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# Research into the ecological development of landscape planning in Germany
# The case of the IBA Emscher Landscape Park

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landscape planning　green belt　regeneration of the natural cycle system

## 1 Introduction and purpose of this research

In Europe as well as in Japan, the pre-industrial urban areas were characterized by an abundant natural green landscape. The economic growth, which has started during the Industrial Revolution resulted in the depreciation of the natural environment in the city, large green areas have been contaminated, reduced or even completely destroyed. The destruction of these green areas has resulted in the decrease of many eco-systems in the city. The industrial patterns of the post-industrial period request again large green areas in the urban system. This study investigates the regeneration of an old industrial region into an ecological landscape park. The IBA (Internationalen Bauausstellung) Emscher Park International Building Exhibition in Germany has been chosen as the case-study of this research. The IBA Emscher Park is situated in the Emscher Industrial Zone, which is the central part of the Ruhr region. The Emscher Industrial Zone covers an area of about 800km$^2$, and has a population of about 2 million people.

## 2 Change of built area and infrastructure

The change of the built area and infrastructure in the Emscher Industrial Zone is shown in figure 1. The years 1890, 1957 and 1988 have been investigated. The main infrastructure network of the primary industrial period was the waterway network, during the secondary industrial period the railway network has been added, and finally during the tertiary industrial period, this network has been completed by the road infrastructure. It was found that the built-up area in the Emscher Industrial Zone has expanded from 11% in 1890, to 30.8% in 1957 and to 45.5% in 1988. The industrial area has expanded from 1.6% in 1890, to 6.0% in 1957 and to 11.3% in 1988. The railway network has expanded from 0.6km/km$^2$ in 1890, to 0.8 km/km$^2$ in 1957 and to 0.8 km/km$^2$ in 1988. The waterway network has expanded from 0.2 km/km$^2$ in 1890 to 0.3 km/km$^2$ in 1988. The change of the built and industrial area, as

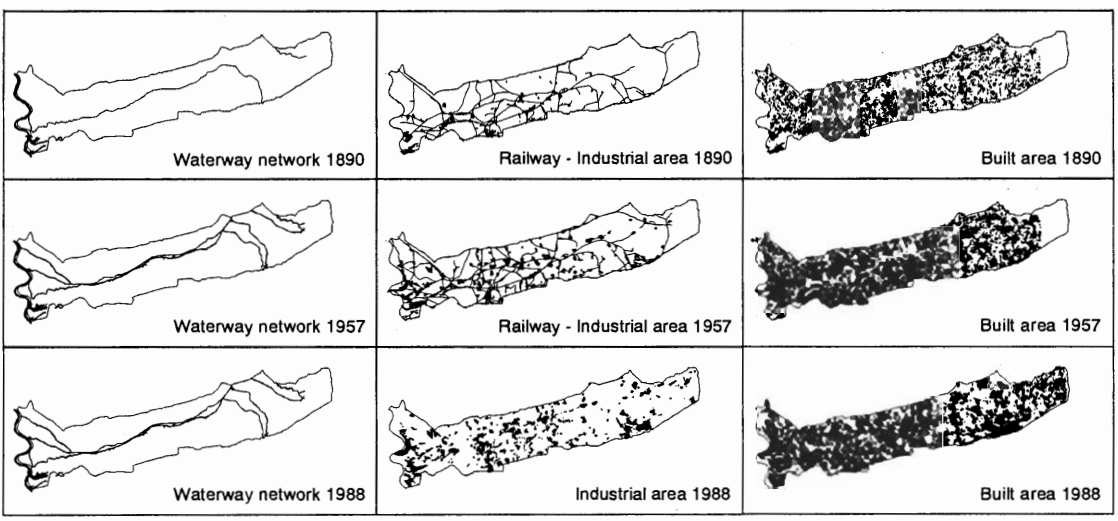


Fig. 1 - Development of the Built Area and Infrastructure in the Emscher Zone

ドイツにおけるエコロジカルランドスケープ計画のあり方に関する研究
～エムシャー・ランドスケープ・パークを事例として～

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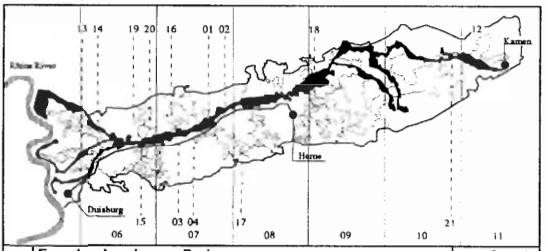


| | Emscher Landscape Park | area/length |
|---|---|---|
| 01 | Emscher Park Duisburg-Kamen Walking Path | 120 km |
| 02 | Emscher Park Duisburg-Kamen Cycle Path | 230 km |
| 03 | Passenger Boat Service on the Rhine-Herne Canal | - |
| 04 | Waterside Walking Path along the Rhine-Herne Canal | - |
| 05 | Emscher Park railway | 650 km |
| 06 | Landscape Park Regional Green Corridor B | 4000 ha |
| 07 | Landscape Park Regional Green Corridor C | 4200 ha |
| 08 | Landscape Park Regional Green Corridor D | 4200 ha |
| 09 | Landscape Park Regional Green Corridor E | 4200 ha |
| 10 | Landscape Park Regional Green Corridor F | 8800 ha |
| 11 | Seseke Landscape Park Regional Green Corridor G | 4000 ha |
| 12 | Schulze Healing and Health Park in Seseke Landscape Park | - |
| 13 | Duisburg-Nord Landscape Park | 230 ha |
| 14 | Green Path | - |
| 15 | Ecological Forest in Ripshorst | - |
| 16 | Emscher-Blick landscape Tailing Heap | - |
| 17 | Mechtenberg Landscape Park | - |
| 18 | Bladenhorst Landscape Park | - |
| 19 | Public golf course at the former Jacobi pit | 38 ha |
| 20 | Quellenbusch Health Park | 40ha |
| 21 | 1996 Land Garden Show in Lunen | 56 ha |

Fig. 2 - The IBA Emscher Landscape Park Program

well as the length of the railway and waterway network has been calculated in proportion to the whole Emscher Industrial Zone. As can be seen in figure 1, the expansion of built and industrial area as well as the expansion of the infrastructure network has resulted in the decrease of large parts of the natural environment in the Emscher Industrial Zone. In the following chapter, the Emscher Landscape Park Project, which aims the regeneration of the eco-system in the urban area will be explained.

### 3 IBA Emscher Landscape Park

The Emscher Landscape Park, with its 21 sub-projects as is shown in figure 2, is one of the five pillar projects of the IBA Emscher Park International Building Exhibition. The other four projects are as follows: 1) the ecological regeneration of the Emscher River system, 2) the "working in the park" project, 3) housing construction and integrated urban district development and 4) new uses for industrial buildings. The main purpose of the Landscape Park is to provide the central core of a new infrastructure. The basis framework of this new green infrastructure network is made up of some 300 km$^2$ land running from west to east through the Emscher Industrial Zone, intersected by several green corridors running along a north-south axis. The function of these west-east and north-south axes is to connect isolated, open spaces, and to restore the landscape, as well as to upgrade the ecological quality of the region. The scale of the sub-projects varies from large-scale projects, to small-scale projects such as the creation of biotopes or the planting of trees. The Emscher Landscape Park was established in 1989 and is planned for a time-scale of 20 a 30 years.

### 4 Conclusion

This study investigated the ecological landscape planning developments in the case-study of the Emscher Landscape Park in Germany. The results can be concluded as follows:

1) It was found that in about only 100 years, due to the industrialization of the Emscher Zone, the built area and infrastructure network which were build mainly to serve the industrial developments, have destructed large green areas in the city.
2) By way of linking existing and increasing green zones in the urban area into green belts on a regional scale, the approach of this Emscher Landscape Park Project can be seen as a solution for the regeneration of old industrial regions into ecological qualitative landscapes. Next to the development of the waterway, railway and road infrastructure network, this new green infrastructure network will be the core element for further sustainable urban developments.

The realization of this Emscher Landscape Park could serve as a possible solution for the ecological regeneration towards sustainable development of many ravaged industrial landscapes in Japan as well.

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