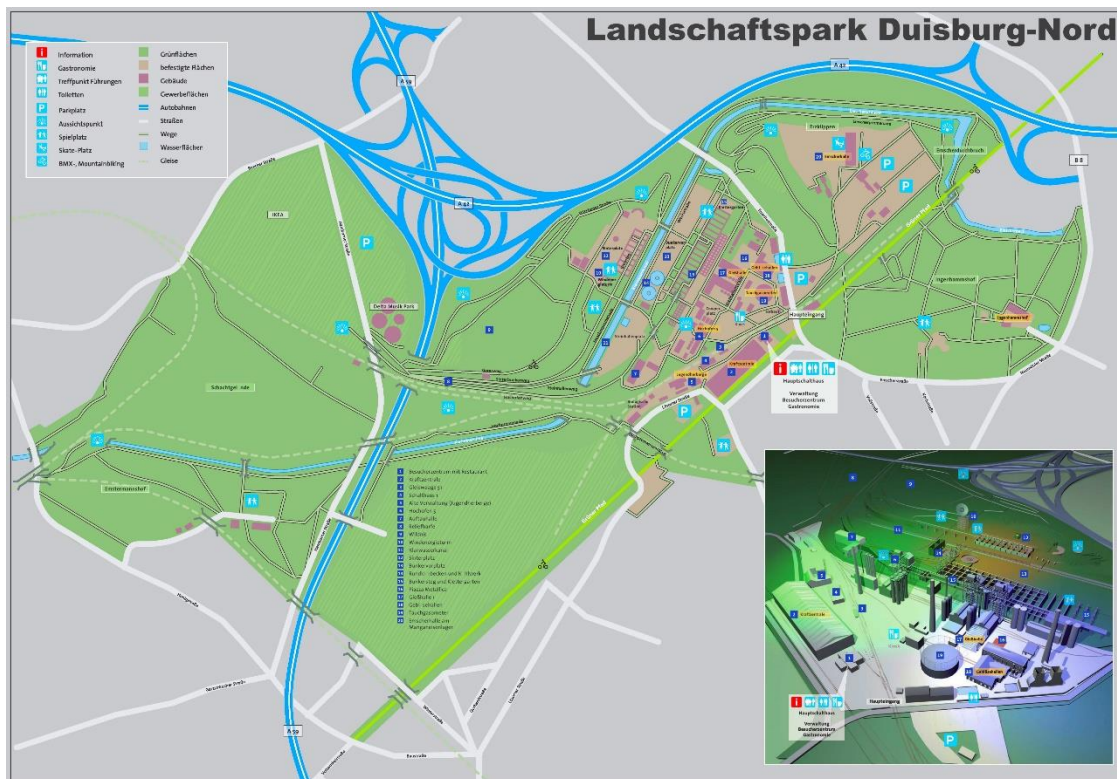


Case study name		Landscape Park Duisburg North
Author		Maria Riffat
GENERAL INFORMATION		
area size (ha)	180 ha	
topography / describe the shape	Flat topography, a water channel passes through the park, an old industry site converted after post industrial period into a recreational landscape park for providing, leisure activities and manage the waters in the region.	
climate – yearly? Period? Precipitation (amount and distribution, appearance of the storms)	The average amount of annual precipitation is: 933.0 mm (36.73 in)	



TECHNICAL CHALLENGES	
Source of flood water surface water (streams torrential stream), salt (sea water) Soil type (for attendees not familiar with soil science e.g. heavy soils, with low permeability, shallow/deep soils, moor – swamp area) Proposed/existing NBS	Open Sewer channel, dried Emcher River, Air pollution due to heavy industries of iron and coal in the region, no recreational sites, brownfield like a scrape after the postindustrial era. (-----) Wetlands, converted open Sewer to Fresh water channel with rain water drainage, water management services with the existing industrial structure, slowed water release into the river after heavy rains etc..

ECONOMICAL AND LEGAL ASPECT	
Compensation mechanisms Has there been a cost benefit analysis of using this piece of land for flood retention? If yes, what is the approximate level of costs and benefits? Do land owners / farmers receive a compensation for their service? What kind (one-time up-front payment, annual payment, flood damage-based compensation etc.)? Does it cover their loss? Which players finance this compensation?	Project cost: 15.5 million euros Financing sources: State level: State of North Rhine-Westphalia – 30%; regional level: Regional Association Ruhr – 18%; local level: City of Duisburg – 11%; private finance: Duisburg-Nord Landscape Park Operating Company – 41%

STAKEHOLDERS PERSPECTIVE	
GIS analysis of land use within the designated (or existing area) of dry reservoir if available or just a rough description of land use Social aspect, as in are these changes threats to the livelihoods of the private land owners or private land users, for agricultural or other land use: information of land-owners perspective on the NBS.	No threat to the private land owners, however after the industry was closed there was no economical reason for the inhabitants to live further in the city and the migration stated. In order to stop the migration and balance the economic disorder the project was started in the region.

POTENTIAL LAND DEGRADATION	
Expected challenges e.g. change in land use if nature base solutions are planned to be implemented (for example Savinja valley, Slovenia), etc or challenges with existing NBS (for example the Lake Kerkini, Greece) Hydrotechnical infrastructure (e.g. drainage or irrigation systems, dykes, dams, channels)	The river was subdivided into five main sections: a clear water canal, a dyke, a channel, a gorge and a stream. The former open wastewater canal of the Emscher river was re-constructed into a clear water canal with bridges and footpaths that is fed only by clear rainwater. Wastewater is now carried by a 3.5 m diameter underground main that collects and treats run-off from the buildings, bunkers and former cooling ponds Transforming the plots of varying sizes and dimensions in different areas of the park was a major challenge when establishing the park. In the early days of the park development, there was no comparable example that could be used as a model for the idea of transforming a disused steel mill into a multifunctional park