FLOWSCAPES

INFRASTRUCTURE AS LANDSCAPE
LANDSCAPE AS INFRASTRUCTURE

GRADUATION LAB
LANDSCAPE ARCHITECTURE
SEMESTERGUIDE MSC 3&4

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FLOWSCAPES
INFRASTRUCTURE AS LANDSCAPE
LANDSCAPE AS INFRASTRUCTURE

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Picture Front Page:
Observation of Urban Setting
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Picture Next Page:
Het Zwin
(Rijkawaterstaat)
GRADUATION LAB

The landscape architecture graduation laboratory explores spatial, societal and environmental issues by design research and research-by-design approaches. It addresses landscape architecture themes and projects from different perspectives and in various contexts.

The core of the graduation lab is a Design studio (AR3LA010; 15 ECTS) complemented with the related courses:
- Research methodology in landscape architecture (AR3LA020; 5 ECTS)
- Design with natural processes (AR3LA030; 5 ECTS)
- Space and Society (AR3LA040; 5 ECTS)

Structure of the landscape architecture graduation laboratory:
**AR3LA010**
Design Studio
15 ECTS

**AR3LA020**
Research methodology in Landscape Architecture
5 ECTS

**AR3LA030**
Design with Natural Processes
5 ECTS

**AR3LA040**
Space and Society
5 ECTS
INTRODUCTION

The studio explores infrastructure as a type of landscape and landscape as a type of infrastructure (cf. Strang, 1996). The hybridization of the two concepts seeks to redefine infrastructure beyond its strictly utilitarian definition, while allowing landscape design to gain operative force in territorial transformation processes. Through focusing on landscape architectonic design of transportation-, green- and water infrastructures the studio aims to develop innovative spatial armatures that guide urban and rural development and represent their civic and cultural significance. With movement and flows at the core, landscape infrastructures facilitate aesthetic, functional, social and ecological relationships between natural and human systems. Through design-based case studies at different scale levels the studio seeks for a better understanding of the dynamic between landscape processes and typo-morphological aspects; here interpreted as flowscapes.

The studio is concerned with the design of new topographies by integrating new programs into the ‘genius of place’ and time, and with regard to landscape processes, the continuation of spatial quality and cultural identity of the landscape. It does this through the development of landscape architectural concepts, methods and techniques for design research and research-by-design. Our landscape architectonic design explorations require a multi-layered understanding of landscape: its spatial structure or visual landscape, history, context, or relational system and involve the underlying ecological, economic and social processes.

In this process visual thinking and communication are considered to be crucial. Drawings, mappings and models are used to reveal and create relationships, explore and elaborate landscape systems as flows in terms of geometry, quantity, velocity, force, trajectory. Such specifically developed design techniques should become accurate tools for critical reflection.
Four perspectives on landscape which together characterize the work of landscape architects (Nijhuis 2006; Marot 1999; Prominski 2005):

**Landscape as spatio-visual structure**
The visual form of the landscape is based on the sensorial experience that emerges only by movement and is affected by the position and intensity of light sources. The act of perceiving is linked with the sequential unfolding of information as our bodies pass through space.

**Landscape as palimpsest**
The landscape as an expression of historical culture, or as a palimpsest that evidences all of the activities that contributed to the shaping of the landscape. In this respect the Genius Loci (topos + locus) is an important basis and where operations of erasing and writing history add new layers to the landscape.

**Landscape as scale-continuum**
The landscape as relational structure is connecting scales and spatial, ecologic, functional and social entities. The continuum across scales facilitates attachment, connection or embedding of a specific site or location into the broader context.

**Landscape as ecologic, economic and social process**
Landscape and landscape construction is regarded as a process rather than as a product. Projects play a role as a open-ended strategy, as in staging or setting up future conditions. The landscape is a expression of the dynamic interaction between biotic, a biotic en anthropogenic factors.
Social, cultural and technological developments of our society are demanding a fundamental review of the planning and design of its landscapes, in particular in relation to environmental issues and sustainability. Urbanization, ecological crisis and climate change are several of the contemporary challenges that demand an international perspective. While the technical challenges may be considerable, the spatial and cultural challenges are by far the largest. Therefore a renewed understanding of space-time condition of landscape – and its potential for change offers promising opportunities to find resolution to these problems. In order to redeem control over the processes that shape the built environment and its contemporary landscapes a fundamental review of the agency of landscape architectonic design is required.

Infrastructure over the last centuries was in service of the conquest of nature, whereby the environment was denied its natural dynamism in favour of more controlled and static systems. However, widespread insights into the potentially irreversible harm this paradigm has done to natural systems is now manifest in a growing awareness that we have to create more harmonious forms of urban landscape architecture. European diplomatic policy between members and within the UN, has taken a leading role in the global discussion on sustainability that has become so important in the last 20 years. The EU adopted many regulations and committed itself to far reaching goals in preventing climate change for example. In infrastructure the most symbolic, financially largest and for citizens most tangible European projects are not only crucial to the success of our continent but will need to take a global benchmark position in protecting vulnerable landscapes. Europe is urged to prove its political will with integral solutions and smart design. Moreover in global competition infrastructures are crucial for the economic welfare of a region, which is recognized by a largely supported political consensus across ideological or political borders. But the economical priority for development is questioned by many – infrastructural development as landscape is also questioning what alternatives do we have in our future environment.

Picture:
Studio GSD, Maasvlakte
(Delanger et al, 2010)
Infrastructures are understood as “constructed facilities and natural features that shelter and support most human activities: buildings of all types, communications, energy generation and distribution, green spaces, transportation of all modes, water resources, and waste treatment and management” (PERSI, 2012). Landscape on the other hand is defined as: “an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors” (Council of Europe, 2000). As such, the current understanding describes infrastructure as the human impetus to alter the natural environment, while landscapes are described as the inadvertent resultants. The hybridization of the two concepts, landscape and infrastructure, seeks to redefine both notions into a more integral design assignment where goals and means converge: Where the resultant landscape and the desire to overcome geography for human occupancy are consciously designed to serve multiple ends. The emphasis here is on the interaction of humans with their environment (e.g. connecting people to landscapes, structuring the urban tissue), biodiversity and the relation between ‘flows’ and ‘scapes’.

Landscape infrastructures actually integrate flows and scapes. The flows are movements/processes and the scapes are the spatial entities (e.g. territories). Interaction is taking place by flows between natural and human systems. Six vectors are important in this respect: water, wind, flora, fauna, humans and machines. Micro organisms, plants, animals and people move between ecosystems at different speeds. Wind carries heat, sound, gases, aerosols, and particles between spatial entities. Water flows between ecosystems as surface or subsurface flow. The scapes are the spatio-morphological patterns and structures as a result of cultural, socioeconomic, functional and aesthetic forces. These scapes deliver important services for provisioning (food, energy, fresh water, etc.), support (production, nutrient cycling, etc.), socio-cultural aspects (leisure, recreation, education, health, aesthetics, etc.) and regulation (climate, flood, water and air purification, etc.) of urban and rural landscapes. Flowscapes also addresses landscape processes as typo-morphological aspects. It considers these landscape infrastructures as landscape architectonic design assignment, in order to provide for a long term direction to more volatile forms of urban landscape architecture. In this view important principles for planning and design are: multifunctionality, connectivity, integration, communicative and social-inclusive design process and long term strategy. In order to address landscape infrastructures we can recognize three lenses for landscape architectonic explorations: transportation infrastructures, green infrastructures and water infrastructures. While acknowledged in the differences amongst the three groups of landscape infrastructures, it is important to understand their relationships and to address them integrally via design research and research-by-design. Here research inquiry and design thinking are systematically combined in a journey of discovery, where the design is the vehicle to draw up hypotheses of possible spatial futures. These Inquiries into landscape infrastructures should reconcile our desire for economic growth with our hopes for a more sustainable and ecologically balanced future and test their local and regional consequences.

Today Infrastructure projects have a key role in global policy. This fact is recognized and leads to large-scale economical commitment of national, international, European and Global collaborations. We believe that the European Landscape with its tradition and potential deserves our best efforts in design. In a time of reconsideration and reflection of the European integration – fostered by financial issues – it is astonishing how large and uncontroversial projects ‘go through’ without much questioning. To take a critical position with our studio as a whole is no mere academic exercise but a true research contribution. New disciplinary developments need to be made to address emerging questions in treating infrastructure as landscape in our living environment. Design tools to be developed within this studio will let us approach landscape as infrastructure in a discourse that is highly relevant to our time. We are confident that the flowscapes studio will train students to make a difference as designers of our fast evolving world und to take a unique and integrating position in this dynamic professional field.
TRANSPORTATION INFRASTRUCTURES

Transportation infrastructures are the technical systems which facilitate different modes of transportation, energy supply, waste treatment and information dissemination (e.g. telecommunications). Obviously it includes vehicular, rail, and air systems as well as ports and waterways. But also energy systems (oil, gas, nuclear, wind, etc.), their transformation to produce energy, and their distribution are important elements (powerlines, pipelines). When we consider these utilitarian systems as landscape infrastructures they become entities of multiple-use and integration where technical, aesthetic and social values blend. Multi-modal transportation systems affect the public space in different degree. Typical operations of landscape architects could be: planning, allocation and design of roads, rail, harbors, waste treatment plants, wind power plants, traffic mitigation measures and recreational facilities for travelers.

At the invitation of the Minister for Transport, Public Works and Water Management, I give a lecture entitled ‘The Art of Integral Engineering and the Aesthetics of Mobility’. Before an audience composed almost entirely of engineers and administrators, I propose viewing the motorway as a design brief. A brief that requires both a cultural turnaround and a new set of instruments. This is because existing urban development practice is not up to the task.

To give the aesthetics of mobility some form, I introduce six typologies that can deal with the alternation from the scale of the city to that of the countryside. Three relate to the countryside: the panoramic landscape, the eco-viaduct and the Bali model. The other three relate to the city: the Ruhr area, Las Vegas and La Défense. They form a series running from utmost rural to urban in the extreme. As a symbol for the cultural turnaround needed, the roads may be seen as routes and given names, such as the Louis Couperus Route, the Erasmus Route, the Rembrandt Route and the Zuiderzee Route. The routes need not just vision and direction, but more importantly a client to commission them.

In the period that follows, administrators in the Netherlands seem to rise to the challenge and accept the responsibility of taking on the role of client in commissioning the great mobility axes. To me, this illustrates the unique architectural climate in the Netherlands, so admired abroad.

Picture:
A room with a view
(Houben et al. 2003)
Example **THE VIEW FROM THE ROAD**

A View from the Road was departing as a study dealing with the aesthetics of the American Highways. The authors Appleyard, Lynch and Meyer used the driver’s perspective in photographs and drawings to further develop design methods for the space-time continuum of the modern city. The above drawings are Space-Motion Diagrams produced by the road trip around a proposed ‘inner belt’ ring road to Boston. They would be experienced when travelling in the two opposite directions clockwise (above) and counter clockwise (below). In their extensive and thoughtful study the authors developed many more original but also easily applicable drawing techniques. Their research by design strategy marks a paradigm shift in urban planning from the predominantly ‘car driven’ urban planning by technical functionalism to ‘human driven’ urban experience by car. They where providing the tools that could fulfill their wish, that the highways may be remembered not only as technical achievements but as works of art.

Text:

Picture left and right:
Analysis of a route (Appleyard et al. 1964)
Example DESIGNING THE HIGH LINE

The Highline crosses New York’s Manhattan Island in Western neighbourhood Chelsea. It is a linear public park of 2.3 km length (of which 1.6 km are opened by 2011) on an abandoned train track. It has planning and building history of more than ten years and is currently regarded as one of the most successful public space projects in the world. It has been designed by James Corner (Field Operations), Diller Scofidio + Renfro and Piet Oudolf. Stan Allen - a former associate to Corner’s Field Operations - called the Highline one of only two projects of ‘Landscape Urbanism’ ever realised (2011). Certainly The Highline is not only famous for it’s design and planting. In fact the implementation into a mayor real estate and luxurious housing transformation project in one of the most exclusive cities of the World has contributed to the Highline’s success. The commercial success exceeded its European precedent the promenade plantée in Paris by far. It is now hard to believe that the process was stared to protect rare species of plants and insects that had inhabited the elevated steel structure. The regulative framework of this project is said to be excessively complex. The claim of the Highline being a ‘Park in the Sky’ not only displays its high ambition in design but also opens new questions to the role of commerce and green space in the future metropolis.

Text:
Designing the High Line.

Picture:
High Line, Gansevoort Plaza (Field Operations and Diller Scofidio + Renfro, 2011)
Example **MOBILITY: A ROOM WITH A VIEW**

In their study ‘Holland Avenue’ Architects Mecanoo declare the 153km Highway ring around the Randstad as the most occupied public space of the Netherlands. The facts and figures of Dutch (auto)-mobility are analysed complemented by means of video camera’s from a car, representing the car drivers view. The three terms road, verge and field where introduced to challenge the design of the highway, it’s immediate surroundings and the landscape behind it. The future of roads was studied form a user’s perspective stating that a rich society is a mobile one. It was part of the Architectural Biennale 2003 on mobility curated by Mecanoo’s principal architect Francine Houben. The study used interesting drawing techniques but at some levels misses the depth of analysis we know from *The View form the Road*. It is most interesting in the political and planning context of the evolving perception of the Randstad and the green heart. Later this study - but moreover the road centric approach to governmental planning - was under critique by Landscape Architect Adriaan Geuze of West 8 (2007) who introduced his counter model of the Cow Billboard as a monument to the sensual approach of Dutch Painter Ruysdael to the Dutch Landscape.

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**Text:**

**Room with a View. NAI:** Publishers, Rotterdam

**Picture:** Holland Avenue: depth of field (Houben et al 2003)
The ancient Crazannes Quarries from gallo-roman times were discovered unexpectedly during construction of the ‘autoroute 837’ closed to the French Atlantic coast. Their strong ancient forms of carved white rock covered by sporadic almost tropical vegetation form an impressive sequence of varying spaces and impressions. French landscape architect Bernard Lassus developed his own artistic landscape design process involving a deeply reflective personal, artistic, ethical and aesthetic approach to create a stunning landscape to passers by and visitors. Much of Lassus’ outstanding effort on this project did go into producing a landscape on site through close cooperation between the designer, the engineers, the workers and local people. The two minute car passage should not be a forceful penetration but people should traverse it in order to discover it. While the actual works mainly consist of excavating and clearing it is also an impressive display of Lassus’ idea of the ‘Heterodite’, which aims to organise a space not by introducing object but by mirroring it’s heterogenic particularities. Lassus’ landscape is to be interpreted by each visitor as he wishes: simultaneous and/or successive concrete and/or imaginary.
Green infrastructures are the interconnected green space networks that maintain and develop natural ecosystem values and provide associated social, economic and aesthetic benefits to humans. Much of the foundation draws on the 19th century planning principles of regional metropolitan park systems (exemplified by Eliot and Baxter 1893). Useful for landscape planning and design is the concept of land mosaics consisting of green patches, corridors and matrices based on the island biogeography theory of McArthur and Wilson (1967). Besides the importance of urban green as organizational structures for metropolitan areas, providing space for nature development, leisure/recreation, agriculture and cultural heritage; food and energy supply are becoming increasingly important. Typical operations of landscape architects include: landscape planning and design of (urban) green spaces and structures (e.g. green networks, metropolitan parks, urban forests), urban ecology, development of urban agriculture, terrestrial nature development and protecting heritage landscapes.

Picture:
Emerald Necklace
(Zaitsevksy 1982)
The Boston Metropolitan Park System as proposed in the The Boston Metropolitan Park Report of 1893 is a big, bold plan in a small book. Commissioned by the Massachusetts state legislature, and authored Sylvester Baxter and Charles Eliot, it offered a new vision of how open space and parks could be a part of the rapidly expanding metropolitan area. It proposed that the Commonwealth of Massachusetts purchase specific privately-owned sites for the sole purpose of permanently reserving public open space and parks, a regional approach to land use planning that was virtually unknown at that time. While the so-called Emerald Necklace park system, developed in large measure through the planning and design of the well-known landscape architect Frederick Law Olmsted Sr., had recently been developed in the city of Boston, the Baxter-Eliot plan represented something new. It dramatically expanded the scale of park planning to an area more than ten miles in radius from downtown Boston. This plan was likely the first of its kind in the states and abroad, and certainly the first implemented. In the 1890s, zoning did not yet exist and landscape architecture and city planning were just emerging as new fields of inquiry and practice.

Text:

Picture:
Metropolitan park system of Boston, USA (Personal archive Nijhuis)
The Emscher Region or Ruhrgebiet was once a horrible example of the devastating effects of industrial urban agglomeration. It has become representative for the re-invention of a landscape today. The Ruhr area – a region in Germany in the province of Nordrhein-Westfalia between the river Rhine, the Ruhr and the Lippe, covers about 4500 km² and connects 53 cities and 5.3 million people - has been transformed in an informal Ruhr Metropolitan Area though the connecting green spaces around the mostly canalised River Emscher. Once the heart of co mining and one of Europe's biggest centre of heavy industry the area came into rapid decline in the 1980ies. This economic downfall was turned around through planning into a model case for all of Europe. The consistent strategy is a combination long-term planning and ultra-short term interventions. It is composed of a long-held development concept, a project-based implementation and a succession of temporary events. The start was made with the Internationale Bauausstellung IBA’99 Emscher Park that innovated on transformation of brown-fields and industrial monuments. The IBA was followed by the master plan Emscher Landscape Park 2010 culminating in the European Capital of Culture RUHR 2010 and, most recently, the vision of a New Emscher Valley 2020.

The logic of ‘town devours landscape’ has been turned around into ‘landscape devours town’. Emscher is more than a park, it is becoming a regional cultural landscape or, as suggested by Henri Bava, a Metapolis – a multipolar urban construction where the landscape is the all-embraced connector.
Rotterdam seems an improbable place to have agriculture in the city. While the more fertile Westland production area is just outside Rotterdam, the city itself is more famous for its harbour and its inhabitant's hands-on mentality. But this conflicting situation was a challenge for 'Eetbaar Rotterdam', a group of young designers, to invest into research on urban farming here. 'Eetbaar' sees danger to liveability for Rotterdammers in the lack of high quality green recreational spaces, air pollution and other environmental problems. Urban farming could solve issues also of a economically weak class. In ‘Ruimte voor stadslandbouw’ (space for urban farming) Paul de Graaf of Eetbaar Rotterdam was mapping niches of urban space that were inaccessible, unused or temporarily disposable. He investigated into different types of professional agricultural exploitation like an edible edge of a forest, intensive farming on small plots, hydroculture under glass on roofs and combined vegetable and fish farming. Potentials of the whole Rotterdam area where analyzed on large scale. Four cases are: the Roof of the Bijenkorf, Marconistrapi, Housing in Charlois-Pleinweg and the centre of Ommord. These location specific designs of food production make the chances concrete.
Example THE FRESH KILLS PARK: LIFESCAPE
In this plan for Staten Island in New York a diverse mix of uses is proposed, but the majority of the park—1,740 acres—is devoted to natural areas, including open water, salt marsh and freshwater wetlands, meadow and woodland. Over 40 miles of bikeways, trails and paths open up many of the meadow and woodland areas for recreation in wild settings and enjoyment of the large-scale open space. The waterways can be used for boating and fishing as well as habitat, while the wetlands are reserved for wildlife. The master plan recommends a wide array of sports and recreation facilities, cultural and educational activities, restaurants, market spaces, waterfront programs, energy farming and greenhouses, art, architecture, gardens and earthwork features for the 330 acres of the park designated for active programming. The proposed land use approach is consistent with the aspirations for Fresh Kills Park suggested by participants in public meetings over the past three years.

Text:
Field Operations (2006)
Fresh Kills Park:
Lifescape (Staten Island, New York). Draft Master Plan

Picture top:
Masterplan Fresh Kills Park
(Field Operations, 2006)

Picture bottom left:
Impression of North Park Phase 1 Site Plan
(Field Operations, 2006)

Picture bottom right:
North Park Phase 1 Site Plan
(Field Operations, 2006)
Water infrastructures consists of what is planned, designed and constructed to manage water and riparian zones. Important issues here are coastal and river management, including structures such as, river modifications, seawalls and floodgates, as well as the use of beach nourishment, sand dune stabilization and the protection/development of flood forests and coastal/estuarine wetlands. Major flood control systems (dikes, levees, major pumping stations and floodgates), drainage systems (storm sewers, ditches), major irrigation systems (fresh water reservoirs, irrigation canals), as well as sewage collection, and disposal of waste water. Important operations of landscape architects are: landscape planning and design of flood defences, river modification, aquatic nature development, fresh water supply, water fronts, waste water treatment plants, etc.
The Tennessee Valley authority was chartered by Congress in 1933 with the purpose to improve the navigability and to provide for the flood control of the Tennessee River in the South Western USA. Further public services in this project where the reforestation and the proper use of marginal land in the Tennessee valley; The agricultural and industrial development of Said Valley; and a the national defense interest of Government properties at and near Muscle Shoals, Alabama. The TVA region, defined as the watershed of the Tennessee river and its tributaries, encompasses all of Tennessee and parts of six other states: Virginia, North Carolina, Georgia Mississippi, and Kentucky. As part of the new deal stimulation bills the TVA project integrally addressed various hydrologically linked issues of concern with unprecedented comprehensiveness. TVA remains one of the biggest examples of regionally integrated resource management in history.
Until recently Mumbai, the most populated and capital city of India, was accustomed to being soaked by the monsoon. The rains of July 26, 2005, however, did not soak the city; they flooded it. Hundreds died and much property was lost as parts of Mumbai went under many feet of water. Those rains were unusual. The average for the whole season fell in a day – 944 mm. However, it takes much less to flood Mumbai today. Three years on, 100 mm of rain or less is enough to cause a ‘flood’ and suggest that Mumbai is shifting from welcoming or abhorring a soak by the monsoon to fearing and fighting being flooded by it. An estuary demands gradients not walls, fluid occupancies not defined land uses, negotiated moments not hard edges. In short, it demands the accommodation of the sea not a war against it which continues to be fought by engineers and administrators as they carry sea walls inland in a bid to both, channel monsoon runoff and keep the sea out. Soak is an appreciation of an aqueous terrain. It encourages designs that hold monsoon waters rather than channel them out to sea; that work with the gradient of an estuary; that accommodate uncertainty through resilience, not overcome it with prediction. It moves Mumbai out of the language of flood and the widely accepted trajectory of war with the sea and monsoon that this language perpetuates. It recovers the world of soak. Soak, in brief, is about making peace with the sea; about designing with the monsoon in an estuary.
The Ooievaar Plan was the winning plan at the Eo Wijers competition in 1986. The name ‘Ooievaar’ (Dutch for ‘Stork’) summarises the essentials of the plan. The Ooievaar Plan proposed a new structure and water management method for the ‘grote rivieren’ the river system that crosses the Netherlands from east to west. This area was more known as a cultural geographical border to the Dutch than for its visual expression and land use potential. In the plan the concentration of natural development in the river floodplain of Rhine and Meuse leads to the formation of a coherent framework of such a size that prospects of self-regulating natural processes arise, and exceptional forms of recreation become possible. The basin areas are landscaped for agrarian use, so that the existing farms can continue operation in the future. Flexibility is built in by the dimensions and by a double water system of high and low level. This enables farmers to manage the groundwater level of each plot to suit its specific use. Landscape features in the dyke-protected areas, which currently suffer from a falling water table, are linked to the high water system so that a framework is formed on a smaller scale too. The Integral Ooievaar Plan was also the first experiment of the author’s using a method they called the ‘casco’. ‘Casco’ is a Dutch word to describe structure delivered at raw, like the shell of a building or the hull of a ship, which sets the general shape and guides future detailed development. The ideas exposed by this plan where the basis for the Room for the River (Ruimte voor de Rivier) projects in the Netherlands.
Example WHERE BEAVERS AND SEALS MEET

The Haringvliet - Hollandsch Diep - Biesbosch area stretches across the complete estuary of the 'large rivers'. In this area the influences of sea and river combine. Major flood control measures after the 1953 flood lead to large shifts in the exceptional sweet water tidal landscape. Along the area sweet-water residents like beavers in the Biesbosch could potentially meet the salt-water inhabitant seals at the North Sea. Bosch Slabbers developed a design research project ‘The Great Delta Zoom’ project for the International Architecture Biennale Rotterdam 2012. They asked how a ‘Business as Usual’ strategy of prolonging the current development policy of the region while addressing flood risk issues could make the area attractive and adaptive to create value for landscape, nature and economy. The developed future scenarios for Super Dikes integrate technical, natural and recreational programmes of great variety according to the very different areas around it. Each dike is not only part of a large plan but reacts and enhances landscape characteristics of the specific areas like dunes, salt marsh, silted coast, mud flat or sweet or salt water tidal forest. Multiple use and integration into nature preservation could make the necessary dike reinforcements less destructive for the landscape. New chances are offered for inhabitants and nature to participate in developing this large transformation programme even in times of recession. The plan shows new ways in governance for water infrastructure. Instead of monotonous centralistic mega structures the authors propose a functional continuum of varying landscape scenarios that leave space for local and private initiative. The designs are stimulating individual occupation of the space created by infrastructure as alternative to the creation of large abandoned infrastructural wasteland.

The studio is framed around the Rhine-Danube corridor, integrating and defining Europe between the North Sea and the Black Sea. The Danube River Basin collects water from territories of nineteen countries and it forms the international boundary of eight of these. The Rhine Basin connects nine countries. The Rhine is also the primary artery of one of the most important economic regions (about 1750 billion US$ GDP) of Europe and is characterized by large crowded urban areas, which harbors about 58 million inhabitants. Since 1992 the Rhine and Danube are hydrologically connected via the Rhine-Main-Danube Canal thereby creating a Trans-European waterway offering spatial, ecological, economic and social opportunities, as well as threats. Along the Rhine-Danube various projects have been selected based on their strategic and integral nature and potentiality to become a landscape architecture design-based case study. The waterway upstream and downstream dynamics connect the projects and will provide a common platform for dialogue and exchange while also revealing the distinctions and particularities across the trans-European waterway.

The symbolic act of connecting the two rivers gives the project its undeniable appeal, and makes Europe look like a geographic inevitability in times of political and economic unrest. In many ways, the symbolism of the blue axis out performs its economic and ecologic significance. The canal has 16 locks that overcome a height difference of 175 meters and many parts of the Danube simply are unsuitable for year-round navigation, a problem that is increasing with climate change. In order to make the evocative blue line through Europe a productive transport artery, massive river rectifications, weirs, new locks, intermodal harbours, and other dramatic landscape transformations will be needed. As part of European Trans European Networks (the EU territorial scheme for infrastructural development; TEN, 2008) the Rhine-Danube is a priority axis at national, regional, and European level. Political will and financial means have been mobilized for development of the waterway and solve current bottlenecks. But what will this means for the infinitely diverse riparian ecology of Europe’s two most famous rivers? Will they be transformed into homogenous conduits for trade?
The infrastructures of the last century were characterized by a paradigm that sought to overcome the unpredictable dynamism of nature in order to facilitate more static and uniformly defined human needs. However, over the last decades this conquest of nature has been under revision due to increased knowledge and awareness about the co-dependencies between our social and economic desires and the ecological processes. The landscape architecture design challenge along the Rhine-Danube is found at the intersection of these debates about spatial quality, economic growth, green networks, habitat, biodiversity, urban development, flooding, urban water management, urban agriculture, drainage/irrigation, energy production, and a lot more pressing issues of high socio-political significance.

Landscape architectural design practices can fulfil several roles in developing these infrastructures in more innovative ways. The studio invites students to develop thesis that critically engage in this pressing contemporary challenge at the scale of the continent. Until 2020 1 trillion Euros (1,000,000,000,000 EUR) has been budgeted for the development of European Infrastructure (European Commission, 2011). The urgency for landscape design in the next few years is to formulate a position and design strategies that rethink the infrastructural paradigm for the 21st century now, to make these huge investments a truly valuable contribution to our future living environment.


Pictures on the next pages: Urban Tissue, Natura 2000, Water, Soil and Transport Networks (Steffen Nijhuis, 2012)
5 METROPOLITAN AREAS, 10 PROJECTS

While each of the following projects along the Rhine-Danube have their own geographic, social, economic, and ecologic particularities they are all connected along the same hydrologic system. A hydrologic system that is a hybrid between man made structures (waterway infrastructures) and geographic features (the river’s hydromorphology) and epitomizes the struggle of the 21st century: to realign the spatial development of our global society in better harmony with ecological and social systems. Additionally, all of the following infrastructural projects are developed at the intersection of European, national, municipal and private interests. Because all projects require investments from stakeholders at all of these public and private levels design proposals need to operate within an intricate understanding of these various scales.

ROTTERDAM (NETHERLANDS)

1. Highway A15 Maasvlakte-Vaanplein
2. Urban agriculture South Wing
3. EcoParc Biesbosch-Voordelta

RUHRGEBIED (GERMANY)

4. Green hub Highway E34-Duisburg Hafen
5. Urban open spaces Ruhr-area

VIENNA - BRATISLAVA (AUSTRIA/ SLOVAKIA)

6. Bratislava river bypass

SERBIA

7. Hydroscape NoviSad
8. Belgrade waterfront park

BUCHAREST (ROMANIA)

9. Bucharest-Danube canal
10. River-modification Danube

ALTERNATIVE LOCATION IN RHINE-DANUBE CORRIDOR

11. Self defined Project
6. Bratislava river bypass

9. Bucharest-Danube canal
   10. River-modification Danube

Serbia & Montenegro

Novi Sad

Bulgaria

Hungary
HIGHWAY A15 MAASVLAKTE-VAANPLEIN
The A15 is a transportation axis that connects the Rotterdam harbour with the European Hinterland. Between Maasvlakte at the North Sea coast and Vaanplein the A15 connects to the larger terminals in the harbour and the industrial and logistical complexes that are associated with it here across 45km. Through the dominant position of Rotterdam harbour and road based transportation a huge share of the fast moving consumer goods and industrial supplies of Europe passes this road. The scale jump into global economy for Rotterdam harbour leads to constant transformation of this estuarial landscape. With the current building of Maasvlakte 2 the seaside tip of the Highway is extended across Maasvlakte 1 until 2015. The transportation capacity will be extended to fight frequent traffic jams in the 45km between Rotterdam and the North Sea. In the midst of all the industries A15 has also become a route to bring inhabitants of Rotterdam to their various recreational activities that take place along the southern coast and even on the quite unnatural Maasvlakte. The local effects of these original colonisations are oftentimes surprising. Their improvisation contrast the strong global interdependencies of the flow of goods and impressive infrastructure and industry of national and European economic importance. What are the spatial chances in the interconnection of the further developing economic and recreational networks through the A15?
URBAN AGRICULTURE SOUTH WING
The South Wing refers to the southern part of the Randstad combining larger cities Den Haag, Rotterdam and the smaller cities of the Region up to Dordrecht. It is a Planning Vehicle to integrate these cities into a meaningful global metropolitan area. If looking at the area as a Green Infrastructure it is of European importance for food production in the Westland and in the eastern provinces of ‘Eastland’ historic ‘slow food’ agricultural landscape forms a strong contrast with ‘fast food’ hors-sol production in glasshouses and giant ‘meat factories’ of cattle farms. New visions to turn the agricultural landscape into Metropolitan Parks for its 3.2 million inhabitants do not seam to match either speed of food production flow. Other contrasting elements in the South Wing are transportation flows to the impressive World Port, and a water dominated landscape. The relationship to the rivers and canals formed the basis of all historic city development in South Holland. A dominant water management and safety infrastructure of large scale ensures safety from coastal and fluvial flood risks. What project could lead to targets of cleaner economy, better accessibly, living comfort and public green spaces? Can efficient high-rise farming or extensive localised neighbourhood food production help to reach these targets?

Picture top: Towards New Capital project (Ian Douglas-Jones’s, also featured in London Yields)
Picture bottom: Satellite picture South Wing Randstad (Google Maps)
ECOPARK VOORDELTABIESBOSCH
The Haringvliet-Hollandsch Diep – Biesbosch area encompasses the complete estuary from Voordelta to Biesbosch. In this area the influence of the sea and the rivers combines, fresh water meets salt water in an (semi-) inter-tidal zone. A reconsideration of the current flood risk management strategy offers opportunities for spatial development. The area from Voordelta to Biesbosch can become a unique continuous ecopark, a green gateway to Rotterdam. In this perspective attractive and interwoven routes connect the city with an inter-tidal zone, allowing people to experience the sequence from fresh water through brackish to salt water. The dynamics of the water creates an increasing environment of mud flats and brackish marshes with space for new types of housing, water safety and ecological qualities. The Biesbosch can become more tidal with space for more tidal forests.

But how can we create such an ecopark build on natural processes using dams, dikes and waterworks? And what landscape architectonic interventions are needed to facilitate the dynamics of water, but in same time creating an interesting and safe place to live, work and stay in?

Picture top:
Ecopark Waalwijk
(www.polderpv.nl/)
Ecopark_Waalwijk.htm)

Picture bottom:
Satellite picture
Haringvliet & Hollandsch Diep
(Google Maps)
GreeN HUB HIGHwaY e34-DUISBURG HAFEN

The E 34 (German A 40) crosses the Rhine at Duisburg Harbour at the eastern edge of giant Metropolitan Area Ruhrgebiet (Ruhr-area). This Intermodal traffic node used to be one of the hotspots of German industrial export and has undergone massive transformations with the whole Region. The A 40 is a former Bundesstrasse 1 and cuts right through the centre of Essen and along many impressive mining and heavy industry sites. It is a main connector up to Dortmund at the Western End of the Ruhr-area. Every morning and evening traffic jams block 120,000 car-drivers in this most used piece of highway. In the Shadow of this Highway a peculiar urban space was generated inside a heavily transformed industrial landscape, than can only be explored by stepping out of the car. During European Capital Ruhr 2010 the project ‘Die Schönheit der Grossen Strasse’ (The Beauty of the Big Road) explored the urbaniy of this infrastructure and explored the aesthetically and social space with artistic intervention. In another project ‘Stilleben’ (Still Live) Millions of people came walking and biking on the street to see a 60km long table during a closure of traffic for the Ruhr 2010 festivities. Both the art project and the popular happening illustrate, how this most occupied common living space is much more than a traffic infrastructure to the five Million inhabitants of the Ruhr-area. What landscape design projects could sustainable connect the often times dysfunctional transportation with valuable secondary uses? Could such project incorporate a more positive identification of the region with it's crucial infrastructure? Can permanent development strategies capture the momentum that the 2010 short time projects revealed?
URBAN OPEN SPACES RUHR-AREA

Open spaces in contemporary urban landscapes like the Ruhr-area are taking on a multifunctional character where functions like leisure and tourism, conservation of nature and landscape, and cultural heritage start to predominate. It is becoming a public space. This transformation calls for development-based approaches and requires management to, on the one hand, continue to meet present-day requirements and, on the other, to safeguard the spatial quality of the surroundings. At the same time, a robust spatial structure has to be developed where ecological and other landscape-related values are protected and maintained. Regional project envelopes as exemplified by the Emscher Landscape Park or Rhein-Main Regional Park serve as a practical, goal-oriented incentive for urban landscape development and protection with key roles for landscape architects and urban planners. Their involvement in spatial design-driven research on the regional scale ensures that metropolitan areas are developed in a responsible fashion. But how can we incorporate urban and suburban factors in the planning process and safeguard the difference between urban and rural areas and regard it as an opportunity to develop and protect the qualities of metropolitan areas? What are suitable strategies for spatial development in terms of collaboration, integration, qualification of the landscape, regional action and networks?
BRATISLAVA RIVER BYPASS

At the most Southern tip of Slovakia, Bratislava is sandwiched in between the borders of Austria and Hungary. Historically Bratislava marks the western border of the iron curtain and is therefore still the frontier of a complex reconciliation process between long-separated people and cultures of East and West Europe. Now, with all bordering countries being part of the EU, metropolitan development along the Danube river basin is taking new meaning. Bratislava was founded on the high northern embankment of the Danube. Intense river rectifications of the old meander-belt, which were constructed under communist rule, spurred urban sprawl in the southern floodplains of the Danube. Due to increased precipitation and more irregular flows on the Danube the southern area of Bratislava is becoming increasingly vulnerable to flooding. Two current infrastructural ambitions, to create a river bypass and the construction of a lock, provide the preconditions to develop a larger landscape infrastructural strategy for the city. Flood mitigation, urban sprawl, brownfield mediation, recreation and navigation are some of the ‘flows’ that a spatial plan for South Bratislava should comprehensively address. Herein, an understanding of hydrologic engineering, overlapping ecological systems, and the metropolitan/regional development in between Vienna, Bratislava, and Budapest can inspire a new type of infrastructural approach.
Novi Sad is the second biggest city in Serbia. It is the capital of the Autonomous Province of Vojvodina and one of the last sites of violent conflict in Europe. In 1999 misguided NATO bombes destroyed all the bridges over the Danube and several vital industrial facilities. Nato’s blunder exposed the strategic significance of Serbian thoroughfare for cities up and downstream of Novi Sad. The bombings also set Novi Sad's development back decades from which it is still recovering. A large part of the challenges Novi Sad faces are related to the hydrology of the Danube including issues such as; flood-protection, the development of recreational spaces, a new intermodal port, a water treatment facility, and a bridge. In the 2030 master-plan, the development of several of these hydrologic programs have been proposed in what are currently agriculture fields, industrial sites, and wetlands. While all projects are linked by water they are currently planned as isolated blocks. The current approach misses the chance to exploit the co-dependencies, feedback loops, and hybrid possibilities that exist in between the sites existent systems. The site’s programmatic challenge therefore paves the way for a spatial design proposal where infrastructure and landscape can take leading role in structuring urban development in and around Novi Sad and the Danube. The sociopolitical setting, which includes the EU-ascension of Serbia, post-socialist political restructuring, and regional collaboration along the Danube basin, must be well understood in order to strategically propose a meaningful project. Infrastructural proposals therefore will have to develop a conscious position in relation to these processes at various scales.
BELGRADE WATERFRONT PARK

After the war in Yugoslavia the general political infrastructure of Serbia dissolved. As a result urban development in Serbia became haphazard due to widespread migration and lack of planning implementation. What was left of a formal government sold off land cheaply and illegal occupation around the city ran strife.

The old harbor of Belgrade was part of this dubious wholesale in which public property became privately owned. The remaining harbor infrastructure is now outdated and has been zoned as a brownfield for redevelopment. A new intermodal harbor has also been proposed on the other side of the river in an existing wetland. The brownfield reclamation and the development of the new harbor together form a complex challenge where hard infrastructure, the cities recreational infrastructure, and the Danube’s hydrological infrastructure have to be integrally dealt with. The scope of the project will reveal the evolution of production in Europe from a post-fordist system to a globally orchestrated logistics network. Agenda’s including brownfield reclamation, wetland rehabilitation, flood-protection, real estate development and logistical infrastructure will somehow have to find resolution on Belgrade’s waterfront. The unlikely convergence of programs in the Belgrade project expose the complexity caused by conflicting interest that surround river development. As with the project in Novi Sad, an understanding of the complex sociopolitical developments that are taking place is necessary to develop a viable strategy.
BUCHAREST-DANUBE CANAL

Bucharest is the capital of Romania and unlike most large cities near the Rhine and Danube is found at an unconventionally large distance from the main river along the non-navigable tributary Dambovita. Plans to connect Bucharest to the Danube by means of a canal have existed since 1880, but construction only started in 1986 under Romania’s last communist leader Nicolae Ceaucescu. After Ceaucescu’s execution in 1989 construction ceased. Today the remnants of a gigantic infrastructural project lie deteriorating in the periphery of Bucharest. The channel and its infrastructural ruins provide a provocative terrain vague, characterized by a surreal juxtaposition of severe contamination, recreational use, concrete heroism and remnants of a pastoral - almost sublime - landscape. Plans to finish the canal have never ceased, but recently European ambitions to make the Danube more navigable to the east of Vienna have spurred ideas to make use of this European momentum to finish the canal as well. Finishing the 87 km long canal will have massive impact on the landscape, but the fulfillment of the unfinished plan from the 1980’s is still a political taboo. A canal proposal must include proposals for irrigation systems, recreational areas for the metropolis, flood buffers, and armatures for urban growth of the capital. The Arges challenge allows for the reinvention of the canal typology for the 21st century.

Picture top: Lacul de acumulare (Mihailesti, 2008)  
Picture bottom: Satellite picture Bucharest (Google Maps)
RIVER-MODIFICATION DANUBE

Romania often boasts being the most important state on the Danube because it has the largest border with the river of all riparian states. The Romanian stretch of the Danube, however, is also one of the most unaltered areas along the stream and therefore has been identified as one of the biggest bottlenecks for European trade along the waterway (TEN-T). Besides being the site of various protected Natura 2000 locations (EEA), the river is also the border with Bulgaria. Remarkably, the 550km stretch of the Danube between Romania and Bulgaria has only one bridged crossing (a second is under construction). This lack of connection is uncommon among neighbouring EU states and the River development framework could give the border new meaning. The planned river modifications are thus situated within the delicate political context of two states that only after 1989 have become liberated of the large ruling powers that instrumentalized the Danube border in Imperial Power Games throughout the Modern Age. New projects also need to deal with the unpopular legacy of communist state engineering that is voiced by an increasingly powerful environmental lobby that would prefer the rivers unaltered. The question is whether innovative strategies for river development can overcome the past and design for the harmonious co-existence of economic, social, and ecological “uses” of the river. Several harbors along this route provide interesting departure points for investigation, but more than a point intervention this stretch of the Danube requires a more methodological approach similar to the Dutch “Room for the River” strategy. Landscape infrastructural concepts that are relevant across the whole stretch have to be develop at high resolution while remaining relevant along the 550km stretch. Cross-Sections that integrate settlements, agricultural production, logistical infrastructure, and flood mitigation will intrinsically deal with the relation and metropolitan development between Bulgaria and Romania.

Picture top: The Danube-Drava confluence between Serbia and Croatia (Mario Romulic)
Picture bottom: Satellite picture Romania (Google Maps)
SELF DEFINED PROJECT
Within the described framework of European Rhine-Danube corridor there is plenty of room to define your own project (in the Netherlands or abroad) on different scale levels (from transnational to local), and put your own desired accent. Each student can formulate his own project specific to an area as long as it reflects one of the three thematic lenses (T, G or W) and connects geographically to the Rhine-Danube Waterway.

Picture:
Veldwerk by artist Yeb Wiersma, 2011
(Mapping Flevoland #1, 2012)
THEORETICAL BACKGROUNDS


PROJECT INSPIRATION


West8 (2007) Mosaics. Ludion
SPATIAL FRAMEWORK


OVERVIEW AND STRUCTURE OF THE STUDIO

The studio strongly relies on the force of common experimental exploration of the relevant subject landscape as infrastructure in a concentrated academic environment. It is both extremely large and very small; On one hand it is highly interrelated to important current developments within all Europe – that are model to global solutions in need. And on the other a small and intensely monitored group of students with teachers with relevant scientific and practical knowledge. The goal is to not only enable students to make a good project but that their projects may be significant statements positioning individual students and the whole group in a large professional field. As a group we want to keep an open and productive discussion and – as in all good research – ask the right questions to which we do not know all the answers yet. We commonly define what TU Delft Landscape Architecture will be worth in both the scientific a professional world. Flowscapes projects will position Delft in the world of Landscape Architecture at the interface of Urbanism, Architecture, Civil Engineering, Environmental and Spatial Planning and the projects will be opening the students eyes on one of Europe’s most relevant academic job markets. Every single student’s own initiative and critique to our experiment are essential to make this journey across our continent succeed.

The studio is a refereed design studio. Besides the formal evaluation moments (in Dutch: peilingen), the studio work will be reviewed by two or three external experts in the field. During two sessions before Evaluation 2 (P2) and Evaluation 4 (P4) students receive critical feedback on their projects.

Please check the detailed schedule for the exact date, time and location. Updates will be provided though blackboard and/or email.
STUDIO WORK

Tuesday afternoon and Thursday morning studio work with collective and individual sessions with the tutor team and guest tutors. In the first week there will be full time introductory program with lectures, group work and presentations. After P1 there will be an exchange program of one week with international students. This is an ideal opportunity to exchange views, develop innovative ideas and stimulate critical thinking on the topic by design workshops, brainstorming, design charrettes, rapid iterative testing/evaluation, etc.

SELF STUDY

Besides group work self study is an important element of the studio. Self study is a form of study in which one is to a large extent responsible for one’s own instruction. Throughout the semester student will spend a great deal of their time with thinking, drawing, reading and writing by themselves. Self discipline, organization, working conditions and planning are important issues in this respect and the students own responsibility. Please check chapter seven for the expected products and tailor the time planning towards an effective and efficient work flow.

The tutors will facilitate and support the work of the students as much as possible. Feel free to contact them for (specific) help and/or information. We also encourage students to interact with other students providing for feedback, brainstorming and a nice atmosphere for research and design.

Please visit the student portal for more (general) information on academic counseling, etc. (http://studenten.tudelft.nl/en/nl)

PRESENTATIONS

As scheduled the students have to present their research and design by means of spoken, visual and written presentations on a regular basis. There are three types of presentations scheduled:
- Work in progress presentations on a regular basis (three-weekly)
- Refereed presentations
- Evaluation 1 (P1), Evaluation 2 (P2), Evaluation 3 (P3), Evaluation 4 (P4), and Evaluation 5 (P5) according to the schedule.

An overview of expected products can be found in chapter 7.

More information about the formal graduation requirements can be found in the TU Delft Graduation Manual Master Architecture, Urbanism & Building Sciences. Academic year 2012-2013.

COLLOQUIA

Throughout the semester there are three thematic colloquia with two or three lectures and discussion.
- Transportation Infrastructure, Thursday 11 October 2012
- Green Infrastructure, Thursday 15 November 2012
- Water Infrastructure, Thursday 13 December 2012

During this sessions experts from a variety of related disciplines will address the theme from a particular point of view.

FIELD WORK

In research and design field work is essential for understanding the site, its context and its design brief. So we encourage students to visit their project area as soon as possible and as oft as needed. Week five will be an excellent opportunity to visit the project area for the first time to sketch, take notes and pictures. Depending on the project we can arrange also some interesting local contacts who can provide you with data and information. There are also some possibilities for external funding of your fieldtrip. Please contact the studio coordinator for more information on the possibilities.

COMPLEMENTARY COURSES

For Landscape Architecture-students the studio is complemented with the related courses: Research methodology in landscape architecture (AR3LA020; 5 ECTS), Design with natural processes (AR3LA030; 5 ECTS) and Space and Society (AR3LA040; 5 ECTS). These courses provide for input and refinement in terms of theory, methods, techniques and practical clues and directions. The expected output of the courses Research methodology and Design with natural processes are mutatis mutandis input for the integral report. See the course descriptions for detailed information.
Urbanism-students follow complementary courses offered by Urbanism.

MENTORSHIP

For Landscape Architecture-students the main mentor will be appointed (Steffen or Daniel). Before Evaluation 2 (P2) the students have to choose their second mentor from Urbanism or Architecture. For Urbanism-students the main mentor will be someone from Urbanism, the second mentor from Landscape Architecture.

PUBLICATION

We have the ambition to publish a book with results of the studio as research output. But this will largely depend on the quality of the student projects.
Date, time and location
Please check the provided schedule for the exact date, time and location of the evaluations. Updates will be provided through blackboard and/or email.

Deviations/Exceptions
Deviations from required deliverables are possible under the condition of clear and solid argumentation (especially scales levels are dependent on selection of sites and projects).

EVALUATION 1 (P1): SITE ANALYSIS AND PROJECT HYPOTHESIS

1. Project title and abstract
   Short title with +/-150 word abstract about the project.

2. Theoretical structure
   a) Selected literature: minimum of three influential articles, texts, books which are formative in the definition of thesis project.
   b) +/- 400 word formulation of project and site. Thesis is structured through reflection on selected articles and disciplinary debate about landscape architecture. As a thesis student should be able to develop a critical stance toward the discipline and/or its societal relevance

-> Material and (pre-)products of Research methodology (AR3LA020), Design with natural processes (AR3LA030) and Space and Society (AR3LA040) serve as input

3. Methodology and planning
   The methodology requires the student to systematically organize the development of means and ends during their thesis process. Why are certain analyses done and how is the required information obtained? Are mappings, interviews, or data analysis the most effective means to develop a rational and logical support for your hypothesis and subsequent design choices?

   In order to narrow down your project it is useful to clearly state what theories/fields have been influential and what direction you plan to take your thesis. Is your methodology based on an anthropological, data driven, formal, socio-political, or historical approach? While you’ll probably use a bit of all, emphasis is beneficial. A schedule and diagram of the thesis period
should be presented that shows how: selected methods, sources, field, (types) of information, feedback moments, and critical deadlines relate over time.

-> Material and (pre-)products of Research methodology (AR3LA020) serve as input

4. Site Research

Technical mapping/analysis:
The technical mapping aims at creating an systematic and transparent familiarization with the site and the processes involved by tracing and analysis of physical, biological and cultural aspects. The mapping explores geometry, quantity, velocity, force and/or trajectory. How is the site is constructed, what forces on a local and regional level currently relate to spatial change.

Visual representations of (geo-)datasets and how they interrelate should be carefully selected in relation to the initial hypothesis and project. Technical maps aim at producing relevant and solid base maps and knowledge from where the students design work can depart.

- Regional Analysis - 1:100.000 regional maps (min. 2 maps)
  - Specification of site's regional significance and connection to other urban, industrial, agricultural, and environmental conditions.
  - Relevant (measured) flows and parameters (economic, ecologic, social)

- Local analysis: 1:500 maps (min. 3 maps), 1:500 site sections (min.: 3 sections)
  - Relevant selection of (measured) flows (economic, ecologic, social)
  - Important locations and spatial characteristics
  - Spatial relationships between land-uses

- Experiential analysis (min. 3 images)
  - Photo/Video/Drawing analysis of site using graphic methods from perspective. Perspective is open to interpretation, aerial, moving, satellite are all valid ‘perspectives’ but should selected on the grounds of the project.

Picture:
Speculative Procedures
(Busquets et al, 2007)
Diagrams of relevant landscape systems.
(min. 1 diagram)
   - Diagrammatic representation of selected flows, objects, processes and conditions of importance for project. Abstract graphic distillation of project essence.

Historical research (min 1 timeline/collage/mapping)
   - Reflection on historical development of topics relevant to project definition, for instance, if flooding is relevant than historical study of levee construction and river dynamics might be more relevant than road infrastructure. Similar to group work on Rhine-Danube, but now for location.

Precedent research (min 2 project analysis)
   - Reflection on relevant precedent project that is of great inspiration for your design intentions and relevant to chosen site.

-> Although the emphasis of the analysis is on spatial aspects, thorough insight in ecological and societal aspects should be reflected in your findings as introduced in Design with natural processes (AR3LA030) and Space and Society (AR3LA040)

Conceptual mapping (min. 1 A0)
The conceptual mapping is an A0 poster and/or model that integrally represents an interpreted analysis. The poster should visualize the thesis project through selecting, emphasizing, juxta-, and superimposing hypothetical links and relationships from the technical analysis. The conceptual mapping should be the departure point of the design work. It should clearly emphasize the selected parameters and topics of interest that will be guiding for the design process. Selection here is regarded as a crucial design decision.

EVALUATION 2 (P2): SITE SELECTION AND CONCEPT DESIGN

At Evaluation 2 a conceptual schematic design should be presented including last updates of mapping and methodology. The bridge between theory and design should be clearly presented in written and designed work. The student should be able to translate a project into a spatial proposal.

Design decisions should be present at regional, metropolitan, and site scale. That is: diagrammatic regional concepts and strategies should be made in relation to 1:500 design sections and plans (and vice versa). Last additions to spatial analysis can be included, but design elaborations are the focus of Evaluation 2.

1. Project title and abstract
   Updated: short title with +/-150 word abstract about the project.

2. Theoretical structure
   Abstract and 400 word reflection from Evaluation 1 should be expanded and further elaborated into research outline and >1500 word position paper. This position paper is output of the complementary course Research methodology in landscape architecture. While in Evaluation 1 the emphasis can be more general, analytical, and descriptive in Evaluation 2 a clear position should be formulated with respect to the site and the project. How can a concept, a specific location, and a particular methodology visualize and make imaginalble your position through a design?

-> Material and products of Research methodology (AR3LA020) and Design with natural processes (AR3LA030) serve as input

3. Methodology and planning
   Updated products of Evaluation 1 including reflection on planning and methodological approach

-> Material and products of Research methodology (AR3LA020) serve as input

4. Update mapping
   Updated products of Evaluation 1 conceptual mapping in relation to concept design

5. Conceptual Design
   o Conceptual Diagrams
     - Diagrammatic distillation of the project essence
   o Site Selection
     - Selection of intervention site and boundaries supported by analysis from Evaluation 1
   o Regional concept - 1:100.000 regional maps
Picture left top: Engineering cutoffs (Mathur De Cunha)
Picture right top: Time as organising principle (learning from FedEx, Jola, 2012)
Picture left bottom: (James Corner)
Picture right bottom: Rvtrweb (Thun Velnikov)
o Design
- Plans on metropolitan scale
  (1:50,000/25,000) (min 1)
- Plans on site scale (1:5000/1000) (min 1)
- Design typologies/principles
- Relevant sections (1:500) (min 2)

o Working Model (planar + sectional)
- Conceptual working model. Not a presentation model. Should be set up to change. Relevant topographic resolution

-> Although the emphasis is on spatial design, ecological and societal aspects should be an integral part of your design as introduced in Design with natural processes (AR3LA030) and Space and Society (AR3LA040)

EVALUATION 3 (P3): DETAILED DESIGN

At Evaluation 3 the concept design should be further developed into a detailed design proposal. Evaluation 3 is really focused on design work and can be seen as the last real possibility to make big transformations to plan. At Evaluation 3 the focus is primarily on the design. Fulfilment of Evaluation 2 means that at this point analysis and theoretical position should be clear.

Detailed Design

o Conceptual Diagrams
- Diagrammatic distillation of the project

o Regional concept - 1:100,000 regional maps (min. 1 concept map)

o Design
- Plans on metropolitan scale
  (1:50,000/25,000) (min 1)
- Plans on site scale (1:5000/1000) (min 1)
- Design typologies/principles
- Relevant sections (1:500/200/100) (min 4)

o Technical design detail:
  The most important section of the plan and design should be selected and technically investigated.
  - Selection of most important sections of design (1:100)
  - Plan detail of exemplary /important parts of the design (1:200/100/50)

o 3D drawings and/or collages
  - 3D drawings and/or collages of design concept (min 3) (sketch/3d/modelphotography): vantage point should be strategically selected. No random renders, but carefully selected representations of concept and site.

o Working Model (planar + sectional) 1:200 high resolution working model
-> Although the emphasis is on spatial design, ecological and societal aspects should be an integral part of your design as introduced in Design with natural processes (AR3LA030) and Space and Society (AR3LA040)

EVALUATION 4 (P4): FINAL DESIGN

1. Theoretical and methodological structure: Integral report
   Final theoretical position paper in relation to site design and regional proposition.
   Abstract 100 words +/- 5000 words content: statement of hypothesis, review literature, development position, reflection on methodology, explanation project, conclusion.
   Should be of publishable quality.

2. Review Analysis
   Review of the most relevant analysis drawings.

3. Final Design

o Conceptual Diagrams
- Diagrammatic distillation of the project essence
Pictures:

Rome, Palombi Editori/
Faculty of Architecture,
University of Rome)
LEARNING OBJECTIVES

The student:
- has knowledge of the theory, methods and instruments of landscape architecture: principles, design research, design tools, strategies and methods
- is able to prepare spatial concepts and landscape architectural designs at multiple scales, which meet aesthetic, technical and functional requirements as proof of their scientific knowledge
- is able to relate that knowledge to other design disciplines and scientific fields

Regional Concept - 1:100.000 regional maps (min. 1 concept map)
- Map describing regional relations that concept design implies. For instance, if a wetland is the topic, what are the upstream and downstream implications of proposed interventions? What regional systems does the proposal tap into or try to change?

Design
- Plans on metropolitan scale (1:50.000/25.000) (min 1)
- Plans on site scale (1:5000/1000/500) (min 1)
- Design typologies/principles
- Relevant sections (1:500/200/100) (min 4)

Design Detail
- Selection of most important sections of design (1:100)
- Plan detail of exemplary /important parts of the design (1:200/100/50)

3D drawings and/or collages
- 3D drawings and/or collage of design concept (min 3) (sketch/3d/modelphotography): vantage point should be strategically selected. No random renders, but carefully selected representations of concept and site (aerial, perspective etc. are all possible.).

Presentation Model (planar + sectional) 1:200/100

-> Although the emphasis is on spatial design, ecological and societal aspects should be an integral part of your design as introduced in Design with natural processes (AR3LA030) and Space and Society (AR3LA040)

EVALUATION 5 (P5): PUBLIC PRESENTATION

1. Theoretical and methodological structure:
   Integral report
   Same as Evaluation 4 but including last drawings and handed in as hardcopy.

2. Final Presentation
   Presentation according to personal preference.
SUBJECT

The course provides students with academic knowledge and skills in order to conduct and understand science based research and design in landscape architecture. The course explores basic research issues and concepts, as well as specific strategies for research and design in the urban landscape and focuses on research methodology and criteria. The course aims at building a research framework for the graduation studio.

AR3LA020

RESEARCH METHODOLOGY IN LANDSCAPE ARCHITECTURE

TUTOR TEAM
STEFFEN NIJHUIS

WORKSHOPS
JOHN LONSDALE (CARTOGRAPHIC DESIGN RESEARCH)
STEFFEN NIJHUIS (RESEARCH-BY-DESIGN)
SYBRAND TJALLINGII (S2N)
Picture: Methodology Books (Steffen Nijhuis)
Students with some practical methods and techniques for landscape architecture. The exercises promote the dialogue between academic research (design research) and the design practice (research by design) in urbanism. Practitioners and researchers from the field will introduce and guide the students via an assignment through different design-oriented approaches such as the cartographic design research, research-by-design and strategy of 2 networks.

Finally, every student has to deliver a position paper reflecting in-depth understanding, critical reflection and scientific attitude towards theory in landscape architecture. This paper aims to provide a first research outline for the graduation project and serves as input for the final report.

EXPECTED PRODUCTS

Seminars
As scheduled, there will be a thematic session of three verbal presentations. Three groups of two students will prepare a verbal presentation of 10-15 minutes addressing the assigned text. During the presentation, the text will be summarised, analysed, discussed and illustrated with examples (i.e., exemplary landscape designs). Two other students will be asked to ask questions and give a critical reflection.

Workshop
As scheduled, there will be a thematic workshop with an introductory lecture followed by a short assignment focusing on the application of a particular method and/or technique. The hands-on assignment will be elaborated in groups of two students guided by an expert in the field. The outcome serves as a building block for the design studio.

Position paper
Finally, every student is asked to write a research paper of at least 3000 words which reflects an in-depth understanding and critical attitude towards theory, methods and techniques in landscape architecture and serves as input for the final report.

OVERVIEW AND STRUCTURE OF THE COURSE

The course is organised around three themes: (1) Landscape architecture as a practical science, (2) Design thinking in landscape architecture and (3) Attitudes in landscape architectonic research and design. In Landscape architecture as a practical science, students will get to know general academic perspectives, critical thinking and case-study research. In Design thinking in landscape architecture, the design process, creative thinking and design research will be elaborated. Attitudes in landscape architectonic research and design addresses fundamental methods and techniques for research and design. It considers landscape as a living system (process), as a scale continuum (context), as a 3D-environment (space) and/or as a palimpsest (history).
LEARNING OBJECTIVES

**knowledge**
- of landscape architecture as a practical science
- of the theory, methods and instruments of landscape architecture.
- of other disciplines involved in spatial design, namely architecture and urbanism.

**skills**
- in general academic perspectives and criteria
- in communicating a plan to others using visual, written and verbal methods.

**reflection**
- on the relationship architecture/urbanism - landscape architecture.
- Insight in the profession of the landscape architect and the role of the landscape architect in society;

RECOMMENDED LITERATURE


Provided


Picture Next Page:
Neeltje Jans
(Rijkswaterstaat)
SUBJECT

The course provides students with a basic understanding of natural processes and systems; the relationships between living communities and site, climate and development. Designing in a sustainable way means to work in accordance with nature: both to support and allow for natural systems, as to use natural processes as co-designer.
Picture:
Eco quarter
(Âgence Ter, 2009)
COURSE CONTENTS

Ecology is the study of organisms and their environments and the evolutionary history of that relationship. Natural systems consist of different components, each with their own processes and patterns: climate, soil, geomorphology, hydrology, vegetation, animals, human influence. Their relations in time and space determine the field of landscape ecology. Three major fields of landscape ecology are important: the functioning of ecosystems and their species (system ecology, functions and processes, hierarchy, time scale); spatial conditions (ecology and space, configuration of landscape elements related to the survival of species); relation to society (ecology and society, notions of nature, nature quality and integration of functions).

Topics include: abiotic factors (system descriptions of different habitats), biotic processes (succession, predation etc), biotic patterns (plan societies and vegetation), animal populations in time and place and historical human influences. Transportation infrastructure, green infrastructure and water infrastructure will serve as lenses to engage in the field of landscape ecology.

OVERVIEW AND STRUCTURE OF THE COURSE

The course is directly linked with the design studio and consist of introductory lectures and input related to the project on an individual bases (project related).

The focus of the lectures is on theory of landscape ecology, illustrated with examples of landscape designs, in order to provide design principles, concepts and strategies. The lectures are organised around the themes: water infrastructure, green infrastructure and transportation infrastructure. The lectures will require preparation of the student by studying assigned texts. The relationships in time and space between climate, soil, geomorphology, hydrology, vegetation, animals, and human influence will be explored in the analysis of the project area. The application of landscape ecology principles, concepts and strategies is integral part of the design. Therefore it is necessary that the student writes a plan or “landscape ecology paragraph/chapter” with the findings of the analysis complemented with an argumentation and explanation of used landscape ecology principles, concepts and/or strategies, illustrated with precedents.

EXPECTED PRODUCTS

Lectures
As scheduled there will be introductory thematic lectures. Students have to prepare this sessions by studying assigned texts related to the topic in order to make an active contribution to the discussions and take full advantage of the lectures.

Studio
Students have to analyse and design landscape ecology aspects in their project. In order to make full use of the experts student prepare/collect project related material and questions concerning landscape ecology.

Landscape ecology paragraph
Finally, every student is asked to write a landscape ecology paragraph of at least 2000 words as input for the final report (from Evaluation 2 onwards). The paragraph should address relevant findings from the analysis and the used landscape ecology principles, concepts and/or strategies, illustrated with precedents.

LEARNING OBJECTIVES

The student:
- has insight into and the ability to apply and deal with natural processes, in particular climatic, geomorphological and vegetative processes, as well as environmental aspects of the landscape development
- has insight into and the ability to apply and deal with ecosystems and their components
- has insight into and the ability to apply and deal with the spatial conditions of ecosystems
- has insight into and the ability to apply and deal with the relation of ecology and society

RECOMMENDED LITERATURE


Picture Next Page:
Aerial Picture Windmills
(Alex Macclean)
SUBJECT

There are different perspectives on the use of the living environment; these are determined by the different disciplines in people-environment studies and by the type of environment. Space and society touches upon four relations between people and their environment and on specialties in these fields.
2007 - Wer rettet die Welt?

5. Januar: Der schöne Winter in der Stadt war so großartig, dass die Menschen eine Wanderung auf dem Schnee machten. Sie genossen die Aussicht auf die Stadt und die umliegenden Berge.

15. April: Bei einem Adventskonzert auf der großen Kathedrale wurden viele Einrichtungsgegenstände von Künstlern der Stadt aufgezogen und aufgeführt. Der Besuch war ein großer Erfolg.


10. August: Der imposante Feuerwerkserfolg war ein großes Ereignis, und viele Menschen nahmen am Feuerwerk teil. Die Menschen waren beeindruckt über die Präsentationen.


Picture:
Who will save the World
(Theo Deutinger)
There are different perspectives on the use of the living environment; these are determined by the different disciplines in people-environment studies and by the type of environment. Space and society touches upon four relations between people and their environment and on specialties in these fields. The four discourses include:

- **Environmental psychology**
  Environment-behaviour relations, perception and cognitions and facilitating primary needs;

- **Environmental sociology**
  Social behaviour in the public realm

- **Environmental philosophy**
  Influence of culture on the physical environment and visa versa

- **Interaction design**
  Community design, city gaming and other forms of co-creating with inhabitants.

The four discourses will be underpinned with literature and there will be practical examples of specialisations in the societal design:
- Lifestyle design; differences between inhabitants, visitors and people passing-by
- Child friendly cities
- Social Safety design
- Territorial behaviour of people in public space
- Collective management; maintaining a shared space
- Wayfinding and other examples

**OVERVIEW AND STRUCTURE OF THE COURSE**

- Theory and examples will be presented in lectures and practiced in fieldwork. The lectures and fieldwork form complementary components in the course. The fieldwork starts with an introduction on behaviour observations. The focus of the lectures is on the four discourses mentioned before. In Environmental psychology environment-behaviour relations will be touched upon: the basic theories on human-environment interaction dealing with topics like privacy, territorial behaviour, liveability and the value of green. Environmental Sociology addresses social behaviour in the public realm. Environmental Philosophy will discuss major topics in environmental ethics and landscape philosophy, such as: changing attitudes and approaches towards nature, landscape and the environment in an international & historical perspective, current positions in environmental philosophy and aspects determining the way we think about the aesthetics of nature and landscape. Interaction design is an introduction of the possibilities of interaction design (co-creating, city gaming, etc.).

- The lectures will require preparation of the student by studying assigned texts. Fieldwork is focused on objectivity in observation and the perception of users on their environment. The fieldwork starts with an introduction on behaviour observations and a group excursion in the public space of Delft. Examples of the theory will be explained in the public space of Delft. In a next step students will analyse (in small groups) a specific place in Delft on environmental behaviour interactions. Every group will design an intervention to influence these interactions, build it and test in reality. Every group will present their results in a short movie. Assignments range from making an observation report from a specific angle on a location in use, collecting cognitive maps from different type of users on the centre of Delft, to design a small scale intervention in public space that may motivate sustainable behaviour (examples will be given).

**EXPECTED PRODUCTS**

- Theory and examples will be presented in lectures and practiced in fieldwork.

- **Lectures and written examination (50%)**
  As scheduled there will be introductory thematic lectures. Students have to prepare these sessions by studying assigned texts related to the topic in order to make an active contribution to the discussions and take full advantage of the lectures. At the end of the lecture series students are to sit an examination on the material presented.

- **Products of field work (50%)**
  Handing in assignment 1 and 2 and assessment of assignment 3

**LEARNING OBJECTIVES**

- The student:
  - will know the different discourses that are been used in people-environment studies
  - will know the basic literature, their common
ground and the differences
- is able to use people-environment research as a back up for their decisions and as inspiration for there design
- will know the major handles and leavers for people-related research in theory and practice

RECOMMENDED LITERATURE


Sevenant, M. (2010) Variation in landscape perception and preference. Experiences from case studies in rural and urban landscapes observed by different groups of respondents. Ghent University, Department of Geography.


Picture Next Page:
Het Zwin
(Rijkswaterstaat)
<table>
<thead>
<tr>
<th>Week</th>
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ARILA040:
MD: Machiel van Dorst
RV: Rene van der Velde