

COST Action TU1203:
Crime Prevention through Urban Design & Planning



High-rise in trouble

The Bijlmermeer in Amsterdam

August 2014

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Foreword

What is COST?

COST – European Cooperation in Science and Technology - is an intergovernmental framework aimed at facilitating the collaboration and networking of scientists and researchers at European level. It was established in 1971 by 19 member countries and currently includes 35 member countries across Europe, and Israel as a cooperating state. COST funds pan-European, bottom-up networks of scientists and researchers across all science and technology fields. These networks, called 'COST Actions', promote international coordination of national-funded research. By fostering the networking of researchers at an international level, COST enables break-through scientific developments leading to new concepts and products, thereby contributing to strengthening Europe's research and innovation capacities. COST's mission focuses in particular on: building capacity by connecting high quality scientific communities throughout Europe and worldwide; Providing networking opportunities for early career investigators; Increasing the impact of research on policy makers, regulatory bodies and national decision makers as well as the private sector. Through its inclusiveness, COST supports the integration of research communities, leverages national research investments and addresses issues of global relevance. Every year thousands of European scientists benefit from being involved in COST Actions, allowing the pooling of national research funding to achieve common goals. As a precursor of advanced multidisciplinary research, COST anticipates and complements the activities of EU Framework Programs, constituting a "bridge" towards the scientific communities of emerging countries. In particular, COST Actions are also open to participation by non-European scientists coming from neighbor countries (for example Albania, Algeria, Armenia, Azerbaijan, Belarus, Egypt, Georgia, Jordan, Lebanon, Libya, Moldova, Montenegro, Morocco, the Palestinian Authority, Russia, Syria, Tunisia and Ukraine) and from a number of international partner countries. COST's budget for networking activities has traditionally been provided by successive EU RTD Framework Programs. COST is currently executed by the European Science Foundation (ESF) through the COST Office on a mandate by the European Commission, and the framework is governed by a Committee of Senior Officials (CSO) representing all its 35 member countries. More information about COST is available at www.cost.eu

About COST TU1203

The focus of COST Action TU1203 is Crime Prevention through Urban Design and Planning (CP-UDP). The Action was chaired by Professor Clara Cardia of the Polytechnic University of Milan, Italy. Clara Cardia completely unexpectedly died April 30th 2015. From then on Dr. Umberto Nicolini of LABQUS Milan chaired the COST action.

The Action comprises country representatives from European countries and some partnership countries. The countries presently involved are: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, FYR of Macedonia, Germany, Greece, Hungary, Ireland, Israel, Italy,

Lithuania, Netherlands, Poland, Portugal, Romania, Serbia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom. Its objective is to make a substantial advancement towards the goal of building “safe cities”. Studies have proved that there is a correlation between the structure and organization of urban space and crime: new criminological theory supports this point of view. The Justice and Home Affairs Council of the EU has underlined that crime prevention through design and planning is a successful and effective strategy for crime prevention and needs to be supported. Despite this, new projects are being implemented all over Europe without considering safety criteria, creating urban areas where crime and fear of crime make life difficult. The Action develops new knowledge and innovative approaches putting together theoretical thinking and practical experience. Thus the scientific program forecasts to work simultaneously on one hand on the innovative approaches deriving from research and experts, on the other hand on the know-how acquired through best practical experience. It brings together, value and disseminate the local research and experiences of participating countries, thus contributing to building a body of European expertise in the field of CP-UDP. It also uses its wide network to promote awareness, hoping that at the end of the Action more countries and decision bodies will be aware of the importance of incorporating crime prevention principles in planning decisions and projects.

From the Chair and the Core Group

The activity of COST Action TU1203 is organized along two main courses: producing innovative thinking in CP-UDP on one hand; and consolidating and diffusing existing knowledge on the other.

- The Action achieves the first course - innovative thinking - through working groups and invited experts which will develop new issues of environmental crime prevention, such as theories, private public partnerships, new technologies, new partnerships between police and planners, new implication of local authorities etc.
- It approaches the second course mainly through case studies located in different European cities. Each of the case studies focuses on aspects that are of major importance for the Action, and were organized by the hosting city with the support of the Action Core Group.
- The dissemination goal is considered of crucial importance and it is achieved, starting from the first year, by building networks of communication at international as well as the national levels. These networks are used for diffusing step by step the knowledge acquired by the Action.
- In order to make the results of the thematic working groups and the case studies immediately available to the Cost TU 1203 community and to the larger network it has been decided to produce a series of booklets, which develop the approached subject in short and synthetic form and are conceived so as to be easily readable to persons coming from different backgrounds. This booklet is thus one in a series.

See for the most recent information on this COST-action TU 1203: <http://costtu1203.eu> and http://www.cost.eu/domains_actions/tud/Actions/TU1203



Clara Cardia (chair) COST meeting Jerusalem May 2014

See for the most recent information on this COST-action TU 1203:

<http://costtu1203.eu/>

and

http://www.cost.eu/domains_actions/tud/Actions/TU1203

Executive summary

In a short period, between 1960 and the mid-1970s, high-rise buildings were constructed in all western countries. The city of Amsterdam followed this example and as a solution for the great housing shortage for the post war baby boom generation they build a completely new neighbourhood for about 100,000 inhabitants in a polder well below sea-level South East of Amsterdam: the Bijlmermeer. Because of the large extent of social housing in Amsterdam, not only the lower but also middle classes live in social housing projects.

The designers and planners were building their modern functional Le Corbusier-like dream and did not deal with difficult issues such as crime and fear of crime. Their non-response – and the slow response of the authorities to rising crime in general - was to be particularly damaging to the new area of the Bijlmermeer. What was supposed to be a planners' dream come true became a living nightmare when middle class families didn't move in, more and more apartments remained vacant and crime – as well as fear of crime – increased spectacularly. Turnover was rapid and the social structure of the district remained frail. In the 1970's crime rates rose in the whole of the industrialised (western) world and certainly in the Netherlands and Amsterdam but even more extreme in the Bijlmermeer.

Between 1985 and the beginning of the 1990's a series of measures was taken in the Bijlmermeer to turn the tide in the high-rise area. Generally speaking, the package can be defined as crime prevention through environmental design (CPTED) approach to the problem. Although the first phase of measures was often successful, there were bigger problems rescinding the total effect. In 1991 the decision was taken by the city council to demolish part of the high-rise blocks. The large scale renewal process was based on both spatial renewal and social renewal (including policing). The apartments were replaced by both low-rise and four stories high dwellings both in the social sector and free market owner-occupied or rental sectors. In order to create a neighbourhood with a robust and broad-based social structure, improvements in education and access to work were deemed to be crucial. A better design and lay out alone cannot offer the solution to all problems, social and economic factors need to be addressed at the same time. Preventive police strategies and a tougher approach to crime after the 1990's assisted the regeneration project. The total costs of the renewal and recovery operation were enormous. Together with the large scale renewal of the second phase an elaborate system of monitoring, the Bijlmermonitor, was set up from 1997 onwards.

The renewal operation has been successful: the Bijlmermeer is improving in many aspects, though not always as significantly as desired. The huge differences with Amsterdam have become much smaller but the Bijlmermeer is still a socially vulnerable neighbourhood and the negative image of the Bijlmermeer is persistent. The Bijlmermeer became a national symbol for all that was wrong with large scale town planning. In 2014 things look a lot better in the Bijlmermeer, but has the area finally become a pleasant place to live and dwell? This case study examines what comprised the dream of the Bijlmermeer, what went wrong, what has been done to make things right again

and how it turned out. Our focus is mainly on social issues and especially on crime and fear of crime or feelings of insecurity.

The story of the Bijlmermeer is just one of many. Estates such as the Aylesbury Estate and its neighbouring Heygate Estate in South-London have had continuous negative publicity and are now ghost towns awaiting demolition and regeneration. The Pruitt-Igoe public housing complex in St. Louis, USA, was completed in 1955 and was demolished in 1972. Nowadays the enthusiasm for high-rise residential buildings has shifted to Asia. Here the principles of Le Corbusier are still applied, although the functionality of the design seems even more pronounced and the towers are higher; in Hong Kong, Seoul and other Asian capitals up to 50 stories high.

But not all high-rise examples from the past are negative. Some neighbourhoods slide into a crisis but survive and do not have to be demolished. The neighbourhood of Bellvitge was founded in the city of Hospitalet de Llobregat, near Barcelona, in 1964, as owner-occupier housing for the low-income working classes. The social cohesion in Bellvitge was strong, but due to high unemployment and the economic crisis mixed with crime and the development of a new drugs market in the 1980's things got out of hand. However after a regeneration program, keeping the high rise blocks intact, Bellvitge became a very well connected neighbourhood with high quality public spaces between the building blocks. A new approach to policing - 'community policing' - made Bellvitge today a successful, safe and secure high-rise neighbourhood.

However the route taken in the Bijlmermeer was a different one: large scale demolition costing more than a billion euros. The brand new functional town called the Bijlmermeer was proven to be the wrong kind of design for a future in which crime, unemployment and the disappearance of societal bonds and control would become main issues. It might be a lesson for countries with low crime rates which run the risk of ignoring the need to design buildings and neighbourhoods that are not prone to crime. To avoid costly regeneration processes it's better to include safety and security early in the planning process. By comparing the case study of the Bijlmermeer against the case study of the Bellvitge neighbourhood near Barcelona different approaches to regeneration can be explored. Was it necessary to make such huge financial investments to demolish and rebuild large parts of the Bijlmermeer while in Bellvitge the high-rise buildings were kept? Furthermore this article is supported by an interview exploring the lessons learned from the Bijlmermeer and the development of a new neighbourhood, IJburg, in Amsterdam.

Although the number of cases discussed in this paper is very limited it could be a worthwhile start to a real comparative research of security and safety in large high rise estates in Europe or even worldwide. Urban designers and planners could benefit a lot from research-led thorough and structured reflection of concrete cases like the ones presented in this case study.

Acknowledgements

Authorship

This case study was written by:

Paul van Soomeren and Justin de Kleuver, DSP-groep, Amsterdam, the Netherlands

Willemijn van de Klundert, Westminster University, London, UK

The appendix was written by Inés Aquilué Junyent.

The study was edited by Paul van Soomeren

Correspondence address: Paul van Soomeren, pvansoomeren@DSP-groep.nl
(www.DSP-groep.eu).

1 Introduction

Since the late nineteenth century, social housing projects have been built on a large scale in Amsterdam. Most of these consist of closed building blocks, three to four floors high. The blocks were built and rented out by social housing associations. Until the 1990's more than 60% of the total number of dwellings in Amsterdam were 'social sector' dwellings. Rents were, by law, bound to a maximum. Because of the large extent of social housing in Amsterdam, not only the lower but also middle classes live in social housing projects.

In the late sixties a new town was being built in the southeast of Amsterdam on an unprecedented scale for the Netherlands: the Bijlmermeer area would house up to 100,000 people in mainly high-rise buildings, mostly social sector dwellings. What was supposed to be a planners' dream come true became a living nightmare when middle class families didn't move in, more and more apartments remained vacant and crime – as well as fear of crime – increased spectacularly. The Bijlmermeer became a national symbol for all that was wrong with large scale town planning. This stigma never disappeared, even after an enormous physical and social renewal scheme which changed the neighbourhood beyond recognition.



The construction of the Bijlmermeer, late 1960's

In 1992, just when these drastic measures to turn the Bijlmermeer around were about to be taken, a Boeing 747 Cargo Freighter crashed into one of the high-rise buildings, killing 43. A more gruesome turning point one couldn't imagine.

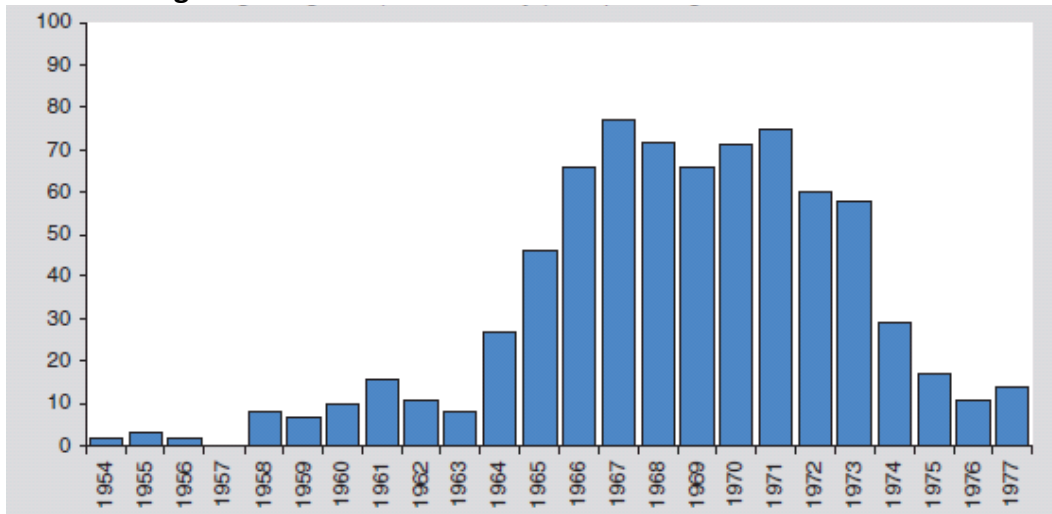


The crash site of the Boeing 747 Freighter in The Bijlmermeer, 4 October 1992

In 2014 things look a lot better in the Bijlmermeer, but has the area finally become a pleasant place to live and dwell? This case study examines what comprised the dream of the Bijlmermeer, what went wrong, what has been done to make things right again and how it turned out. Our focus is mainly on social issues and especially on crime and fear of crime or feelings of insecurity.

2 High-rise in the Netherlands

The Dutch high-rise wave



Dwellings in high-rise (over five floors) as a percentage of all social sector flats; the Netherlands.

Frank Wassenberg shows in the figure above that the Dutch high-rise wave started around 1965 only to disappear ten years later as quickly as it had appeared.

“Between 1960 and the mid-1970s high-rise buildings were constructed in all western countries. High-rise estates dominated the building in this era, and these years proved to be the time of peak housing production in the Netherlands and many other European countries. Housing production had to be optimised by reducing the variation in dwelling types, repetition of construction patterns and using new construction techniques. High-rise fulfilled these requirements. (...). In countries like France, Sweden, Germany, Britain and the Netherlands the majority of high-rise was built as public housing.” (Wassenberg, 2006/192)

Looking at the trends and prospects of high-rise housing in Europe the authors Richard Turkington, Ronald van Kempen en Frank Wassenberg distinguish seven motives for building high-rise housing: “By the 1960s, a series of influences and pressures had coincided which can be characterised as the seven motives for building high-rise housing. These were:

1. the need to solve long standing housing shortages;
2. the development of innovative technologies;
3. a confidence in ‘Modern architecture’ to reach a more just and fair society;
4. a desire to protect the countryside from mass development;
5. the demand for improved standards of living;
6. competition between municipal authorities in the provision of modern housing;
7. the support of governments for radical solutions to meeting housing problems.”

(Turkington et al 2004/7)

In most of Europe the high-rise wave might have been a short whim, but in Asia this high-rise wave became a tsunami in the 90th. Not without risk as this case study about an Amsterdam high-rise neighbourhood the Bijlmermeer will show.



Photos by Paul van Soomeren; China (Hong Kong), Korea (Seoul and Busan) and Taiwan

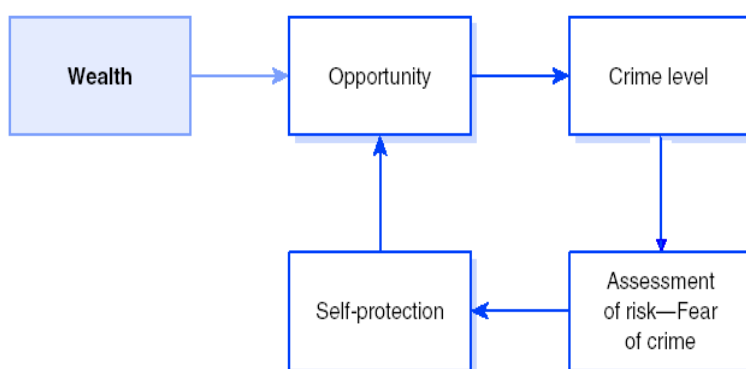
3 Crime in the Netherlands

When in the 1970's crime rates rose in the Bijlmermeer this was not an isolated development. Even though the increase was more sudden and more extreme than elsewhere in the country, all over the Netherlands, and indeed the industrialised (western) world, crime was on the rise. The fact that the Bijlmermeer became such a notorious icon was not only due to the severity of increase in crime, but also because the downside of societal changes in the 1960's became painfully obvious in the Bijlmermeer.

In the sixties, crime rates in the Netherlands were among the lowest in the world, probably because of the specific social organization of Dutch society. Society was organized into four different sociocultural 'pillars'¹. From top to bottom, each pillar consisted of a well-knit and socially integrated network, maintaining strict control on the social behaviour of individuals within each pillar.

Between 1960 and 1970, the pillar structure of Dutch society began to crumble. The 'baby boom' generation of young people born after the Second World War were brought up in an increasingly affluent society. According to the criminologist Jan J.M. van Dijk (2008 and 2014) wealth in itself is one of the main drivers for the crime epidemic in Western countries.

Schematic Representation of the Dynamics of Crime Epidemics in Western Countries

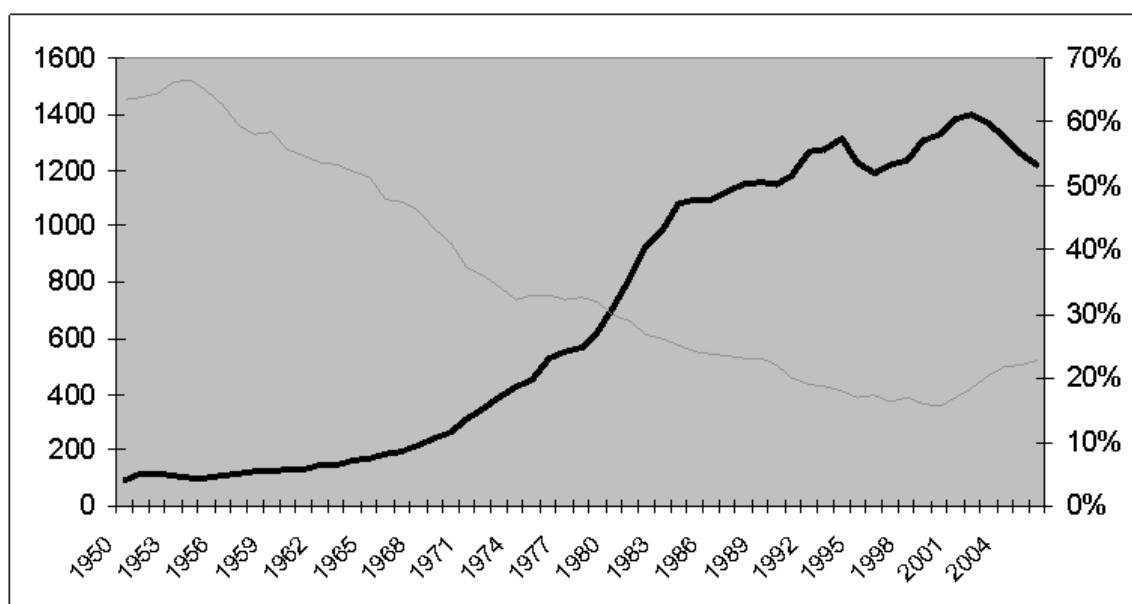


In short this theory states that more wealth generates more opportunity to steal goods such as telephones, lap tops, cars, money and credit cards. Hence the crime level goes up to be followed by an adjustment of the level of perceived risk due to an increase of fear of crime. People start to protect themselves better, opportunity decreases, crime goes down, fear of crime decreases again and self-protection starts to wane and crime will rise again.

Note 1 Protestants, Catholics, Socialists and Liberals.

However this theory only focusses on the opportunity structure and not on the offenders. In the Dutch situation of the 60th and 70th this was also a factor to reckon with: more young people often implies more crime certainly when old norms and values working as thresholds are broken down. And indeed the youngsters' baby boom generation certainly ceased to follow the old crowd – they wanted to enjoy freedom. In the beginning, no one noticed that this new individual freedom also had its disadvantages. Crime was one of them. From the sixties onward crime rates increased: between 1970 and 1992 the total number of recorded crimes in the Netherlands rose from less than 200,000 to 1.3 million (see figure 2). This dramatic increase took place mainly between 1975 and 1985. After 1985, the number of recorded crimes was still growing, but at a much slower pace. The increase was enormous, also in an international perspective.

Registered crime and clearance rates in the Netherlands: 1950 – 2007²



The increase in crime, both in the Netherlands and the western world, lasted until the early and mid 1990's. After that crime rates began to drop³ and are now back to levels of the early 1980's. The Netherlands has however not become a low crime country again. In the first decade of this century the Netherlands was ranking relatively high⁴, with crime rates topping that of the USA and Belgium.

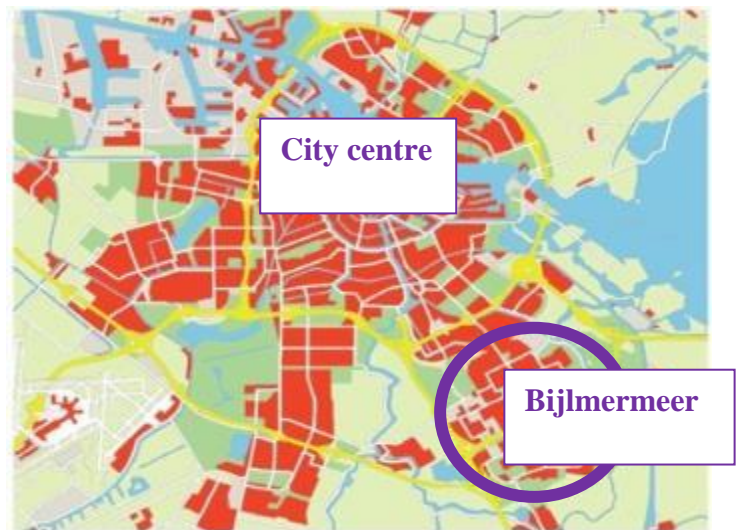
Between 1960-1980 no one reacted to the emerging crime problem in the Netherlands. The problem was ignored and the initial whistle blowers were ridiculed. This was due to, amongst other things, the countries' dealing with other problems, such as a great housing shortage for the post war baby boom generation. To solve this problem, the city of Amsterdam decided to build a

Note 2 Figure reproduced from: Forty years of crime prevention in the Dutch Polder, Van Dijk and De Waard (2009).

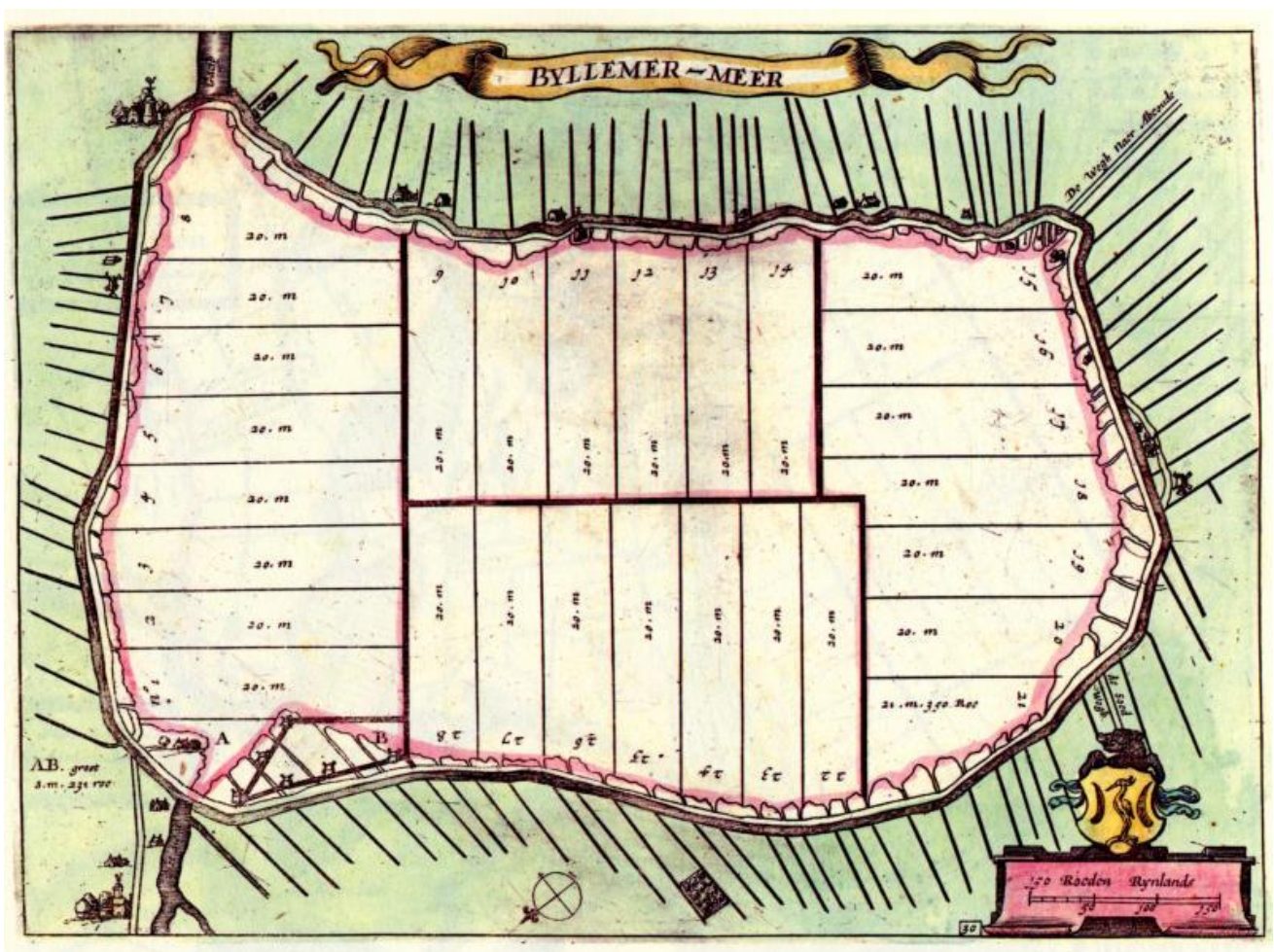
Note 3 As indicated by the number of recorded crimes by the police, but also the outcomes of victim surveys.

Note 4 According to victimisation rates 2003/04, survey of 30 developed countries (International Crime Victim Survey). Van Dijk, Van Kesteren and Smit (2007).

completely new neighbourhood for about 100,000 inhabitants in a polder well below sea-level
South East of Amsterdam: the Bijlmermeer.



The Bijlmermeer: isolated from the rest of Amsterdam



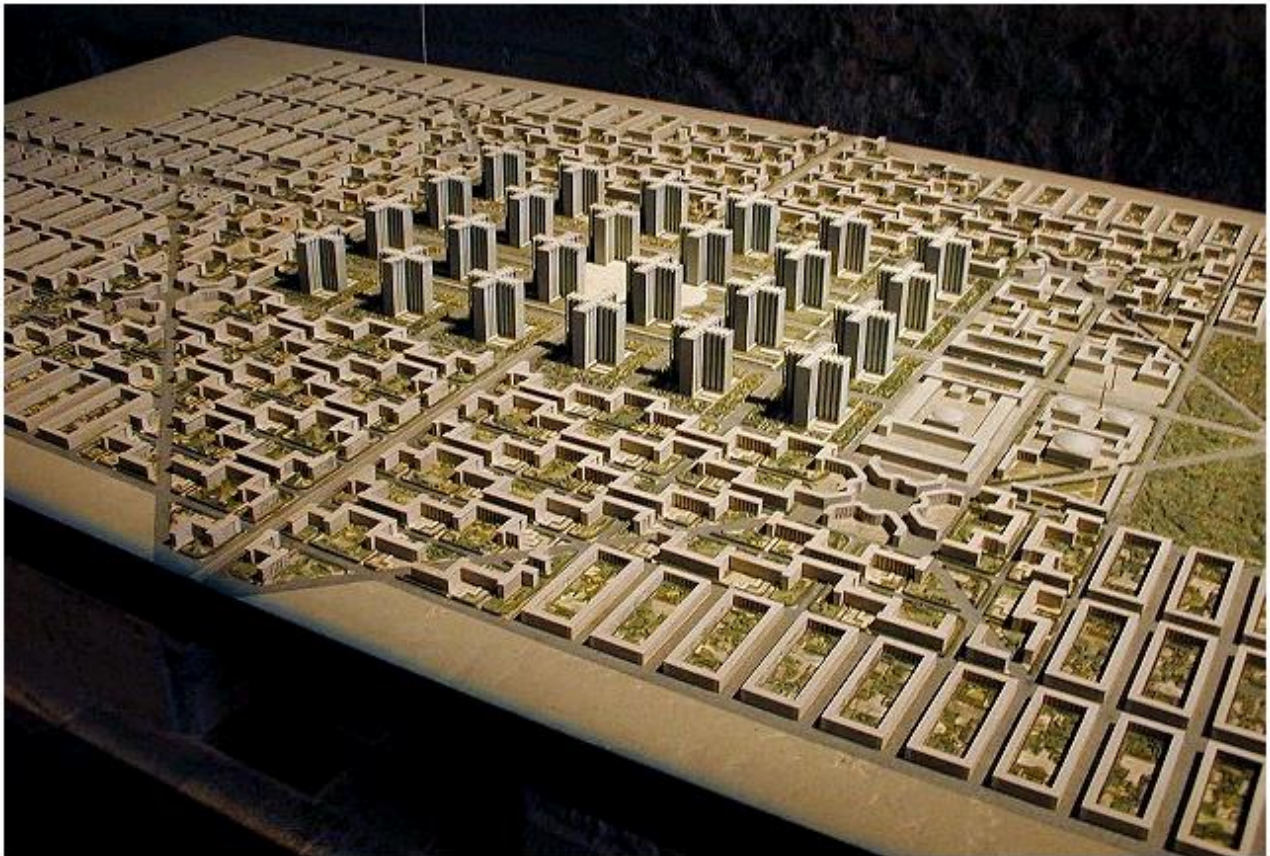
The Bijlmermeer 17th century, an empty polder

The designers and planners were building their modern functional dream and did not reckon with dark and difficult issues like crime and fear of crime. Their non-response – and the slow response of the authorities to rising crime in general - was to be particularly damaging to this new area.



4 A worldwide dream: the functional town

In the 1960's the Bijlmermeer appeared ideally suited for a challenging experiment: the construction of a 'functional town'. A town in which living, working, traffic and recreation were separated. The idea of the functional town was not new. The architect Le Corbusier developed the concept first in his Ville Radieuse – Radiant City – in 1924.



Model of the Ville Radieuse

In December 1966, the foundation stone was laid for what was then regarded as a unique urban planning experiment: the Bijlmermeer: the functional town for the future. The Bijlmermeer was not an isolated case: everywhere in the world architects and planners were building high-rise buildings inspired by Le Corbusier's concept of elevated roads and building blocks 'like ships in a green ocean'.

The legacy of Le Corbusier

The legacy of Le Corbusier is widespread and certainly not without controversy. In Europe the French banlieues come to mind, in Eastern Europe the communist era building blocks are examples of a central planning doctrine⁵ and also in the UK and USA several estates are notorious.



London Heygate estate in South-London UK

In London e.g. the Holy Estate in East London (demolished; see picture above), the Aylesbury Estate and its neighbouring Heygate Estate have had continuous negative publicity. These last two estates have both been, against the wishes of the residents, repeatedly negatively depicted in several films and documentaries. Both areas are currently part of a large regeneration project. The photo shows the Heygate estate in South-London which is now a ghost town awaiting demolition.



The Aylesbury Estate was developed from 1963 to 1977 with several large slab and high-rise block of flats and miles of elevated walkways, divided by a main road from a large park. Over 7,500 people were housed at Aylesbury, in over 2700 dwellings, in an area of nearly 28.5 hectares. The residents were mainly housed in local authority owned accommodation (over 80%). Almost 70% of the population are from black and ethnic minority groups with more than 26 different languages. Since 1995 £56 million on social projects have been spend and in 2005 it was decided to demolish and redevelop the site. The demolition will be in stages over 15-20 years and the final redevelopment will be much denser. Of the 4200 new homes 50% will be private ownership and 50% affordable housing. Public spaces, community facilities and transport infrastructure will be improved as part of the regeneration project. Resident input and improved environmental sustainability have been important factors in the decision to demolish (Rydin, 2011).

The construction of the Heygate estate, including almost 2000 dwellings, was started in 1970 and finalised in 1974. It is notable that the architect learned lessons from the Aylesbury estate and the Heygate estate is architecturally of a higher standard. The Heygate estate is located more central and better connected but pro-longed neglect of maintenance has caused many problems and in 2004 it was decided to demolish the Heygate Estate (Campkin, 2013). Both estates are now part of large regeneration programs.

Note 5 See Lukas (2007) and check: <http://www.mpicc.de/ww/en/pub/forschung/forschungsarbeit/kriminologie/grosswohnsiedlungen.htm>

Pruitt-Igoe complex in St. Louis USA

The USA the Pruitt-Igoe public housing complex in St. Louis was completed in 1955 and consisted of 33 11-floor apartment buildings with 2,870 small apartments. Pruitt Igoe was showing signs of degradation and vacancies soon after construction and has not stood the test of time: demolition started in 1972 and the complete site was cleared in 1976. The root causes of the existing



problems of poverty, segregation, stigmatisation and crime are all still discussed. Was it the architecture, the scale of the high-rise, the extremely sober design and the mono functionality, or was it (also) the economic situation in St Louis, the white flight, political reasons or unemployment?



http://nl.wikipedia.org/wiki/Pruitt%E2%80%93Igoe#mediaviewer/Bestand:Pruitt-igoe_collapse-series.jpg, 12-08-2014, 16.55.

Barcelona, Bellvitge⁶

In 1964 a high-rise neighbourhood for low-income working class called Bellvitge was founded in the city of Hospitalet de Llobregat, near Barcelona. The design of Bellvitge was based on prefabricated high-rise concrete-slabs 15 floors high, the dwellings are on each floor connected to lift columns which structure a block (see photo: the lift columns are clearly visible). When



the blocks of the first settlement of Bellvitge (South Bellvitge) were build, there were neither paved streets, nor designed public space, nor facilities (nor schools), nor a drainage system. Floods were common during raining seasons.

The inhabitants (approximately 33,000) bought the 9,138 dwellings (privately owned property). The social cohesion in Bellvitge was strong, but due to high unemployment and the economic

Note 6 See appendix and also the case study on Bellvitge of EU COST action TU 1203 (Inés Aquilué Junyent and Guenter Stummvoll (2014) Bellvitge; Unexpected Success - Against all Odds)

crisis mixed with the development of a new drugs market in the 1980's things got out of hand. In this decade the neighbourhood acquired its bad image and was stigmatized. However the neighbourhood recovered thanks to measures taken for the Barcelona Olympic Games in 1992. The city of Hospitalet invested in the reconstruction of a drainage system to prevent floods. A new metro station was constructed and the public transport system was extended. The public space between the buildings was developed and better designed. Bellvitge became a very well connected neighbourhood with high quality public spaces between the building blocks. Furthermore Barcelona boomed after the Olympics. Last but not least there was a completely new approach to policing introduced in Catalunya with the incarnation of the Mossos d'Esquadra replacing the Policia Nacional and Guardia Civil within the territory of Catalunya. This process of substitution began in 1994 and in 2003 the Mossos took full duties in the southern metropolitan police region of Hospitalet de Llobregat. The policing system might be defined as 'community policing'. Bellvitge today is a successful, safe and secure high-rise neighbourhood. See the appendix for an in depth comparison of Bellvitge and the Bijlmermeer.

Beijing and Seoul apartment blocks

Nowadays the enthusiasm for high-rise residential buildings has shifted to Asia. Here the principles of Le Corbusier are still applied, although the functionality of the design seems even more pronounced and the towers are higher; in Hong Kong, Seoul and other Asian capitals up to 50 floors high.



The Bijlmermeer may thus be treated as an example of a kind of architecture and design which was – and sometimes still is - more popular with planners and architects than with the people who had to live there. The concept for the Bijlmermeer was largely comprised of high-rise (10-floor) deck-access apartment blocks in a honeycomb pattern. Of the 18,000 units of the original plan, 12,500 were built.



Apartment blocks in honeycomb pattern. Left elevated metro lines crossing oceans of green public space

There were large green areas between the apartment blocks in which bicycle and pedestrian routes were created.



Green spaces between apartment blocks

Car traffic was directed into the multi-floor car parks connected to the buildings. The elevated roads resulted in an enormous number of viaducts. Though this was a very costly operation - since in marshy Amsterdam every bridge and viaduct needs a foundation of about 12 meters deep – the planners wanted to separate the traffic by means of a network of footpaths for the slow-moving pedestrian and a network of fast roads for automobiles.

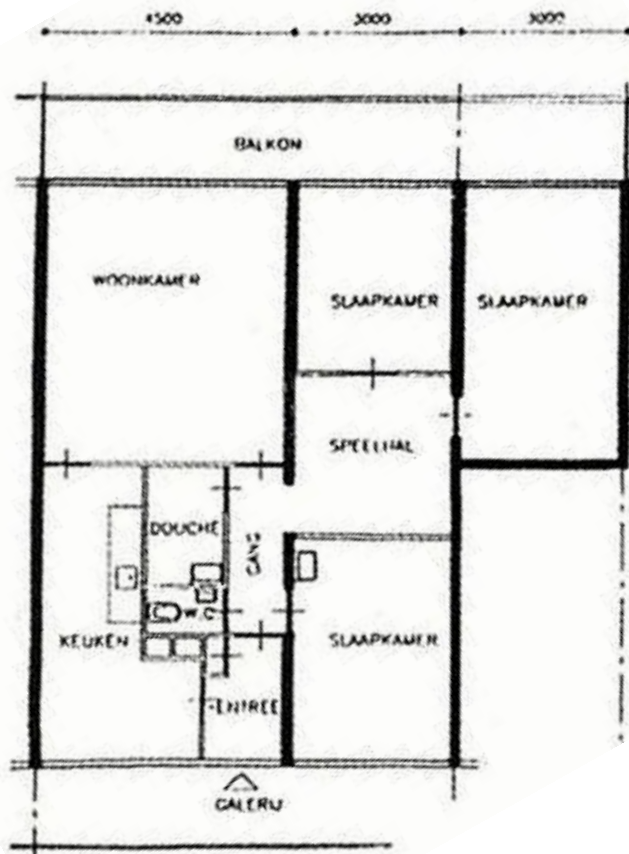


A network of foot- and bicycle paths separated from the roads for cars, 1973 (source: Gemeente archief Amsterdam Beeldbank)



The Bijlmermeer 1971: Queen Juliana visiting the functional town of the future; amazed or bewildered?

In 1968 the first dwellings were completed and people started to move into the Bijlmermeer. Many who moved to the Bijlmermeer came from small houses so that the size of the dwellings (100m²) and promised comfort in 'the town of the future' was very appealing.



CIAM: About building density and territoriality

In 1933 a famous conference of the world leading urban planners and architects was held on a steamer in the Mediterranean sailing between France and Athens. The group gathered for the fourth time and was called CIAM (Congrès International d'Architecture Moderne). On the way the architects talked a lot about the theme of 'the functional city'. The results of this steaming conference were summarized 10 year later by the Swiss architect Le Corbusier in the Charter of Athens (La Charte d'Athènes) published in 1943. The charter is divided in analyses (observations) and recommendations. One should not forget that CIAM was fighting the extreme dense, polluted and unhealthy situation that existed in most cities.

CIAM 9 (observation): "The population is too dense within the historic nuclei of cities, as it is in certain belts of nineteenth-century industrial expansion — reaching as many as four hundred and even six hundred inhabitants per acre.

Density — the ratio between the size of a population and the land area that it occupies — can be entirely changed by the height of buildings. But, until now, construction techniques have limited the height of buildings to about six floors. The admissible density for structures of this kind is from 100 to 200 inhabitants per acre. When this density increases, as it does in many districts, to 240, 320, or even 400 inhabitants, it then becomes a slum, which is characterized by the following symptoms:

- 1. An inadequacy of habitable space per person;*
- 2. A mediocrity of openings to the outside;*
- 3. An absence of sunlight (because of northern orientation or as the result of shadow cast across the street or into the courtyard);*
- 4. Decay and a permanent breeding ground for deadly germs (tuberculosis);*
- 5. An absence or inadequacy of sanitary facilities;*
- 6. Promiscuity, arising from the interior layout of the dwelling, from the poor arrangement of the building, and from the presence of troublesome neighbourhoods".*

CIAM 16 (observation): "Structures built along transportation routes and around their intersections are detrimental to habitation because of noise, dust, and noxious gases.

Once we are willing to take this factor into consideration we will assign habitation and traffic to independent zones. From then on, the house will never again be fused to the street by a sidewalk. It will rise in its own surroundings, in which it will enjoy sunshine, clear air, and silence. Traffic will be separated by means of a network of footpaths for the slow-moving pedestrian and a network of fast roads for automobiles. Together these networks will fulfil their function, coming close to housing only as occasion demands."

Hence for the dense, polluted and unhealthy cities, light, air and space was seen as the solution as well as the segregation of transportation routes for cars and dwellings that *"will rise in its own surroundings, in which it will enjoy sunshine, clear air, and silence."*

Some CIAM observations and recommendations are focussed on density and high-rise:

CIAM 25 (recommendation): "Reasonable population densities must be imposed, according to the forms of habitation suggested by the nature of the terrain itself. The population densities of a city must be laid down by the authorities. They may vary according to the allocation of urban land to housing and may produce, depending on the total figure, a

widespread or a compact city. To determine the urban densities is to perform an administrative act heavy with consequences."

We could not agree more with the last sentence saying that decisions about urban density are of the utmost importance. However, regarding the issue of urban density there is a lot of ignorance.

It is often assumed that high-rise (HR) **always** equals high density (HD): HR=HD. This might be the case in some countries (mostly in Asia) and in city centres but it is certainly not the case in the suburban high-rise apartment blocks in most European countries, such as the Bijlmermeer. Here high-rise equals (very) low density: HR=LD.

Alice Coleman (1985) argues in her book 'Utopia on Trial' that 'high-rise automatically means high density' is a myth. She argues that the large open grounds around the high-rise flats could be occupied by lower level housing. The high-rise flat also needs to use space that otherwise could be utilized as living space such as stairs, lifts, hallways, streets in the sky, service towers, access to water tanks and communal rooms.

But the CIAM architects and planners actually recommended this lower density because – as we have seen in the earlier quotes - they opposed the existing malaise of damp, unhealthy cities built in extremely high density with narrow streets not allowing for air, light and space.

CIAM 29 (recommendation): *"High buildings, set far apart from one another, must free the ground for broad verdant areas. Indeed, they will have to be situated at sufficiently great distances from one another, or else their height, far from being an improvement of the existing malaise, will actually worsen it; that is the grave error perpetrated in the cities of the two Americas. (...) a city (...) population density must be great enough to justify the installation of the communal facilities that will form the extensions of the dwelling. Once this density has been determined, a presumable population figure will be adopted, permitting the calculation of the area to be reserved for the city."*

From these CIAM requirements the 'low density high-rise areas' are the inevitable result. And these high-rise areas often go with an abundance of public space which is mostly not very well maintained due to the high costs.

As the architect Habraken⁷ has shown there often is simply too much open, not well surveyed and maintained public space in these high-rise neighbourhoods.

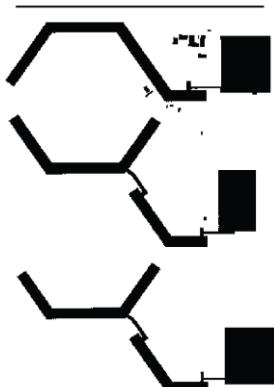
In the discussion about the amount and quality of public space the ideas of Habraken are important because he goes beyond the rather simple Jane Jacobs/Newman/Crowe ideas of 'eyes in the street' and visibility and he touches on – and consistently explains - deeper concepts like territorial patterns, control and boundaries. Habraken: *"We have drifted away from territorial patterns so that we tend to maximize public space, ignore territorial boundaries, have forgotten how to treat territorial edges and do not like gates. Territory is established by giving control to inhabitants."*

Habraken (in the same interview page 9) compares the old inner city of Amsterdam with the Bijlmermeer saying: *"In modern times, architectural ideology came to deny all expression of boundaries. Space had to be continuous and was expected to flow in and out of buildings and open space. (.....). Today, urbanists like to maximize public space because that is what they can work with. Citizens, on the other hand, like to increase their private territory at the expense of public space."* (see figure next page left).

Note 7 See Habraken, 2000. Habraken is an emeritus professor at MIT; he gave a lecture at the annual ICA conference in Amsterdam 2003 (International CPTED Association); this lecture was never published but the quote is taken from the related interview with Habraken: <http://www.veilig-ontwerp-beheer.nl/publicaties/security-and-the-built-environment/view?searchterm=habraken>

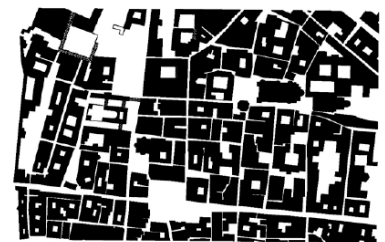
The Dutch architect Sjoerd Soeters has drawn the same conclusion about too much public space as a serious problem. He compares information taken from the book *Collage City* by Colin Rowe and Fred Koetter (The MIT press, 1979) on the (inner) city of Parma with the Le Corbusiers reconstruction of St-Dié showing the differences in the amount of open space the façade length, etc. (figure below right)

The **conclusion** is that - though the CIAM ideas might have been right in the first place because cities were indeed too dense, polluted, noisy and unhealthy - the CIAM solution has been too extreme, resulting in simply too much public space which was impossible to survey and maintain. The ordinary people living in their big, beautiful and enlightened apartments in the CIAM high-rise 'habitation machines' were simply lost in a green ocean of public space: the Bijlmermeer as a doomed Flying Dutchman.



St. Dié

TOTAL AREA:	405.000
OPEN SPACE:	356.800
BUILDING AREA:	48.200
% BUILT:	12%
FACADE LENGTH:	7.650



Parma

TOTAL AREA:	405.000
OPEN SPACE:	201.100
BUILDING AREA:	203.900
% BUILT:	50%
FACADE LENGTH:	27.220

Sjoerd Soeters comparison St-Dié and Parma

Habraken interview: Maximized public space: figure ground images showing public space relative to private territories. Details on the same scale are a) Amsterdam's historic centre (17th century), and b) Amsterdam Bijlmermeer

5 From dream to nightmare in the Bijlmermeer

The original plan for the Bijlmermeer was never completely executed due to budget cuts which affected the plan. The covered street, for instance, was raised one floor above ground level and the ground floor was used for storage.



The isolation of the storage boxes on the ground floor made them an easy target for vandalism and they were soon avoided by the residents, 1980 (source: Stichting Wijkopbouworgaan Bijlmermeer (SWB))

In order to incorporate more dwellings than planned, the number of floors was increased. Dwelling units were also incorporated on the covered-street level, so this interior street was moved to the shadow side of the building block. There were also economies in the number of elevators and long galleries were created to provide deck access to the apartments. Many concessions were made in the car parks, which were connected via parking decks with the (elevated) roads. This led to the creation of cavernous spaces which remained unused or were later fitted out with shops and other facilities (Hootsen, 2006, Klundert, 2014).



Alternative use of the vast car parks in the 1980's (source: Pieterboersmaphotography.com)

But there was more: at a national level, spatial planning policy changed: tens of thousands of low-rise dwellings were built in new towns further away from the cities e.g. in Almere (about 30 km from Amsterdam).



New Town Almere aerial view 1983, ANP foto Ruud Hoff (<http://www.anp-archieff.nl/page/2220422/nl>)

For many this was a far more attractive proposition than a high-rise apartment block in the Bijlmermeer. Additionally it was often cheaper since building high-rise is rather expensive. In the Bijlmermeer population influx did not follow to the laws of planning. There were fewer families than foreseen, but a relatively large number of one-parent families, singles and partners without children. The Bijlmermeer became an area which attracted many people who could not find a place to live somewhere else (and who often left the Bijlmermeer again as soon as they got the chance).

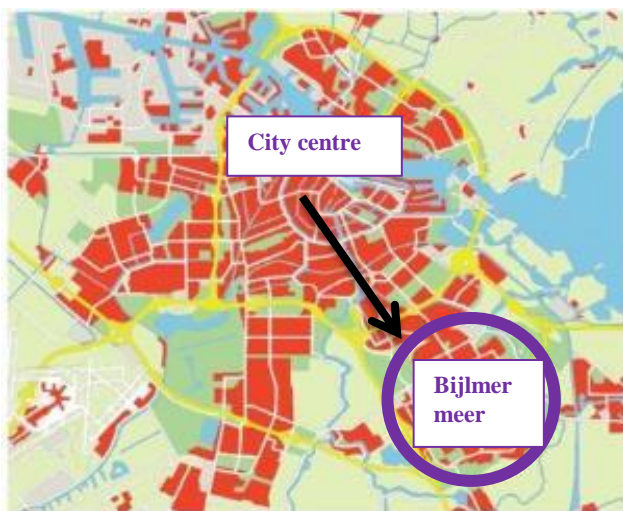
Between 1970 and 1975 many people from Surinam, the former colony of Dutch Guiana, found a home in the Bijlmermeer, this being the only place where they could easily find a home. The same situation existed also for other people on the long waiting lists of the Amsterdam housing associations: if you needed a place to live now, the Bijlmermeer was the only neighbourhood where apartments were available on short notice. This not only attracted a rather atypical group of newcomers. Due to sub renting – renting one apartment to two sometimes illegal households – overpopulation became a problem in some building blocks. Linked with high unemployment and increasing drug abuse, this created major problems.

The 'functional town' failed to function adequately in other respects: large and expensive, unsafe car parks, the abundance of viaducts resulting in lots of rather dark spooky situations which were often perceived as being unsafe insufficient shops, and a menacing atmosphere in the public and semi-public areas caused all kinds of nuisance in the honeycomb building blocks. Therefore turnover was rapid and the social structure of the district remained frail.

In the beginning of the 1980's things got completely out of hand. The percentage of vacant dwellings rose to 20-25%: one out of every four dwellings was deserted. Crime analysis showed that the risk of burglary, street robbery and rape/sexual harassment in the Bijlmermeer was, on average, 1.5 to 2 times higher compared to Amsterdam. Hot spots for crimes such as robberies and rapes were located outside the buildings in the public space especially near shrubs and bushes, and in the semi-public spaces within the buildings (covered streets, lifts, galleries).

Drug abuse - mainly the use of heroin - was one of the main causes for the crime problems in the Bijlmermeer. It's rather cynical to note that the drug problem which settled in the Bijlmermeer at the beginning of the eighties was mainly due to the activities which the police and local authorities were carrying out in the centre of Amsterdam. The Amsterdam drug scene was, up till then, concentrated near the central railway station in the historic centre of Amsterdam. Because of the problems and incivilities that dealing and using of drugs caused in the city centre, police and local authorities had to react. Using a combination of police, rehabilitation and CPTED (Crime Prevention through Environmental Design) measures, this approach was successful and within less than a decade the former drugs district in the centre was clean. However, because of the newly built metro line which connected central Amsterdam directly to the Bijlmermeer, part of the problem was displaced to the Bijlmermeer. An efficient public transport connection can be a blessing but at the same time also a heavy burden.

Drug related problems were concentrated in the centre of Amsterdam in the 1970's and then moved to the Bijlmermeer.



The image of the Bijlmermeer as the city of the future deteriorated: the dream of a functional town became a nightmare of vacant dwellings, drug abuse and a crime ridden area.

It was decided to construct the rest of the Bijlmermeer differently. Housing authorities and planners returned to urban planning principles developed earlier: four-floor blocks with individual access to a limited number (4 to 8) of apartments. The urban principle of the closed building block was applied again. Since the 17th century canal belt of Amsterdam (nowadays an Unesco heritage site <http://whc.unesco.org/en/list/13490>), this building typology has always been very successful in Amsterdam.



Venserpolder: back to the good old closed building blocks



Amsterdam canal belt with its closed building blocks

Since the financial losses of the housing associations each owning parts of the buildings became unbearably high it was decided to merge and all dwellings in the Bijlmermeer became the responsibility of one new housing association called Nieuw Amsterdam. This more or less resembles the idea of the 2008 crisis in which junk debts are brought together in one 'bad-bank'. This one new housing association should be better equipped to act in an efficient and effective way. The 'bad bank high-rise apartment idea' was also necessary because the different housing associations had different policies in maintenance levels and resident selection amongst other things. Since sometimes two housing associations each owned one half of a block this resulted in uneven situations.

The Nieuw Amsterdam Housing association got a dowry of about € 50 million euro and set sail to a better future for high-rise in the Bijlmermeer.

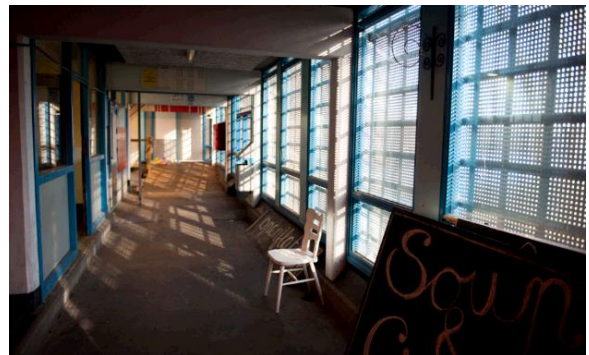
6 The first phase of measures

Between 1985 and the beginning of the 1990's a series of measures was taken to turn the tide in the high-rise area. Generally speaking, the package can be defined as crime prevention through environmental design (CPTED) approach to the problem. CPTED is a concept first coined by the US behavioural psychologist and criminologist C. Ray Jeffery (1971) and later elaborated upon by e.g. Oscar Newman (1972, 1980) and Tim Crowe (1991, 2013)⁸.

- About one thousand four- and five- room apartments were split up into smaller units.
- The rents were lowered and car parks made free of charge.
- Parts of empty multi-floor car parks were demolished.
- Empty storage spaces on the ground floor were converted into homes with gardens at the back (see photo below left).
- In the public green areas, plots of land were issued to occupants so they could grow their own flowers and vegetables.
- Here and there, parking was allowed at ground level.
- Anti-burglary devices for dwellings were installed: locks/bolts/strips on front doors and special solutions for the lower balconies.
- Lighting was improved.
- Long galleries were closed at several places (compartmentalisation) and extra lifts were installed (photo below right shows compartmentalisation in apartment block Kleiburg).



First generation improvements: green gardens connected to storage boxes



Compartmentalisation in apartment block Kleiburg

Effects of the first phase measures

Slowly the situation improved. The percentage of vacant dwellings decreased, and the closing/ compartmentalisation of some of the galleries combined with the technical anti burglary measures, had a marked effect on the number of burglaries within a building.

Note 8 See for more information the websites of the European Designing Out Crime Association www.e-doca.eu or the world wide International CPTED Association www.cpted.net.

Furthermore, the following could be learned from the implementation of the package of first phase measures.

- The physical/technical measures - the compartmentalisation of the galleries, for instance - must work like a chain of which each link must be as strong as all the other links. A good lock and strong door are a waste of money if they are combined with an easily breakable glass panel next to the door. This might seem obvious but often one can observe this kind of rather meaningless combination: a very strong chain in which one link is missing, thus ruining the effect completely.
- Sometimes physical/technical measures were installed without consulting the people who had to use the implemented crime prevention solutions. One can say a lock, is a lock, is a lock.... but when people living in a building leave the door to the gallery open, the lock is useless. Even technical measures like installing doors and locks need, in the end, back up of people motivated to use the equipment well. This lesson might seem ridiculously simple as well, but it is too often overlooked.

Although the first phase of measures was often successful (Hootsen, 2006), there were bigger problems rescinding the total effect.

- The displacement of the drugs scene from the city centre to the Bijlmermeer as was mentioned before.
- Unemployment rose sharply in the Netherlands and more so in the Bijlmermeer and therefore a huge number of people (especially immigrants and youths who dropped out of the education system) lost their connection with the productive society.
- The crime problem in the Netherlands stabilised, but certain types of very serious crimes (high impact crimes like street robbery) continued to rise, especially in the deteriorated sectors of cities.
- Government cut back on spending (such as social security).

These overwhelming problems counterbalanced the successes in combating crime. The Bijlmermeer was like a ship that had too many weak design - and management features from the start. At one point the leakage started, and after the crew managed to stop the leak effectively, they gathered on deck only to notice that the calm weather during the beginning of the journey had in the meantime turned into a hurricane.

In 1991 the decision was taken by the city council to demolish at least 3,000 apartments (about 7 of the honeycomb type of buildings). The total costs were at the time estimated at about 350 million Euros.⁹ Subsequently the number of demolished apartment buildings rose to 6,500 and in the end the total costs of the whole operation was estimated at about 1.5 billion euro.

Note 9 Saneringsaanvraag (January 1991): <http://www.digibron.nl/search/detail/012df93c36f0037c8a9f24ef/>

7 The second phase: a comprehensive approach

At the beginning of the nineties the conclusion was reached that a stronger, more comprehensive approach was needed. A plan was formulated to seek ways of improving the Bijlmermeer in general. Demolition of some of the high-rise blocks was necessary for this, but would only stand any chance of success if a series of other measures were also taken. The renewal process was based on two¹⁰ elements:

- 1 spatial renewal
- 2 social renewal (including policing)

Spatial renewal

The spatial renewal started in 1995 with the demolition of one neighbourhood. In 2008 the last apartments were demolished. It was decided in 1992 to demolish one quarter of the flats. An evaluation conducted in the late 1990s (Iersel and Leidelmeijer, 1999) and a survey among the residents (Helleman and Wassenberg, 2001) led to the conclusion to demolish another quarter of the flats¹¹. In total 6,500 of the 12,500 flats were demolished.



Before. High-rise flats that were demolished by 2010 are highlighted in red (Projectbureau Vernieuwing Bijlmermeer)



After. Construction that has taken place between 2002 and 2010 is highlighted in green (Projectbureau Vernieuwing Bijlmermeer)

- The occupants of the to be demolished apartments could choose to take another dwelling in or outside the Bijlmermeer. About two thirds chose to stay within the South East city district of which the Bijlmermeer is a part.

Note 10 There was a third element: the organisation and intensification of the maintenance. We include that element in the social-economic measures here. The same goes for another element: policing. “Besides the physical renewal the plans are supplemented with both social-economic measures and an intensification of the maintenance to improve liveability. All three elements are important” (Wassenberg 2006/195).

Note 11 The large questionnaire for the survey “was conducted in the areas to be renewed researching which physical renewal measures residents supported. The response rate was extremely high (77%), with more than 3,500 households participating, 79 percent of whom were born abroad and represented 81 different nationalities. The results were remarkable, with almost 70 percent of the inhabitants supporting the idea to demolish remaining high-rise blocks. Even when it included their own house, 60 percent still supported demolition. Thus the survey confirmed the assumption that the inhabitants blame the concept of the high-rise estate.” (Wassenberg, 2006/196)

- The apartments were replaced by both low rise and four floors high dwellings. The 6,500 demolished were replaced with 7,200 new ones. This was possible because of the large public spaces that were available around the flats (see the paragraph about building density earlier in this paper)



- Of the new houses 30% was council housing and 70% free market owner-occupied or rental sectors. The housing association commissioned most of the new development homes.
- 6,000 apartments that were not on the demolition list were renovated by the owner, the housing association. During the renovation, the interior walkways were often removed or reconstructed, in combination with dwellings in the footprint instead of storage boxes.¹²
- The elevated walkways to the parking garages were demolished.
- Ground-floor storage areas were being replaced by housing or other functions such as studios and business space. This improved the feeling of security in the surrounding public space.



Transformation of the ground floor in F- and H-neighborhood: storage boxes turned into dwellings.



Apartment blocks Huigenbos/Hakfort _before_after_renovation,1974/2012._Source: Jaarverslag 2011, Projectbureau vernieuwing Bijlmermeer

Noot 12 Defuster. M, Woldendorp, T. (1997) Vom Wohnparadies ins Getto und zurück. Sanierung der Wohnhochhäuser in the Bijlmermeer, Amsterdam in Bausubstanz. Neustadt Weinstrasse, Meiningen Verlag (D)

- In the area where the main shopping centre of the Bijlmermeer is located, a new entertainment centre was built with a multi-screen cinema complex, two music venues – Heineken Music Hall and Ziggo Dome - and the Amsterdam Arena, home of football team Ajax.



Amsterdam Arena with the Bijlmermeer in the background

- Three other (covered) shopping centres were situated beneath car parks and traffic ways. As part of the renovation, the characteristic bustle of shopping centres was recreated in the public space, and the new Ganzenpoort shopping centre (5,700 m²) was completed in 2002. The original Kraaiennest shopping centre was demolished in the spring 2013. It will become a site for new development (8,500 m²).
- Several car parks were demolished and some car parks were converted into buildings now comprising small companies often run by formerly unemployed people living in the Bijlmermeer.
- The primary roads in the Bijlmermeer were lowered to ground level, creating avenues which can accommodate all types of traffic while acquiring a residential function.



Lowering of roads around shopping centre Ganzenpoort (1978 and 2012). Source: Jaarverslag 2011, Projectbureau vernieuwing Bijlmermeer.

- Besides these physical measures the CPTED-like measures of the first generation were continued especially in the building blocks not yet demolished or renovated. One of these initial measures was CCTV in high-rise residential neighbourhoods (Bouwmeester et al, 1996).

Social renewal

At least as important as spatial renewal is social renewal in the district. In order to create a neighbourhood with a robust and broad-based social structure, schools and work are very important.

- Preceding demolition of their old apartment, people did not only receive visits concerning their rehousing, but were also offered help in finding training and work.
- Unemployed people from the Bijlmermeer were involved in construction projects in the area as well as neighbourhood watch duties in the semi-public areas of the blocks. This project was a good example of the intermingling security and safety goals by private policing on the one hand and social renewal goals aimed at bringing unemployment down on the other.
- All migrants who lacked education received training in the Dutch language and culture, as part of a national program as well as a municipal program.
- New facilities for social welfare, health and sports were created. Amongst these multifunctional social welfare buildings, a health centre, a covered sports centre, public tennis courts and a public athletics track.
- New local cultural facilities were created. The biggest of these is the 'Bijlmermeer Park Theater', with 200 seats and rehearsal studios. Also, in two of the buildings more than 50 studios for artists were created.
- Three primary schools were renewed organisationally. An important part of the Amsterdam University of Applied Sciences moved to the Bijlmermeer.
- Several changes in the managerial – and financial systems of the housing associations were introduced; e.g. when residents left there was an exit interview with the residents to find out the reasons why people left (the results were aggregated in the 'Bijlmermonitor').

In this 'Bijlmermonitor' the impacts of measures were evaluated on a yearly – later on two yearly – bases and compared with the original goals of the operation¹³. This monitoring system was set up by research bureau DSP-groep in cooperation with the Bureau for Research and Statistics of the city of Amsterdam.

Police activities

Since the focus of this case study is on crime, anti-social behaviour and fear of crime/feelings of insecurity we must discuss the activities of the police in the Bijlmermeer. There are two major issues: community policing and the Dutch Police label Safe and Secure Housing.

Note 13 The Bijlmermonitor is available for 1997, 1998, 1999, 2000, 2001, 2003, 2005, 2007 and 2009 (downloads available in Dutch from www.DSP-groep.nl)

Community policing

Since the 80th the regular approach of the police in the Netherlands is very much focussed on the local situation. This approach is known as neighbourhood-focused policing, neighbourhood team policing or area-based policing¹⁴. In the US and the UK the approach is known as community policing. See for example the Chicago Alternative Policing Strategy: Together we can (Tilley, 2009; Rodriguez, 1993).

The approach is closely linked with what Goldstein defined as a “problem-oriented approach” (Goldstein, 1979) – which is another term that was and is much used in the Dutch police force and in the world of prevention. The idea was also taken up in the UK where in 2008 nearly 20,000 Police Community Support Officers (PCSOs) were employed. Because they had much less power than 'real' police officers, they were also jokingly described as 'plastic policemen' and 'teenysweenies'. The American experience in Chicago is extensively described and evaluated by Wesley Skogan (1997, 2004, 2006). Skogan shows there are numerous positive effects, such as a more informed choice and prioritisation of approaches and measures (by local residents), a reduction of insecurity ('reassuring policing') and a better police-public relationship. However hard effects on reducing crime are scarcely noticeable. This may be due in part to the fact that when the system was being rolled out, a number of organisational mistakes were made, and the concept was interpreted differently in different places. (Tilley, 2009, chapter 4). There seem to be huge draw-backs to the model in disaster situations.¹⁵ Also in the Netherlands there are a number of sound evaluations of this concept¹⁶ and their results are similar: it is a useful approach for many reasons, but so far the crime prevention effects appear to be limited. Especially in the Bijlmermeer the effect of a better police-public relation due to rather nearby community police has probably been very important.

Police Label Secure Housing

In 2001 the new low rise neighbourhood Vogeltjeswei was built: 89 social housing dwellings and 156 privately owned dwellings. Obviously a different mix of social and privately owned housing but also the architecture was completely different: mostly regular terraced housing with private gardens.

Note 14 Gebiedsgebonden politiewerk. See also Terpstra 2008.

Note 15 See Eric Klinenberg's social autopsy of a disaster that occurred in 1995 when as the result of an extreme heatwave in Chicago more than 700 people eventually died (Klinenberg, 2002, especially chapter 3).

Note 16 These evaluations have been carried out by the WODC (Scientific Research and Documentation Centre of the ministry of Security and Justice. See for example Nuijten-Edelbroek, 1983, and for a summary Fijnaut et al, 1985. The latter concerns the final report of four completed studies (Hoogeveen, targeted surveillance and prevention awareness; Amsterdam-Osdorp, foot surveillance and prevention awareness; Utrecht, a project approach to burglaries; Sittard, the introduction of community policing). It takes into account all the research that had been carried out until then in the United States, England and the Netherlands on the efficiency and effectiveness of police crime prevention.



Amsterdam Bijlmermeer Vogeltjeswei, 2009, photograph by Maurits Vink

(http://nl.wikipedia.org/wiki/Vogeltjeswei#mediaviewer/Bestand:Pikoletstraat_nieuwbouw_Bijlmermeer.JPG)

The police advised during the design stage of the houses and neighbourhood using the Police Label Secure Housing. This scheme was developed by the Dutch police in cooperation with the Association for Experiments in social Housing (SEV) and private consultants of DSP-groep and it contains 48 requirements summarized in a manual:

“The approach taken in the manual could be compared to a parachute jump: in the beginning one has a good overall view of the area, later on more details are revealed. In the manual, patterns are divided into five categories:

- Urban Planning and Design;
- Public Areas;
- Layout;
- Buildings;
- Dwellings.

While assessing the macro and micro design of the proposed development, the police Building Plan Advisors can use the manual as a safety device to guarantee that they consider safety and security at an early stage in the design process. Acting too late – e.g. only checking target hardening of the houses – makes it impossible to gather enough points to award the Police Label Secure Housing, because in descending through the five categories and forty-eight patterns (thirty basic requirements and eighteen additional requirements), each pattern has to be checked, with

one point awarded if the development successfully incorporates an element and zero if it does not. All basic requirements that are a part of the project have to be scored.” (Jongejan and Woldendorp, 2013, 36/37)

These police activities – community policing and the police label project in the Bijlmermeer - have never been evaluated as such but the Police label scheme was evaluated in the Netherlands and showed to be extremely effective in bringing the number of burglaries down as well as lowering the fear of crime (Nauta, 2004; Jongejan and Van Soomeren, 2008; Lopez et al, 2010; Jongejan and Woldendorp, 2013) and the effects on all measures on crime and fear have also been evaluated in the Bijlmermonitor (see chapter 8).

Costs

The total costs of the renewal and recovery operation were enormous. The total investments in only the high-rise area were calculated to be 1.6 billion euro (Kwekkeboom, 2002/79, also Wassenberg 2013/250) of which about 0.5 billion are real costs/losses.¹⁷ These cost were mainly covered by, national and municipal funds as well as a special risk-fund shared by all Dutch housing associations (Centraal Fonds Volkshuisvesting). In 1995 the European Community decided to co-sponsor the Bijlmermeer-renewal (Urban-programme).

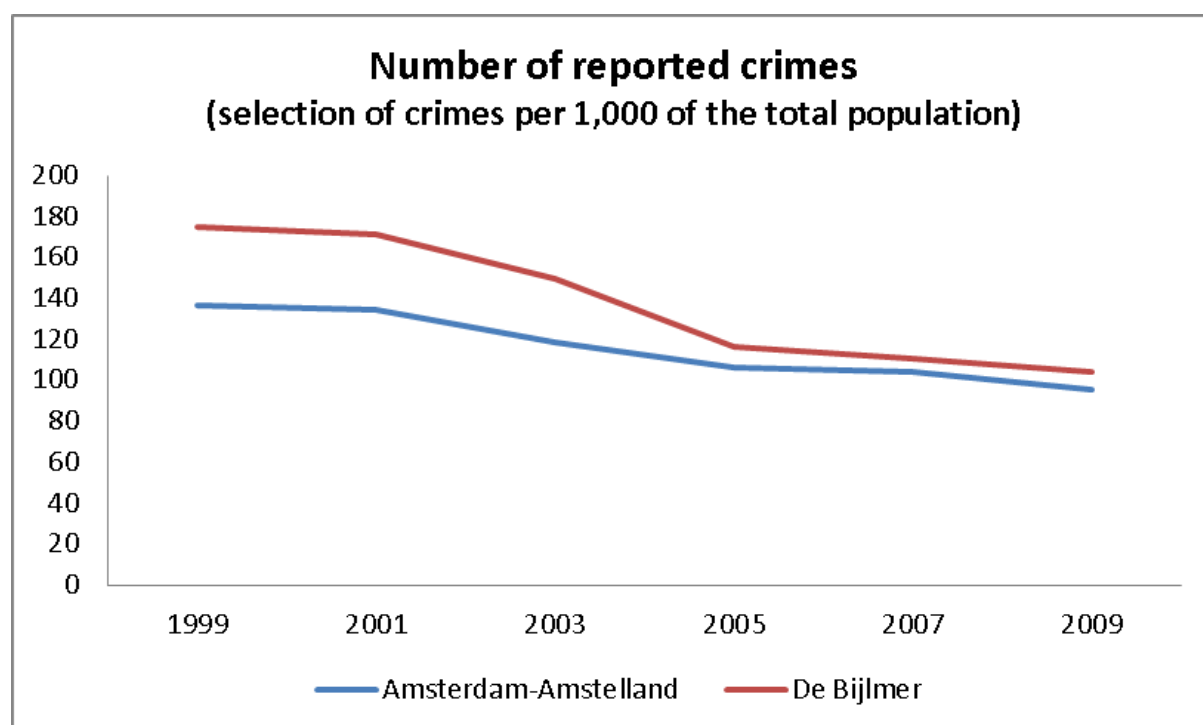
Note 17 Kwekkeboom, 2002, Wassenberg, 2013 and information from the Director of the Projectbureau Joop de Haan.

8 Monitor and outcome

Together with the large scale renewal of the second phase an elaborate system of monitoring was set up: the Bijlmermonitor. From 1997 onwards – first annually and later biannually - a survey was conducted amongst residents of the renewal area and the results were combined with a city wide survey in which Amsterdam acted as a control group.¹⁸ Also, crime statistics, school statistics and a range of other statistics were gathered to give a broad picture of the developments and effects of the renewal process. The main objective of the renewal operation was that the Bijlmermeer would become a city district like an average Amsterdam city district.

The results on the whole have been quite positive. The most important numbers:

- The number of crimes reported to the police has gone down 40% in the period 1999-2009. The Bijlmermeer is still doing slightly worse than Amsterdam on average, but the gap has decreased significantly. The number of recorded property crimes, such as burglary has halved in that period. Reported youth crime had shown little improvement in the course of the renewal operation, but over the past couple of years has also taken a turn for the better. The reporting of drug related incidents has decreased, but is still higher than in the rest of Amsterdam.



Number of reported crimes (selection of crimes per 1,000 of the total population) recorded by the police force Amsterdam-Amstelland from 1999 to 2009. Source: Bijlmermonitor 2010.

Note 18 After long and deep discussions in the end Amsterdam was chosen as a control group for two reasons. First of all because the overall target of the Bijlmermeer renewal was to make the Bijlmermeer a 'normal' neighbourhood of Amsterdam in the sense of statistically mean for e.d. income, employment, crime, etc. Secondly there was a rather practical reason because the Bijlmermeer was a unique neighbourhood of which no other existed to be used as a control.

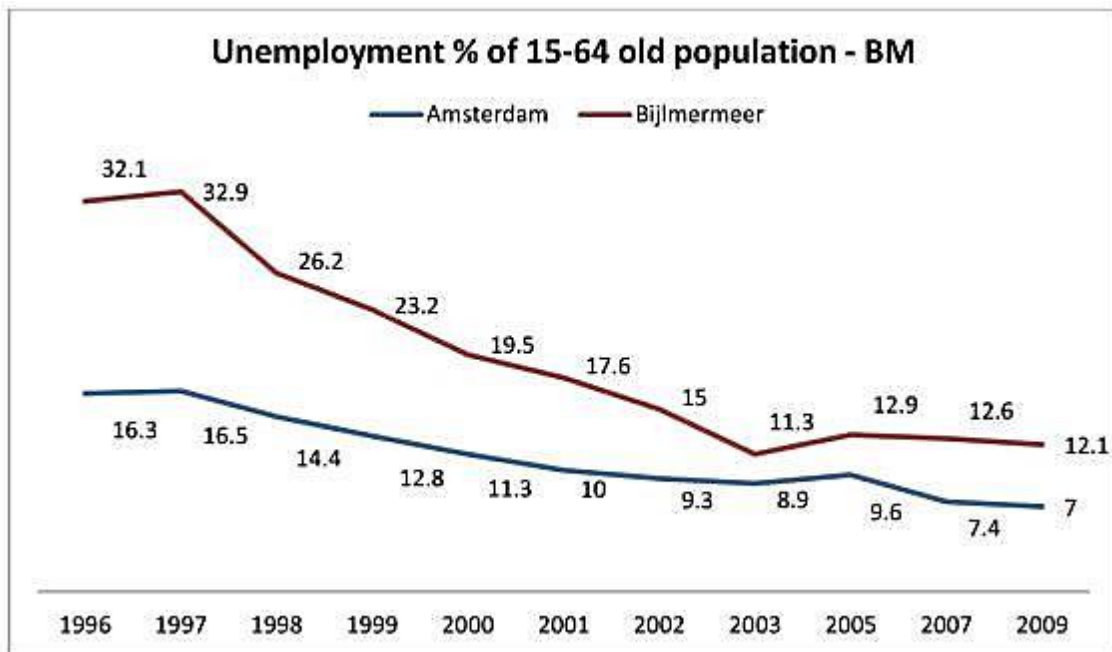
- The perception of violent crime has gone down 20% in the period 1997-2009. The gap with the Amsterdam average has remained.
- The perception of antisocial behaviour shows mixed results in the period 1997-2009. Harassment has gone down 16%, but intoxication has gone up 19%. In both cases the gap with the Amsterdam average has grown.
- Fear of crime has diminished in the Bijlmermeer. Because of a breach in definition we have two sets of data. In the period 1997-2003 fear of crime in the daytime decreased to just above the Amsterdam average, fear of crime at night also decreased but was still well above the Amsterdam average. In the period 2005-2009 the fear of crime in the daytime in the Bijlmermeer decreased and (again) showed a decline in the gap with Amsterdam. Fear of crime at night decreased as well, but the gap with the Amsterdam average decreased only slightly and remains significant.
- When we compare the development of objective and subjective safety in two areas of the Bijlmermeer with Amsterdam (2003 = 100) we can see objective safety (crime) improving first in the Bijlmermeer and subjective safety (fear of crime) lagging behind but, in general, also improving. The gap between the Bijlmermeer and Amsterdam almost closed with regards to objective safety, but is still quite big with regards to subjective safety.

Objective Safety Index for the Bijlmermeer (T93/T94)						
	2003	2008	2009	2010	2011	2012
Bijlmer Centre (D, F, H)	148	126	95	93	87	83
Bijlmer East (E, G, K)	127	112	94	89	81	68
Amsterdam	100	88	80	76	74	70
Subjective Safety Index						
	2003	2008	2009	2010	2011	2012
Bijlmer Centre (D, F, H)	115	107	115	121	127	103
Bijlmer East (E, G, K)	130	99	107	90	84	100
Amsterdam	100	74	76	76	74	73

■ Safe
 ■ Relatively safe
 ■ Relatively unsafe
 ■ Unsafe

Source: Klundert, 2014. *Bijlmermeer regenerated* (data from Stadsdelen in Cijfers)

- The number of people that saw their neighbourhood improve has almost doubled since 1997. In Amsterdam on average the number remained about the same. The Bijlmermeer is doing much better than Amsterdam with regard to 'neighbourhood improvement'.
- Unemployment in the Bijlmermeer has gone down 60% in the period 1997-2009. The Bijlmermeer is still doing slightly worse than Amsterdam on average, but the gap has decreased significantly.

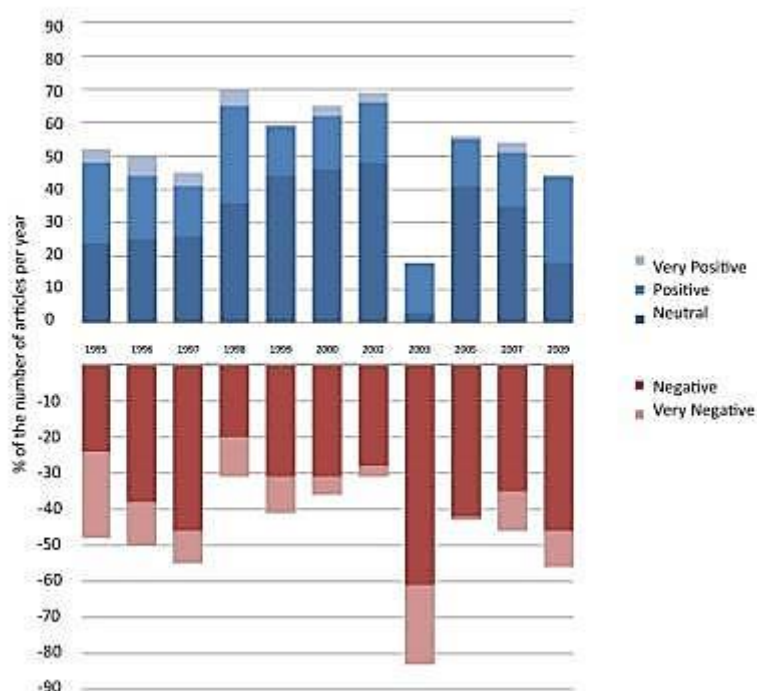


Unemployment (not-working seeking work) as a percentage of the population aged 15 to 64 year, per 1st January from 1996 to 2009.

Source: Bijlmermonitor 2010.

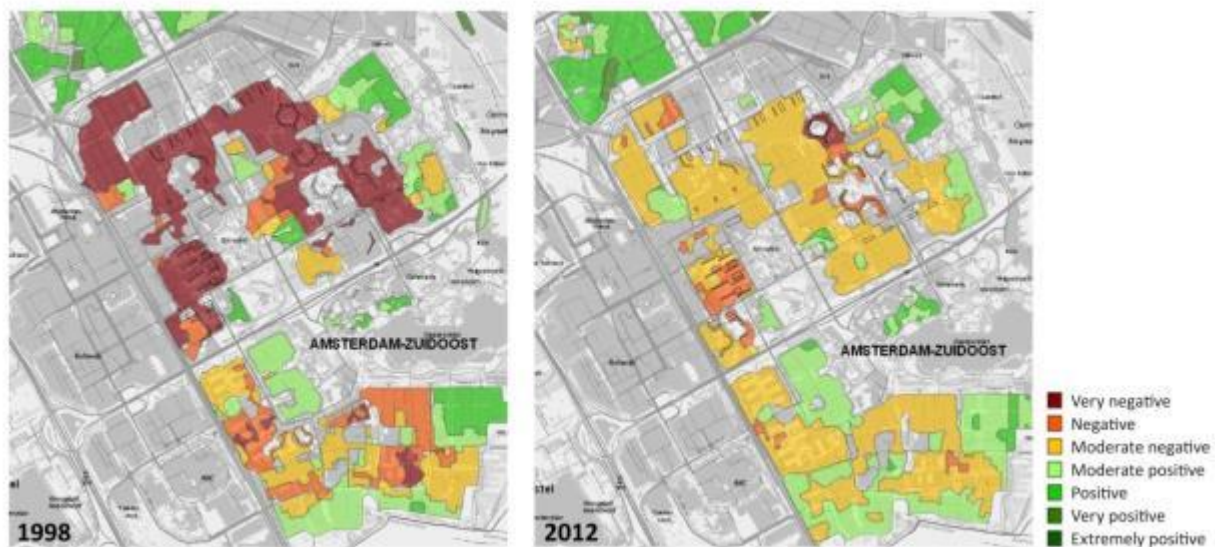
- The average income of the residents of the Bijlmermeer has increased but is still much lower than that of Amsterdam (-20%). The number of people on social benefits is still more than double that of Amsterdam and has not improved.
- The image of the Bijlmermeer in both local and national press has not improved. Still more articles on crime, drugs, degradation appear than articles focusing on other subjects.

The Bijlmermeer and its image represented in news paper articles.



The Bijlmermonitor used newspaper articles of three of the main Dutch papers (Algemeen Dagblad, Volkskrant and Parool) from 1995 to 2009 to research the image of the Bijlmermeer. Articles of news outside the renewal area are also included but none regarding the Bijlmermeer airplane accident. All articles with the words Bijlmer, Bijlmermeer and Amsterdam Zuidoost were requested from the newspaper agencies. (See Bijlmermeer-monitor DSP-groep and see Van de Klundert, 2014, p.121)

The 'live-ability' meter (Leefbarometer) shows a considerable improvement in the living environment of the Bijlmermeer from 1998 to 2012.



Leefbaarometer is a way of measuring the liveability of a neighbourhood. It consists of 6 main variables: housing supply, public space, facilities, demographics, social cohesion, safety and surroundings. This set of main variables can be drilled down to 49 specific variables in total. It is being used to detect early signs of deterioration of a neighbourhood. It includes information from 1998 to currently and is produced by the Dutch government every 2 years¹⁹.

Since the start of the financial crises in 2008 the renewal operation has slowed down (the biggest part being completed anyway). The number of new houses put on the market is very small. The end of the renewal operation, intended to be at 2016, could well be moved further into the future.

We have summarized all crime problems and the measures taken to tackle these crime problems in the Bijlmermeer in one two-page scheme.

PROBLEMS

BIJLMERMEER – important issues affecting crime rate and feelings of insecurity.

BUILDINGS

Monotony - Mainly identical high-rise buildings and not much variety in dwelling type. Competition from other areas with mainly low-to middle-rise new build housing. All flats social rental sector only.

Expensive – High rents for residents and costly to maintain for the housing associations.

Private/public identity - Unclear division of public, semi-public and private spaces causes easy access for non-residents(spaces such as the internal streets/corridors, garages, storage, and circulation).

Anonymity - Large number of flats per entrance, lift and stairwell. Poor compartmentalisation of the circulation. Number of people too large to distinguish between neighbour or imposter.

'Eyes on the street' - In general no housing or businesses on the ground floor level.

Building quality - Low to medium quality of the building materials used.

NEIGHBOURHOOD

Segregation car and slow traffic - Car traffic on elevated roads while pedestrians and cyclists travel on winding and unsurveilled paths through the large green parkland.

Division of functions - Separation of living, working, recreation and traffic creates unoccupied areas at certain times of the day or night.

Non-identity – Monotony of the high-rise blocks and the lack of landmark buildings causes an anonymity and disorientation.

Isolation - Lack of transport (light rail/metro to Amsterdam CS ready begin 80s).

Lack of facilities - Low number of facilities makes an area unattractive.

Lack of jobs - No access to jobs in the direct surroundings exacerbated by the lack of transport.

Unclear ownership - Unclear division of public, semi-public and private spaces. Uncertainty who cares for which area exacerbated by the high cost to maintain large areas of public property causes inadequate maintenance.

RESIDENTS

Unemployment and education - High unemployment exacerbated by low education level.

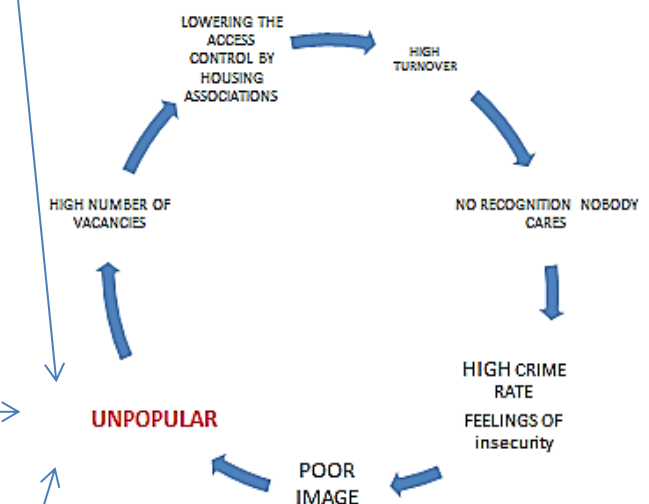
Household arrangement – Low number of double parent families with children and a high number of single parent families and single households without children.

Drugs abuse - High number of drugs abusers which adds to the feelings of unsafety.

Immigration - High number of people originally origination from outside the Netherlands. High number of illegal immigrants.

Cohesion - Poor neighbourhood relations due to high turnover, people do not know their neighbours.

Selection – Due to the high vacancy rate some housing associations stopped controlling the selection of new renters. Illegal sub-letting caused overcrowding.



EXTERNAL INFLUENCES

Governmental and local council policies

Police policies

Low crime rate in the 60s resulted in a low interest in considering possible feelings of unsafety of its residents and increasing crime rates while designing the built environment.

Effect of the drugs policies in Central Amsterdam on the Bijlmermeer.

SOLUTIONS

Increasing the level of safety by controlling public access, encouraging more activity at the park land level, increasing the feelings of responsibility for an area and promoting a variety of housing and residents has been achieved by a complex mix of actions as is described below.

BUILDINGS

Compartmentalisation - Limitation of accessibility to the galleries, lifts, stairwells by dividing the long and winding honeycomb-like buildings into separate compartments. A limited number of flats use the same entrance. The number of lifts is increased to aid the division of the high-rise blocks. A division of the continuous storage spaces in smaller groups of storage boxes while increasing the strength of the locks and material the storage spaces are made off. The limited accessibility encourages recognition of the users and minimise the number of escape routes while increased security measures lowers abuse to the storage boxes.

'Target-hardening' - Increased quality of security locks and use of sturdy building materials for windows, doors and storage boxes.

Minimise escape routes - Removal of the internal streets and connective bridges has taken place in most of the high-rise buildings. The numerous escape routes and low-occupancy areas were ideal for potential offenders.

Connection to the parkland - To break the uniformity of the area colour has been introduced on the entrances and external fabric of the building. The entrances are now mostly two floors high with large windows and are changed into light; recognisable entrances placed on the ground floor directly connected to the parkland.

Visibility within the high-rise - By creating hallways in straight lines dark corners in hallways and entrances have been avoided.

High density - Demolition of a large proportion of the high-rise buildings and the introduction of low rise housing with gardens and a choice of rental properties and private properties.. At the same time the size of the public spaces is decreased and thereby responsibility and maintenance costs reduced. Housing has been placed at ground level with views over the parkland. The high density creates lively surroundings with increased surveillance on the streets and parkland.

Regulations – Police Label Secure Housing® (a package of anti-crime requirements) is obligatory for all new and renovated houses.

NEIGHBOURHOOD

Visibility near the high-rise - Bringing roads and parking spaces closer to the buildings (less park, back good old streets)

Visibility in the parkland - Increasing visibility by cutting back bushes and shrubs, adding lighting, while improving and increasing the number of playgrounds.

From anonymity to territorial control – An increase of gates, 'soft' aids and an improvement in communications between state, council and housing associations has improved clarity of ownership of public, semi-public and private spaces.

Visibility of the underpass - The underpasses have been enlarged; shrubs cut back and some have been filled in to be used as facilities such as business premises. These actions have increased visibility and activity near the underpasses.

Differentiation of activities - Although still largely a residential area, different functions have been introduced, such as business premises, shops and artist studios to increase activity at different times of the day.

Increase of facilities - The introduction of a large shopping area, football stadium, office park and theatre increases job opportunities for the local population. By improving transport access to jobs is made easier.

Mix of transport modes - Cars, pedestrians and cyclists are mixed again by removing the high level roads, construction of access roads to the flats and provision of car parks next to the buildings.

Introduction of landmark buildings – The introduction of distinctive churches, shopping centre, health care facilities and schools.

RESIDENTS

Differentiation of residents - Encourage a mix of residents by providing a variety of housing stock. If a family does well they no longer have to leave the area to find appropriate housing.

Increase of local employment - Providing training and job-opportunities for the local population.

Providing local health care - Providing health care for the vulnerable section of the population such as drug addicts, the elderly and people dependent on the mental sector.

Increase of quality - By improving the housing and the neighbourhood the high turnover rate will decrease.

Police – Increase of community policing + Police Label Secure Housing

9 Conclusions and lessons

Conclusions

Looking at the available evaluation reports and monitor tools the overall conclusion is that the renewal operation has been successful: the Bijlmermeer is improving in many aspects, though not always as significantly as desired. The Bijlmermeer is also becoming a more 'average' city district. The huge differences with Amsterdam have become much smaller. The Bijlmermeer is still a socially vulnerable neighbourhood: many people are on social benefits and the number of single parent families is much higher than Amsterdam on average. Also, the image of the Bijlmermeer as an area where you wouldn't want to live is persistent. A stigma obviously does not disappear even when a neighbourhood has become a completely new and different neighbourhood.

Focussing on issues such as (in) security, crime and fear of crime or feelings of insecurity we have seen that several measures (solutions) have been implemented in two sweeps. The first sweep did not really change the physical and social basis of the Bijlmermeer. It was a set of second generation Crime Prevention through Environmental Design (CPTED) like measures. Given the enormous social and physical-architectural problems this was a good approach, but it was simply not enough. A stronger second sweep approach was necessary to make real progress²⁰:

- demolish the parking garages;
- remove (most of) the elevated road system;
- mix the traffic modes;
- make the ground floor level more lively and less 'park-like';
- demolish most of the high-rise and change that to – slightly more – low rise apartments;
- and – last but not least – include a strong mix of social - and policing measures (community policing + police label secure housing).

The results are successful, not only when looking at the reported crime but also when we look at the objective and subjective safety index.

Lessons

There are a few important lessons that can be learned from the history of the Bijlmermeer in Amsterdam.

- Looking back it is rather obvious that the brand new functional town called the Bijlmermeer was clearly the wrong kind of design for a future in which crime, unemployment and the disappearance of societal bonds and control would become main issues.
- Countries with low crime rates (such as the Netherlands in the sixties) run the risk of ignoring the need to design buildings and neighbourhoods that are not prone to crime. This might also be a possible lesson for Asia (especially Japan, China and Korea) where high-rise is very popular in architecture and urban planning, and crime and fear of crime is still rather low.
- It's better to be safe than sorry. It is financially very costly to change buildings and neighbourhoods after they have been built. Therefore it's wiser to reckon with safety and security early in the planning process. So it might be wise to incorporate these lessons and

knowledge of CPTED (Crime Prevention through Environmental Design²¹). This is not only the aim of associations like the International CPTED Association (ICA; www.cpted.net) and chapters of that association like the Dutch SVOB (www.veilig-ontwerp-beheer.nl) and E-DOCA (www.e-doca.eu), but also of a EU COST action TU 1203 (European cooperation in science and technology, transport and urban development) that contribute to structuring existing knowledge and develop innovative approaches on how to build more secure and safe cities (http://www.cost.eu/domains_actions/tud/Actions/TU1203).

- In the Bijlmermeer two waves of measures can be distinguished. The first phase consisted of rather simple CPTED measures and each measure was often taken in isolation. Although, on the micro level these first phase measures proved to be working, the total effect was drowned in a hurricane of bigger problems. So the lesson learned from the first phase measures might be that better design and lay out alone cannot offer solutions to the problems of crime, safer cities and secure housing. In suggesting this, one ignores a whole range of social and economic factors, which affect the levels of crime in a particular area. Defensive design has a role to play in crime prevention, but factors such as unemployment, poverty, drug abuse, social stress and bad management simply cannot be designed out. A comprehensive approach must be taken to assure safety and security. That is why in the Bijlmermeer the first phase measures had to be followed ten years later by an integrated package of measures of the second phase in which in the end about 50% of all buildings/apartments were demolished and replaced by more suitable dwellings. Total cost of operation: approximately € 550 million²².
- Thus, at first glance promoting safer cities and secure housing may seem to be a rather simple and straightforward target. However, the case of the Bijlmermeer shows that one has to take several levels into consideration. From locks, bolts, bars and lighting on the micro level to complete spatial renewal on the macro level. Furthermore the Bijlmermeer case shows that one has to take into account all aspects of the problem. The hard techno- physical spatial renewal must be coupled with soft social renewal as well as clever preventive police strategies like community policing and the requirements from the Police Label Secure Housing. Also the tougher approach to crime after the 1990's helped in the approach.

Two questions

There are two intriguing questions left:

Was that huge investment in the demolition of high-rise buildings and the low rise rebuilding of dwellings really necessary?

Comparing the Bijlmermeer with earlier and other projects like Pruitt Igoe (USA) and Heygate estate in London demolition of more than half of all high-rise was a 'normal' and rational route to follow. But looking at the case of the high-rise Bellvitge neighbourhood near Barcelona the expensive demolishing of a complete neighbourhood might not always be the wisest of decisions taken. Bellvitge shows that ownership of the dwellings by its residents combined with investments in the quality of public space as well as in better community focussed policing might do the trick as well. However, the number of cases we are comparing here is very limited. It might thus be worthwhile to start a real comparative research in Europe or even worldwide. Inés Aquilué

Note 21 Our definition of CPTED definitely includes not only architectural and target hardening measures but also social measures as implemented in the Bijlmermeer. In this way CPTED is defined as 2nd generation CPTED (Saville and Cleveland, 1998 and Soomeren in Crowe, 2013)

Note 22 €450 million unprofitable investments and € 92 million deficit due to land development. As mentioned above the total investments ran up to about 1.5 billion euros

Junyent has made a first comparison between the cases of Bellvitge and the Bijlmermeer (see appendix)

What did the city planners in Amsterdam learn from the case of the Bijlmermeer and how did that influence later neighbourhood development in Amsterdam (like IJburg)?

The main answer to this question is twofold²³: city planners do not have a well-structured way to evaluate what went wrong (or good) with a neighbourhood. Evidence based evaluations and reflections are not very common in the field of urban planning and design. Though it may sound a bit strange regarding the multibillion euro/dollar operations urban planners are in charge of, most of the evaluations – if any – are isolated case studies of students. In Amsterdam we were lucky enough to interview a few of the main players. What they learned from the Bijlmermeer may be summarized as

- Focus on *flexibility*, 'on urban planning level' never specify types of zoning to the extreme mono functionality, 'the town planning level'; isolated 'habitat machines in e.g. a honeycomb pattern' are too specific as a building form, a simple flexible grid structure is easier; 'even the building level' e.g. over-dimensionate the height of a floor so later on a dwelling can easily be converted to a shop, or office, or
- *Mix to the max*. This is in fact the nowadays well known Jane Jacobs way of looking at how cities are built and managed. Hence there should be a clever mix of social rented, privately rented and privately owned dwellings. But there should also be a mix of apartments, low rise one family dwellings as well as a mix of the size of a dwelling in square meters (from 20-30 m² for students and 60 m² for starters to 300 m² for large families, extended families or people combining business and living), but also a mix of older and younger people, handicapped and non-handicapped. But also a mix of functions like schools (learning) and business/working (more and more business and work is done in or from home) and a mix of several types of recreation. Mix to the max²⁴!
- *Do not forget special issues like crime, feelings of insecurity, but also issues like sustainability, inclusion of handicapped people, etc.*

The Amsterdam urban planners we interviewed also mentioned (see epilogue) that deliberate and structured focussing on specific issues is extremely important. Take for example crime and safety/security. The experience of the Bijlmermeer showed that this issue is often overlooked. Using the Police Label Secure housing, new building codes in which target hardening is made obligatory and doing Crime Assessments – as defined in the European standard CEN/TR 14383-2:2007 annex A – learned the planners and managers a lot about the specific issues of crime, fear of crime and the prevention of crime. Including these interactive crime assessments in the regular planning process of a new neighbourhood is important and useful as was shown in the example of the new neighbourhood IJburg (see risk/solution drawing below).

Note 23 In trying to answer this question we have checked literature but we have also interviewed two city planners (project directors) who have been heavily involved with the Bijlmermeer regeneration operation: Lex Brans and Igor Roovers. The last one changed from the Bijlmermeer to the development of the next new to develop neighbourhood in Amsterdam: IJburg (a neighbourhood in the former sea East to Amsterdam planned for 18,000 dwellings and a population of approximately 45,000 people which is now about halfway completion).

Note 24 Though we might add: mix in a clever way. Simply mixing rich/poor, or lifestyles (elderly, students, families with children) is asking for trouble. In these examples one may use the 'chessboard model': homogenies blocks or small neighbourhoods in a bigger quarter/district. Or – when mixing within one building volume: make separate semi-public spaces for entrances, play and store areas, etc.



Results of interactive process making crime assessments for the new neighbourhood of Iburg in 2002.

Left: mapping risks. Right: mapping recommendations and solutions.

Appendix: comparison Bellvitge and the Bijlmermeer

Comparison between the high-rise estates of the Bijlmermeer in Southeast Amsterdam and Bellvitge in the city of Hospitalet de Llobregat, near Barcelona.²⁵

1. Introduction

In 1964 a high-rise neighbourhood for the working classes called Bellvitge was founded in the city of Hospitalet de Llobregat, near Barcelona. The construction of this estate commenced two years after the start of the development of the Bijlmermeer, the high-rise settlement in the southeast of Amsterdam analysed here. Although both housing developments were constructed around the same time and were designed as a 'functional town'²⁶, the future of each settlement progressed completely different.



Both of these European high-rise neighbourhoods were reviewed as case studies for the EU COST action TU 1203 (European cooperation in science and technology, transport and urban development). A comparison between these two estates was made regarding measures and achieved results for crime and fear of crime. These high-rise settlements are not isolated cases; at that time architects were planning high-rise buildings inspired by CIAM and Le Corbusier's urban concepts all around the world.

Note 25 Text based on two case studies: Inés Aquilué Junyent and Guenter Stummvoll: Bellvitge: Unexpected Success - Against all Odds (COST-action TU 1203 case study) and Paul van Soomeren, Willemijn van de Klundert and Justin de Kleuver: High-rise in trouble; Dream, nightmare and awakening: the case of the Bijlmermeer in Amsterdam (COST-action TU 1203 case study). The text of this appendix was written by Inés Aquilué Junyent and edited by Willemijn van de Klundert and Paul van Soomeren.

Note 26 'Functional Town' in which living, working, traffic and recreation were separated.

2. Foundation of the estate, building design and urban structure

Bellvitge and the Bijlmermeer were both huge estates, newly developed in the 1960s, located in isolation on the periphery of the two big European cities of Barcelona and Amsterdam.

Due to the industrial development of Catalunya (in those years mainly promoted by SEAT and the Telephone-company) a large number of people from other Spanish regions moved to the city of Barcelona. More housing was needed and Bellvitge, a development of initially 7,000 dwellings for approximately 30,000 inhabitants, was constructed.

Bellvitge was built on a flood plain of 2.8km^2 (only 0.73km^2 is urban residential). The first block was laid in 1964 and construction work was finalized in the 80s. The urban design was based on prefabricated high-rise concrete-slabs of 15 floors high. The dwellings are on each floor connected to lift columns which structure a block. When the blocks of the first settlement of Bellvitge (South Bellvitge) was finished, there were no paved streets, public spaces, facilities (such as schools), or sewage systems in place. Only rectangular prefabricated high-rise slabs were visible in the landscape and floods were common during the wet seasons. The dwellings were for the owner-occupier market and the first new residents moved in.



Bellvitge was completed in 1980 and consisted of 65 building blocks and 5 towers which contained 9,138 dwellings and approximately 33,000 inhabitants. The density in the residential area was 45,200 inhabitants per km^2 (residential area: 0.73km^2). In 1956 the area was planned for 7,000 dwelling but due to the pressure of private developers, which caused a lot of controversy among the first neighbours, the density was increased.

The Bijlmermeer, as well as Bellvitge, was built in the 1960s due to the Post-Second World War housing shortage. Lack of building during the war years and war damage; poor existing housing stock; migration to the large cities; and labor shortage which increased immigration caused a need for new construction. The Bijlmermeer was a residential development on unprecedented scale for the Netherlands; it would be home to 100,000 people, developed by the urban planners and architects of the city of Amsterdam for the social sector rental market.

The Bijlmermeer started in 1966 and finished in 1975 when the last dwellings were completed and the shopping centres covered. The area had 17,000 dwelling of which 13,000 were located in 31 large high-rise social housing. The urban structure of the settlement was comprised of 31 high-rise (10-floor) deck-access apartment blocks in a honeycomb pattern; between them there were large green spaces and bicycle or pedestrian routes. The car traffic was separated in elevated roads that created a high number of dark spooky viaducts which were perceived as unsafe.



Although the Bijlmermeer was a high-rise settlement, the density was very low: HR=LD. It was the opposite in Bellvitge where the density was and still is extremely high. The table below shows the differences. In general the density of Bellvitge is approximately 3 to 5 times as high compared to the Bijlmermeer.

Density Bellvitge compared to the Bijlmermeer

	Bellvitge ²⁷	Bijlmermeer ²⁸
Dwellings	9,138	17,000
Inhabitants	33,000	41,700
Build up surface	0.73 km ²	5 km ²
Inhabitants/dwellings	3.6	2.4
Inhabitants km ²	45,200	8,300
Dwellings km ²	12,500	3,400

When comparing the urban structure of both settlements, the main differences between the two high-rise developments were the density (inhabitants and dwellings km²), the distance between the building blocks and the number of dwellings. The number of dwellings and the distance between the blocks was higher in Bijlmermeer and the density was lower. Furthermore, there was another variable; the separation of function regarding traffic. In the Bijlmermeer there was a complete separation from ground level, the main road for cars was directly connected with the

Note 27 Figures 1980

Note 28 Figures taken from the Bijlmermonitor 2010 for the year 1994 (before renovation); the surface is an estimate (T93+T34 minus Venserpolder, Geerdinkhof, Groenhoven, Gouden Leeuw en Garstkamp)

first floors of the buildings through the car parks²⁹, while in Bellvitge the roads were not paved, but the planned ones connected streets and spaces between building blocks at ground level. Cars in the Bijlmermeer were parked in parking garages connected to the roads. In Bellvitge cars were parked (and still are) in the spaces between blocks, where there was a high social control. In the Bijlmermeer dwelling entrances were accessed through interconnecting corridors, whereas in Bellvitge the use of single lifts connected to only a few apartments on each floor provided higher social control in the limited common areas inside the buildings.



The Bijlmermeer was an area completely developed by the urban planners and architects of the city of Amsterdam, whereas Bellvitge was built by private investors. In Bellvitge, most inhabitants (low-income workers) owned their apartments.

3. Socio-demographic Synthesis

Five decades ago when the first slabs of Bellvitge were laid, the first owners originated from other regions of Spain outside Barcelona and existed mainly out of young people (young families or couples) that wanted to start a new future in the newly developed industries of Barcelona. These residents raised their families in Bellvitge and due to the lack of facilities they founded the Housing Association³⁰ of Bellvitge to fight for their rights and after the Franco Dictatorship they also became part of some well-known trade unions. In most of the cases, the ownership of the dwellings belonged to the same family decade after decade.

Since 1990s the population of the neighbourhood began to decrease. According to the 1991 Census the population of Bellvitge was 32,605 inhabitants and ten years later (2001 Census) the population was 26,244. A decrease in population of approximately 20% but this never resulted in high numbers of vacant dwellings. During the 2000s the number of inhabitants was rather stable and in 2012 the population was 25,528 although the density was still high (35,020 inhabitants per km²).

During the 2000s the population of the city of Hospitalet de Llobregat greatly increased due to immigration (mostly from Latin America and Africa) in the neighbourhood of Bellvitge the level of immigration was moderate. In Bellvitge, the percentage of foreign immigration became 16% lower than in Hospitalet de Llobregat.

Noot 29 The car owners routing in the Bijlmermeer: drive from +1 level road (cars only) to parking garage building, walk through public covered corridor to a lift, go up and walk to your apartment.

Noot 30 In the Netherlands housing associations (run by managers and paid by the state) rent (!) dwellings to renters. This Bellvitge Housing association represents the collective of owners of the privately owned flats.

When the Bijlmermeer was built the number of inhabitants grew quickly from 1969 to 1975. After this quick start the area did not expand as fast as the municipality expected. The influx of people existed less of middle class families than foreseen (mom-dad + 2.2 children). Most of the tenants were one-parent families, singles and couples without children (people who had problems to find a home elsewhere in the Netherlands). A large proportion of these residents came from outside the Netherlands. Many people came from Surinam and the Dutch Antilles which were former Dutch colonies. An influx of illegal immigrants created overpopulation in some of the blocks. The residents of the Bijlmermeer often experienced problems with language, education, social and economic status, discrimination and isolation from other ethnic groups. To sum up there was often a negative social development and access to work was limited.

In Bellvitge the situation was opposite, the building disadvantages created a tight social cohesion among the residents originally from other Spanish regions.

In the Bijlmermeer, these problems caused bad publicity and in the 1980s the percentage of vacant dwellings rose to 20-25%: one out of every four dwellings was deserted. As we have seen also in Bellvitge the population decreased since the 90s mainly because an ageing population but due to the other type of ownership (privately owned individual apartments) this never resulted in a lot of deserted, empty and vacant dwellings.

4. Crime and conflict

In both areas – Bijlmermeer as well as Bellvitge - crime and fear of crime were at some point common topics.

In spite of a positive social cohesion of the residents in Bellvitge, in the 1980s problems spiralled out of control, intensified by the economic crisis, and the neighbourhood acquired its bad image. The conflicts increased due to high unemployment and an increase of heroin addiction among young people. Crime rates, social disorder, violence, robberies, drug-use and vandalism increased significantly.

The same goes for the Netherlands in the 80th (rising crime and economic crises) and even more for the Bijlmermeer were next to the economic crisis drug problems spiralled out of hand due to the displacement of drugs problems – also mainly heroin – from the city centre to the Bijlmermeer. But in the Bijlmermeer there was more: less people than expected moved to the Bijlmermeer; more singles instead of families; high percentage of population from outside the Netherlands completely new in a cold, urbanized high-rise area; limited facilities such as shops and schools; car parking problems and limited public transport. This resulted in a higher crime rate, higher fear of crime and a terrible image of the neighbourhood among the Dutch population in the Netherlands. Stigmatizing publicity (papers, television, movies) did not do the Bijlmermeer any good.

In the Bijlmermeer the urban design did not help. The large number of semi-public spaces (more than 80%), areas like entrances, alleys, corridors, storage spaces, galleries and parking spaces, turned into potential dangerous places.

'The image of the Bijlmermeer as the city of the future deteriorated: the dream of a functional town became a nightmare of vacant dwellings, drug abuse and a crime ridden area.'³¹

5. Measures and their effects

In both cases the local governments decided that major action to address the problems in the Bijlmermeer and Bellvitge was needed.

In 1986 Barcelona gained the candidature to be the site of the Olympic Games 1992. Local governments of the Metropolitan Area and the National Government decided to improve the city, their structures and their safety and security problems. The city of Hospitalet received funding and invested this in some degraded neighbourhoods such as Bellvitge. They improved the sewage system, reconstructed the drainage system to prevent floods, built a new metro station, developed public space and extended the public transport system. To make sure the money was well spent and the planned facilities were built the local population continued their fight during these years. Bellvitge became a well-connected neighbourhood with attractive public spaces between the building blocks.



All over the Metropolitan Area a plan against drug-dealing and heroin was implemented. In 1985, 'the National Plan against Drugs' was approved by the Spanish Government, which acted in both sense repressive and therapeutic. The policies against drug became harder and the legal punishment were severe (condemns for trading were longer). On the other hand, new facilities and services for the addicts were implemented, such as daily centres for drug addicts and healthy programmes, which involved social care.

In Amsterdam the drug approach was similar though probably more a health centred approach (e.g. methadone) with day care facilities for drug addicts coupled with a very strict policies and policing on (hard) drugs trading (and easy going on soft drugs like weed and hashish).

In Hospitalet Local Police concentrated their efforts on Community Policing Activities, which included public order management in close cooperation with departments of the municipality and connections established with the social services, the public services and the community associations.

Note 31 Soomeren, P. van (1995) Dream, nightmare and awakening - Experiences at the crossroads of town planning, architecture, security and crime prevention, DSP-groep, Amsterdam/Tokyo (page 11).

In the Bijlmermeer the police activities over the years are more or less the same as in Hospitalet. Furthermore there were two intensive and integrated attempts of improving the area: a first still rather light sweep of improvements followed by a second really intense one: demolition. Firstly, between 1985 and the beginning of the 1990s, a set of measures was implemented in the high-rise area, based on the CPTED³² ideas. Most of them were related to the improvement of the physical and technical environment: apartments were split up into smaller units; rents were lowered; some parts of the buildings (car parks and storage spaces) were demolished or converted in homes; some public areas were converted in plots of land; parking was made possible at ground level; some anti-burglary devices were installed; lighting was improved; and some of the long galleries were closed.

Most of these measures were successful and it became more difficult to commit vandalism and behave disorderly. But the continuous increase of unemployment (particularly in this low-income neighbourhood) and the rise of some types of crime such as burglary and the problems of drug abuse (heroin) did not result in the expected improvement.

At the beginning of 1990s a plan was formulated to improve the situation in Bijlmermeer. The renewal process was based on two elements: spatial renewal and social renewal. It was decided that a large part of the high-rise blocks was to be demolished: 6,500 of the 13,000 high-rise dwellings. The demolished apartments were replaced by low-rise or mid-rise housing, with 30% council housing and 70% in the private sector. Furthermore, the remaining high-rise blocks were renovated; the interior and elevated walkways were removed and ground-floor storage areas were replaced by housing. An important change was the demolition or change of use of car parks and lowering the main roads to ground level. In that respect the 'new Bijlmermeer' resembles more Bellvitge.

The second element was the social renewal, which worked on the socio-economic aspect of the Bijlmermeer degradation. There were measures implemented for reducing unemployment, immigrants received training in Dutch language, new social and cultural facilities were created, three primary schools were restructured and important changes in the managerial system of the housing association were introduced.

The measures implemented in both cases, in Bellvitge and in Bijlmermeer, were quite different. In Bellvitge the focus was not exactly on renewal but on building facilities that were initially planned but never built, improving public transport and thereby connection to the city and enhancing the public spaces. The renewal of the Bijlmermeer followed a different path, it was decided to demolish more than half of the high-rise buildings and most of the parking garages. The elevated primary roads were lowered, and the demolished high-rise flats were replaced with low-rise or mid-rise buildings.

Note 32 CPTED: Crime Prevention through Environmental Design. Though also measure in the social domain and the domain of management were taken most of the measures are of a rather simple physical first generation CPTED approach

Whereas in Bellvitge the high-rise buildings resisted the test of crime and drug-dealing, in Bijlmermeer they did not.

The effects of these completely different measures were in both cases positive and the crime rates and the fear of crime decreased. The image of both neighbourhoods was also improved though both neighbourhoods are still stigmatized.

In Bellvitge generation after generation stayed in the same neighbourhood due to the social cohesion and ownership of the properties, while in the Bijlmermeer the population was constantly changing. Currently the population in Bellvitge is still decreasing but in the Bijlmermeer an increase of population is seen due to the measures that were undertaken.

6. Conclusions

Two high-rise neighbourhoods build in a Corbusier-like fashion. One low density (Bijlmermeer) with an abundance of park landscaping, bushes, shrubs, green fields and one high density neighbourhood (Bellvitge) looking less like a park but more like a city (parking on ground level in open air, a lot of small shops, bars and restaurants).

In one neighbourhood (Bellvitge) all apartments were privately owned resulting in a 'community of high interest'³³ with involvement of the residents (territoriality). Actually, the high social cohesion and sense of community in Bellvitge was a feature since their foundation, which is still present. In the Bijlmermeer all apartments were rented out by distant managed housing associations to people who couldn't find a house elsewhere because of the long waiting lists for public housing.

Both neighbourhoods faced enormous problems in crime, incivilities/disorder and drug abuse. Both reacted by investing a lot of money. In Bellvitge the investment was mainly in the public transport and public domain (sewage, water, streets and lighting). This was also the case in the Bijlmermeer but proportionally the investment in buildings was far higher in the Bijlmermeer: in the end 6500 flats were demolished and rebuild in low- to midrise fashion. This large demolishing of buildings was not only because of crime issues but also because there was simply too much of this non-traditional and unpopular high-rise for the Amsterdam regional housing market. The Dutch solved that problem but it was an extremely costly – and in that respect 'un-Dutch' – solution: costing one and a half billion euro.

Epilogue: do designers and planners learn?

Do designers and planners learn from earlier plan implementation? In general this seems to be a difficult task (Pressman and Wildavsky, 1973) but in the case of the Bijlmermeer the main planner for the New town IJburg Igor Roovers – who was also involved in the Bijlmermeer for several years – draws a rather harsh conclusion: ‘we never learn any lessons, we should, but we do not take enough time to reflect’. In this interview³⁴ Igor indicates that it would be an advantage if all people in charge of such large projects were interviewed to evaluate and publish their findings. To minimise the reappearance of the same mistakes a list of *lessons learned* was created to use in future projects.

From Bijlmermeer to IJburg

After his Bijlmermeer experience Igor Roovers was for many years the project director of IJburg which is a newly developed residential neighbourhood in the east of Amsterdam, the Netherlands. During the interview Igor clearly showed that he – as well as other designers and planners of IJburg – had learned of earlier experiences (like the Bijlmermeer). However, these learning experiences seem to stay rather implicitly with one designer or one planner. There is no structural ex post evaluation experience laid down for future projects and future generations.



Igor Roovers in discussion with (future) residents of IJburg

Noot 34 Paul van Soomeren interviewed Igor Roovers on July 2th 2014.

Experiences from previous large developments in the Netherlands were taken in consideration for the new IJburg neighbourhood.

IJburg consists of 3 artificial islands built in the IJ Lake. Four more islands are planned to be constructed in the future. The Amsterdam city council decided to build the neighbourhood in 1996. The main artery is the IJburglaan which connects the islands with several bridges. The tram line, following this avenue connects the islands to the city and Amsterdam Central Station.



The first residents moved into their houses in November 2002 and currently around 20.000 people are living in IJburg. When complete, the neighbourhood will have 18,000 homes for 45,000 residents and should also include employment for 12,000 people. Homes, schools, shops, leisure

centers, restaurants, a beach, a separate park-island (on a former highly contaminated chemical waste dump) and lots of water, canals, locks and a marina were all part of the development plans. Although initially pessimistic ('we never learn any lessons, we should, but we do not take enough time to reflect') Igor does come forward with some examples of lessons learned from the regeneration of the Bijlmermeer. He states that the two principal mistakes in the design of the Bijlmermeer have been the segregation of functions (living, working, transport and recreation) and monotony of the buildings and apartment type.³⁵ So the Bijlmermeer was not so much 'a high-rise problem', but probably more a 'too much of the same building and apartment type problem'. In some respects this error was – also as an reaction on Bijlmermeer-type of high-rise – repeated in the new town Almere where about 100.000 dwellings have been built of which about 75% build as low rise single family dwelling: though low rise it is as monotonous as the Bijlmermeer.

Mix to the max

Igor explains that they took a different view in IJburg and designed a high density neighbourhood which would be part of the city of Amsterdam with a mix of functions such as living, learning, recreation and working. IJburg had a flexible zoning plan for living/working and the buildings can be used as is needed by its residents. The dwellings are different in size and vary from apartments to single family housing. The function of the buildings was also flexible: a small proportion of the houses cater for people with disabilities; schooling for students at different levels is made available and provisions for people who want to work from home are on offer. Not only for living but also for recreation different options are available such as water sports and tennis. All in all it was mix to the max.



IJburg restaurant between housing



This mix is accentuated with a flexibility of layout and function. Instead of a strict honey comb design as is seen in the Bijlmermeer, in IJburg a grid pattern is used. These grids can be filled in as

Noot 35 This viewpoint was previously also mentioned in an earlier interview with Lex Brans (OGA Amsterdam, and also previously part of the Projectbureau Vernieuwing Bijlmermeer). Besides the segregation of functions and monotony, Lex mentions that residents ideally want to stay in their own neighbourhood so it is important to provide a differentiation of housing for people to grow into. Hence another good reason for differentiation.

is required and some are even filled in with self-build housing. All the buildings have a ground floor which is three meter high which make the function within that space very flexible (a shop, restaurant, or simply a private room with a high ceiling). The plan for IJburg was never the end goal; it was always a starting point.



IJburg semi public space self maintainance by residents



IJburg: Territoriality

Integrated part of the city

Igor also explains that from an early design stage IJburg had to be part of Amsterdam. The tram connection and the unique availability of a beach aided to this integration because people from all over Amsterdam visit this beach.

Ex ante check on crime: do the crime assessment (annex A TR 14383-2)

High crime rates and increased fears of crime, such as experienced in the Bijlmermeer, had to be addressed in IJburg from day one. Therefore a lot of attention has been given to ex-ante checks, the application of the Politie Keurmerk (a certificate indicating a high level of anti-crime measures) and performing Security Impact Assessments (Veiligheid Effect Rapportage; VER; compare annex A in the European standard TR 14383-2). Igor finds the extra attention in safety, longevity and environmental friendly design very important.

After the last economic crisis (2008; credit crunch) cutbacks in spending in IJburg had to be made and Igor indicated that they didn't wanted to make the same mistake as in the Bijlmermeer where money was saved on essential circulation such as lifts, stairs and the internal streets. Instead in IJburg they decided to make savings on expensive air-conditioning systems and eco-friendly rainwater recovery systems.



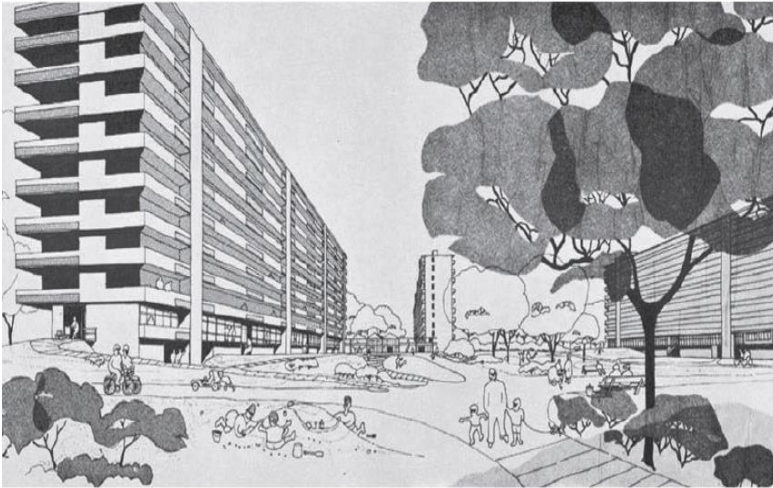
IJburg above: buzzy central axes of the IJburglaan.

Lessons learned from IJburg

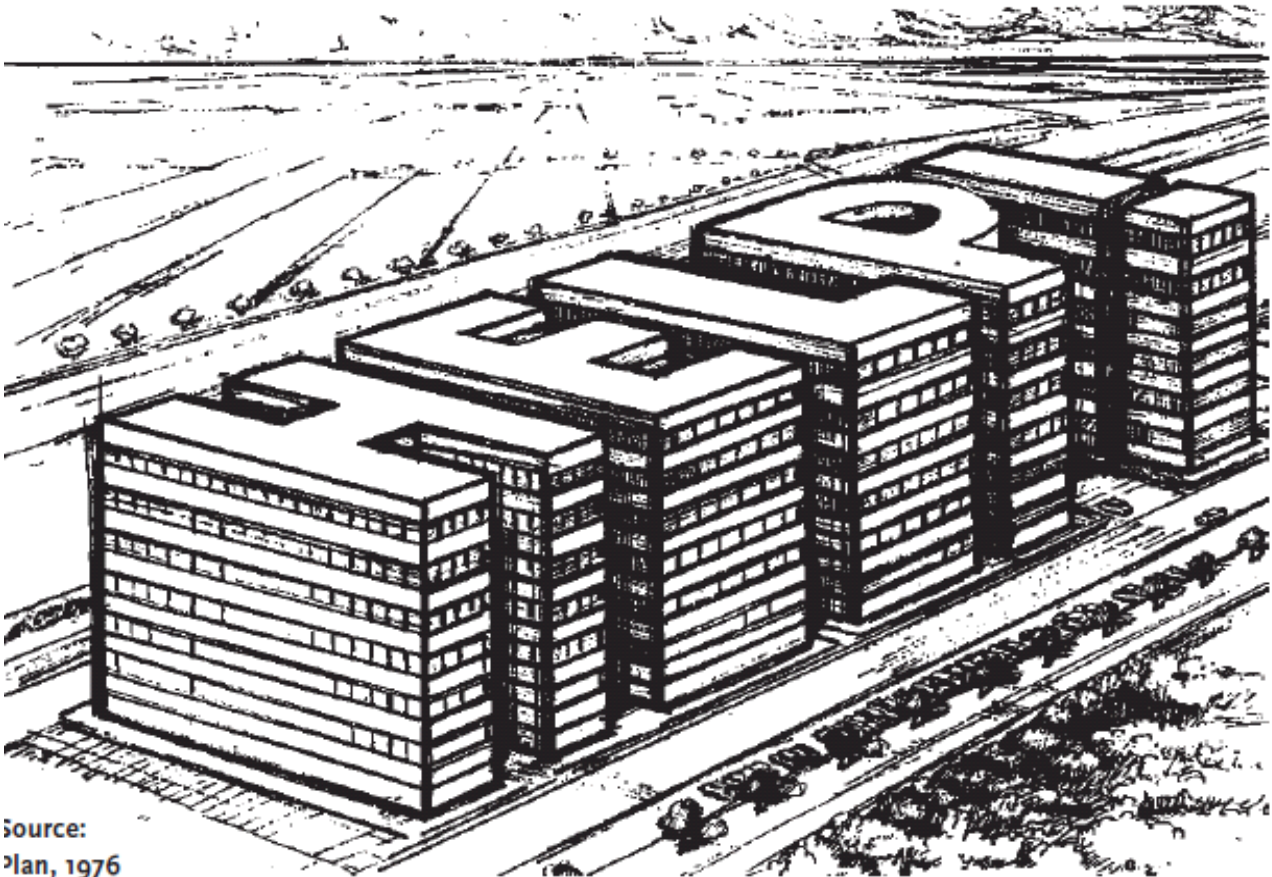
Igor mentioned a list of 'lessons learned' from the new development in IJburg:

- Mix social sector, privately rented and owner occupied housing, but avoid too strong mixing social housing and private housing. The devil is in the details and especially entrances and common grounds.
- Consider materials in relation to sound nuisance ('hard' materials or 'soft' materials which will absorb more noise)
- The tram line on the main through road divides the areas too strongly.
- Small scale developments are always easier to manage. If you e.g. build a big underground parking facility, the building above it should to be big as well, to compensate the expenses.
- Don't use all existing space to build on; some needs to be kept available for organic growth (20%).

IJburg Photographs were taken by Tobias Woldendorp during a crime and quality review survey with designers, planners and maintenance people. (DSP-groep Werkboek sociale duurzaamheid IJburg tweede fase, Amsterdam, November 11th 2011.). In the terminology of CEN/TR 14383-2 a crime assessment or crime review (see appendixes of TR 14383-2)



Municipal brochure (1968): happy families in a green parkland with clean high-rise



The image of high-rise 10 years later: (source: Turkington 2004/9; unknown illustrator, 1976, Plan 7, Amsterdam)

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