Innovative nature based solutions for greening cities

City of Tomorrow

Federal Ministry of Transport, Innovation and Technology

Innovative nature based solutions for the climate-neutral city of the future

With "City of Tomorrow", the Federal Ministry for Climate Action, Environment, Energy, Mobility and Technology (BMK) supports the implementation of innovative technologies in a liveable and climate-neutral city of the future through applied research, new technologies and technological system combinations and innovative services.

Intensive construction, sealing of soils and deteriorating green spaces are great challenges at a spotlight of progressing climate change. The brochure presents various possibilities, for how nature based solutions can contribute to climate change adaptation in cities.

Innovative "nature based solutions" technologies:

- provide evaporative cooling and reduce the urban heat island
- store water, enable controlled rainwater management and reduce the danger of flooding
- offer possibilities for greywater usage
- provide shading effects and reduce the need and energy demand for cooling and heating of buildings
- offer synergies for energy saving measures for durable and sustainable management, reduce fine particle matter and noise pollution, increase quality of life, biodiversity and wellbeing in cities

Green sewage technologies

- Permeable, green paving: enhances the permeability of streets and reduces the runoff, e.g. by siltation
- Climatic grey water park: makes use of combined technology approaches (retention, green roofs, permeable paving, ...)
- Direct greening with self-climbers: the mostly ground-based climbing-plant curtains are used most frequently for street-orientated facades, in case of denominator and facing structures
- Living Walls: Vertical Farming methods are already used for example in greenhouses, where plants are being professionally grown in closed, controlled technological systems in cities.
- Solar Green Roof: The mostly roof-based solar panels (PV green facades) produces renewable energy which, with their close to nature design, they provide an attractive addition as well popular in housing projects.

Yellow and grey water technologies

- Raingarden: Water from sealed surfaces, cleaned using specialized substructures. Raingardens are used most frequently for renovation purposes.
- Climbing plants on trellises: climbing-plant curtains are used most frequently for street-orientated facades.
- Living Walls: Vertical Farming devices are already used for example in greenhouses, where plants are being professionally grown in closed, controlled technological systems in cities.
- Green landscaped roof: prevents stormwater and reduces the danger of flooding, e.g. by siltation
- Leisure and Sport Roof: The mostly roof-based sports facilities and leisure activities. Alongside climate active car parks, leisure and sport roofs can be used for example in sport and building analyses of energy parameters.
- Solar Green Roof: The mostly roof-based solar panels (PV green facades) produces renewable energy which, with their close to nature design, they provide an attractive addition as well popular in housing projects.

Climate active car parks)

- Liveable technological system combinations and innovative services.
- Roadside greening: Permeable, green paving makes use of combined technology approaches (retention, green roof, permeable paving, ...)
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Greening roof

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