Rotterdam in the 21st century: From 'sick man' to 'capital of cool'

Gijs Custers [a,1], Jannes J. Willems [b,*,1]

[a] *Department of Law, Society and Crime, Erasmus University Rotterdam, the Netherlands*
[b] *Amsterdam Institute for Social Science Research, University of Amsterdam, the Netherlands*

A B S T R A C T

This City Profile presents a multi-disciplinary perspective on the development of Rotterdam, analysing its transformation from a "sick man" to the "capital of cool" between 1995-current. Our profile integrates insights from five policy domains and presents them as a new framework. First, Rotterdam witnessed the rise of the populist right and established a new safety regime through a zero-tolerance mentality. Second, Rotterdam's superdiversity initially triggered anti-migration sentiments, but has more recently been normalised. Third, state-led gentrification policies have uplifted Rotterdam's status and provided space for middle-class households, thereby restricting access for working-class households. Fourth, the local administration has initiated large-scale urban regeneration projects as new flagships in former port areas and the city centre. Fifth, the city has been using water safety improvements to guide urban development and to create an attractive city. Overall, these developments have contributed to Rotterdam's new, hip image. However, we argue this image is Janus-faced. The populist and repressive form of urban disadvantage management is highly politicised and considered discriminatory, whereas the new flagships and water-led urban development are depoliticised and technocratic. These two sides often operate autonomously from each other, but together they contribute to new divisions in Rotterdam.

1. Introduction

"Help, we are popular!" is the title of a bundle of articles from local news medium *Vers Beton* about the new city image of Rotterdam (Mandias & Liukku, 2016). Rotterdam appeared in international media such as the New York Times and the Lonely Planet as an attractive new travel destination, becoming the new "capital of cool" (Nieuwland & Lavanga, 2020). In a brief period the city gained attention both nationally and internationally, which can be considered a result of the city's arduous transformation into a post-industrial city that is characterised by eye-catching architecture (Taşan-Kok, 2010), growing middle-class presence (Custers & Engbersen, 2022), and less dependency on the industrial port (Hein & Van de Laar, 2020).

The city's new image sharply contrasts with previous decades. Rotterdam had the world's largest port until 2004 and was considered the 'sick man' among other Dutch cities when the Dutch industrial economy declined. As Trip (2008: 388) elaborates, Rotterdam was the "pride and joy of Dutch post-war industrialisation policy" being "a traditional industrial and seaport city". Yet, the economic growth of Rotterdam stagnated due to the decline of traditional industries. While other Dutch cities such as Amsterdam and Utrecht flourished, Rotterdam experienced difficulties in keeping up with the post-industrial pace (Noordegraaf & Vermeulen, 2010). The city has traditionally housed many lower-skilled workers within and around the city centre, while middle-class residents flew to more suburban parts (Burgers & Kloosterman, 1996). The Dutch capital Amsterdam was able to attract new offices and residents since the 1980s, whereas parts of Rotterdam became known as high-risk areas. How did this image change so drastically in the past twenty years?

To explain the shift from a sick man to a self-confident city, this City Profile defines key urban developments, trends, and narratives about Rotterdam covering the period mid-1990s until now (cf. Sykes et al., 2013). Rather than providing a comprehensive historical account of Rotterdam, we demonstrate in what way Rotterdam has followed global trends and drivers of urban development, and how it has differed since the mid-1990s. We will discuss local geographies, path dependencies, and political cultures vis-à-vis international developments seen elsewhere (Savini et al., 2016). Furthermore, we will position Rotterdam in perspective to other European cities such as Barcelona, Copenhagen, Glasgow, and Liverpool. We adopt a multi-disciplinary perspective that covers multiple domains (such as safety, urban water management, and migration) and assess how each domain has contributed to the transformation towards a post-industrial city. Our multi-disciplinary analysis of Rotterdam helps to scrutinise how dominant global forms of contemporary urbanism, such as neoliberal urbanism (Peck et al., 2009) and revanchism (Smith, 2005), unfold locally.

Our contribution is threefold. First, we are the first to bring academic literature on Rotterdam together for the period 1995–2024. Second,

---

literature on Rotterdam typically covers one single policy domain (such as land-use, safety, and migration). This City Profile presents literature from five interrelated developments, thereby linking social with physical-environmental developments. We will first discuss these developments separately for analytical purposes, whereafter our discussion considers the five developments comprehensively and discusses in what way Rotterdam follows and diverts from global trends and drivers. The framework that emerges is our third contribution. In this framework we argue how these five developments fit within issues of the management of urban disadvantage (e.g. safety and gentrification) and green urbanism (e.g. water management and urban regeneration). By analysing the relation between these two issues, we offer new avenues for how future research might combine theoretical insights from these separate literatures.

The structure of this City Profile is as follows. Section two covers the post-WWII development of Rotterdam, sketching urban development between 1945 and 2000. Based on a literature review of academic articles and book chapters on Rotterdam, we will discuss five key developments since the 1990s onwards in sections three to seven. Section eight presents the main trends and positions them in an international context, both academically and empirically.

2. Setting the stage: historical development (1945–2000)

Rotterdam is located at the mouth of the *Nieuwe Maas* in the Rhine estuary in the western part of the Netherlands. It is the second city of the Netherlands with over 650,000 inhabitants (Fig. 1) and a surface of 324,1 km^2; the wider Rijnmond agglomeration accommodates around 1.2 million inhabitants.

Economically, Rotterdam's location has played a central role in the development of the city. The Port of Rotterdam is known for its petrochemical industry and specialises in the transfer of bulk and container goods from sea transport to other means of transport (river, rail, road) for the European hinterland (e.g. German Ruhr area, Flanders, United Kingdom and further) (Trip, 2008). Since the mid-19th century, the port has developed into a transit-oriented port that relied on low-waged and low-skilled labour. After 1945, in the post-war redevelopment years, the port was repositioned to become an industrial port focusing on oil and gas. This repositioning was expected to attract higher-skilled workers to the city (Van de Laar & Van der Schoor, 2019).

Since the 1980s, the Port of Rotterdam has been indicated by the national government as one of the "mainports" of the Netherlands through which public investments were used to improve and redevelop port areas (Van den Berghe & Daamen, 2020). These investments resulted in the port moving towards seawards, moving out of the city,

and included land reclamation projects such as the Maasvlakte (Hein & Van de Laar, 2020). Employment in the port has decreased since the late 1980s, while port activities and economic growth have increased (Burgers & Musterd, 2002). In particular the container sector has grown heavily. Concerns about structural unemployment due to automatisation and standardisation were articulated in the report *Nieuw Rotterdam* (Municipality of Rotterdam, 1987), which plead for high-tech, knowledge-driven industrial and logistical activities and for new educational programmes for lower-skilled workers. Instead, the offshore industries continued to recruit new waves of unskilled and lower-skilled labourers from abroad as a consequence of automatisation, especially from Mediterranean countries such as Turkey, Morocco, and Spain (Van de Laar & Van der Schoor, 2019). Nevertheless, in the period 1995–2011, the labour productivity increased, reflected in an increase of GDP per worker (Heijman et al., 2017). The Port of Rotterdam used to be the world largest port until 2004 and continues to be Europe's largest port. Nowadays, the port and the city have economically become more detangled and the contribution of the port to economic growth on the national level has increasingly been questioned (Hein & Van de Laar, 2020). For instance, there is currently a weak relation established between the port's throughput function and the regional number of jobs (Heijman et al., 2017). In addition, the port's roots in the petrochemical industry (including companies such as Royal Dutch Shell, Exxon Chemicals and BP) is increasingly criticised and may hinder the transformation towards biobased and low-carbon port activities (Bosman et al., 2018).

The economic restructuring of the port since the 1980s has resulted in a loss of regional jobs, because of the contraction of the manufacturing workforce and the limited growth in post-industrial service jobs. In that regard, Rotterdam was lacking behind the Dutch capital Amsterdam (Kloosterman, 1996). Expanding the service sector in Rotterdam has proven to be more difficult, since the city did not cater well for the lifestyles of the new urban professionals that constitute the new middle class (Burgers & Musterd, 2002; Municipality of Rotterdam, 1987). This can also be seen the population decline between 1960 and mid-1980s, and stagnation up to mid-2000s (Fig. 1). Many middle-class professionals in Rotterdam are commuters from neighbouring municipalities, whose commute has been enabled through several transport investments such as *RandstadRail* (Dimitriou et al., 2014). While Amsterdam is seen as a cultural capital that has more easily bonded companies to its city, Rotterdam had to work on its "public relations" (Municipality of Rotterdam, 1987) by re-inventing itself as a cultural hub (Nieuwland & Lavanga, 2020). At the same time, Rotterdam continues to be an important transport and manufacturing centre that creates high-wage jobs, because of the highly specialised and high value-
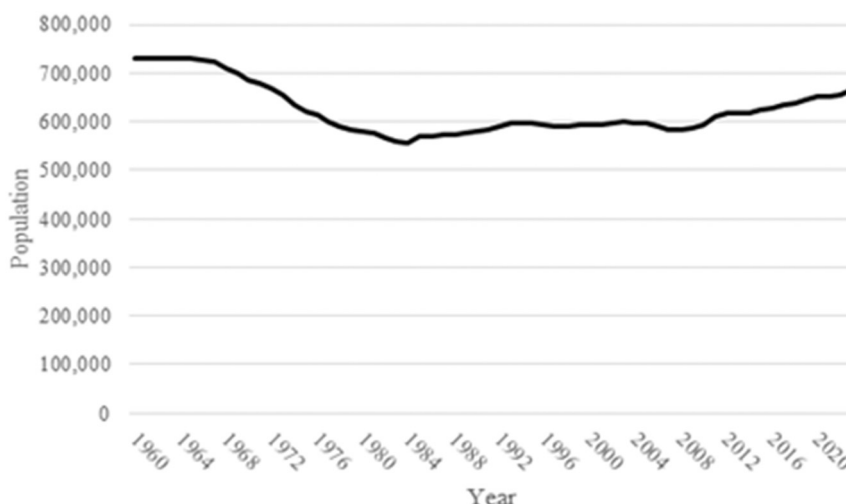

Fig. 1. Population growth in Rotterdam, 1960–2023. Source: CBS Statline, 2023.

added production tasks (Kloosterman, 1996). To illustrate, the Port of Rotterdam generates high value added per job in the port cluster, especially through its petrochemical and chemical cluster and, to a lesser extent, the food industry and transport equipment industry (Merk & Notteboom, 2013).

If we look at the social stratification of Rotterdam, the industrial and port background of the city is seen in the large working classes and a hard-working culture of 'rolling up your sleeves' and a 'make it happen'-attitude (Noordegraaf & Vermeulen, 2010). The working classes can traditionally be found in the neighbourhoods around the city centre (such as Oude Westen and Crooswijk) and in Rotterdam South, such as Katendrecht, Afrikaanderwijk, and Tarwewijk. To illustrate, the south banks of Rotterdam used to be known as the "*boerenzij*" (farmers' side) where migrants from rural parts of the Netherlands arrived to work in the port and where they found cheap housing. Since the 1960s, they are joined by large ethnic groups with roots in Morocco, Turkey, Cape Verde, Surinam, the Antilles, and other parts of the world (Noordegraaf & Vermeulen, 2010; Scholten et al., 2019). In contrast, the suburban neighbourhoods and the neighbouring municipalities host a more white and middle-class base.

Migration has been central in forging the working-class identity of Rotterdam but has also been a source of concern. Bouman and Bouman (1952) already signalled that the migration of poor farmers to Rotterdam in the first half of the 20th century caused social issues, because their rural habits hampered adaptation to city life. In addition, the influx of guest workers from particularly Morocco and Turkey since the 1960s led to new tensions with the – by then established – Dutch native workers (De Jong & Verkuyten, 1996; Van de Laar & Van der Schoor, 2019). For example, Dutch native residents were rioting against Turkish labourers in the Afrikaanderwijk in 1972, because Turkish pensions were "taking over" the neighbourhood. These riots, which lasted for several days, resulted in a policy proposal that neighbourhoods should not contain more than 5 % of foreigners. Although this proposal was deemed unconstitutional, it demonstrates that attempts to manage and disperse migration are historically present and as further sections will show, are still in place today.

Politically, Rotterdam's city council was dominated after WWII by the Labour party representing the working class (*Partij van de Arbeid*). Equally, mayors presiding the city council came from the same party (Kloosterman, 1996). The hegemony of Labour was challenged with the emergence of the local populist right-wing party *Leefbaar Rotterdam*

(Liveable Rotterdam) in 2002 (Fig. 2), further discussed in Section 3. Although Labour and *Leefbaar Rotterdam* formed a majority in the local council until 2010, since then – in line with national trends – the political landscape in Rotterdam has become more diverse and scattered (Fig. 2). Rotterdam has been an important site for the establishment of Islamic-inspired parties (NIDA and DENK), who emerged partly as a response to the increasing dominance of populist-right wing parties.

Looking into the morphology of the city, it is characterised by the river *Nieuwe Maas* that flows through the city. Living close to water has resulted in a city that has developed a sweet spot for water management. The city and the port are vulnerable to climate change from four directions: the sea (coastal flooding), the river (river flooding), the sky (pluvial flooding), and the land (rising groundwater). Protection from the sea comes from the *Maeslantkering*, a storm surge barrier built in 1997 that can automatically close off the *Nieuwe Waterweg* (the main waterway of the Port of Rotterdam) in times of coastal flooding. Concerning the river, high water discharges in the Meuse and Rhine estuary can harm the city. Several neighbourhoods, most notably the Noordereiland and parts of Feijenoord, are prone to river flooding. In Rotterdam, approximately 40,000 inhabitants live and work in outer dyke areas (the riverbed area) (De Graaf & Van Der Brugge, 2010). Most parts of Rotterdam are inner dyke areas; i.e. polder water systems that can be located below sea level and are protected by dykes. Pumping stations ensure stable and safe surface water levels, but are affected by climate change (in particular by heavy precipitation). More recently, heatwaves and drought have gained attention.

Over the course of the 20th century, Rotterdam has always been quick to embrace new urbanism trends. The city centre was completely wiped out after the WWII bombing. The newly created city centre – redeveloped by the local city administration with port elites – has been inspired by modernist and functionalist ideas and gave way to the car. Simultaneously, Rotterdam was the first internationally to create a pedestrianised shopping street (*Lijnbaan*) (de Klerk & Van der Wouden, 2021). Functionalist ideas can also be seen in several newly created suburban neighbourhoods in Rotterdam South such as Pendrecht. However, Rotterdam has also gained national and international fame for its urban renewal programmes in the 1970s and 1980s that challenged modernist thought. The 'building for the neighbourhood' policy broke with earlier bureaucratic and technical approaches and empowered local residents to redevelop their neighbourhood, indicating a democratisation and decentralisation of urban renewal programmes (Stouten,
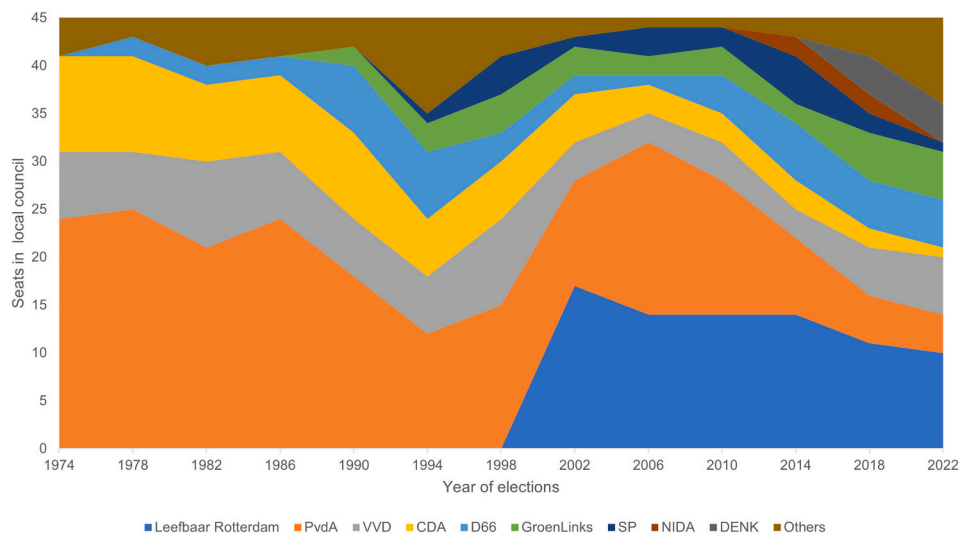

Fig. 2. Distribution of seats in local council between 1974 and 2022. Sources: Van Ostaaijen (2019) and https://allecijfers.nl/verkiezingsuitslagen/gemeente-rotterdam/

Note: Leefbaar Rotterdam (Liveable Rotterdam; Right-wing populist party), PvdA (Labour party), VVD (Liberal party), CDA (Christian democratic party), D66 (Liberal democratic party), Groenlinks (Green party), SP (Socialist party), NIDA (Islamic party), DENK (Islamic party).

2010). Displacement of working-class communities was prevented by focusing on housing renovation instead of demolition, houses of private landlords were brought into the social sector, and physical improvements were combined with social programmes. This policy was meant to reduce social tensions among working-class communities, but was in fact also used by Dutch native residents to gain control over housing allocation, thereby excluding ethnic minorities (de Jong & Verkuyten, 1996).

3. Contemporary development 1: rise of the populist right and a new safety regime

At the start of the 21st century, new 'law and order' politics, mandatory sentencing, and mounting concerns for safety perceptions among citizens reflected a punitive shift in safety policy and discourse (e.g., Garland, 2001; Wacquant, 2009). Although this punitive shift has been observed across several countries, it also been recognised that its materialisation can vary between contexts. In the Netherlands, for instance, a declining prison population has been accompanied by more intrusive measures of crime prevention (Van Swaaningen, 2013). Rotterdam has been a frontrunner in advancing a more punitive and negative conception of public safety (Van Swaaningen, 2005). This emphasis on safety links to the establishment of the right-wing populist party *Leefbaar Rotterdam*, which has profoundly shaped the city's image and policies after their triumphant victory in the 2002 local elections.

The emergence of *Leefbaar Rotterdam* is rooted in the late 1990s, when Rotterdam citizens became increasingly dissatisfied with the state of safety in the city due to perpetual issues of crime (e.g., street robberies and drug dealing) and nuisance (e.g., street pollution) (Van Ostaaijen, 2019). Together with ethnic tensions and worries about the state of 'integration' of ethnic minorities, these safety concerns provided the grounds for the ascent of populism in Rotterdam (Uitermark & Duyvendak, 2008). The newly established political party *Leefbaar Rotterdam*, led by the later assassinated Pim Fortuyn, won the 2002 local elections by a landslide, gaining 17 out of 45 seats in the local council (Fig. 2). It was the first time in the post-war elections that the Labour Party did not obtain a majority in the council (Van Ostaaijen, 2019).

After the 2002 elections, safety immediately became the highest political priority in Rotterdam (Tops, 2007). A tougher and zero-tolerance and action-oriented approach was introduced, combining repressive and preventive policies that were directly implemented. Rotterdam thus experienced a 'regime change' that opposed previous programmes, as the new populist coalition considered the previous approach to be 'soft' and ineffective (Tops, 2007). Later coalitions have adopted many elements of safety policies that were introduced during this period, signalling a continuation of the more repressive regime (Snel & Engbersen, 2009; Van Eijk, 2010).

The safety regime focused on tackling everyday issues of citizens, such as nuisance from loud neighbours, drug running, and street litter. New strategies were therefore developed that provided hands-on solutions, reflecting the city's practical and working-class mentality. A prime example is the 'city marine', a special kind of civil servant who's responsibility is to identify urgent problems in deprived neighbourhoods and develop quick and effective solutions in cooperation with other stakeholders (e.g., the police, municipal services, housing corporations, and welfare organisations) (Snel & Engbersen, 2009; Tops, 2007). In addition, a comprehensive safety index was popularised with the goal to make safety measurable and comparable across neighbourhoods. The index has been instrumental in the regime's strategy to boast performance, effectiveness, and accountability (Noordegraaf, 2008).

The post-2002 safety regime has been evaluated as fairly successful in addressing issues of crime and safety (Noordegraaf & Vermeulen, 2010; Tops, 2007). A long-term analysis of crime levels and safety feelings in Rotterdam shows that safety feelings improved between 2003 and 2007 and that crime levels dropped since 2008 (Glas, 2023). However, the safety regime has also been criticised for being intrusive

and discriminatory. For instance, interventions teams, who are an integral part of the safety regime, have been reported to commit privacy violations and harm the trust of residents (Snel & Engbersen, 2009). Furthermore, the safety policies are mainly targeted at ethnic minorities with the goal to restore the perceived loss of social and symbolic order (Uitermark & Duyvendak, 2008; Van Eijk, 2010). Especially in their early years, *Leefbaar Rotterdam* was frequently criticised by other parties for blaming migrants, Muslims in particular, for all kinds of social problems (see Scholten et al., 2019).

Many policies of the post-2002 safety regime still operate in Rotterdam, although the harsh discourse on safety, and its association with the 'failed' multicultural society, has somewhat waned (further discussed in the next section). Priorities in local safety policy have shifted towards tackling forms of subversive crime ('*ondermijning*'), a Dutch notion of all kinds of crime that relate to the entanglement of legal and illegal worlds (Boutellier et al., 2020). In practice, this shift means safety policy is now more focused on the impact of organised crime in neighbourhoods as a result of drug trafficking in the port (Roks et al., 2021).

4. Contemporary development 2: migration

Cities have been profoundly shaped by international migration in the past decades, resulting from processes of economic globalisation, growing mobility, and communication technology. The concept of superdiversity has become popular in migration literature to describe how social compositions of cities have changed (Vertovec, 2007). Superdiversity poses that city populations have not only become very diverse in ethnic terms, but that these ethnic groups themselves have also become more diverse along lines of social class, gender, religion, and other lines of demarcation. It furthermore signifies that many large cities have no clear native majority anymore, thereby challenging dominant (national) ideas of assimilation and integration (Crul, 2016). However, popular responses to superdiversity have strongly diverged between cities (Scholten et al., 2019; Wessendorf, 2014). In global cities such as London, New York, and Amsterdam, superdiversity has become an integral part of their identity without much strain. However, in (second-tier) cities such as Antwerp, Malmö, Marseille, and Liverpool responses have generally been more negative or ambiguous. Various groups in Rotterdam have also problematised its increasing superdiversity, which thus begs the question which conditions elicit such an adverse response.

Considering demographic changes, Rotterdam has evidently become a 'superdiverse' city. The percentage of inhabitants with a migration background in the Rotterdam population increased from 35.6 % in 1996 to 53.7 % in 2022. The share of people with a non-Western migration background has particularly grown, from 26.2 % in 1996 to 39.6 % in 2022 (CBS Statline, 2023). The group of people with a migration background is very diverse, including more than 180 different nationalities (Scholten et al., 2019). In 2022, the largest groups with a migration background are Surinamese (7.9 %), Turkish (7.3 %), and Moroccan (7.1 %) (CBS Statline, 2023). These numbers indicate that no ethnic group in Rotterdam forms a clear majority in the city.

Although increasing diversity has been considered a positive attribute of 'global cities', including Rotterdam more recently (Belabas, 2023), there has been a backlash against changes related to migration (Scholten et al., 2019). Especially among the white working class there was widespread resentment about 'failed' multiculturalism and the lack of cultural and economic 'integration' of immigrants. Accordingly, the appointment in 2009 of mayor Ahmed Aboutaleb (from the Labour Party), who is of Moroccan descent, was therefore met with scepticism by *Leefbaar Rotterdam*.

The dominant explanation why a substantial part of the Rotterdam population negatively responded to emerging superdiversity lies in the combination of economic decline and increasing migration at the end of the 20th century (Scholten et al., 2019). Even though Rotterdam has always been a city of migration, the population was relatively

homogeneous around WWII and the level of immigration was low. After WWII, a major rebuilding operation and economic boom led to the development of a dominant narrative that centred around Rotterdam being a city of hard-working men – highlighting its masculine focus – who rebuilt the city with their own hands. The post-war economic boom, however, eventually changed into an economic downturn during the 1980s, causing urban deterioration and restricted economic opportunities. Around this time many Rotterdam inhabitants had migrated to suburbs outside the city (Fig. 1), while the immigration of guest workers – especially Turks and Moroccans – and people from former colonies like Surinam was ongoing. For many Dutch natives, the increasing numbers of inhabitants of foreign descent were a symbol of the social decay they feel themselves to be victims of (Burgers & Kloosterman, 1996). The 9/11 terrorist attacks further sharpened boundaries between the native Dutch and Muslims, those of Turkish and Moroccan descent in particular. Rotterdam therefore became a fertile ground for dissatisfied working-class people to be recruited by populist parties (Scholten et al., 2019).

More recently, some anti-migration sentiments have shifted towards newer groups of migrants, mostly targeting labour migrants from Middle and Eastern European countries such as Poland, Bulgaria, and Romania. In public discourse these groups are often associated with overcrowding in rental homes and nuisance (Engbersen et al., 2010). However, in general the discourse around migration seems to changing, as negative connotations cease while positive and critical voices are heard more frequently. For instance, the initial scepticism towards mayor Aboutaleb has largely vanished. In addition, the 2019–2022 municipal program on issues of integration and cohesion was called *Relax: This is Rotterdam* in which it was acknowledged that Rotterdam is a superdiverse city and that inhabitants should adapt to this 'new' reality (Municipality of Rotterdam, 2019). A large study was also published on the colonial history of Rotterdam that delineates how the city administration was involved in colonial practices (Municipality of Rotterdam, 2022a). In 2022, a Black Lives Matter protest was attended by more than 5000 people. These developments signal that there is increasing public awareness of Rotterdam's rich and contentious history of migration.

5. Contemporary development 3: state-led gentrification

Like many cities shifting from an industrial towards a post-industrial economy around the world, Rotterdam has experienced gentrification. Although the concept of gentrification provokes discussions about its meaning, it can generally be understood as the socioeconomic upgrading of areas (Clark, 2005). During this process working-class residents are replaced or displaced by the middle or upper classes. State-led gentrification in the West-European context is when the state takes an active role in stimulating gentrification, often in cooperation with housing associations that own a large part of the housing supply (Uitermark et al., 2007; cf. Shmaryahu-Yeshurun, 2022). Associated policies are, for instance, restructuring projects in which social housing is demolished and replaced with owner-occupied buildings (leading to commodification of the housing stock) or directly selling parts of the social housing stock on the market. State-led gentrification can be considered a mode of neoliberal urbanism, since the state is used as an instrument to impose market rule and commodification (Peck et al., 2009). Although perspectives from the Global North often emphasise neoliberal motives for state-led gentrification (e.g. Smith, 2005), other perspectives also highlight the ethnoracial motives behind state-led gentrification that include the displacement of minorities and increasing presence of the ethnoracial majority (Shmaryahu-Yeshurun, 2022). Rotterdam serves as an interesting case in this context, because it can be argued that gentrification policies have also been designed to stimulate the dispersion of ethnic minorities.

Since the 1990s various gentrification policies have been pursued by Rotterdam's local government (Custers, 2021; Hochstenbach, 2017), whereby gentrification has been explicitly mentioned as a policy goal in municipal documents (Doucet et al., 2011). These policies signal a break with the earlier urban renewal programmes that catered to working-class households (Stouten, 2010). Although gentrification policies are often understood in revanchist terms as 'reconquering' the city for the middle classes (cf. Smith, 2005), thereby positioning it as mainly a class issue, in Rotterdam these policies have also been linked to issues of safety, migration, national identity, and liveability (Uitermark & Duyvendak, 2008; Van Eijk, 2010). In Rotterdam a consensus has developed among both right- and left-wing centred political coalitions that the city has too many 'opportunity-poor' residents that concentrate in disadvantaged neighbourhoods where levels of crime and unsafety are disproportionate. In addition, the high shares of ethnic minorities in these neighbourhoods have been problematised as a threat to the social order and social cohesion. Concurrently, it is perceived by the local government that there is too little space for middle-class households that wish to stay in the city, because the housing supply consists of too many 'cheap' dwellings. The high outmigration of middle-class households to adjacent municipalities is therefore problematised by multiple political parties (Van den Berg, 2013). The proposed solution by these coalitions has been to promote policies of social mixing, not only to provide more space to middle-class households but also to 'integrate' ethnic minorities and create liveable neighbourhoods (Ouwehand & Doff, 2013). In sum, gentrification as a spatial and social strategy has been embraced by diverse local political coalitions as it is believed to solve multiple issues at once: economic growth, social safety, 'failed' integration of ethnic minorities and liveability.

The most notable policy regarding gentrification has been the so-called Rotterdam Act (e.g., Ouwehand & Doff, 2013; Van Gent et al., 2018). This national law, officially known as the Act on Extraordinary Measures for Urban Problems, enables local governments to prohibit people from moving into designated areas based on certain criteria, resembling earlier proposals to control and disperse migrants (De Jong & Verkuyten, 1996). People can be refused on the basis of being unemployed or having a criminal record, unless someone has lived in the region for more than six years. The Act was introduced in 2006 after some years of lobbying by *Leefbaar Rotterdam*. The main reasoning behind the law is that Rotterdam was facing 'extraordinary' problems and that previous efforts to combat issues of poverty and liveability in disadvantaged areas had been unsuccessful due to the constant influx of poor households. According to its supporters, unconventional measures were therefore needed to address this long-standing issue. The initial aim of the Rotterdam Act was to prevent the further concentration of poor households, since the perception was that their high concentration could lead to adverse neighbourhood effects. At a later stage, however, the Rotterdam Law was also interpreted as an instrument to attract more privileged residents (Van Gent et al., 2018).

Even though national policies on housing restructuring were abandoned after 2010 (Musterd & Ostendorf, 2023), Rotterdam has continued to secure national funding to transform the housing supply through the National Program Rotterdam South. This program runs between 2011 and 2031 and includes major investments in housing, education, and work with the goal to improve socioeconomic conditions in Rotterdam South, which is traditionally one of the poorest areas in the Netherlands (Custers et al., 2023). In the Dutch urban policy context, the programme is considered unique due to its long-term scope, multistakeholder collaboration, and governance structure. However, the program is also criticised for its top-down approach (Custers, 2023). It has further been questioned whether the newly-build housing will cater to the socially-mobile residents of Rotterdam (Custers, 2021), as the program aims to do, and so far there is little evidence for the effectiveness of the educational interventions (Custers, 2023; Custers et al., 2023).

The current spatial lay-out of Rotterdam reflects the historical divisions in the city between 1) the poor inner-city working-class neighbourhoods and the more affluent suburbs and 2) between the poor South and more affluent North (Fig. 3). However, some effects of gentrification

Standardised household income levels per neighbourhood in Rotterdam (2020)
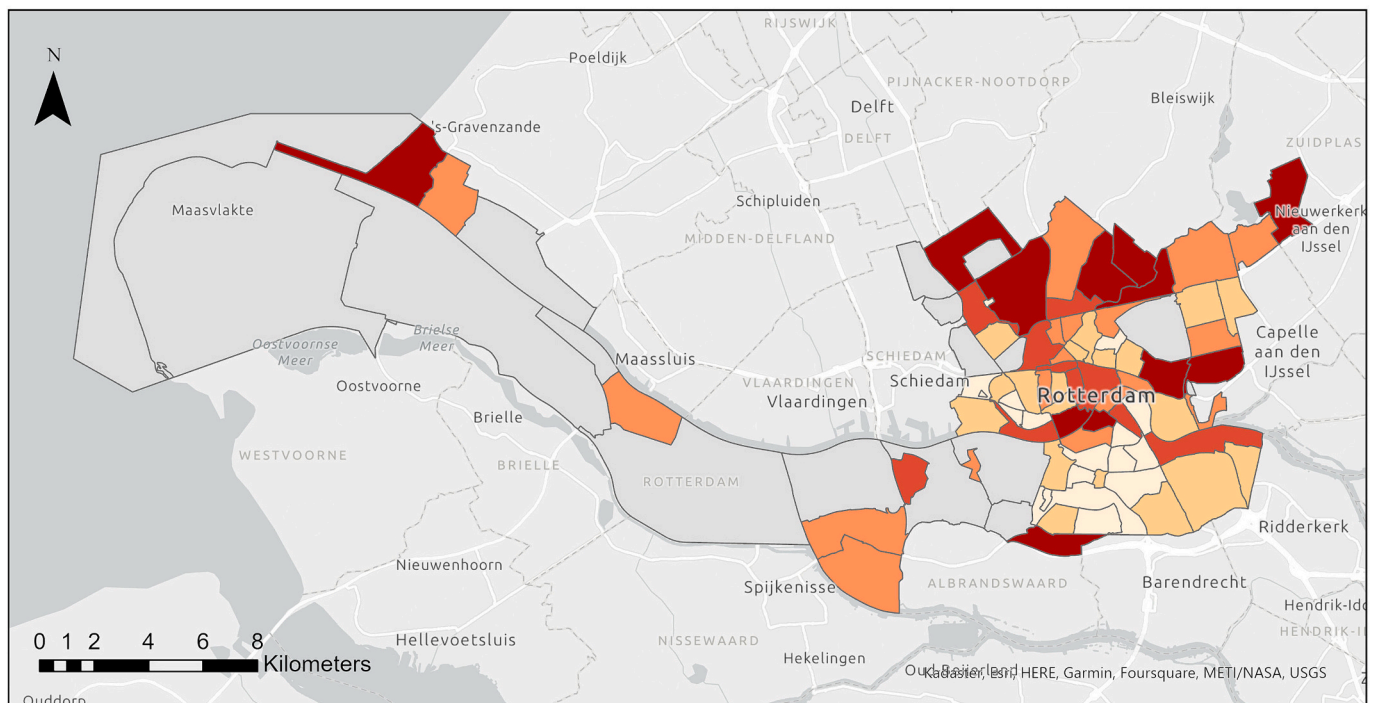
Income groups (x1000; in euros)   Source CBS (2021)

- 21,3 - 24,0
- 24,0 - 27,0
- 27,0 - 30,8
- 30,8 - 36,0
- 36,0 - 53,4
- Unknown

Fig. 3. Standardised household income levels per neighbourhood in Rotterdam (2020).

can be seen in the city's geography. Especially the city centre and its adjacent neighbourhoods are not among the poorest neighbourhoods anymore but are now more socioeconomically mixed.

Gentrification policies in Rotterdam have also been disputed. The Rotterdam Act has been criticised by The European Court and the Netherlands Institute for Human Rights, who have called the Act discriminatory in nature as it mainly targets people with a migration background and also stigmatises the excluded residents ('t Hart, 2022). In addition, the Act merely seems to redistribute people across the city without actually improving liveability in the neighbourhoods where the policy is implemented (Van Gent et al., 2018). The restructuring of working-class neighbourhoods in Rotterdam has further been met by protest in the past (Boonstra & Boelens, 2011). Academics have also been critical about gentrification policies in Rotterdam (e.g., Hochstenbach, 2017; Van den Berg, 2013).

In recent years the general discourse on gentrification in the city seems to be changing. Previously gentrification policy was approached by politicians as a means to uplift Rotterdam's status and provide space for middle-class households. However, with the sharp increase of housing prices and the shortage of affordable rental dwellings, gentrification policies are now being viewed with growing scepticism. The recent restructuring of the working-class neighbourhood Tweebosbuurt has received widespread disapproval. This restructuring operation fuelled a large protest on housing issues that was attended by 7000 protesters in October 2021.

6. Contemporary development 4: planning through large-scale projects

Cities across the world are increasingly competing with each other to attract financial and human capital, a trend referred to as neoliberal urbanism (Peck et al., 2009). Western-European cities have therefore become entrepreneurial, directing investments towards areas that are expected to provide the highest return on investment (Van Loon et al., 2019). In this entrepreneurial mode, both the public and private sector propose new large-scale urban regeneration projects as flagships, so they can keep up with the inter-urban competition (Taşan-Kok, 2010). For instance, London and New York aim to attract new affluent housing and commercial investors through improving the reputation of specific areas. Such flagship projects are typically found in or nearby the city centre at brownfield sites, such as former harbour areas, railway tracks, and waterfronts (Anguelovski et al., 2019). The strategies of older industrial cities, such as Glasgow, Hamburg and Antwerp, are more designed "to bring employment and population back to the city" (Van Loon et al., 2019: 1441). The financing of new public-private partnerships depends on the local institutional context, but local city administrations usually share the aim of raising urban land values and adding urban public goods (Bruns-Berentelg et al., 2022). Previous research has demonstrated that the entrepreneurial strategies by local city administrations predominantly result in wealth creation rather than wealth distribution, since they mainly target (new) urban middle-classes (Doucet et al., 2011).

The city of Rotterdam has followed the trend of similar industrial cities by revitalising the city through large-scale projects, which would combat inner city deprivation, create a new city image, and attract a new urban middle-class (Mak & Stouten, 2014; Taşan-Kok, 2010). Already in 1987, the *Nieuw Rotterdam* report concluded that Rotterdam had to address concerns about the city image (Municipality of Rotterdam, 1987). The new projects were financed by connecting national funds, local public investments, and financialised real estate markets through municipal land banks (Van Loon et al., 2019), such as the Rotterdam Development Corporation. As such, the projects complemented the neighbourhood restructuring discussed before. The urban qualities created by the projects are often directly related to their revenues, thus the extent to which such projects contribute to the city's economic performance (Trip, 2008). For instance, the new marketable image of the city could actively be sold to visitors and companies (Belabas, 2023; Nieuwland & Lavanga, 2020).

For Rotterdam, the case in point that marks the shift towards a post-industrial urban economy is the redevelopment of the former harbour area *Wilhelminapier* on the south banks of the Meuse to create "Manhattan at the Meuse" (Doucet et al., 2011; Fig. 4). In the early 1990s the municipality agreed upon a revitalisation of the waterfront to connect the south banks more with the city centre on the north banks. The revitalisation included not only residential and commercial uses, but also a new bridge (*Erasmusbrug*), a metro station, and a tram line. The local and national government confirmed funding in 1994. The project was executed by a strong central planning agency in Rotterdam, symbolised in the person of designer Riek Bakker (Taşan-Kok, 2010). A coherent public master plan was developed and private investors took up individual projects within the plan. The central agency ensured a high-quality, mixed-use area with a lively waterfront and striking architecture (Noordegraaf & Vermeulen, 2010). National investments were used for infrastructure improvements, such as the Erasmus bridge and the new metro station. The plans were oriented towards attracting higher income groups to balance the large proportion of social housing tenants on Rotterdam's South Banks (Doucet et al., 2011), although in the end approximately 30 % of residential developments became social housing. The project did trigger some local resistance; for example, a social return programme to create jobs for local residents was unsuccessful (Taşan-Kok, 2010). Since the 2010s onwards, areas adjacent to the *Wilhelminapier* have been developed, especially *Katendrecht* and the Kop van Feijenoord, with new high-rent apartment blocks, and cultural and commercial functions (see also Section 3).

For the inner city, the municipality launched in 2008 the 'City Lounge' strategy (Nieuwland & Lavanga, 2020). The modernist city centre looked outdated and had to be upgraded to become more attractive and welcoming (Trip, 2008). The construction of new iconic buildings was an important part of this strategy. To illustrate, the functionalist railway station was torn down and rebuilt into a "new front piece for travellers" in 2014. Other eyecatchers in the city centre – often designed by prestigious architecture companies such as MVRDV and OMA – include the indoor market *De Markthal* and the mixed-use office *De Rotterdam* (Nieuwland & Lavanga, 2020). The newly created "destination marketing organisation", Rotterdam Partners (established in 2014), would actively advertise the city internationally. The appearance of Rotterdam in media outlets such as Lonely Planet (2015) indicate the succes of the projects, promoting Rotterdam as a "top travel destination". This image is further strenghtened by hosting events such as MTV Europe Music Awards (2016), the Eurovision song contest (2021), and the national celebration of King's Day (2023).

Since 2020 onwards, the local city administration looks for new

Fig. 4. Rotterdam's redeveloped Wilhelminapier, with the Erasmus Bridge left (Photograph: Unsplash).

iconic projects outside the city centre to accommodate the growing population. One of these developments is the large-scale project Feyenoord City in Rotterdam South, which encompasses a new football stadium and a new neighbourhood (residential and commercial uses). A new land-use plan for this area was approved by the City Council in 2021, but continues to trigger controversy. After ongoing debates with key actors and threats from hooligans, the football club Feyenoord decided to withdraw from the project and rather renovate the existing stadium. The Dutch court decided in 2022 that the land-use plan therefore would not be valid anymore, putting the city administration's plans for housing on hold.

Finally, the most recent type of iconic projects considered by the city administration are large-scale city parks, in line with the trend of pursuing extraordinary greening to attract capital to the city (Anguelovski et al., 2019). In 2021, the administration launched an initiative to create seven new city parks to improve liveability across the city. For example, former port areas such as *Rijnhaven* and *Maashaven* will be transformed into green parks and recreational areas (Liukku, 2020). Also major transport axes such as *Hofplein* and *Blaak* in the city centre will be converted into green corridors with fewer spaces for cars and new residential and commercial spaces. The execution of two city parks has started, while others are still in the process of securing funding.

7. Contemporary development 5: water-resilient Rotterdam

Urban developments are closely connected to urban water management in Rotterdam. Internationally, a shift in urban water management has taken place from fighting the water towards living with water (Brown & Farrelly, 2009). Instead of a more technical and linear approach, leading cities, such as Singapore, London, and New York, conceive water as a guiding principle in urban development. Rotterdam has also been among the frontrunners (Huck et al., 2021), since the city needed to realise 600,000 m^3 additional retention capacity before 2015, and 900,000 m^3 per 2050 in order to cope with heavy rainfall and high river discharges (Committee Tielrooij, 2000).

The City of Rotterdam explored the connections between water management and urban development in the project 'Rotterdam Water City 2035', part of the International Architecture Biennale Rotterdam in 2005 (De Graaf & Van Der Brugge, 2010). *Rotterdam Water City 2035* included five visions developed by design consultancies to explore "the possibilities to enlarge the enjoyable qualities of the water for all inhabitants of Rotterdam", thus to change the threat of climate change into an asset (De Urbanisten, 2005). The project won several awards and ideas were adopted by policymakers in Rotterdam's second Water Plan (2006), in which water was framed as a main driver for an attractive and economically strong city (Municipality of Rotterdam, 2006). Consequently, the water management approach in Rotterdam follows principles of green urbanism, in which economic growth is paired with environmental conservation (Lehman, 2010). The second water plan (2006) was a co-production of three municipal departments (urban water management, urban planning, and economic development) and the three regional water authorities. The document defined different attractive water environments, such as waterfront revitalisations around the *Nieuwe Maas* river, the *Singels* on the north banks, and large parks such as *Zuiderpark*. Yet, the document also stresses that "improving existing qualities will not be enough" and that there is no space in the densely-built city centre to create water storage. Hence, multi-functional land uses are required, such as green roofs, water squares, and alternative forms of water storage (Municipality of Rotterdam, 2006: 78).

As awareness on impacts of climate change has grown, subsequent plans and projects build on this new orientation. Examples of plans include the Rotterdam Climateproof Programme (2009), the Rotterdam Adaptation Strategy (2013) and the Rotterdam Resilience Initiative (2014). Instances of new large-scale projects are newly created underground water storages next to underground parking garages, for example built in the museum park and at *Kruisplein* (next to the central

railway station) in 2011. The museum park's retention basin can be used as a temporary water storage point during intensive precipitation, collecting 10 million litres of rainwater. Another major project was the *Dakpark* in Rotterdam West (2013), a 1.2 km multi-functional dyke that protects the city from coastal flooding with a shopping centre built in the dyke and a rooftop park on top. The park was co-developed with local communities in order to create more urban green spaces for nearby neighbourhoods. Later on, these projects were complemented with smaller interventions in public space. Most notably, design company De Urbanisten developed a "water square" that combines public space with water storage at *Benthemplein* (2013) (Fig. 5). The square can be used for multiple purposes throughout the year, but in times of heavy rainfall becomes a water storage point. This water square has been replicated in multiple neighbourhoods. Both large-scale and smaller-scale projects demonstrate how water safety improvements can be used as leverage: the need for these measures guarantees financial support, which can be used for broader social and economic objectives.

These public interventions were considered successful by officials and experts, but also relied on substantial European and national financial investments. As a complementary element to the large-scale projects, the Water Sensitive Rotterdam (WSR) initiative was launched by the local government in 2015 to create smaller-scale, water-sensitive urban designs across the city, on both public and private land. WSR was presented as "a movement" to link urban actors with each other to create adaptation measures on the neighbourhood level (Willems et al., 2023). As such, public governments tried to reach out to communities and companies to take measures on their properties, for instance by constructing raingardens and green roofs. WSR is an example of how more responsibilities are increasingly assigned to private parties. Consequently, water managers are developing a new repertoire of legislation, subsidies, and capacity building to change the behaviour of private parties (e.g., individual houseowners, community initiatives, real estate sector).

The latest development in Rotterdam is the WeatherWise initiative started in 2019, after a resolution from the municipal council was approved to develop a "masterplan groundwater". The Rotterdam WeatherWise initiative combines previous water plans and the WSR approach, and was signed by the water authorities, the City of Rotterdam, and the drinking utility Evides, demonstrating that new collaborations within the urban water sector are slowly institutionalising.

Rotterdam has successfully positioned itself as international frontrunner in urban water management and has received multiple recognitions. It has developed a consistent and compelling water narrative and provides continuous financial and institutional support, leading to an institutionalisation of urban resilience practices (Huck et al., 2021). Rotterdam has also been strong in fostering collaborations between different policy domains (in particular water management and urban development), as well as between experts, engineers, and policymakers (Lu & Stead, 2013). Many of the projects described above have become exemplary projects, where both the city administration and consultancies are eager to transfer these to other (international) localities. These examples illustrate how Rotterdam is able to generate business from urban water management (Dunn et al., 2017). Insights have for example been shared with cities such as Antwerp, Singapore, Jakarta, and New York. Similarly, public officials actively participate in international networks to share their knowledge, such as the Resilient Cities Programme and C40 Cities (Spaans & Waterhout, 2017; Huck et al., 2021). Rotterdam's international reputation is reflected in the choice of the UN-affiliated Global Center for Adaptation to choose Rotterdam as its headquarters in 2018.

8. Conclusions and discussion: a capital of cool for whom?

This City Profile aimed to define key trends, themes, and narratives about Rotterdam in the period from the mid-1990s until now. By adopting a multi-disciplinary approach, we presented five key urban

Fig. 5. The multi-functional water square Benthemplein (Photograph: Michiel Brouwer MBDSO).

developments in Rotterdam (i.e., safety, migration, gentrification, large-scale projects, and water management) that are discussed in separate literatures. These developments explain how Rotterdam has transformed from a "sick man" to "a capital of cool". This section integrates these developments and relates them to international debates and concepts.

Our analysis showcases how Rotterdam has responded to the recurring challenges of attracting higher-skilled labourers and addressing deprivation and poverty, while simultaneously securing water safety. Rotterdam has a long history of attracting migrants from inside and outside the Netherlands, and the related struggles are at the root of several port restructurings and urban redevelopment programmes. Current approaches to these themes share an embeddedness in discussions about neoliberal urbanism (Peck et al., 2009; Savini et al., 2016), the repressive turn in safety policy (Garland, 2001; Wacquant, 2009), and water-resilient cities (Dunn et al., 2017; Huck et al., 2021). Although these concepts address very different topics, they intersect in specific ways in the case of Rotterdam. We found on the one hand that neoliberal urbanism and the repressive turn form a particular link through issues of gentrification, migration, and safety (the first axis), while on the other hand the creation of a water-resilient city often goes hand-in-hand with large-scale projects and gentrification (the second axis) (Fig. 6). Both axes will be explained more in-depth below.

Along the first axis we observe that a repressive turn in safety policies is partly intertwined with urban neoliberalism, resulting in the management of urban disadvantage (e.g. Uitermark & Duyvendak, 2008; Van Swaaningen, 2005). Similar to other cities such as Liverpool, Hamburg, Antwerp, and Glasgow, Rotterdam was behind in transitioning to a post-industrial economy while undergoing rapid ethnic diversification (e.g. Sykes et al., 2013; Van der Waal, 2009). In Rotterdam, however, experiences of social decay in combination with widespread uneasiness among the white working class regarding the city's changing
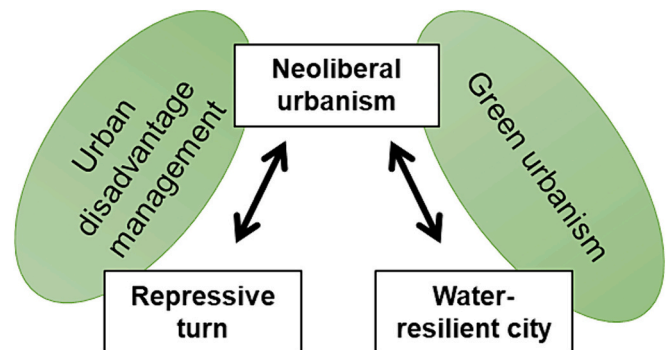

Fig. 6. The key developments in Rotterdam in relation to each other.

ethnic composition led to a political backlash that resulted in the rise of the populist right-wing party *Leefbaar Rotterdam*, which controversially blamed migrants for all kinds of social problems (compare Antwerp, which is considered the stronghold of the Flemish populist-right party *Vlaams Belang*; see Swyngedouw, 2000). A new safety regime was introduced in which repressive and zero-tolerance policies were pursued with a strong emphasis on demonstrating performance (Noordegraaf, 2008; Tops, 2007).

This policy turn, exemplified by the Rotterdam Act, can be interpreted as an attempt to restore social order and national unity with little relation to neoliberal politics (Van Eijk, 2010), but in the same period social mix policies were either continued or intensified in a way to fit a revanchist agenda (Uitermark & Duyvendak, 2008). The gentrification policies serve to exclude 'unwanted' groups (e.g., the unemployed, new migrants) from the city, or certain parts of it, in order to create space for middle-class households and achieve a more 'balanced' class structure

(Custers & Engbersen, 2022; Hochstenbach, 2017; Van Den Berg, 2013). These tactics are also employed in other cities such as Glasgow, for instance in the development of waterfront flagship projects (Doucet et al., 2011). Yet, in Rotterdam there is also a clear ethnic component of exclusion in the governmental gentrification strategy (cf. Shmaryahu-Yeshurun, 2022), an element that was also present in the renewal programmes of the 1970s (De Jong & Verkuyten, 1996). Safety and gentrification policies thus converged towards a common goal, that is, to control and potentially exclude poor groups in which migrants are overrepresented. Although both types of policies have diverging logics to some extent, they are also expressions of how urban disadvantage is managed. This set of policies is a different response than the socio-democratic urban regeneration of the 1970s and 1980s when physical improvements – i.e. better living conditions – were oriented towards resolving housing issues for established residents (Stouten, 2010).

The second axis combines neoliberal urbanism with urban water management improvements, leading to a green growth approach, also seen in cities such as Copenhagen, Oslo and Barcelona. The focus on attracting capital and a highly-skilled labour force underlines the inter-city competition that has been on the rise with neoliberal urbanism (Peck et al., 2009; Taşan-Kok, 2010). Neoliberal urbanism takes shape in Rotterdam with new 'icons' and major housing restructuring, in particular in former port areas. These interventions are complemented with large-scale urban water infrastructures that do not only protect the city, but also enable an attractive and liveable city. They can become valuable amenities, such as an increase in urban green spaces for neighbourhoods lacking such qualities. At the same time, high-profile water structures are used as leverage to generate income and economic development. Put differently, green and blue measures are presented as a "green fix" that will increase the city's competitiveness (Lehmann, 2010; García-Lamarca & Gray, 2021). Examples include waterfront revitalisations (Oslo), greening strategies (Barcelona), and new water-sensitive urban designs of public spaces (Copenhagen, Rotterdam). For instance, the recently announced public parks in Rotterdam are said to contribute to biodiversity, water storage and recreation opportunities, but similarly to more employment and an attractive business climate (Municipality of Rotterdam, 2022b). These green and blue policies boost the city's profile and launch Rotterdam into global city networks (C40 Cities, Resilient Cities Network) (Huck et al., 2021). Consequently, the logics of neoliberal and green forms of urbanism can easily be bridged. More critical accounts – both locally and internationally (Garcia-Lamarca et al., 2021; Nazaruk, 2023) – that warn for the distributive justice implications of this form of urbanism have not yet led to significant policy change in Rotterdam.

Both axes create a Janus-faced city image of Rotterdam, which explains the mixed views on how Rotterdam is functioning (Van Veelen, 2022). The first face, based on the axis of "urban disadvantage management", follows a pragmatic and populist approach regarding safety policies. These policies are often highly politicised, and targeted at specific neighbourhoods and the short-term: to demonstrate results as quickly as possible, resembling a hands-on, zero-tolerance mentality (Noordegraaf, 2008). The second face, based on green urbanism, is largely at odds with the first. It also presents a can-do mentality of ensuring water safety at all costs, but sticks to a highly technocratic and depoliticised approach. This approach takes a long-term perspective (e.g. time horizons of easily up to 100 years) and relies on technical knowledge and expert forecasting of the urban and regional water system. It also adopts an international focus, profiling the city as a front-runner in urban water management. Together, neoliberal urbanism becomes visible through both repressive policies and sustainability fixes at the same time (Fig. 6).

Although the two faces of Rotterdam do not necessarily contradict each other, and are even complementary in some respects, they do raise the question who profits from this strategy to create a cleaner, safer, and more attractive city. Rotterdam has evidently become a better place to live, yet the benefits are not evenly shared. For instance, the safety regime might have led to less crime in some neighbourhoods and improved feelings of security for certain groups (cf. Glas, 2023), but its discriminatory character has also alienated migrant groups from politics and led to serious privacy violations. In addition, the socio-spatial interventions in combination with the city's increasing popularity might lead to segregation and displacement of lower-income residents in the long run. These harmful effects seem limited based on recent research (Uitermark et al., 2023), but the steep increase in housing prices in recent years signals that the city is quickly becoming unaffordable for the people with low income (Custers & Engbersen, 2022).

Comparing these two faces has important theoretical implications. To date, both sides are typically discussed in different bodies of scholarship. If we want to examine the linkages between land-use, security, and marginalisation, future research needs to consider the interrelationships between 'urban disadvantage management' and 'green urbanism' that can be witnessed in post-industrial cities. This will create a better understanding of how urban disadvantage management and green urbanism increase existing injustices (building on each other) or redistribute injustices (contradicting each other). To illustrate, water safety improvements through new green infrastructures may become "locally unwanted land-uses", as they could attract higher income groups and displace lower-income groups (Anguelovski et al., 2019). Similarly, Rotterdam's water safety discourse is increasingly shifting responsibilities to civic and private parties (Willems et al., 2023). Although it can be fruitful to include civic groups in climate adaptation, it can also be perceived as a burden for marginalised groups who already face adverse consequences of repressive and gentrification policies. Such groups might be less inclined to participate in such initiatives, thereby creating new divisions in who gets to make the city. Future research could thus examine whether green urbanism has the risk of becoming a new form of revanchism in which the city is reconquered to facilitate green development that benefits middle classes (cf. Anguelovski et al., 2019).

In conclusion, we observe that Rotterdam has undergone significant transformation since the mid-1990s. Global trends and drivers materialise in Rotterdam, and its unique character derives from how these processes blend. This can, for instance, be seen in how populist, neoliberal, and technocratic policies become intertwined, creating new responses to the returning themes of the urban port economy, social stratification, and water safety. Whereas the city was considered a "sick man" before, Rotterdam is now increasingly viewed as an attractive city ("capital of the cool"). To arrive at this image of the "cool", we explicated how the city has followed a repressive approach, seen in the populist and pragmatic management of disadvantaged areas. At the same time, the water-related investments and major urban regeneration have aimed to contribute to a 'liveable' and 'attractive' city. These two sides of the Janus face sometimes complement each other – for instance in stimulating gentrification – but can also operate relatively autonomous. Ultimately, the transformation of Rotterdam has led to new divisions in the city (Custers, 2021). Contemporary Rotterdam has much to offer for its affluent residents. However, marginalised groups face discrimination and stigmatisation because of the repressive safety policies and these groups are increasingly excluded as a result of gentrification. The key question that follows from this analysis, we argue, is for whom the capital of cool is intended.

CRediT authorship contribution statement

Gijs Custers: Visualization, Investigation, Formal analysis, Conceptualization, Writing – original draft, Writing – review & editing. **Jannes J. Willems:** Conceptualization, Formal analysis, Investigation, Visualization, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial

interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Acknowledgements

References

Anguelovski, I., Connolly, J. J., García-Lamarca, M., Cole, H., & Pearsall, H. (2019). New scholarly pathways on green gentrification: What does the urban 'green turn' mean and where is it going? *Progress in Human Geography, 43*(6), 1064–1086.

Belabas, W. (2023). Glamour or sham? Residents' perceptions of city branding in a superdiverse city: The case of Rotterdam. *Cities, 137*, Article 104323.

Boonstra, B., & Boelens, L. (2011). Self-organization in urban development: Towards a new perspective on spatial planning. *Urban Research & Practice, 4*(2), 99–122.

Bosman, R., Loorbach, D., Rotmans, J., & Van Raak, R. (2018). Carbon lock-out: Leading the fossil port of Rotterdam into transition. *Sustainability, 10*(7), 2558.

Bouman, P. J., & Bouman, W. H. (1952). *De groei van de grote werkstad. Een studie over de bevolking van Rotterdam*. Assen: Van Gorcum.

Boutellier, H., Van Steden, R., Eski, Y., & Boelens, M. (2020). Een einde aan ondermijning. *Tijdschrift voor veiligheid, 19*(1), 3.

Brown, R. R., & Farrelly, M. A. (2009). Delivering sustainable urban water management: A review of the hurdles we face. *Water Science and Technology, 59*(5), 839–846.

Bruns-Berentelg, J., Noring, L., & Grydehøj, A. (2022). Developing urban growth and urban quality: Entrepreneurial governance and urban redevelopment projects in Copenhagen and Hamburg. *Urban Studies, 59*(1), 161–177.

Burgers, J., & Kloosterman, R. (1996). Dutch comfort: Postindustrial transition and social exclusion in Spangen, Rotterdam. *Area, 28*(4), 433–445.

Burgers, J., & Musterd, S. (2002). Understanding urban inequality: A model based on existing theories and an empirical illustration. *International Journal of Urban and Regional Research, 26*(2), 403–413.

CBS Statline. (2023). Population register. Retrieved from http://www.statline.cbs.nl.

Clark, E. (2005). The order and simplicity of gentrification: A political challenge. In R. Atkinson, & G. Bridge (Eds.), *Gentrification in a global context: The new urban colonialism* (pp. 261–269). Routledge.

Commission Tielrooij. (2000). *Waterbeleid voor de 21e eeuw: Geef water de ruimte en de aandacht die het verdient. Advies van de Commissie Waterbeheer 21e eeuw*. The Hague: Ministry of Transport, Public Works and Water Management.

Crul, M. (2016). Super-diversity vs. assimilation: How complex diversity in majority–minority cities challenges the assumptions of assimilation. *Journal of Ethnic and Migration Studies, 42*(1), 54–68.

Custers, G. (2021). *The new divided city: Class transformation, civic participation and neighbourhood context*. Rotterdam: Erasmus University Rotterdam.

Custers, G. (2023). Does extending the school week lead to higher track recommendations? A quasi-experimental study on the effectiveness of an extended school week in 30 primary schools. SocArXiv. https://osf.io/preprints/socarxiv/gc357.

Custers, G., Das, M., & Engbersen, G. (2023). Change or stability in educational inequalities? Educational mobility and school effects in the context of a major urban policy. *Urban Studies, 60*(14), 2852–2873.

Custers, G., & Engbersen, G. (2022). The urban class structure: Class change and spatial divisions from a multidimensional class perspective. *Urban Geography, 43*(6), 917–943.

De Graaf, R., & Van Der Brugge, R. (2010). Transforming water infrastructure by linking water management and urban renewal in Rotterdam. *Technological Forecasting and Social Change, 77*(8), 1282–1291.

De Jong, W., & Verkuyten, M. (1996). Urban renewal, housing policy and ethnic relations in Rotterdam. *Journal of Ethnic and Migration Studies, 22*(4), 689–705.

de Klerk, L., & Van der Wouden, R. (2021). *Ruimtelijke ordening: geschiedenis van de stedelijke en regionale planning in Nederland 1200-nu. nai010, Rotterdam*.

De Urbanisten. (2005). *Watercity 2035, Rotterdam*. De Urbanisten, Rotterdam: The Netherlands.

Dimitriou, H. T., Low, N., Sturup, S., Zembri, G., Campagnac, E., Kaparos, G., ... Dimitriou, H. T. (2014). What constitutes a "successful" mega transport project?/ leadership, risk and storylines: The case of the Sydney Cross City tunnel/The case of the LGV Méditerranée high speed railway line/dealing with context and uncertainty in the development of the Athens Metro Base project/what constitutes a "successful" mega transport project? Lessons from the metropolitan expressway in Tokyo/The RandstadRail project: A case study in decision-making strategies under uncertainty/ constructive conflicts in the case of …. *Planning Theory & Practice, 15*(3), 389–430.

Doucet, B., Van Kempen, R., & Van Weesep, J. (2011). 'We're a rich city with poor people': Municipal strategies of new-build gentrification in Rotterdam and Glasgow. *Environment and Planning A, 43*(6), 1438–1454.

Dunn, G., Brown, R. R., Bos, J. J., & Bakker, K. (2017). The role of science-policy interface in sustainable urban water transitions: Lessons from Rotterdam. *Environmental Science & Policy, 73*, 71–79.

Engbersen, G., Snel, E., & De Boom, J. (2010). A van full of Poles': Liquid migration from central and Eastern Europe. In R. Black, G. Engbersen, M. Okolski, & C. Pantiru (Eds.), *A continent moving west* (pp. 115–140). Amsterdam University Press.

Garcia-Lamarca, M., Anguelovski, I., Cole, H., Connolly, J. J., Argüelles, L., Baró, F., ... Shokry, G. (2021). Urban green boosterism and city affordability: For whom is the 'branded' green city? *Urban Studies, 58*(1), 90–112.

García-Lamarca, M., & Gray, N. (2021). Land remediation in Glasgow's East End: A "sustainability fix" for whose benefit?. Chapter 7. In I. Anguelovski, & J. J. Connolly (Eds.), *The Green City and Social Injustice* (pp. 100–110). Routledge.

Garland, D. (2001). *The culture of control: Crime and social order in contemporary society*. University of Chicago Press.

Glas, I. (2023). Crime is down and so is fear? Analyzing resident perceptions of neighborhood unsafety in Rotterdam, the Netherlands. *European Journal on Criminal Policy and Research, 29*(1), 27–49.

Heijman, W., Gardebroek, C., & Van Os, W. (2017). The impact of world trade on the port of Rotterdam and the wider region of Rotterdam-Rijnmond. *Case studies on transport policy, 5*(2), 351–354.

Hein, C., & Van de Laar, P. T. (2020). The separation of ports from cities: The case of Rotterdam. *European port cities in transition: Moving towards more sustainable sea transport hubs*, 265–286.

Hochstenbach, C. (2017). *Inequality in the gentrifying European city*. University of Amsterdam.

Huck, A., Monstadt, J., Driessen, P. P., & Rudolph-Cleff, A. (2021). Towards resilient Rotterdam? Key conditions for a networked approach to managing urban infrastructure risks. *Journal of contingencies and crisis management, 29*(1), 12–22.

Kloosterman, R. C. (1996). Double Dutch: Polarization trends in Amsterdam and Rotterdam after 1980. *Regional Studies, 30*(5), 467–476.

Lehmann. (2010). *The principles of Green urbanism: Transforming the city for sustainability*. London: Routledge.

Liukku, A. (2020). Rotterdam wacht groene metamorfose: 233 miljoen voor zeven grote projecten. In *Algemeen Dagblad: Rotterdams Dagblad. 17-06-2020*.

Lu, P., & Stead, D. (2013). Understanding the notion of resilience in spatial planning: A case study of Rotterdam, The Netherlands. *Cities, 35*, 200–212.

Mak, A., & Stouten, P. (2014). Urban regeneration in Rotterdam: Economic and social values. *European Spatial Research and Policy, 21*(1).

Mandias, S., & Liukku, E. (2016). *Help, we zijn populair! Rotterdam stad in verandering. nai010, Rotterdam*.

Merk, O., & Notteboom, T. (2013). *The competitiveness of global port-cities: The case of Rotterdam/Amsterdam, the Netherlands*. Paris: OECD.

Municipality of Rotterdam. (1987). *Nieuw Rotterdam: Een opdracht voor alle Rotterdammers*. Rotterdam: Adviescommissie Sociaal-Economische Vernieuwing.

Municipality of Rotterdam. (2006). *Waterplan 2: Werken aan water voor een aantrekkelijke stad*. Rotterdam: Municipality of Rotterdam.

Municipality of Rotterdam. (2019). *Relax. Dit is Rotterdam. Municipality of Rotterdam, Rotterdam*.

Municipality of Rotterdam. (2022a). *Koloniaal Rotterdam, Stad van vandaag en morgen. Municipality of Rotterdam, Rotterdam*.

Municipality of Rotterdam. (2022b). *Resilient Rotterdam Strategy 2022-2027: From risk to resilience*. Rotterdam: Municipality of Rotterdam.

Musterd, S., & Ostendorf, W. (2023). Urban renewal policies in the Netherlands in an era of changing welfare regimes. *Urban Research & Practice, 16*(1), 92–108.

Nazaruk, Z. (2023). Groene gentrificatie: wat een nieuw park doet met de vastgoedprijs in de buurt. Vers Beton, February 2 2023. Available via https://www.versbeton.nl/2023/02/groene-gentrificatie-wat-een-nieuw-park-doet-met-de-vastgoedprijs-in-de-buurt/#comments [last accessed October 3 2023].

Nieuwland, S., & Lavanga, M. (2020). The consequences of being 'the Capital of Cool'. Creative entrepreneurs and the sustainable development of creative tourism in the urban context of Rotterdam. *Journal of Sustainable Tourism, 29*(6), 926–943.

Noordegraaf, M. (2008). Meanings of measurement: The real story behind the Rotterdam safety index. *Public Management Review, 10*(2), 221–239.

Noordegraaf, M., & Vermeulen, J. (2010). Culture in action: The 'Rotterdam approach's modernization through tradition. *Public Administration, 88*(2), 513–527.

Ouwehand, A., & Doff, W. (2013). Who is afraid of a changing population? Reflections on housing policy in Rotterdam. In *, 33(1). Geography Research Forum* (pp. 111–146).

Peck, J., Theodore, N., & Brenner, N. (2009). Neoliberal urbanism. *The SAIS Review of International Affairs, 29*(1), 49–66.

Roks, R., Bisschop, L., & Staring, R. (2021). Getting a foot in the door. Spaces of cocaine trafficking in the port of Rotterdam. *Trends in Organized Crime, 24*, 171–188.

Savini, F., Boterman, W. R., Van Gent, W. P., & Majoor, S. (2016). Amsterdam in the 21st century: Geography, housing, spatial development and politics. *Cities, 52*, 103–113.

Scholten, P., Crul, M., & Van de Laar, P. (2019). *Coming to terms with superdiversity: The case of Rotterdam*. Springer Nature.

Shmaryahu-Yeshurun, Y. (2022). Retheorizing state-led gentrification and minority displacement in the global south-East. *Cities, 130*, Article 103881.

Smith, N. (2005). *The new urban frontier: Gentrification and the revanchist city*. Routledge.

Snel, E., & Engbersen, G. (2009). Social reconquest as a new policy paradigm: Changing urban policies in the city of Rotterdam. In K. De Boyser, C. Dewilde, D. Dierckx, & J. Friedrich (Eds.), *Between the social and the spatial: Exploring the multiple dimensions of poverty and social exclusion* (pp. 149–166). Ashgate.

Spaans, M., & Waterhout, B. (2017). Building up resilience in cities worldwide–Rotterdam as participant in the 100 resilient cities Programme. *Cities, 61*, 109–116.

Stouten, P. L. (2010). *Changing contexts in urban regeneration: 30 years of modernisation in Rotterdam*. Techne Press.

Swyngedouw, M. (2000). Belgium: Explaining the relationship between Vlaams Blok and the city of Antwerp. In P. Hainsworth (Ed.), *The politics of the extreme right: From the margins to the mainstream* (pp. 121–143). Pinter.

Sykes, O., Brown, J., Cocks, M., Shaw, D., & Couch, C. (2013). A city profile of Liverpool. *Cities, 35*, 299–318.

't Hart, H. (2022). De verspreiding van de Rotterdamwet in de regio Rijnmond: een analyse van diffusiemechanismen. *Tijdschrift Sociologie, 3*, 399–433.

Taşan-Kok, T. (2010). Entrepreneurial governance: Challenges of large-scale property-led urban regeneration projects. *Tijdschrift voor Economische en Sociale Geografie, 101*(2), 126–149.

Tops, P. W. (2007). *Regimeverandering in Rotterdam*. Atlas: Hoe een stadsbestuur zichzelf opnieuw uitvond.

Trip, J. J. (2008). Urban quality in high-speed train station area redevelopment: The cases of Amsterdam Zuidas and Rotterdam Centraal. *Planning, Practice & Research, 23*(3), 383–401.

Uitermark, J., & Duyvendak, J. W. (2008). Civilising the city: Populism and revanchist urbanism in Rotterdam. *Urban Studies, 45*(7), 1485–1503.

Uitermark, J., Duyvendak, J. W., & Kleinhans, R. (2007). Gentrification as a governmental strategy: Social control and social cohesion in Hoogvliet, Rotterdam. *Environment and Planning A, 39*(1), 125–141.

Uitermark, J., Hochstenbach, C., & Groot, J. (2023). Neoliberalization and urban redevelopment: The impact of public policy on multiple dimensions of spatial inequality. *Urban Geography*, 1–24.

Van de Laar, P., & Van der Schoor, A. (2019). Rotterdam's superdiversity from a historical perspective (1600–1980). In P. Scholten, M. Crul, & P. Van de Laar (Eds.), *Coming to terms with superdiversity: The case of Rotterdam* (pp. 21–56). Springer Nature.

Van Den Berg, M. (2013). City children and genderfied neighbourhoods: The new generation as urban regeneration strategy. *International Journal of Urban and Regional Research, 37*(2), 523–536.

Van den Berghe, K. B., & Daamen, T. A. (2020). From planning the port/city to planning the port-city: Exploring the economic interface in European port cities. In A. Carpenter, & R. Lozana (Eds.), *European port cities in transition: Moving towards more Sustainable Sea transport hubs* (pp. 89–108). Springer.

Van der Waal, J. (2009). De invloed van immigratie op de lonen in Amsterdam en Rotterdam. *Sociologie*, 1–42.

Van Eijk, G. (2010). Exclusionary policies are not just about the 'neoliberal city': A critique of theories of urban revanchism and the case of Rotterdam. *International Journal of Urban and Regional Research, 34*(4), 820–834.

Van Gent, W., Hochstenbach, C., & Uitermark, J. (2018). Exclusion as urban policy: The Dutch 'Act on extraordinary measures for urban problems.' Urban Studies, 55(11), 2337–2353.

Van Loon, J., Oosterlynck, S., & Aalbers, M. B. (2019). Governing urban development in the Low Countries: From managerialism to entrepreneurialism and financialization. *European Urban and Regional Studies, 26*(4), 400–418.

Van Ostaaijen, J. J. C. (2019). Local politics, populism and Pim Fortuyn in Rotterdam. In P. Scholten, M. Crul, & P. Van de Laar (Eds.), *Coming to terms with superdiversity: The case of Rotterdam* (pp. 87–106). Springer Nature.

Van Swaaningen, R. (2005). Public safety and the management of fear. *Theoretical Criminology, 9*(3), 289–305.

Van Swaaningen, R. (2013). Reversing the punitive turn: The case of the Netherlands. In T. Dames, D. Van Zyl Smit, & S. Snacken (Eds.), *European Penology?* (pp. 339–360). Hart Publishing.

Van Veelen, A. (2022). *Rotterdam: een ode aan inefficiëntie. De Correspondent*.

Vertovec, S. (2007). Super-diversity and its implications. *Ethnic and racial studies, 30*(6), 1024–1054.

Wacquant, L. (2009). *Punishing the poor: The neoliberal government of social insecurity*. Duke University Press.

Wessendorf, S. (2014). 'Being open, but sometimes closed'. Conviviality in a super-diverse London neighbourhood. *European Journal of Cultural Studies, 17*(4), 392–405.

Willems, J. J., Van Popering-Verkerk, J., & Van Eck, L. (2023). How boundary objects facilitate local climate adaptation networks: The cases of Amsterdam Rainproof and Water Sensitive Rotterdam. *Journal of Environmental Planning and Management, 66*(7), 1513–1532.