



PIANC

The World Association for Waterborne
Transport Infrastructure

Planning waterways for added value: joint research by PIANC and IWI

Presented by

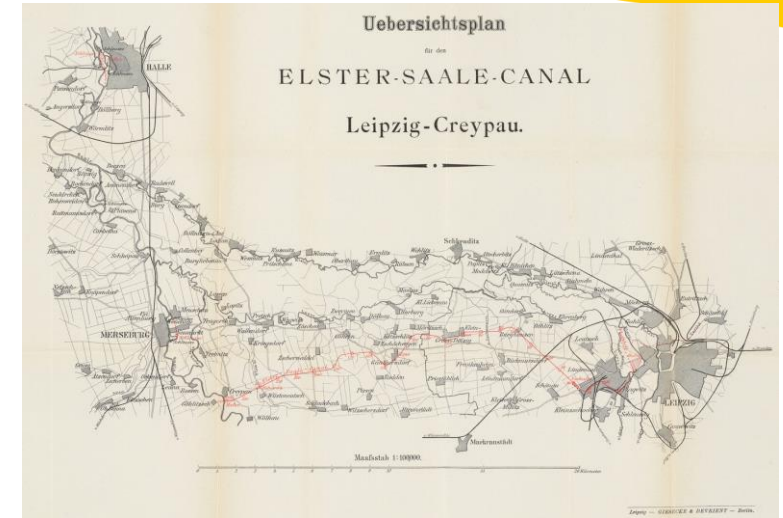
*Arjan de Heer and Nicki Schiessel Harvey - PIANC working group 228
for World Canals Conference 2022*

Adding values to waterways

- Working groups formed jointly by PIANC and IWI are researching the leverage of added value
- Understanding and defining added value is essential to secure the future of inland waterways for as many uses as possible

Local example: Elster-Saale Canal

- Development abandoned in 1943
- Redevelopment in past 20 years
- New canal between city and Lindenauer port



Lindenauer Hafen



Karl Heine Canal



Wüsteneutzsch locks

PIANC working group 228 – Extended Values of Low Use Inland Waterways

Deal with inland waterways that have today less value for transportation than in the past

- Extended values of **Low Use** Inland Waterways:
 - Previously managed to be an important or significant IW, used for commercial navigation
 - Which are agreed to have no future substantial significance for (cargo) transportation but are useful for other purposes
 - Where other present and potential values are not yet included
- Result: Development of a framework for evaluating the current state of low use inland waterways and unlocking new values

PIANC working group 228 – Extended Values of Low Use Inland Waterways

PIANC = Permanent Inland Commission for Navigation Congresses



IWI = Inland Waterways International



Adding values to waterways

- Starting point: inland waterways were created for commercial navigation
- Added values can be created from:
 - Maintaining inland waterways for navigation
 - Water management (high and low water periods)
 - And values for: ecology, recreation, built heritage, landscape, ...
- The need to add value:
 - Improve their value and function: integration of functions
 - To adapt to changing demand over time: low use inland waterways (LUIW)

LUIW – Low Use Inland Waterways

Developed as important inland waterways



No future of substantial
significance for transport



Other values
not yet included

Valuing waterways

Navigation-dependent Uses

Water consumption/water-reliant uses

Water management Uses

Water as setting – tourism, cultural and placemaking

Value Categories (Based on PIANC 139)



Valuing waterways

Navigation-dependent Uses

- Commercial freight transportation
- Passenger transport
- Recreational Navigation

Water management Uses

- Flood Alleviation and land drainage
- Hydropower
- Biodiversity enhancement
- Water quality
- Climate adaptation/mitigation
- Agricultural irrigation and drainage

Water consumption/water-reliant uses

- Water Supply
- Agricultural irrigation
- Urban cooling
- Watersports
- Fishing

Water as setting – tourism, cultural and placemaking

- Blue-green leisure corridors - physical and mental health
- Non-road transport for leisure or commuting: walking, cycling
- Nature enjoyment (e.g. birdwatching)
- Waterside regeneration and housing
- Water-based and waterside tourism
- Place identity
- Waterside and water-related heritage use

Value Categories (Based on PIANC 139)

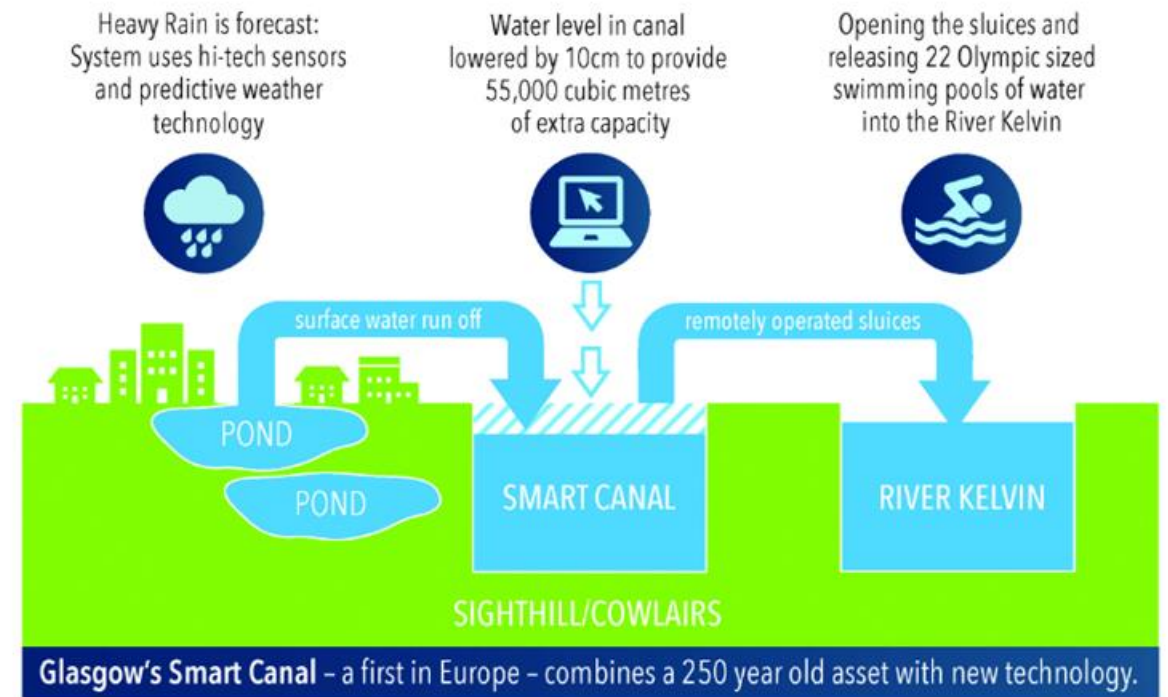
Examples



Example: Glasgow's Smart Canal

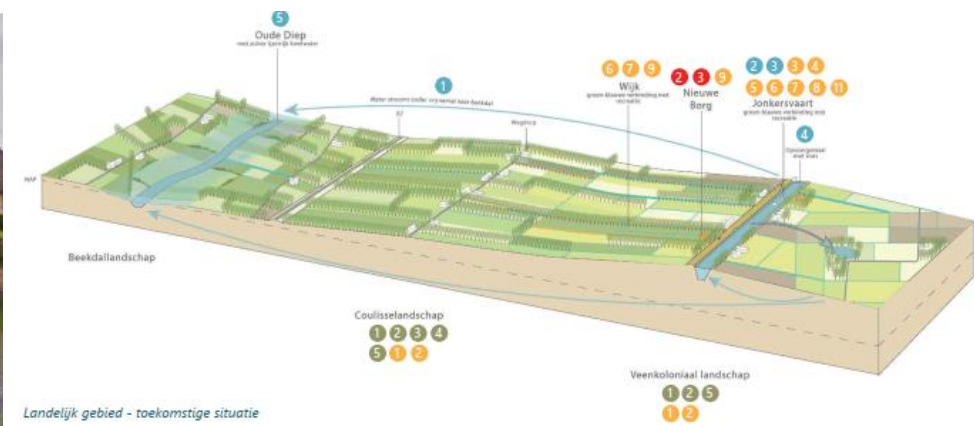
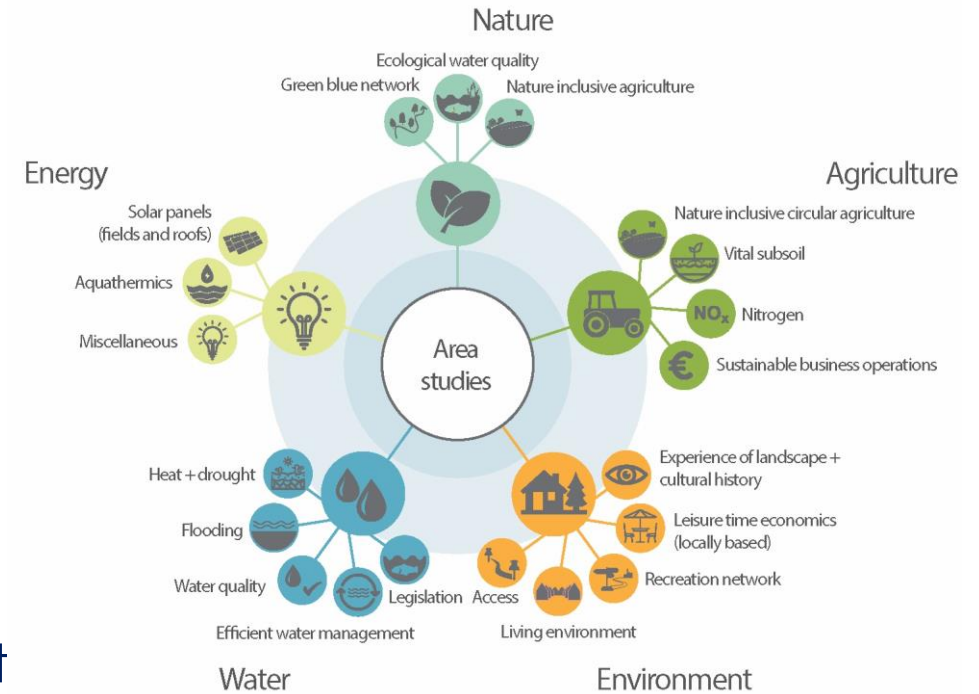
- Forth & Clyde Canal little used for navigation. Surrounding land subject to surface flooding
- £17m Partnership between Scottish Canals, Glasgow City Council, Scottish Water
- Sensors + predictive weather technology to reduce canal level through SUDS & controlled release to increase flood management capacity
- 110 hectares of city development land unlocked for regeneration

North Glasgow Integrated Water Management System



Example: Oude Turfvaarten, NL

- Restoration of former waterways constructed for transport of peat in provinces of Groningen, Friesland and Drenthe
- Success factors:
 - Enhance landscape, recreation, ecology
- Challenges:
 - Values, (real or potential) barriers, water quality



Example: Living Lahn River – one river, many interests

- German integrated EU-LIFE-project (2016 – 2025)
- Elaboration of a joint future perspective for the Lahn River Waterway
- Intensive dialogue process with authorities, stakeholders and citizens
- Objective: Reconciliation of ecological and user interests to utilise a maximum of extended values (sustainable water management, nature protection, recreational navigation, hydropower,...)
- Status: Joint target system as guidelines for a variant study



Example: Integrated Qinhuai River Improvement project, Nanjing

Challenges:

- Shantytown developed along the river
- Disordered land use near the river
- Polluted water in the river

Success factors:

- Preservation and restoration of heritage sites
- Relocation of residents and factories near the riverside
- Regulate the river
- Treatment of polluted water
- Replanning the land use along the river



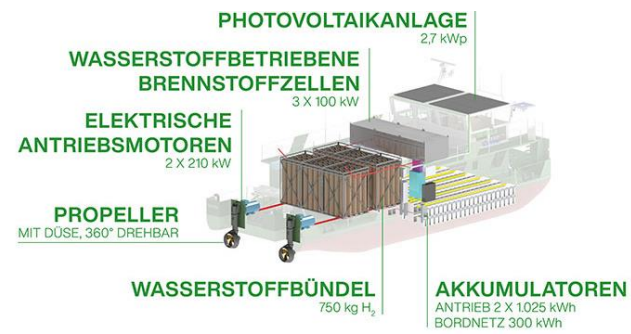
Before the project (1950s)



Current situation (2022)

Example: LUIW Renaissance in Berlin

- Berlin grew between 1815 and 1913 from 0,19 to 4.03 million inhabitants
- Transport per rail and in particular over waters build for supply of the city
- Sustainability now calls for a renaissance of the LUIW: smart intermodal logistics
- Example: 90 km long Oder- Spree Canal as test field for unmanned transport
- Smart floating units, unmanned transport and delivery/service on demand by 5G-grit systems, smart status reporting and electrical driven tugs in LUIW canal network of Berlin and surroundings
- Hydro-oxygen & photovoltaic electric pusher tug “Elektra” approved for operation since 2022



Source: <https://www.behala.de/elektra/>

Example: Canal du Rhône au Rhin Strasbourg-Colmar

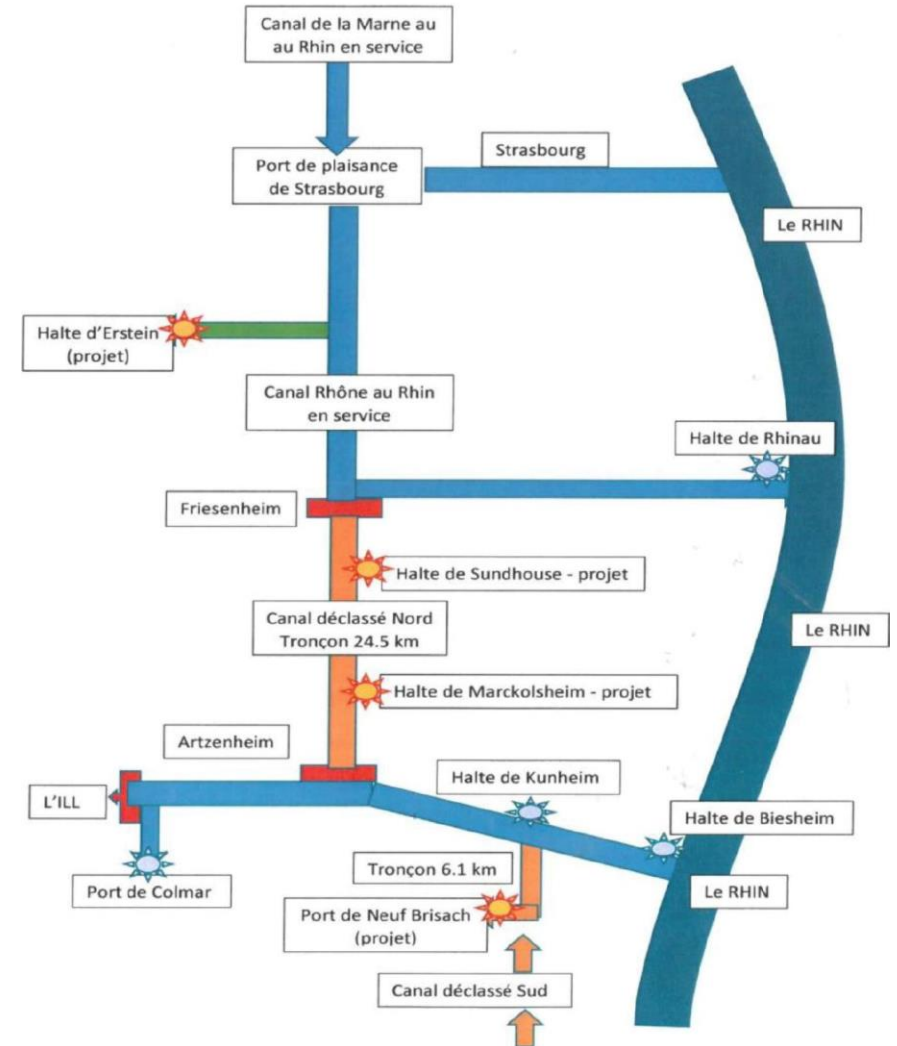
- abandoned length of 23 km, 11 locks

Challenges:

- 4 locks to restore, one new lock to build, banks to consolidate
- Region restored 7 locks, equipped for mechanical operation, in 2007-2009, but refused to fund annual operating costs (1 M €), stopping the project (envisaged deliberately promoting low use = close to zero use)
- Nature conservation area along old canal to major tourist attraction of Neuf Brisach
- VNF could decide to downgrade the canal to Colmar!!

Success factors:

- Recent agreement among all local authorities and the region
- Hire boats would use the new link to Colmar in large numbers (forbidden from the Rhine)
- Develop local tourism around 4 new boat harbours



Restoration of 23km – the network effect

Example: Regeneration and restoration Martesana Canal

Challenges:

- Creating an economic solidarity network starting from the irrigation role of Naviglio Martesana
- Involvement of agricultural producers for organic products
- Possibility of transporting agricultural commodities by water

Success factors:

- Integrated planning for the “low use” of Naviglio Martesana
- Preservation of the network of canals originating from the canal
- Contribute to the maintenance of the rural landscape
- Restoration of water heritage sites
- Develop local tourism through the “low use” of the canal



Cascina Regoledo



Naviglio Martesana

Examples

- Project references show success factors and challenges
- Appreciation of inherent market:
 - Potential/actual demand volume
 - Other destinations in the region
 - Effective barriers
- Example of unlocking recreation potential:
 - presentation of PIANC/IWI WG219: Friday 3 June 13:50

PIANC working group 228 – Extended Values of Low Use Inland Waterways

Link to PIANC and IWI working groups:

- 219 - Guidelines for inland waterways infrastructure to facilitate tourism
- 203 - Sustainable inland waterways – social and environmental impacts
- 139 – Value of inland waterways
- IWI: alternative fuels

PIANC working group 228

Planning: started in 2020, report planned for spring 2023

Product: report

- Development of a framework for evaluating the current state of low use inland waterways and unlocking new values

Members

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