

A sustainable approach for industrial area redevelopment in the Netherlands

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Abstract

According to the Dutch Ministry of Economic Affairs, creating space for industrial areas is necessary to realize a sustainable economic growth. Currently, the average time needed to redevelop an industrial area in the Netherlands is 10 years. Furthermore, almost 30% of the Dutch stock of industrial areas is obsolete. In contrast to this is the redevelopment of the industrial area 'Parque das Nações'. This urban development project, accommodating the Lisbon 1998 world exhibition, was completed within a very short period and shows almost no signs of ageing. This was achieved through the establishment of an independent business structure. This paper discusses the nature of the organizational problems of industrial area redevelopment in the Netherlands and introduces a possible new approach, derived from the Lisbon-experience.

Keywords: industrial areas, planning approach, sustainability, urban development.

1 Introduction

Industrial areas are important from economical and spatial perspectives. They provide about 31% of the total employment in the Netherlands [27], and 35% of the total value added is created on industrial areas. Every hectare of industrial area yields approximately €1.6 million each year [7]. In addition to this, industrial areas are also important from a spatial point of view. Industrial area land use covers more than 2% of the Dutch surface, and this amount is growing steadily. Taking into account that the Netherlands is one of the most densely populated and urbanized countries in the world, Dutch planners are confronted with a scarcity of land [31]. This underlines the importance of a sustainable handling of the space for industrial areas, to obtain a sustainable economic



growth. For this reason, the Dutch government focuses on sustainable redevelopment in their spatial policy. However, the sustainable redevelopment of industrial areas in the Netherlands is stagnating.

Research concerning (Dutch) industrial area redevelopment focuses mainly on problems from individual stakeholders' perspectives. Bak [1] explored the use of space by industrial companies; Ike et al [13] studied financial problems of Dutch municipalities which coincided with the surplus of industrial areas during the 1980s; van Steen [29, 30] examined industrial areas as investment object from an entrepreneur's perspective; Meester [17] and Pen [23] paid attention to the relation between company migration and industrial area planning and Pellenburg [22] examined the policy of the Dutch government to develop sustainable industrial areas. Interestingly, recent research aims increasingly on process characteristics of the redevelopment of industrial areas. Van der Valk [31] explained the Dutch planning process, and de Graaf [8] studied interaction between stakeholders involved in industrial area development. However, no research was conducted to study the organizational planning approach as a cause of the stagnation of redevelopment.

The organizational planning approach in the Netherlands differs from the approaches in other Western countries, and these other approaches often lead to other results. An interesting case study is the redevelopment of the industrial area 'Parque das Nações' in Lisbon. This project was completed within a very short period and shows almost no signs of ageing. This was achieved through the establishment of an independent, specific business structure. The aim of this paper is to study to what extent an application of the Lisbon-approach can solve the Dutch problems of redeveloping industrial areas. To reach this aim, we first explain the current Dutch planning approach and the nature of the problems entailed. After that, a short reconstruction of the redevelopment of the 'Parque das Nações' area is given, based on structured interviews. The paper concludes with a comparison between the different planning approaches, and the possibilities of solving the Dutch problems by adopting the Lisbon-approach.

2 Dutch industrial area planning approach

In this paper, we use the definition 'industrial area' for areas that (1) have a gross surface larger than 1 hectare; (2) are used by more than one company; and (3) are legally fixed in a prevailing destination plan. The definition for industrial area users is: companies with an accommodation of which more than 50% of the total floor space is intended for factory industrial activities.

The net size of industrial areas in the Netherlands in 2003 amounts to 69.417 hectares, of which 58.372 hectares was in use by companies. Assuming an average floor-space index of 0,62 for industrial units, the total industrial space in these areas can be estimated on 360 million m² (see Table 1).

2.1 Dutch planning approach for industrial areas

The way in which industrial areas are plan and developed by Dutch municipalities strongly deviates from the planning approach of regular urban



developments. Buying a prepared plot on an industrial area, and constructing a building on it, is the most usual way for companies to realize industrial property in the Netherlands. Maintenance and management of the area is the responsibility of the municipality [19].

Table 1: Industrial areas in the Netherlands, 2003 [10].

Number of industrial areas	3.607
Gross surface area	93.832 hectares
Net surface area	69.417 hectares
Ratio (gross-net)	74%
Total surface are for granting	11.045 hectares
Granting-average (annual, 1993-2002)	1.209 hectares
Average maximum prize in 2002 (mixed areas)	€ 85,- / m ²
Average maximum prize in 1993 (mixed areas)	€ 37,- / m ²
Estimated floor space on industrial areas	360.000.000 m ²

This approach follows from the thought that industrial areas stimulate local or regional economic development, and this stimulates extensive use of land. Having enough grantable plots in stock is seen as a responsibility of the municipalities to guarantee a sustainable economic growth [19]. As a result, approximately 50% of the building land in the Netherlands is reserved for industrial activities, whereas these industrial activities use less than 20% of the built land [16]. The granting of plots is stimulated by this extensive stock of building land. Municipalities want to recover the costs for preparation of the plots as soon as possible. Prices must be kept low to be competitive with other municipalities, and as a result, municipalities hardly invest in the quality of the industrial areas [21].

This planning approach has proven to be advantageous for companies. Industrial areas are attractive for entrepreneurs because industrial areas offer more legal certainty, have a good accessibility and there is enough building land. Entrepreneurs can realize new industrial property with a better price/quality ratio compared to properties in the existing stock [16].

A municipality having the task to plan and develop industrial areas is common for government and companies. Provinces try to coordinate these activities, whereas the Ministry of Economic Affairs tries to control the development by means of specific subsidies and advices [16]. It has become difficult to change this planning approach because it has been put into practice for many years. According to Needham and Louw [19], three main reasons for this path dependence are the established interests, the casualness and the level of real estate prices. This path dependence leads to several problems.

3 Problems and causes

Problems as a consequence of the current Dutch industrial area approach are studied by several authors. Kapteyn [14] distinguishes three main problems: lack of occupancy, rapid obsolescence and a lack of commitment from owners.



Hakfoort [9] also designates three main problems: a qualitative mismatch between demand and supply, rapid obsolescence of areas and an inefficient space usage on regional scale. Blokhuis and Schaefer [3] discuss three possible causes: (1) the lack of consensus between different stakeholders; (2) poor market system (balance between demand and supply); and (3) complex and voluminous legislation. Within the framework of this paper, the problem of ageing of industrial areas is explained and the diverging interests of stakeholders are discussed as a possible cause below.

3.1 Ageing of industrial areas

In many studies, ageing of industrial areas is considered as one of the most important causes for inadequate use of existing industrial areas in the Netherlands. However, ageing can be also seen as a result of this inadequate use. According to IBIS [12], almost 30.000 hectares of the total stock of industrial areas (93.800 hectares) was obsolete on January 1st, 2003. In the period 1990-2003, only 1.900 hectares have been redeveloped [24]. In 2004, only 30% of the redevelopment task was in execution [16]. If this continues, it will take more than 200 years to bring the current stock of obsolete areas back to an acceptable quality level. In the meantime there is a continuous increase of obsolete areas. In the 1990s, the stock of obsolete areas more than doubled. According to many authors, the execution of the redevelopment policy stagnates [3].

Reesink en van Aalst [24] calculated that 28% of the 92.700 hectares industrial area in the Netherlands was obsolete. This amounts to 25.700 hectares (Table 2).

The Dutch Ministry of Economic Affairs [18] states that more than 20% of the total amount of industrial areas has become obsolete (21.670 ha). In Figure 1, the total area to be redeveloped has been reflected on national and provincial scale. The large share of the provinces Noord-Brabant and Zuid-Holland is noticeable.

Table 2: Gross surface of obsolete industrial area in the Netherlands, 2002, in hectare [24].

Status obsolescence / redevelopment	North-east Ha (%)	Randstad Ha (%)	South Ha (%)	Total Ha (%)
Total	19.500 (100)	31.600 (100)	41.600 (100)	92.700 (100)
Total actual out-of-date	4.600 (24)	9.700 (31)	11.400 (27)	25.700 (28)

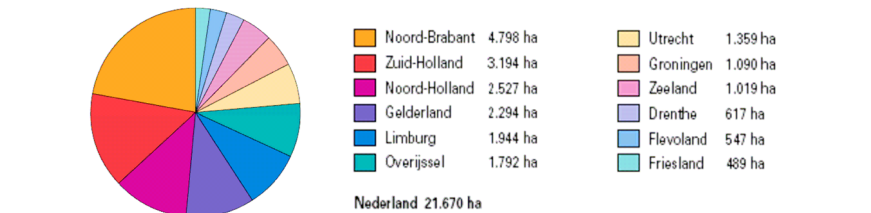


Figure 1: National redevelopment task for industrial areas, 2003, in gross hectares, per province [18].

The differences in the estimates of the dimension of the redevelopment task can be explained by the ambiguous definition of obsolescence. However, the scale of these figures shows the lack of durability of the developed industrial areas. According to CPB [6] the ageing of industrial areas is a natural consequence of economical handling of several involved stakeholders. Below, the economical behaviour of three important stakeholders will be related to the stated problems.

3.2 Economical behaviour of involved stakeholders

3.2.1 Government

Olden and Louw [21] and Louw et al [16] describe the role of the municipality as follows: the government stipulates the supply of industrial areas in all respects. Plan shaping, development, granting and management are in the hand of the municipalities. By emphasizing on social importance, municipalities justify their strong involvement in the development of industrial areas [26, 28]. In the current approach, the social costs of the mentioned problems are not expressed. This can be an argument for involvement of governments [28].

From a viewpoint of economical behaviour of governments, this strong involvement can also be explained by the fact that most municipalities have a commercial interest. Municipalities gain much money with the granting of industrial areas. It is much more lucrative for municipalities to grant new areas and sell the plots then to invest in old areas. As a consequence, these new areas undermine the competitive position of the existing areas [28]. This results in a lack of occupancy on existing areas.

Olden and Louw [21] and Louw et al [16] state that, to keep production costs low and to recover the costs of the site preparations as soon as possible, municipalities hardly invest in the quality of industrial areas. This behaviour is related to the problem of fast obsolescence of industrial areas. The VROM-raad [32] joins this by stating that the administrative attention for industrial areas decreases rapidly after the construction phase. This becomes evident at the maintenance and management phases. Municipalities are frequently unable to organize the daily management and maintenance of roads, green spaces, lighting and security in an adequate manner [32].

The economical behaviour of municipalities is partly determined by the mutual competition between municipalities in attracting companies. Once started, mutual competition is preserved: competing is a must, because neighbouring municipalities do so [19]. As a consequence, municipalities are more rapidly prepared to make their requirements more flexible [32]. This leads often to an inefficient space usage on regional scale.

3.2.2 Entrepreneurs

The VROM-raad [32] relates economical behaviour of entrepreneurs with the lack of occupancy and the rapid obsolescence on industrial areas. They state that because of the low costs of grounds on new locations, it is easier and cheaper for entrepreneurs to establish on a new industrial area then to invest in a no longer functional accommodation on an obsolete industrial area. Low real estate and



ground prices result in a reduced attention for maintenance. Because of this, buildings are written off rapidly [19]. If building land can be obtained easily, and the prices are relatively low, few incentives are given to use the land efficiently.

In addition to this, Schuur [28] links the economical behaviour of entrepreneurs to the low quality of urban areas. Entrepreneurs experience few incentives to invest in their physical surroundings. Causes of this are a low fluctuation in the need for real estate, the guarantee of sufficiently available space, the restricted costs of real estate and grounds and a fast financial depreciation of housing [6, 25, 32]. However, for companies depending on intensive contact with a relatively large group of customers, the appearance of the place of residence can be important. With the increase of the service sector in the Dutch economy, the share of these companies on industrial areas, and thus the need for modernization of obsolete areas, increases [28].

Louw et al [16] state that the economical behaviour of entrepreneurs, following from the current planning approach, leads to a large demand for new building land. This is caused by the sensitivity of the demand for building land to differences in ground prices. This price elasticity of the demand for land is not very large for most companies established on industrial areas. Land costs cover only a small part of the total capital expenditures of production companies (approx 1%). Even a doubling of the price would hardly reduce the demand [16]. This relative low influence of land prices makes it possible for companies to purchase more land than initially necessary. In this way, companies keep the possibility on future extension open [6, 16, 32]. This stimulates inefficient land use [19, 21].

3.2.3 Investors

The role of investors on the industrial area market is limited. Most companies design and construct their own building because of the relatively large supply of building land. This lead to the fact that there is little company space for hire [19, 28]. Kapteyn [14] distinguished three main causes for the relatively small market share of institutional investors in the industrial area market. The first is tradition: investors have no expertise in the industrial area market. Second, little is being developed for the free market, resulting in a relatively low gaining capacity for developers, a low rent level and high (sale) risks, because of the company-specific product. Thirdly, many buildings are users' possession as a contribution to the pension of many owners.

In this respect, Hoevers [11] states that Dutch companies own real estate with an approximate value of €300 billion. Municipalities possess social real estate with an approximate value of €40 billion. "This represents an enormous, mainly untouched potential. In the US, 30% of real estate is property of the direct users, whereas 70% is in hands of investors. In Europe it is the other way around" [11]. Hakfoort [9] complements the list of causes with the institutional structure of involved parties, and the lack of cooperation and consistency in the redevelopment of industrial areas.

Thus, the market for industrial areas is 'contestable' [20], but it is yet not worthwhile for project developers to contest this market [19]. However, a larger



influence of long-term investors can contribute to solving part of the problems. From an economical point of view, they have interests in a full occupation of their buildings, a high quality of the urban area, efficient space usage and a good relation between demand and supply.

3.3 Conclusions: economical behaviour

Municipalities and entrepreneurs have a key role in the current industrial area planning approach. The above mentioned economical behaviour of these parties is partly the cause of the current problems in the industrial area market. Also, large differences exist between the economical behaviour of the involved stakeholders. This is a main cause of the current lack of consensus between different stakeholders in redeveloping industrial areas.

To solve the stated problems in the redevelopment of industrial areas, the current planning approach might have to change. Another division of responsibilities and mandates in the development process can be suitable for the Dutch situation. Concerning this division of responsibilities and mandates, a best-practice will be described below based on Blokhuis and Schaefer [4]. The redevelopment of the industrial area 'Parque das Nações' in Lisbon, accommodating the 1998 world exhibition, was completed within a very short period and shows almost no signs of ageing. This was achieved through the establishment of an independent business structure.

4 Parque das Nações – Lisbon

The basis of this project was the long existing need to redevelop the eastern part of Lisbon, an area that showed lack of occupancy and obsolescence for a long time. This area was mainly reserved for industry. From 1950, some large community housing projects started being located eastwards, which did not decisively change the social status of this part of the city. The stretch of land between the railroad and the river, the site of today's Parque das Nações, was an obsolete decayed industrial area, hosting a broad range of activities, from petrochemical industry to container yards military depots. These activities were housed in old or obsolete installations, with poor functional and often low economical performance. The area was generally associated with severe environmental problems.

4.1 Initiative and strategy

Changes in land-use patterns and land-values, caused by urban growth, territorial specialization and new infrastructure turned the area into an increasingly attractive site. The organization of the World Exposition in Lisbon, held from May 22 until September 30 1998, created an ideal possibility to renew the eastern part of Lisbon. EXPO'98 could be used as a lever to gather both the will and the financial means to relocate the existing activities and redevelop the land into a new high-standard modern city district. The organizers of EXPO'98



formulated the aim to contribute to the acceptance of Lisbon as a major Atlantic city by a creatively and durably intervention in the renewal of the urban structure.

The redevelopment project was planned in three phases:

- Phase 1 (1993-1995): Land appropriation;
- Phase 2 (1995-1998): Preparation and hosting of EXPO'98;
- Phase 3 (1998-2010): Full redevelopment to a new city district.

In order to be able to shorten the development times, the Portuguese government sublet all the development activities into one organization: Parque EXPO'98 SA. This organization was created on March 23rd, 1993, with a dual mission: (1) to organize and carry out the EXPO'98 world exposition in Lisbon, and (2) to manage and carry out a large urban redevelopment project in and around the grounds where EXPO'98 would take place, leading to the development of a new city district. Parque EXPO SA acted both as planning and building authority and project manager during the first two phases and as business partner in public-public and public-private partnerships in all three phases.

The organization was equipped as a private company with three shareholders: the Ministry of Environment, the Ministry of Finance and the Lisbon Municipality. The share of Lisbon was limited (3%). In short, Parque EXPO SA is a private company, owned by the State. The two concerned municipalities (Lisbon and Loures) are represented in the Board. To carry out its dual mission, Parque EXPO was given full capacity to expropriate land and special powers over (1) project management, financing and contracting; (2) urban planning and permit issuing (until December 1999, when these powers were transferred back to the two municipalities); (3) urban management (until a date to be established, when this responsibility is to be transferred back to the two municipalities; the issue is pending); (4) marketing and commercialization. Long-winded and therefore delaying procedures were circumvented by granting possession of 340 hectares of land within the assigned area to the company.

4.2 Results

Currently, Parque das Nações is a new city district under construction in Lisbon. It covers a total surface of 430 hectare, located across the border between two municipalities (Lisbon and Loures). The planning scheme forecasted work to be finished in 2009-2010. That year, land sale and licensing processes should be finished. Parcel sale exceeded all forecasts because of the successful transition to Parque das Nações and the good real estate market. Consequently, about 159 buildings were in construction or to be finished in the beginning of 2003 and only 5% of the available land plots were still for sale.

4.2.1 Adjustment of the plans

Initially, Parque das Nações had to be developed with zero-cost. Involved ministries planned to finance the exposition from turnovers of the EXPO itself (40%) and from the area development (60%). That proved unfeasible. For this reason a number of changes were carried out. To be able to finance the running



costs of Parque EXPO (a) the ground prices have been raised (ground within the EXPO-area are the most expensive in Lisbon) and (b) the building density was raised. At the end of 1999, Parque EXPO's mandates for independent plan development and plan modification expired. Current plan modifications must follow a long and careful procedure.

4.2.2 Parque EXPO'98 SA

It was possible to attract private investors because of the foundation of Parque EXPO 98 SA. Advantages were fast plan development, fast granting of land and modification of plans during a certain period by means of a legal decree. Due to this integral approach, the company was able to buy, clean and sell large areas. Parque EXPO 98 SA not only acted as a plan developer and management office, but also developed some subprojects on the Parque EXPO location.

Remaining financial obligations to private investors is the main reason that Parque EXPO SA still exists. The most important current income of the company consists of sale of a limited number of land plots; they expect to sell the last plot in 2007. There are three important expenses: current financial obligations to investors, staff cost (180 highly qualified people) and maintenance and management of the EXPO-area. To cover these expenses, Parque EXPO SA is looking for tasks in the private market. At this moment they are involved in projects in Shanghai, Nigeria, Sao Paulo and Zaragoza. Until the year 2010, Parque EXPO SA will carry the deficits. After that, the organization submits the costs and benefits to the national government. The size of these costs and benefits is yet unknown.

4.2.3 Urban management

The daily management of the urban area is carried out by Parque EXPO SA. They face the problem that the revenues and expenditures of the urban management are not related. The revenues from taxes of occupants and entrepreneurs are paid to the municipality of Lisbon. The users of the area pay much tax as a result of the costs of the ground and the high-quality buildings. However, these taxes do not find their way back to investments in the improvement of their direct environment, because the contribution from the municipality to urban maintenance and management exists from a fixed amount for Parque EXPO SA. This fixed amount is not sufficient for maintaining the high-quality public space of Parque das Nações. In this way, the management of the urban area is financially impossible. Until now, the municipality had no ambition to take over the responsibility of management and maintenance. Because the lands are mainly owned by a large number of private investors, there is no expectation for an increase in the income for the management of this area.

4.3 Evaluation: division of responsibilities and mandates

The most important drive for the Lisbon-approach was the deadline. The establishment of an independent company, with the objective to develop the city district, offered a good solution to obtain this time-related objective. The organizational framework created in 1993 proved effective and it is



generally agreed by participants that it was indeed a major key to the success of the project. It allowed for a combination of public mission responsibility with managerial flexibility, innovation and quality standards.

The integrated and coordinated approach, allowed by this form of organization, showed benefits both on the technical side (better and more sustainable solutions) and the economical side (private companies found dialogue easier than with conventional public administration; the good results achieved with EXPO'98 made Parque EXPO a trusted partner for private companies and gave Parque das Nações a very positive social image). This, together with the introduction of several unique anchor facilities (Lisbon Oceanarium, multipurpose arena, museums, a multi-modal transport hub and a shopping mall), and conscious marketing, resulted in a highly attractive leisure area.

However, concentration of powers in one single organization is also sensitive, requiring good-will and political leadership to secure that smooth and fruitful institutional cooperation is achieved across the range of public administration departments involved, and public control.

The future of the new city district partly depends on the transfer of urban management responsibilities to the municipalities. Delay and uncertainty over the transfer of responsibilities on urban management to the municipalities concerned forms a major threat. The integrated and coordinated approach to planning, building and urban management not fitting into the traditional local public administration organization is also a risk. High costs and demanding technical requirements for up-keeping and managing the high standard and complex infrastructure and public space further underline the previous threat.

5 Conclusions

In this paper, several interrelated problems in the Dutch industrial area market were distinguished, among which a qualitative mismatch between demand and supply, rapid obsolescence, lack of commitment between involved stakeholders, inefficient space usage and slow redevelopment times. In this paper, we state that the Dutch organisational planning approach is partly the cause of these problems. The division of responsibilities and mandates in redevelopment of industrial areas deviates from the approaches in other Western countries. In the Netherlands, municipalities and entrepreneurs have a key role in these redevelopment processes. The economical behaviour of involved stakeholders, following from the Dutch division of responsibilities and mandates, leads to the origin of the current problems in the industrial area market.

Another division of responsibilities and mandates in the development process can be a partial solution to the stated problems. Concerning this division of responsibilities and mandates, a best-practice is described. The redevelopment of the industrial area 'Parque das Nações' in Lisbon, accommodating the 1998 world exhibition, was completed within a very short period and shows almost no signs of ageing. This was achieved through the establishment of an independent business structure.



This Lisbon redevelopment approach, in which all established companies were relocated and all grounds and mandates were sublet to an independent development company, proved to be successful on short term. The redevelopment time was very short, the quality of the urban area remains high and there is no lack of occupancy. The supply fits the demands from the market very well. Also, problems concerning lack of commitment are by-passed through the organizational structure. However, introduction of long-term investors is necessary, to introduce parties who will be responsible for the maintenance and management of the area for a relatively long period, both on the level of building blocks and of public spaces. This will contribute to the long-term success.

The comparison between the redevelopment of industrial areas and the development of the EXPO'98 area is not totally fair. Still, the authors believe that the division of responsibilities and mandates determines the level of success of an industrial area redevelopment. If stakeholders in the Netherlands are capable of implementing the Lisbon-approach, the stated problems of redevelopment will be less considerable. However, the best practice shows that this requires a larger influence of long-term investors. To make the industrial area market more advantageous for these investors, governments should fit demand and supply of these areas more carefully.

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