an improved neighbourhood.

In this paper, we try to answer the central research question from existing literature in this field. We first describe the concept of liveability. Next, we have a look at the period from the late 1970s and the 1980s, in which huge government investments in the older dwelling stock were made, particularly in those parts that were in a deplorable state. To assess the usefulness of the evidence from that period for answering the central question of this paper, we deal with the similarities and dissimilarities in the Dutch urban renewal policy of that period compared to the current policy (section 3). Then, we go into the relationship between the built environment and the socio-economic characteristics of households (section 4). We continue in section 5 with the direct relationship between the physical characteristics of the housing stock and liveability, and with the relationship between the socio-economic characteristics of households and the liveability of the neighbourhoods in which these households live. In section 6, special attention is paid to the so-called neighbourhood effect, which plays an important role in the debate about the effectiveness of today’s urban renewal, especially at the local level. Finally, the conclusions are presented in section 7.

2. The concept of liveability

The use of the word ‘liveability’ and its Dutch equivalent ‘leefbaarheid’ has remarkably risen in policy documents since the 1990s. In the United Kingdom, the national government introduced ‘liveability’ in 2001 as a priority in urban renewal (Kearns & Turok, 2003, p. 9). Although it can encompass a wide range of aspects related to the quality of life, in policy practice concerning urban renewal it is used, not surprisingly, in relation to the living environment. In this respect, the words “cleaner, safer and greener” are used in this respect (Brook Lyndhurst, 2004, p. 5). This is a somewhat narrower, but still broad interpretation of the term, encompassing at least a physical, social and ecological dimension. There is a parallel with the Dutch triplet “schoon, heel en veilig” (clean, intact and safe) in Dutch government policies (De Hart, 2002, p. 25), although the ecological dimension is absent in these terms. In this paper, we focus on the social dimension of liveability. This dimension encompasses aspects like social security, crime, anti-social behaviour and the quality of contacts between neighbours. Thus, liveability is strongly related to individual behaviour here.

The term ‘liveability’ is often used in connection with the term ‘sustainability’. Because these terms are not well defined, there is a risk of confusing the two terms. A British research has found that liveability is more related to the daily living environment, whereas sustainability is more related to a higher geographical scale. Despite many parallels between the terms, liveability may conflict with sustainability, for instance if the former is promoted with environment-unfriendly measures (Brook Lyndhurst, 2004, p. 11). For reason of clarity, we will only use the term ‘liveability’ in the rest of this paper.

3. Urban renewal in the past

Like a number of governments of other European countries, the Dutch national government advocates income diversification of the population in deprived neighbourhoods as a main instrument in combating social problems and stimulating liveability (Priemus, 1998; Priemus et al., 1998, pp. 125-126). This ‘income diversification’ means that the housing stock of low-income neighbourhoods must be modified in such a way that higher-income households are
attracted or are encouraged to stay in such a neighbourhood. In most cases, the emphasis is explicitly on the latter population group, whose influx is regarded crucial to bring urban renewal to a success. This is a dramatic change compared to the dominant urban renewal policy in the 1970s and the 1980s in several ways.

- First, urban renewal in the 1970s and 1980s was targeted at sitting inhabitants (mostly tenants), who were mostly native, low-income households. In the 1970s and 1980s, the normative core of urban renewal was to diminish socio-economic inequality between population groups by improving the housing conditions of the poor. In the 1990s, the dominant national policy makers shared a different opinion: in the neighbourhoods subject to urban renewal, the lack of decent, inexpensive homes was not the problem, but the lack of homes for higher-income households (Vermeijden, 1997 and 2001, p. 224; Hulsbergen & Stouten, 2001). They criticised the ‘classical’ urban renewal policy of the 1970s and 1980s for creating large concentrations of low-income households, thus undermining the base of economic facilities and leading to liveability problems (Vermeijden, 1997, p. 253).

- Despite the emphasis on the physical aspects of the housing stock, there was some kind of social engineering in the 1970s and the 1980s in the sense that native families with children, of which a large number had left the inner city areas in the years before, were encouraged to return or - if they still lived in the neighbourhood under consideration - to stay (e.g. Stouten, 2004). This differs from the present policy, in which income rather than household size is important. Anyway, the policy to attract or to keep families with children largely failed because most original inhabitants did not return to their former neighbourhoods after the renewal had been finished (Vermeijden, 1997, p. 202; Stouten, 2004).

- In the 1970s and 1980s, urban renewal was targeted at improving housing conditions in the physical and technical sense. As has already been stated, current policies also emphasise the social liveability of the neighbourhood.

- As far as the physical and technical aspects are concerned, there is a shift from technical quality to market-oriented aspects, such as dwelling size and amenities in the dwelling. The technical life cycle has partly lost importance in favour of the economic life cycle. Nowadays, many dwellings are demolished not because they are in a bad technical condition, but because they are too small to meet current demand.

- The urban renewal in the 1970s and 1980s was much more driven and subsidised by the government. Nowadays, brick-and-mortar subsidies are virtually abolished. Property owners, notably housing associations, take a prominent role in the renewal of the housing stock (Hulsbergen & Stouten, 2001).

Because of the difference of the objectives of urban renewal, there is hardly any literature from the 1970s and 1980s about the effects of attracting higher-income households on liveability. Consequently, most literature on this topic is of recent date. Nevertheless, there is literature about the social consequences of characteristics of the built environment, which will be dealt with in section 5.

4. Housing and socio-economic mix

The relationship between physical housing characteristics and socio-economic characteristics of the inhabitants has been confirmed in many studies, with the price of a dwelling (expressed in purchase price, mortgage repayment/interest or rent) as an intervening variable. Although this relationship can be blurred by rent subsidies, tax deductibility of mortgage loans and other forms of government support, the evidence for the existence of this relationship is overwhelming. This would imply that changing the housing characteristics is an effective tool to influence the population structure of an area. This section deals with this subject.

As has been stated in an earlier section, the Dutch urban renewal of the 1970s and the 1980s was targeted at low-income people living in deprived neighbourhoods: it was the aim to provide these population groups with decent, affordable housing and, in doing so, to improve their, generally speaking, bad housing situation.
The Social and Cultural Planning Office (SCP) carried out a broad study in a considerable number of Dutch cities on the change in social status of neighbourhoods between 1971 and 1995 (Knol, 1998). On the basis of income, education level and unemployment, an indicator for social status was developed. The values for this indicator were grouped in three categories: low, medium and high social status. The results show that all urban renewal areas had either a low status in both 1971 and 1995, or had a lower status in 1995 than in 1971. The study concludes that many urban renewal areas in particular had a negative development (Knol, 1998, p. 119), despite the physical improvement of these areas. One can also conclude that the policy of providing better housing to low-income households had succeeded.

Another research, carried out by Priemus et al. (1991) report about studies with conflicting results (see pp. 68-72). One study shows a rise of the average income level in urban renewal areas between 1983 and 1987, but Priemus et al. question this outcome, because the suspect that immigrants, who are relatively poor, are insufficiently represented in that research. For this reason, Priemus et al. regard the findings of another research, which shows a decline in the average income level between 1981 and 1985, as more reliable. Next to these contradictory results, both studies show that low-income households are dominant in urban renewal areas. Stouten (2004), in his case study of the Rotterdam district of ‘het Oude Noorden’, found that even after an extensive program of demolition, new-building and refurbishment, low-income households still dominated the population structure. In this respect, he confirms the results found by Priemus et al. (1991). In that respect the policy of the 1970s and the 1980s to realise better homes for the poor was a success.

We expect that attracting higher-income households could be more difficult than attracting lower-income households, because higher-income households have more freedom of choice on the housing market. In addition, the negative image of a deprived neighbourhood could refrain more affluent households from moving in. This raises the question whether urban renewal can create a socio-economic population mix in areas that were originally low-income neighbourhoods. Because this policy objective is of recent date, there is little evidence to answer this question, but we can mention two studies that go into this subject.

First, Van Iersel et al. (2002) report on the basis of a large survey among residents of new-built homes, that in city centres and in districts built before 1945, the average income level of the inhabitants in new-built homes is much higher than in the other dwellings in the respective districts. Second, a recent study by Van Beckhoven and Van Kempen (2002, 2003) in two districts – one industrial area in Amsterdam and one residential area in Utrecht – has shown that the share of high-income households has considerably risen in both areas during the intervention period. It must be said, however, that the difference in Amsterdam is much larger than in Utrecht. According to the survey that was held for this research, two-thirds of the households after the intervention came from outside the neighbourhood.

The results of both studies suggest that the relationship between physical housing characteristics and socio-economic population characteristics is also strong in periods of large-scale housing transformations. The results also indicate that transformation of the housing stock is an effective means to reach a socio-economic mix of the population.

5. Relationship between built environment and liveability

Regarding the relationship between the built environment and liveability there are two main approaches that have to be mentioned. In the first approach human behaviour is explained by the physical-spatial characteristics of the built environment. So, the built environment is also a main cause of inconvenient and anti-social behaviour and, consequently, an important predictor for the degree of liveability. We refer to this view as the environmentalist approach.

In the second approach, which we call the ethological approach, the emphasis is on psychological, social and cultural factors. These factors are crucial for human behaviour and, consequently, for liveability. In this approach, the built environment is not seen as a cause of (bad) behaviour, but at most as a condition. As a consequence, physical interventions in housing do not lead to a reduction of crime or other forms of anti-social behaviour.
interventions are, in this view, inappropriate to prevent undesired behaviour. At the most, they can entail a relocation of this behaviour.

To illustrate the difference between the first and the second approach we give the following example. According to the first approach, people can commit a crime because of characteristics of the built environment. If the characteristics were different, the act of crime would not have taken place. According to the second approach, the crime would have been committed, but possibly at another place.

If we apply these approaches to housing asset management, it is clear that advocates of the environmentalist approach regard transformations of the housing stock in deprived neighbourhoods as an appropriate instrument to improve liveability, not only on the neighbourhood level, but also at the local level. Advocates of the ethological approach, however, would doubt the effectiveness of these transformations. In their view, housing may be effective in relocating liveability problems, but is ineffective in solving them.

An extreme form of the environmentalist approach, known as physical determinism, was popular in German geography at the end of the 19th century and in the beginning of the 20th century, with Ratzel as its most well-known representative. Already in the first part of the 20th century, however, the physical-determinist approach was felt too narrow. The scientific attention shifted to social and cultural factors and a broader spectrum of environmental characteristics (see for a review on this Gold, 1980, pp. 26-43). Two notable opponents to spatial determinism in the 1960s were the Americans Jacobs (1961) and Gans (1968), who stated that explanations of social problems are to be found in social and cultural factors. Similar criticism could not only be found in the United States, but also in other countries.

Despite this criticism, views that explain social processes through physical-spatial factors can also be observed in the last decades. For instance, an extensive study, carried out in Western Germany in the 1970s (BMBau, 1978) concluded with regret that there was still an implicit physical determinism in several policy documents. Especially the problems in urban areas in Western Europe and Northern America gave rise to investigations on the relationship between physical-spatial attributes and social problems, with special attention for crime and other forms of anti-social behaviour. An overview of the literature on these topics (although not so recent anymore) is given by Van der Voordt & Van Wegen (1991). An example of a more recent study is that of Schweitzer et al. (1999), who found that in Lansing, the capital of the American state of Michigan, only 3 of the 17 examined characteristics of the built environment (namely percentage of households sharing driveways, percentage of households having porches and grocery or convenience store nearby (within two blocks)) had a significant relationship with crime, thus showing the relative importance of the built environment in this respect.

Central in various studies in the 1970s and the 1980s has been the concept of 'social engineering', in which it is assumed that human behaviour can be influenced by the rational design of the built environment. A famous but also criticised publication in this field is Newman's book 'Defensible Space' (1972). Newman paid attention to negative effects of the built environment, especially the design of public and semi-public space, on human behaviour. Later, Coleman (1985) also blames liveability problems on the physical, visible appearance of the built environment. At the same time, it must be said most authors in the last decades, including Schweitzer et al. (1999), do not necessarily adhere to the environmentalist approach, leaving aside whether the relationship between physical-spatial attributes and social problems is a causal or a conditional one. So, most studies 'simply' examine which physical characteristics show a statistical relationship with rates of crime, without statements about the causality of this relationship.

As has already been stated in the introduction, several European governments now advocate housing diversification in low-income neighbourhoods as a means of combating deprivation and stimulating social security and 'liveability'. In their view, housing diversification leads to a socio-economic mix of the population, and this, in turn, leads to an improvement of behaviour (or a reduction of anti-social behaviour) and, consequently, to an improvement of the liveability. In this view, physical factors affect social problems and liveability, but in an indirect way (see Figure 2).
Contrary to the environmentalist approach, the view mentioned above is based on two generally acknowledged relationships. The first relationship is between physical housing characteristics, the price of a dwelling (expressed in purchase price, mortgage repayment/interest or rent) and household income. We already dealt with this relationship in the previous section.

The second relationship is that social problems are related to the socio-economic position of the population. Although this relationship may be more complex than suggested here, there is ample evidence that acts of crime and other anti-social behaviour relatively often occur in deprived neighbourhoods and are relatively often committed by people having a low income and a low income prospect. As a consequence, an influx of more affluent households in low-income neighbourhoods may lead to at least a dilution of the social problems in the area, thus making these problems more manageable.

6. Neighbourhood effect

A particular issue in the debate about the relationship between the built environment and liveability is the existence of a neighbourhood effect or area effect. Atkinson and Kintrea (2002, p. 147) define these effects as follows: “the independent, separable effects on social and economic opportunities which arise from living in a particular neighbourhood”. The concept was introduced by Wilson (1987), who believed that impoverished inhabitants of deprived neighbourhoods stay impoverished because they live in a deprived neighbourhood, thus stimulating and preserving socio-economic segregation. It has been argued that the American evidence for this hypothesis does not apply to the welfare states in Europe, but the continuing fear of segregation frequently puts this subject on the political agenda (Ostendorff et al., 2001, p. 372). In addition, a growing number of scholars realise the potential importance of the neighbourhood effect, although they all agree that better evidence is required (Atkinson & Kintrea, 2002, p. 151).

The literature about neighbourhood effects is usually used in the context of poverty and poverty reduction, not in the context of liveability. However, because we assume that liveability is related to the income of the population and, consequently, to poverty as well, this literature is also relevant in the context of this paper.

In general, the neighbourhood effect assumes that concentrations of households of a certain type will perpetuate certain attitudes and behaviour. In the case of low-income neighbourhoods, it is believed that these concentrations would stimulate a culture of poverty,
leading to social exclusion, continuing unemployment and reduced possibilities for people to improve their socio-economic situation. A social mix, on the contrary, would lead to an extension of social networks and the introduction of ‘role models’ and (other) positive examples for the original population (Ministry of VROM, 1997; Uitermark, 2003; Kleinhans, 2004). This supposes that each neighbourhood has a ‘social environment’ that influences the behaviour of the people living in this neighbourhood, and, subsequently, the liveability of the neighbourhood as well. From this assumption Figure 2 can be expanded as follows.

**Figure 3** Relationships between housing characteristics and liveability in case of neighbourhood effects

Contrary to the two relationships described in the preceding section, which are supported by a vast amount of evidence, the neighbourhood effect is subject to debate. Notably the influence of the social environment on the behaviour of individuals is questioned. If we put this relationship in the perspective of the present urban renewal policy - in which attracting more affluent households to low-income neighbourhoods is a central issue - one should expect that the influx of higher-income households affects the norms and attitudes of the low-income households already living in the area. However, Kleinhans et al. (2000), in their study about the social effects of tenure diversification in the Netherlands, have shown that the social integration between the tenure population groups (and tenure is strongly related to income) is too small to support that expectation. Van Beckhoven and Van Kempen (2003) confirm this finding from several European studies. Ostendorff et al. (2001) have investigated the relationship between the share of high-quality housing and the share of ‘underprivileged’ people in Amsterdam – ‘underprivileged’ defined as being less educated, unemployed and not having a partner with a job (p. 377). A strong relationship has been found between these shares, but not a neighbourhood effect. Ostendorff et al. have even found a social mix in areas dominated by low-quality housing. The fact, however, that this is not in the least a consequence of the small share of
‘underprivileged’ people in Amsterdam (only 4%) puts this finding into perspective, because it is possible that a less strict definition would have produced different results.

Next to the studies that are critical about the existence of a neighbourhood effect, there is also evidence that supports or at least suggests this kind of effect. Atkinson and Kintrea (2002) state, "There is widespread acknowledgement among urban policy specialists in Europe (...) that living in [deprived] neighbourhoods contributes to the reproduction of inequalities and is a further source of social exclusion. This is because such areas isolate residents and promote a sense of fatalism about future prospects which is damaging to people's life chances” (p. 162). An American study into the effects of problem children moving from a low-income neighbourhood into a higher-income neighbourhood (Ludwig et al., 2001) seems to support the existence of a neighbourhood effect. Van der Laan Bouma-Doff (2005), in her study about immigrants and socio-economic mobility in the Netherlands, concludes that living in neighbourhoods with a concentration of immigrants may hinder the well-educated among them to improve their socio-economic situation, because of a lack of contacts with native people. De Kam & Needham (2003) mention several studies (namely Buck, 2001; Jargowsky, 1996; Meegan & Mitchell, 2001) that indicate that at least a part of the socio-economic mobility can be contributed to neighbourhood factors, and not to personal factors. They cite with approval Hortulanus and Machielse (2001, p. 11), who state that the physical environment is not a cause of social problems, but can create conditions that aggravate or moderate social problems. In their view however, the physical environment is not a cause of these problems; education, income and employment are much more important in this respect (see also Forrest & Kearns, 2001, p. 2136). So, Hortulanus and Machielse follow the ethological approach.

In conclusion, studies about the neighbourhood effect have produced different and even contradictory answers about the strength and the nature of this effect. The existence of such an effect is hard to establish, but it seems plausible, nevertheless, that a neighbourhood effect is present in some specific cases and circumstances.

7. Conclusions

Through the years, the relationship between the physical environment and human behaviour has repeatedly been subject of intense debate. As far as housing is concerned, the present restructuring of the housing stock enlarges the relevance of this subject. This is not in the least because this kind of restructuring does not only pursue physical, but also social objectives. In Dutch policy papers, the term ‘liveability’ is used to indicate the improvement of the living environment. The word encompasses both physical and social aspects. In this paper, the social aspects are emphasised: enhancing liveability means, in this sense, combating crime, vandalism and other forms of anti-social behaviour, and improving contacts between neighbours etc.

Improving liveability by physical interventions in housing assumes some kind of relationship between the built environment and human behaviour. The physical determinist belief in a direct relationship between the two has been rejected already a long time ago, but this does not exclude an indirect relationship. In the government policies of several European countries, the socio-economic characteristics are regarded as crucial intervening variables. It is believed that creating a socio-economic population mix in low-income neighbourhoods will improve the liveability of these areas. In addition, housing is seen as an effective instrument to create such a population mix. In fact, two relationships are assumed: first, a relationship between physical housing characteristics and socio-economic characteristics of the inhabitants, and second, a relationship between socio-economic characteristics of the inhabitants and liveability.

The first step, the relationship between physical housing characteristics and socio-economic characteristics of the inhabitants, has been confirmed in many studies: it is without question that physical housing characteristics influence housing choice and, as a result, the characteristics of the population living in it. The second step, the relationship between socio-economic characteristics and liveability, however, seems plausible, given the fact that most liveability problems occur in low-income neighbourhoods. One may conclude from this that housing is an effective means to enhance liveability. However, this is only true for the respec-
tive neighbourhoods. On a higher geographical scale, improvement in one neighbourhood may lead to a relocation of social problems to another neighbourhood. Those who support the existence of a neighbourhood effect would reply that, despite this kind of relocation, the effect on balance would be positive. However, so far the existence of a neighbourhood effect has not been satisfactorily established and seems to occur only in specific situations and circumstances. In addition, we did not find any studies that go into the neighbourhood effect in relation to liveability aspects. In conclusion, policy makers should be modest in their aspirations to enhance liveability by means of physical interventions in the housing stock.

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