

Type: Water drainage

Category: Urban water systems

Elements of the urban water system that function for draining rainwater



Description

Elements of the urban water system that function for draining rainwater, e.g. the canal system, infiltration wells. There are two possible ways to achieve improved drainage of rain water:

- surface or underground canal system, system of ditches and ponds or similar
- reduce the sealing of surfaces by e.g. building water-permeable pavement, infiltration ditches, basins, wells, galleries.

Spatial scale

Building; City quarter; City

Problems addressed

- Heavy precipitation: flooding during peak flows is reduced by leading the rain water in drainage systems (e.g. ditches, ponds) or due to improved infiltration capacity

Combination with other types of measures

- Green open spaces
- Water retention
- Urban texture

Implementation – functionality issues

The effectiveness of infiltration depends on e.g. soil type, groundwater level, amount of pavements and size of the measure, calculation of future heavy precipitation and aims, e.g. related to damage potential.

Further benefits

- Increases sustainability and life quality in the city quarter
- Can improve biodiversity: if drainage systems are combined with green structures.

Economic issues

- Development and installation costs depend on kind of system: underground or surface water drainage.
- Maintenance costs are mostly higher for underground systems

Acceptance

Acceptance depends on the way measures are implemented; might be low if limited urban space is needed. Combination with other city functions (e.g. living space, parking lots etc.) is helpful.

Possible obstacles

- The effectiveness of the measure can be low if e.g. ground water level is high
- Maintenance needed: for surface structures e.g. a ditch along a street, littering might be a problem
- Conflicts with other urban uses may arise.

Find examples in Structural Fact Sheets



Adapted infrastructure
Rouen, FR



Infiltration
De Vloei
Wvi, leper, BE



Business park
Boytal
EG, Bottrop,
DE



Water vision
Nijmegen, NL



Water study
De Vloei
Wvi, leper, BE



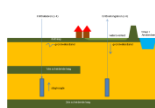
Green-blue
corridor
LV, Kamen,
DE



Slowed run-off
Wvi, leper, BE



Use of
rainwater
leper, BE



Cold-heat
storage
Tiel, NL



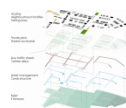
Cold-heat
storage
Arnhem, NL



Strategy
underground
Nijmegen, NL



Ambition
note
Wvi, leper, BE



Urban
planning
Wvi, leper, BE