

The three Berlin case-studies

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UrbanRain

Urban rainwater harvesting from niche to mainstream:
challenges and opportunities for planning

The three cases studies

Public	Berliner Str. 88	1988-1994
Grassroots	Sonnig Wonnig	2000- 2001
Commercial	Ikea Lichtenberg	2010



1. Berliner Str. 88

Context

Actors

Vision

Technology

Achievements

- 1988 – 1994
- Public
- Size: 32.000 m²
- Financed by Federal and State programs, and housing companies.
- First time introduction of ecological criteria for funding



In Zehlendorf:

- Southwest. Green area.
- Seperate sewer system: water and rainwater canals.
- Aging population, lowest unemployment.
- Priority area regarding heat management, greening

Quelle: IB Kraft, n.d.

1. Berliner Str. 88

Context

Actors

Vision

Technology

Achievements

- City and district authorities
- public housing associations
- engineering consultants
- residents



Quelle: Wolpensinger, 1999

1. Berliner Str. 88

Context

Actors

Vision

Technology

Achievements

- Social housing with ecological criteria
- Ecological focus on water, green, construction materials, energy.
- Water
 - > aim to reduce water consumption
 - > zero-runoff settlement.



Photo:Natàlia García Soler

1. Berliner Str. 88

Context

Actors

Vision

Technology

Achievements

- Rainwater (RW) used only for watering
- 3 cisterns (each owned by different company) with filters, connected to underground tanks.
- Pumped to pressure boosting stations and from there:
 1. Connected to taps for watering (district) green areas.
 2. Supply water to a small stream (biotope)
 3. Fed into the pond near the community hall.
- Pond connected to public canalisation

1. Berliner Str. 88

Context

Actors

Vision

Technology

Achievements

- No monitoring of outdoor facilities' performance.
- The settlement followed a „socially-friendly“ course as well (Kindergarten and community hall) : community feeling important for residents
- Upon completion, the three housing companies were responsible for maintenance.
- Challenges in maintenance of RW system (pond and pumps: not functioning for a few years).
- Reluctance to assume responsibilities by the housing companies.
- Residents very active in maintaining RW system.

2. Sonnig Wonnig

Context

Actors

Vision

Technology

Achievements

- 2000- 2001
- Size: 800 m²
- Financed: own and external capital
- Grassroot (KG: limited joint-stock partnership , as non-profit company)
- Renovation of old building

In Lichtenberg

- Priority area for bio-climate interventions.
- Combined sewage system
- Aged population. Slowly changing.
- Stereotyped as rough area, extreme right groups . But aim is to attract young families and provide affordable housing



Quelle: Beetstra and Körholz, 2004)

2. Sonnig Wonnig

Context

Actors

Vision

Technology

Achievements

- Two initiators
- Residents
- Engineering company
- Borough administration

2. Sonnig Wonnig

Context

Actors

Vision

Technology

Achievements

- 75% water resources' savings.
- Illustrate the feasibility of an ecological and social lifestyle.



Foto: Lina Suleiman

2. Sonnig Wonnig

Context

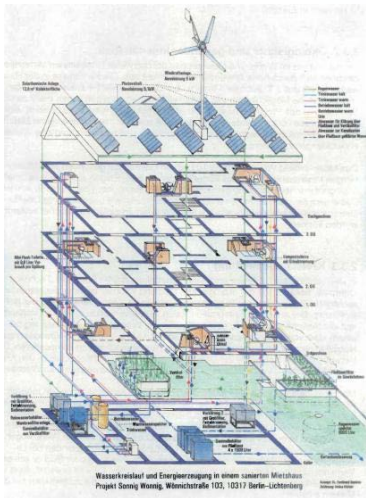
Actors

Vision

Technology

Achievements

- RW collected in roofs, filtered, collected in cistern.
- Either used in garden or fed into the greywater circuit.
-
- Greywater is treated and overflow directed to garden pond.
-
- Treated and filtered again, directed for domestic use.
-
- Other water saving technologies installed (for example 1 Lt toilets)



Quelle: Beetstra and Körholz, 2004)

2. Sonnig Wonnig

Context

Actors

Vision

Technology

Achievements

- 85% reduction of drinking water
- Saves money on rainwater fee
- Strong community feeling (common spaces: kitchen, living room, event room)



Foto: Natàlia García Soler

3. IKEA Lichtenberg

Context

Actors

Vision

Technology

Achievements

- Year: 2010
 - Size: 43.000 m² (floor area)
28.000 m² (built area)
4.000 m²(roof)
450 m² (underground cistern)
- Financed: internally

In Lichtenberg

- Priority area for bio-climate interventions.
- Increased risk for flooding because of increased sealing



Foto: Lina Suleiman

3. IKEA Lichtenberg

Context

Actors

Vision

Technology

Achievements

- IKEA Sweden & subsidiaries
- Borough administration
- Berlin Water Company

3. IKEA Lichtenberg

Context

Actors

Vision

Technology

Achievements

- Promote green image of IKEA: environmentally friendly building
- Save on operational costs (rainwater fees, running water)
- Visio of Borough: IKEA as a flagship for district development.

3. IKEA Lichtenberg

Context

Actors

Vision

Technology

Achievements

- RW collected from roof to underground cistern, filtered
- Used for toilet flushing and watering plants.
- At full capacity, the cistern holds enough water to flush all the store's toilets for three weeks.
- The rainwater tank is connected to the public sewer in case of an overflow event (has not yet happened)
- Parking lot impermeable: Priority at economic aspect and not water management.



Foto: Laura Palau Rof

3. IKEA Lichtenberg

Context

Actors

Vision

Technology

Achievements

- Reduction of water consumption by 50%
- Savings through reduced water and rainwater costs.
- Promotion of IKEA's green image

Project	Berliner Strasse	Sonnig Wonnig	IKEA Lichtenberg
Visions on Rainwater	<u>Berlin Senate:</u> Social housing with ecological criteria	<u>Initiators:</u> affordable urban ecological lifestyle with innovative technologies. <u>Borough:</u> positive and green image	<u>IKEA:</u> Energy efficiency and cost savings. Promote green image Energieeffizienz und <u>Borough:</u> economic development
Urban rainwater – urban infrastructure Interfaces	Model for Berlin; Interventionist local state; Moderate relevance for local water resources	Alternative urban lifestyle; Minimum required connection to urban infrastructure	Urban development priority; Infrastructure links low over rainwater but high over heat recovery from sewer
Actor-Institution relations around rainwater	Strong initial support; Unclear responsibilities for maintenance; Responsive residents	Clearly allocated responsibilities in a communal setting	Single-actor project; Influential corporate player

Thank you for your attention