

The Netherlands Spatial Development for Port Area in City-Region

Focusing on the Case of Kop van Zuid in Rotterdam

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Abstract The Netherlands is a human-made country and an extremely well-designed European country as well. The general Dutch spatial planning for the city and environment takes place at a regional level. The local community determines the primary development conditions, and the prospect is included in a legally binding land-use plan. Especially, Rotterdam is a representative port city as the center of world trade and the gateway to western Europe. According to the history of war, the city reconstruction and the movement of the port area have led to a general change in Rotterdam and the regional redevelopment project on the southern port area of Mass river for the expansion of city functions and the balanced development. The research purpose is to understand the spatial development of the Netherlands city-region based on the analysis regarding the Kop van Zuid project, which is a representative implemented case in Rotterdam. The theoretical framework is the five dimensions and twelve indicators of territorial governance from the TANGO research project by the EU. The target case is assessed by planning and social aspect, respectively, and the results are discussed based on the theoretical framework. This research has the possibility to be utilized as advanced research by the European perspective for spatial development in other city-regions with the port area, such as Incheon and Busan in Korea.

Keywords: spatial development, city-region, port area, Kop van Zuid

1. INTRODUCTION

(1) Background

The Dutch planning system is typical for how the administrative system generally works in the Netherlands. This can be described by two kinds of concepts, the first of which has grown historically and the second culturally. The first concept is the house of Thorebecke, which explains the administrative-territorial municipalities (Buitelaar et al., 2007). The second concept is the Polder model, and it explains the culture of making policy in the Netherlands. In the context of spatial

planning, the polderen can be translated as finding a consensus between different stakeholders, and therefore, it represents an integrative approach to spatial planning (De Vries, 2014).

Nowadays, there are twelve provinces and three hundred and eighty municipalities in the Netherlands, the number of which has fallen steadily in recent years as a result of mergers (Palstra & Steenbergen, 2018). According to the Ministry of Infrastructure and the Environment of the Netherlands, in 2008, there had been a reform of the Dutch planning system with the aim to bring spatial planning decision-making closer to the stakeholders of individuals and companies. Furthermore, it contains that superfluous bureaucracy should be reduced, and more freedom of decision should be given to the municipalities. Previously there were various plans in the Dutch spatial planning system at the provincial and municipal level, whereas now there are only structural visions and also fewer state requirements for municipalities, for example, regulations on the ratio of built-up land in their inner-city area. Still, the national government can overrule municipalities and provinces are in charge of the balance between urban and green space development. However, all the municipalities have clearly gained responsibility and freedom of decision with the aim

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of developing more adapted urban planning approaches on a smaller scale (Schultz van Haegen, 2011).

(2) Research Aim and Methods

This research aims to understand the Netherlands spatial planning system based on the theoretical framework by analyzing the implementation case for the spatial development of a Dutch city-region. For the research aim, literature review and case study are conducted focusing on the target city and project are Rotterdam and Kop van Zuid which are the representative city-region and national policy development project of the Netherlands. Rotterdam, a large commercial city in Europe, sought to understand the port industry and urban transformation process from the historical perspective, moreover derived the movement of regional redevelopment. Notably, in the case of Kop van Zuid, studied the regional direction for urban development and territorial governance by analyzing in planning and social aspect, respectively. Moreover, it is assessed by the theoretical framework based on TANGO(Territorial Approaches to New Governance) approach (Figure 1).

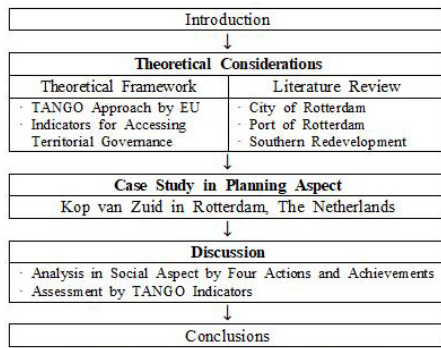


Figure 1. Research methods and procedure

(3) Theoretical Framework

The TANGO approach by the EU(European Union) is considered as a theoretical framework for this research, which finally allows creating a reasoned assessment of territorial governance within the development of Kop van Zuid. The TANGO project asserts that territorial governance and matters in order to achieve specific territorial development goals and, in doing so, to strive towards the EU’s objective of territorial cohesion (Schmitt, 2013).

2. TANGO APPROACH

According to Schmitt (2014), there is no single and generally accepted definition for the concept of territorial governance. Rather, the variation in meaning depends on the features that are in focus. With its proactive aims and European scope, the TANGO project defines territorial governance as the formulation and implementation of public policies, programs, and projects for the development of a place or territory by

five dimensions. Furthermore, to explain the dimensions for territorial governance, the TANGO project suggests a total of twelve indicators for accessing the performance by each dimension (Table 1). This chapter summarizes what is the meaning of each indicator based on the research by Schmitt (2014), and prepares the theoretical framework toward the discussion regarding the target case of Kop van Zuid in Rotterdam.

Table 1. TANGO indicators for accessing territorial governance from the research by Schmitt (2014; p.61)

Dimension	Indicator
1. Coordinating actions of actors and institutions	1.1 Governing capacity
	1.2 Leadership
	1.3 Subsidiarity
2. Integrating policy sectors	2.1 Public policy packaging
	2.2 Cross-sector synergy
3. Mobilizing stakeholder participation	3.1 Democratic legitimacy
	3.2 Public accountability
	3.3 Transparency
4. Being adaptive to changing contexts	4.1 Reflexivity
	4.2 Adaptability
5. Realizing place-based or territorial specificities and impacts	5.1 Territorial relationality
	5.2 Territorial knowledgeability

Public policy packaging means primarily ensuring that local, national, and international laws and guidelines do not stand in each other way. Plus, the framework conditions at each level through various funding programs are optimally used to achieve the objective. Through cross-sector synergy, all sectors of public, private and civil society should be used as far as possible in such a way that they interact optimally for the area concerned.

The third dimension comprises democratic legitimacy, which can be made possible by representative or participatory democracy. Public accountability means that decisions must be liable and traceable for the public. And transparency is that decisions, progress, and actors involved are publicly comprehensible.

The fourth dimension includes reflexivity as social learning about new information, opportunities, or threats that emerge in the planning or implementation process. Adaptability is the opportunity to respond to change with flexibility or resilience.

Realizing place-based or territorial specificities and impacts contain the local knowledge about an area and consist of territorial relationality which means that an area must always be understood as a social construct where local actors can bring in their concerns. Territorial knowledgeability and impacts are

considering of prominent local and historical knowledge about an area which is essential to understand the inhabitants and cultural backgrounds.

Comprehensively, the TANGO project is one of European perspective approach which has had the opportunity to engage in the how and why questions with regard to territorial governance (Ibid.). Thus this research considers the project and its indicators as the theoretical framework for the assessment process in the European perspective.

3. ROTTERDAM AND PORT AREA

(1) City of Rotterdam

Rotterdam is the second-largest city with 0.6 million inhabitants in the Netherlands, after the capital, Amsterdam, and it makes a part of the southern ring of the Randstad (Ring City) with the Hague. Rotterdam is in the center of a travel-to-work area for 1.4 million inhabitants, which is called the Greater Rijnmond (Cadell et al., 2008). In particular, one of the world-main cities for trading and logistics industry plays a role as a gateway to western Europe due to the combined development of various industrial functions. It is the largest port city in Europe and called as the metropolis on the water where the logistics hub and diverse cultures coexist. Rotterdam is on the phase of redefining the relationship between the port area and city for the future. As the port facilities, which were located in the center of the city, move to the area facing the North sea, regional reorganization is on the proceed.

(2) Port of Rotterdam

Especially redevelopment of the port was not a mere reconstruction project. It was redeveloped in focusing on a rapidly growing industry, such as the petrochemical business, and built in the form of new complexes to accommodate the large container market. Since the 1950s, the port of Rotterdam has developed in Botlek and Europoort. Currently, Botlek-Europoort port is one of the significant chemical complexes in Europe. This development was the result of economic logic. The larger and modernized areas, the accessibility to the North sea, and all the negative effects of port facilities on the residential environment demanded a geographical separation between city and port area in Rotterdam (Aarts et al., 2012). Also, as the city reconstruction project after the war proceeded actively in Rotterdam, the industrial workforce rapidly increased. As a result, in the 1970s, the existing residential areas reached a stage where the population could not be accommodated, and the city of Rotterdam planned to redevelop the city. Redevelopment of the southern port area of the Maas river, which had been hollowed out due to the development of the new port area in the western Europoort, was one of three regional development projects that the Dutch government had pursued (Choe, 2007).

(3) Redevelopment of Southern Port Area

Rotterdam redevelopment project for the southern port area

of the Maas river was promoted to expand the functionality and balanced developmental conditions of the city (Figure 2). The fact that Rotterdam became prosperous as a trading port actually stated with the construction of its railway and the Maas bridge in the late 19th century. After the bridge connecting the port and the city was constructed, the northern coastal area of the Maas river with central station flourished. Still, the southern coastal area was relatively declined. Especially, as the port facilities moved to the Europoort area after the war, the southern area had fallen into abandoned land with lost industrial function (Aarts et al., 2012). On the other hand, the northern area of downtown reached severe saturation as Rotterdam had overgrown, citizen began to consider the southern area as an alternative to addressing the social problems of urban overcrowding. There were small-scale projects related to social housing complexes, but the almost residential districts were slumped after a few years. As a result, the public demand that various infrastructure for the port area which had already been hollowed up, and the comprehensive plan was established for the purpose of regional revitalization. The launch of the EU in 1994 with the Maastricht Treaty was also a momentous occasion for the redevelopment of the southern port area. After the integration of Europe, Rotterdam, which served as the European maritime gateway, was expected to increase the demand for new business districts with housings, and the city had to be prepared for the European situation (Choe, 2007).




Figure 2. Port of Rotterdam before and after redevelopment project from the research by Thoele, et al. (2013; p.52)

4. KOP VAN ZUID

The redevelopment plan for southern port area of the Maas river was announced publicly in 1978, and the Wilhelm district, which was a warehouse area of the existing port, was designated as a residential development area in 1982. In 1991, the city council of Rotterdam approved the Kop van Zuid as a city redevelopment project in the meaning of the southern headland. In 1992, the construction of major infrastructure including roads and railways was confirmed, and the campaign of new Rotterdam was set up in 1994. In 1996, the Erasmus bridge was built and represented new urban renewal, providing the whole area of the city with a better connection (Thoele, 2013). The specific key figures of the Kop van Zuid are summarized in Table 2.

Table 2. Key figures of Kop van Zuid

Key figures	Contents
Districts	
Area	
Work	<ul style="list-style-type: none"> · A total area of 125 hectares
Housing	<ul style="list-style-type: none"> · 40 hectares of office area · 18,000 workplaces
Education	<ul style="list-style-type: none"> · 5,300 dwellings · 15,000 inhabitants
	<ul style="list-style-type: none"> · 2 colleges · 10,000 students

Before the Kop van Zuid, the Maas river had been seen as a barrier, and the southern port area beyond it was one of the most repelling parts of the city. However, if it were to continue to prosper and grow, Rotterdam would need a more substantial city center and areas with the quality and excitement to attract the types of people who drive the knowledge economy. Furthermore, despite previous housing renovation programs, there were parts of the southern port area where high unemployment and social exclusion needed to be tackled (Cadell et al., 2006). Cadell et al. (2006) and Ungureanu (2010) mention that the Kop van Zuid had five schemes as below:

1. Linking Kop van Zuid, and the suburbs to the south of it, directly to the city center
2. Creating a lively and attractive mixed-use district
3. Insisting on the high-quality design in all buildings and throughout the public realm
4. Re-using existing landmark buildings wherever possible
5. Developing a program of 'Mutual benefit' to ensure that residents of poor areas alongside Kop van Zuid benefited from the scheme

Based on the five schemes and advanced research by Cadell et al. (2006), this chapter focuses on four actions and achievements, which are 'Reuniting divided city', 'Changing city image', 'Repositioning city', and 'Spreading benefits', in order to understand the project Kop van Zuid clearly and analyzes them in each aspect of physical planning.

(1) Reuniting Divided City

The project Kop van Zuid focused on reestablishing a good connection from the northern to the southern side of Rotterdam (Table 3). The existing train line was placed in a tunnel to

eliminate noise pollution, removing the barrier in the direction of east-west. The readjustment of the urban network was aimed at improving accessibility with the northern downtown of Rotterdam through the high-speed motorway over the railway and setting up a new metro station to bring in the population of the city center actively. Currently, the maintenance of the transportation network and infrastructure has been completed, and the Tramplus, a newly constructed tram line, connects the entire area of the Kop van Zuid (Figure 3). The new metro station Wilhelminaplein allows access to the central station of Rotterdam within 10 minutes. The plans for improvement of the connectivity at the city level post several proposals. One of these plans introduces the idea of the development of a new metro line that would make the connection of west-south-east in Rotterdam. This new line would bring many advantages again in the southern part of the city, by increasing its public transport accessibility and creating an integrated public transport network that connects all part of the city. The highest advance of this development would be brought in the location of the future stations of the new metro line, Stadshave, Zuilplein, and

Table 3. Key figures of reuniting divided city

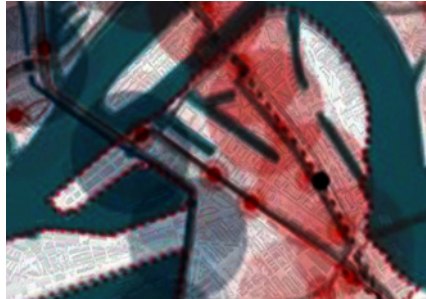
Key figures	Contents
Accessibility	 <ol style="list-style-type: none"> 1. Existing network of train and road : Black color 2. Cover area by metro network : Blue color 3. Cover area by tram network : Red color
Erasmus bridge	<ul style="list-style-type: none"> · Constructed in 1996 · Designed by UN Studio, Rotterdam · Total length of 802 meters · 4 lanes, 2 tramway tracks · 2 cycle tracks, and 2 sidewalks
Tramplus	<ul style="list-style-type: none"> · Tram line 23 · Every 5 minutes in frequency · 11 minutes from the Rotterdam central station to the Kop van Zuid



Figure 3. Erasmus bridge and Tramplus from the research by Cadell, et al. (2008; p.4)

Feijenoord stadium. The aim is that this metro line will be ready in 2028, together with the emergence of the Stadionpark area (Ungureanu, 2010).

(2) Changing City Image

Changing the city image as a cultural and commercial hub on behalf of the existing abandoned port facilities means not only the development of the Kop van Zuid but also the role of improving the surrounding residential area and the downtown of Rotterdam. In order to strengthen the status as an international city, Rotterdam was considering in depth the balanced development in the whole region (Choe, 2007). Uniquely, many of the unique buildings were designed by world-leading architects such as the World Port Center by Foster, N.(1935-), the Telecom Headquarters by Piano, R.(1937-), and De Rotterdam by Koolhaas, R.(1944-) of OMA, which is the Office for Metropolitan Architecture (Table 4).

The historical buildings in the area have been restored and re-used. For example, the former Holland America line terminal converted into the atmospheric Hotel New York, and the oldest dock in the area turned into an industrial museum. The Entrepot building became a supermarket and a series of restaurants with foods from around the world, to retain some of its previous characteristics (Cadell et al., 2006). The scheme has succeeded in changing the image of the city and in attracting private investment in high-quality housing.

In sum, Rotterdam is continuously changing the city image centered on the Maas river according to the trend of an era through the waterfront redevelopment program, which includes

the Kop van Zuid. It is based on a sophisticated understanding of local characteristics, including existing port areas and contains the development process through the active utilization of historical and industrial properties. As a result, the barrier between the northern and southern side of Rotterdam has been gradually disappeared as the Maas river fully integrated into the urban structure of the city center.

(3) Repositioning City

The redevelopment of the Kop van Zuid has resulted in the re-establishment of regional role and meaning of the area in a whole of Rotterdam in urban perspective. Above all, the mixed-use characteristics of coexistence of high-quality housing and business environment have increased the local value of the Kop van Zuid. These results have become the driving force for large numbers of population inflows and beneficial jobs to settle with new housing districts such as the Landtong and the Stadstuinen (Table 5). Notably, many older industrial cities like Rotterdam have experienced a population loss in recent decades, which means losing a large number of well-educated, affluent labors who are responsible for city productivity.

Rotterdam actively has supplied middle-class housing to the Kop van Zuid in preparation for the social issue, enabling continuous urban growth. The goal was to strengthen the city's housing supply by focusing on good-quality houses with gardens or large apartment: policymakers believed that Rotterdam had a shortage. A consequence of this was a belief that the city was losing high-end residents to its suburbs or other cities within

Table 4. Key figures of changing city image

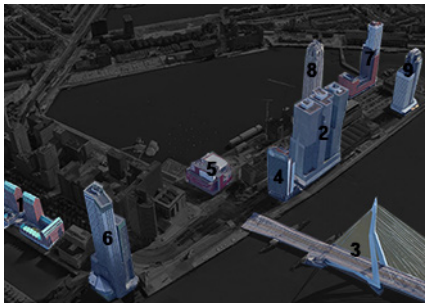
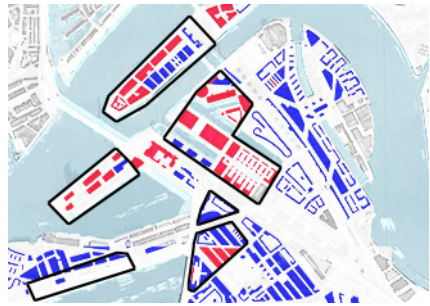
Key figures	Contents
Uniqueness	
1. De Campagnie	
2. De Rotterdam	
3. Erasmusbrug	
4. KPN HQ	
5. Luxor theater	
6. Maastoren	
7. Montevideo	
8. New Orleans	
9. World port center	
De Campagnie	· Planned by Kollhoff, H. in 2005
De Rotterdam	· Planned by Koolhaas, R. in 2013
Erasmusbrug	· Planned by Van Berkel, B. in 1996
KPN HQ	· Planned by Piano, R. in 2000
Luxor theater	· Planned by Wilson, P. in 2000
Maastoren	· Planned by Dam & partners in 2009
Montevideo	· Planned by Mecanoo in 2005
New Orleans	· Planned by Siza, A. in 2010
World port center	· Planned by Foster, N. in 2000

Table 5. Key figures of repositioning city

Key figures	Contents
Housing	
1. Private housing	: Red color
2. Rental association	: Blue color
3. Mix-use blocks	: Black boundary
De Landtong	· Construction in 1998 · Area of 1.2 hectares · 625 housing units · From 5 to 12 floors
Stadstuinen	· Construction in 1999 · Area of 3 hectares · 918 housing units · 8 floors
De Peperklip	· Construction in 1981 · Area of 4 hectares · 549 housing units · From 4 to 9 floors

the region (Doucet, 2013). Besides, national key projects, including the Erasmus bridge, led Rotterdam to grow into a new business center and key financial hub at the European or even global level. Various price development did increase after the completion of the bridge, culminating in the Maas tower, which is located at the base of the Erasmus bridge. Including the case, some of the areas in the Kop van Zuid initially have been targeted office development with the commercial districts.

(4) Spreading Benefits

The majority of land in the Netherlands is owned nationally. Thus, national development projects such as the Kop van Zuid have to be carried by the corporation between the public and private sectors. In general, the government purchases the entire development site and selects several private investment companies for specific development projects. The Kop van Zuid has proceeded government-led infrastructure construction first, and at the end of 2000, developments by private enterprises participated in earnest. These development methods make the project easier for local communities and residents to settle down, and the benefits from the development process again create continuous investment in local neighborhoods as a virtuous circle of social structure. According to Cadell et al. (2006), in the case of the Kop van Zuid, the new transport connections that were integral parts of the project which had made easier for people in the Feijenoord, and indeed the whole of the southern side to access the rest of the city. For example, local housing corporations area developed high-quality housing in more impoverished neighborhoods, which means that local people can move to a better home without leaving the area altogether. It is not only helping to promote a sense of belonging to an area but also to create the more balanced communities that the Dutch policy favors (Cadell et al., 2006).

On the acceptance of the waterfront project in the Kop van Zuid, the Canadian urban geographer Doucet, B. (2010) and his research partners conducted a study in which the researcher asked the residents of two rich and two poor districts for their opinion. In order to consider the geographical proximity as a possible relevant feature, two neighborhoods were selected in the immediate vicinity and two neighborhoods relatively far away. The first chart (Figure 4) shows the support for the statements that the construction of the Erasmus bridge was a waste of money. It had to be taken into account that the bridge was the most expensive of the three alternatives. Nevertheless, the agreement of the statement, also in the poor districts, is very low, which shows high acceptance of the population regarding the decision of the city administration to invest a high amount of money for a symbolic architecture. Moreover, the second chart shows the consent to the statement that it was a good ideate invest in the Kop van Zuid. It is also possible to understand the strong support for urban decisions, even in the poor district, which was by no means certain for the waterfront project like the Kop van Zuid (Doucet et al., 2010).

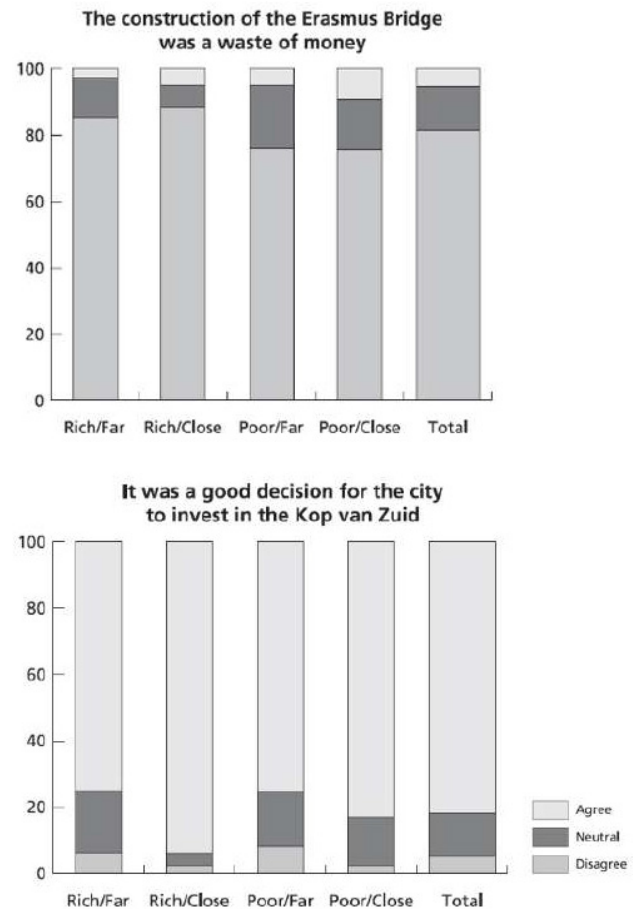


Figure 4. Public opinion for Kop van Zuid from the research by Doucet et al. (2010; p.p.138-139)

5. DISCUSSION

For the discussion of this research, the project Kop van Zuid is analyzed in each aspect of social effect based on the frame of four actions and achievements which are same as the previous chapter. At the same time, the implementation of territorial governance is assessed based on the TANGO indicators presented in chapter 2.

(1) Reuniting Divided City

The newly created connection of the Kop van Zuid through the Erasmus bridge and public transport is a profitable link both for citizens of Rotterdam from the northern to the southern side of the city and for tourists who explore the city. Residents living the southern part of the river are now much better connected to the city center. This has improved the quality of the residential area in the southern part of the river through more varied shopping opportunities, improved connections to long-distance traffic and the general proximity to the city center. In addition, the link to the inner city area has also resulted in an upgrading of the southern part of the city itself. New private and public employers have recognized the Kop van Zuid as an attractive

location and have moved here (Doucet, 2013). The development of the Kop van Zuid as a declared mixed-use area has also resulted in the development of diverse and high-quality public spaces and open plazas from which the surrounding resident population also benefits.

The residents from the northern part of Rotterdam and the city center also have access to new leisure opportunities through the Kop van Zuid, such as the industrial museum or the floating pavilion. Because of the Erasmus bridge, which connects the northern and southern sides of the city more directly, the urban population is promoted to be mixed in Rotterdam. Moreover, due to its proximity to the city center and the well-developed public transport system, the Kop van Zuid can be reached easily and quickly and is exciting as an attraction for tourists. Visitors who want to see the Erasmus bridge as a new symbol of Rotterdam will also be taken directly to the Wilhelminapier, and the new skyline of the city. Especially interesting for tourists are the water taxis, which offer an alternative to the Erasmus bridge to cross the river. All these factors can contribute to the fact that the Maas river is no longer seen as an obstacle, but rather as an identification mark.

(2) Changing City Image

For a long time, the city image of Rotterdam was shaped only by the port. As one of the largest ports in Europe, Rotterdam is and will, of course, continue to be characterized by the port, industry, and service sector associated with it. Like the city, the area of the Kop van Zuid today is for a long time characterized by the former port area, which was only partially built after extensive destruction during the Second World War. Taking this into account, it becomes clear that the development of the Kop van Zuid sends a strong signal of renewal to the entire urban population. Changing the city image has the aim of presenting the city as a thriving, modern, and livable place that is far more than just a vast port. Furthermore, the city wanted to distinguish itself as an attractive destination for short or day trips. Especially high-quality urban design has also been a notable feature supported by the Dutch planning policy in general and by the quality team of the Kop van Zuid. The quality team was a selected committee created for high-level urban planning. Public art was used imaginatively to interpret the history of the area. The waterside has been opened up to people on foot. There is good lighting, a minimum of street clutter, and imaginative use of shared surfaces, with ample street parking in most residential areas combined with wide tree-lined pavements. The streets are kept scrupulously clean by gangs of cleaners and by the use of large receptacles into which rubbish has to be put (Ibid.). The most important in the new city image is the development of the Kop van Zuid into a mixed-use area. The striking architecture of new and historic buildings in combination with public open spaces close to the water has ensured that the area is also visited for recreation and as a tourist destination for public attention.

(3) Repositioning City

The development of the Kop van Zuid is intended to promote the diversification of the labor and housing market in Rotterdam. In order to continue its economic growth and to integrate previously underrepresented fields of work, the city has

set itself the goal of using the development of the Kop van Zuid to position itself as an attractive location of port-independent for service providers and creative professions (Cadell et al., 2008).

With the Kop van Zuid, the city has created a highly representative site that convinces with its prestigious location, impressive buildings architecturally, ample office space, excellent connections to public transport and attractive mixed-use. Also, the shortage of higher middle-class and luxury apartments was reduced, and the attractiveness of the city for this target group increased (Aarts et al., 2012). The housing possibilities in the Kop van Zuid area are reserved for a rather small group of people with the corresponding financial resources due to the above criteria and the relatively high costs involved. Nevertheless, through the public areas and the settlement of different cultural leisure opportunities, the resulting area can be utilized by a large number of people with different interests and used as a meeting place for exchange. In the present, Rotterdam is not anymore just a city with a port area but also a dynamic city in the world.

(4) Spreading Benefits

In order to allow the residents of the Feijenoord district, which is directly adjacent to the Kop van Zuid, the mutual benefit program was developed in cooperation with local stakeholders of the district. The focus of the program is to let the surrounding neighborhoods participate in the economic upswing caused by the development of the Kop van Zuid. For example, some attempts were made to recruit the required labor in the construction sector, supermarkets, or hotels in the surrounding districts, where the unemployment rate was relatively high. Besides, further training was offered to improve the possibility of employment. Furthermore, a cooperation with a college and a bank was established to promote business start-ups through advice and financial support (Cadell et al., 2008).

The establishment of a merchants' association also strengthened the local cohesion of the retailers and created a central point of contact for their concerns. The participation of the surrounding residential population was primarily intended to ensure that the urban population and did not continue to segregate itself according to socio-economic criteria. Also, it should create acceptance for the comprehensive urban planning and social changes that go hand in hand with the development of the Kop van Zuid.

(5) Assessment by the TANGO Indicators

With regarding the first block of governing capacity, leadership, and subsidiary, it can be stated that the city government assumed responsibility from the outset, and through initial investments at the beginning of the project, set the path and objectives. Without any guarantee of return, a lot of funds were invested in new infrastructure, paying attention to a high recognition value and setting the direction from the early beginning. The sue of a quality team also guaranteed that the further progress of the project was monitored continuously and that a certain quality could be assured.

In the view of public policy packaging and cross-sector synergy, it can be noted that the support of the local authority and the regional government, including national funding

sources, has been managed to obtain. Besides, different departments were integrated into the planning, implementation process, and represented within corresponding project teams. Moreover, public institutions such as the taxation office and the court of justice have been transferred to the area.

Democratic legitimacy is given through the democratically elected local government of Rotterdam and as participate democracy from the different public, private, and governmental stakeholders. Public accountability, as well as transparency, were guaranteed by the dedicated communication team, which took care of the information transfer to the public.

A reasonable degree of reflexivity and adaptability was evident, for example, in adjusting the proportion of residential and commercial space in the area. In addition, no information on conflict requiring adaptation could be obtained from the

existing resources related to the project.

The indicators of territorial relationally and territorial knowledgeability were successfully implemented. Several public open spaces close to water have created much space where residents, visitors, and tourists can meet and spend their leisure time. Plus, some historical buildings were renovated and preserved a piece of the port history of the region. Finally, with the mutual benefit program, responsibility was also assumed for residents of the neighboring districts and care was taken to ensure that the general public could participate in the positive developments of the district.

6. CONCLUSIONS

According to the action agenda for architecture and spatial

Table 6. Comprehensive results in correlation analysis

Schemes	Correlation	Actions and achievements	Keywords	Correlation	TANGO approach	
					Dimensions	Indicators
Linking Kop van Zuid, and the suburbs to the south of it, directly to the city center		Reuniting divided city	Accessibility		Coordinating actions of actors and institutions	Governing capacity
Erasmus bridge			Leadership			
Public transport			Subsidiarity			
Creating a lively and attractive mixed-use district		Changing city image	Attractive destination		Integrating policy sectors	Public policy packaging
			Striking architecture			Cross-sector synergy
	Historic building					
Insisting on the high quality of design in all buildings and throughout the public realm	Repositioning city	Quality team	Mobilizing stakeholder participation	Democratic legitimacy		
		Mixed-use		Public accountability		
Re-using existing landmark buildings wherever possible	Spreading benefits	Middle and luxury housing	Being adaptive to changing contexts	Transparency		
		Mutual benefit program		Reflexivity		
Developing a program of 'Mutual benefit' to ensure that residents of poor areas alongside Kop van Zuid benefited from the scheme		Merchants' association	Realizing place-based or territorial specificities and impacts	Adaptability		
				Territorial relationality		
						Territorial knowledge-ability

design in the Netherlands, by intensifying the use of space, it is possible to create development opportunities for attractive urban housing and working environments that can benefit from each other's proximity and a comprehensive range of amenities. Also, integrated design plays an important role in identifying these tasks, function combinations, and additional economic benefits (Schultz van Haegen, 2012). This research states that the success story of the Kop van Zuid can be primarily traced back to the way in which the city government, from the early beginning, took the lead in governing its regeneration process. One of the decisive factors were the financial support

of the regional government, the large investments that could be made in order to demonstrate the commitment to the project. Likewise important was the constructive cooperation of public, private, and government actors as well as the clear vision of the development accompanied by the necessary flexibility to be able to make adjustments in the planning. Finally, it was also essential to let the surrounding districts participate in the upward trend of the region, and this ensures public accountability. To understand the spatial development at a city-region in the Netherlands, this research focuses on the project Kop van Zuid in five scheme, four actions and achievements, and the theoretical framework of five dimensions and twelve indicators from the TANGO approach. The comprehensive results including correlation by each criteria are summarized in Table 6.

There is a research limitation of analyzing spatial development of the Netherlands based on a certain implementation project by literature review and case study. Besides, the fact that Rotterdam became a sole target area can be expected to be more objective if it is accompanied by the analysis of other cities such as Amsterdam and the Hague. However, this research has the interdisciplinary possibility that the case is analyzed separately for different aspects of physical planning and social effect, respectively. Moreover, the fact, which the twelve indicators from the TANGO approach, was the theoretical framework, indicates that this research has been conducted by the European perspective. As researchers in the field of architecture and urban studies hope that various types of study on European spatial development keep accomplished to provide advanced research for urban development consistently.

REFERENCES

- Aarts, M. Daamen, T., Huijs, M., & Vries, W. (2012). "Port-city Development in Rotterdam" *Urban-e*, 2 (3): 1-28
- Buitelaar, E., Lagendijk, A., & Jacobs, W. (2007). "A Theory of Institutional Change: Illustrated by Dutch City-Provinces and Dutch Land Policy" *Environment and Planning A: Economy and Space*, 39 (4): 891-908
- Cadell, C., Falk, N., & King, F. (2006). *Making Connections - Kop van Zuid Case Study*. Manchester: Urbed
- Cadell, C., Falk, N., & King, F. (2008). *Regeneration in European Cities: Making Connections*. Manchester: Urbed
- Choe, Y. (2007). "The City of Tomorrow Rotterdam Kop van Zuid" *Housing and People*, 204: 40-45
- De Vries, J. (2014). "BMGN" *Low Countries Historical Review*, 129 (1): 99-111
- Doucet, B. (2013). "Variations of the Entrepreneurial City: Goals, Roles and Visions in Rotterdam's Kop van Zuid and the Glasgow Harbour Megaprojects" *International Journal of Urban and Regional Research*, 37 (6): 2035-2051
- Palstra, R., & Steenbergen, R. (2018). *Local Government in the Netherlands*. The Hague: Association of Netherlands Municipalities
- Schmitt, P., Well, L., Scherbenske, S., & Reardon, M. (2013). *ESPON TANGO - Territorial Approaches for New Governance*. Luxembourg: ESPON
- Schmitt, P., Well, L., Scherbenske, S., & Reardon, M. (2014). *Towards Better Territorial Governance in Europe*. Luxembourg: ESPON
- Schultz van Haegen, M. (2012). *Building on the Strength of Design - Action Agenda for Architecture and Spatial Design*. The Hague: Ministry of Infrastructure and the Environment
- Schultz van Haegen, M. (2011). *Summary National Policy Strategy for Infrastructure and Spatial planning*. The Hague: Ministry of Infrastructure and the Environment
- Thoele, H., Rottmann, M., & Sobota, M. (2013). *Beyond Plan B - Project Analysis*. Cologne: Beyond Plan B
- Ungureanu, G. (2010). *A Revitalized Kop van Zuid*. Dissertation. Urbanism Program, Delft University of Technology, State College, Delft.
- Westrik, J. (2009). *Urban Project Rotterdam and the Rotterdam Experience*. Rotterdam: Gemeente Rotterdam

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