Isar-Plan Munich

A New Lease of Life for the Isar River

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European Watersheds
Catchment areas of European Rivers
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Isar River sections

1. Upper Isar (alpine Character)
2. Isar in Munich (urban character)
3. Middle Isar (alluvial forest)
4. Lower Isar
5. Danube
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Catchment area: 9000 km²
Length: 270 km
Medium Low Discharge: 40 m³/s
Medium discharge: 90 m³/s
Medium high discharge: 420 m³/s
Design flood (100 a): 1.100 m³/s
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Isar in Munich around 1930
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Historic Floods:

collaps of the Ludwigsbridge
13.09.1813

collaps of the Prinzregentenbridge 1899
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Flauchersteg
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Lake Sylvenstein
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Major Deficits of „civilized“ Rivers

Straightened and Dammed
Loss of ecological functions, habitats + groundwater interaction
Reduced morphological processes
Interruption of physical continuity
Minor water quality
Cut off floodplains with flood risks
No Access to waterline
Disturbed interaction between river bed and surrounding landscape
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a canalized water course
The River Isar within Munich:

- Canalized river section on both sides with dykes and quaes

- Flood plains as an important recreational area

- Usage of Isar-Water in electric power plants

- Reference: Flaucher
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Targets of Isar-Plans:

1. Improving flood protection
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Targets of Isar-Plans:

1. Improving flood protection
2. Nature related shaping of the river Isar
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Targets of Isar-Plans:

1. Improving flood protection
2. Nature related shaping of the river Isar
3. Improving possibilities for recreation
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• Flood Control
  – Water Retention Capacity

• Restoration
  – Ecological Upgrading of the river Isar
  – Morphological processes
  – Longitudinal and lateral continuity
  – Natural habitats, biodiversity, water quality

• Recreation
  – Access to waterline
  – Attractive landscape and views
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## A New Lease of Life for the Isar River

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Competition and Workshops:

- Mediation

- Participants:
  Administration of the City of Munich and Bavaria Planning Teams (Competitors)

- Participants:
  Politicians
  NGO’s
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- Raising and reinforcement of river dikes
- Removal of concrete embankments
- Widening of the river cross section
- Increase of capacity in river runoff
- Natural river bottom rock ramps or slides with riffles and pools, instead of linear low weirs
- Initialization of dynamic river bed processes; development of natural river structures
- Longitudinal river continuity to allow river organisms, e.g. fish, to swim upstream
- Establishment of typical river habitats
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Model of the Present Situation in Obernach

View from the Tower of the “Deutsches Museum”
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Modelling the Future: the Art of how to flow
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Spring 2006

Summer 2013
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Improvement of Flood control by

① Enlargement of river cross-section
② Elevation of Dikes
③ Removal of sediments in the flooding area
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Measurements:

- Widening the riverbed from 50 m up to 90 m
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Measurements:

- Widening the riverbed from 50 m up to 90 m
- Rebuilding banks (flattening, fixing and covering with gravel)
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bank structure, usual detail:

- cover sand/gravels/sod
- Gravel filter
- bottom fortification
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Restored Bank
Space for morphological processes

Backward „hidden“ protection

Removal of concrete bank
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now a (restored) river

Gravel banks, riffles and pools
Natural river slopes
River bottom rock ramps / slides
Fish bypasses
New habitats for flora and fauna
Attractive recreation areas
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Summer in the city
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Urban river adventures
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Measurements:

- Widening the riverbed from 50 m up to 90 m
- Rebuilding banks (flattening, fixing and covering with gravel)
- Rebuilding river barriers / sills
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Fish ladder
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Fish ladder: bypass for fishes, playground for kids
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Measurements:

- Widening the riverbed from 50 m up to 90 m
- Rebuilding banks (flattening, fixing and covering with gravel)
- Rebuilding river barriers / sills
- Enhancing dykes
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Falling over
Failure
Flooding
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Enlarging and clearing from trees (under construction)
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1 Year after the Measurements
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1. Pre-Excavation

2. Drilling the Slot

3. Mashing Ground and Suspension

4. Pulling back the Drill

5. Installing Girders, 
   \[ a = 3,0 \text{ m} \]

6. Concreting the Top
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Public Participation

- Internet Platform
- Info-Brochures
- Excursions
- Mediation
- Workshop

TV + Press

- Lectures
- Round tables
- Info-Points
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FAQs

• Total length ca. 8 km
• Begin of construction 2000
• Finish in June 2011
• A Project in corporation by the State of Bavaria and the City of Munich
• costs: 35 Mio. €
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Catch the Wave!
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