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Sustainable transformation of water infrastructures: Factual and regulatory challenges with a particular focus on finance

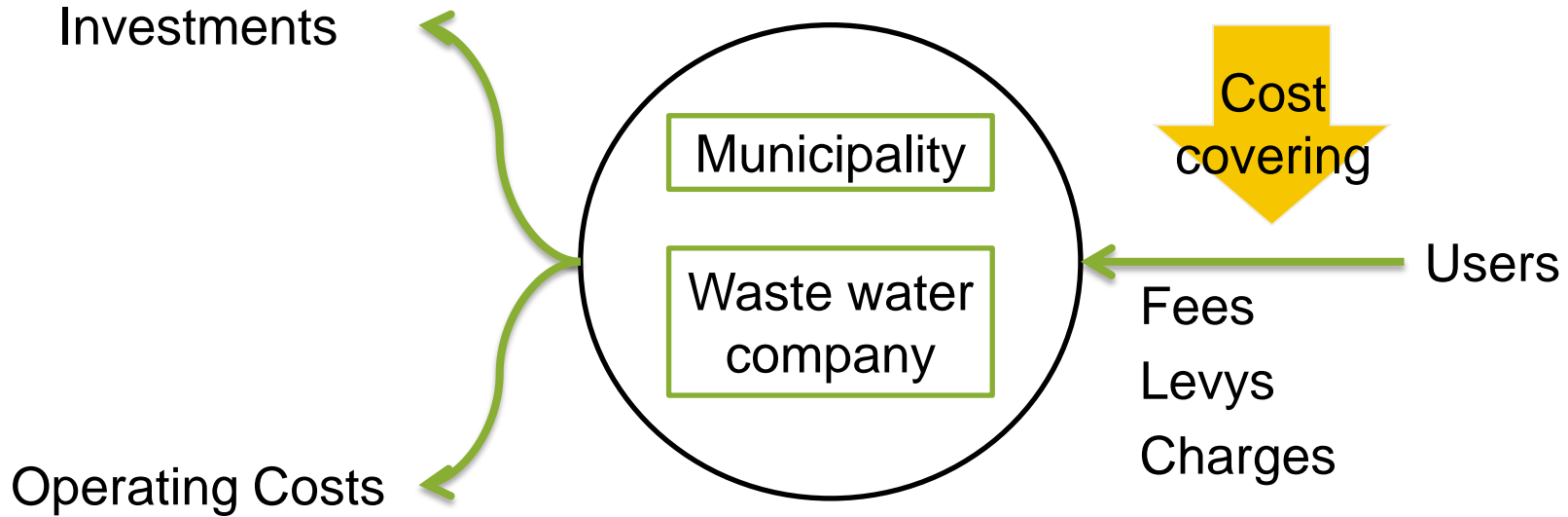
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- Water supply and wastewater disposal bypass the natural water cycle
- Waste water is water outside the natural water cycle which needs to be disposed to avoid risks for health and the risks of floods
- Direct Discharge of wastewater causes risks for water bodies, the surrounding environment and human health
- Need for regulation for two reasons: public service and environmental protection

- Climate Change increases the number and intensity of extreme rain, which requires conceptual changes for storm water infrastructures
- Increasing requirements on wastewater treatment as a part of water management
- Many more, e.g.: demographic change and the need of decentralized domestic wastewater infrastructures, resource efficiency and usage of grey water
- There is no lack of knowledge, challenges and solutions are well explored, but there is a lack of implementation
- Sustainable wastewater disposal will contain decentralized, privatized and multifunctional infrastructure and facilities



User pays principle

Refinancing sustainable waste water disposal therefore addresses a weak spot of water management and urban transformations!

Multifunctional infrastructures as a particular challenge for refinancing – Storm water

- Innovative storm water facilities are often multifunctional, e.g. serve as a public space in dry periods and as storm water facility when it rains
- Therefore different funding systems collide, e.g. funding by general tax money for public spaces and waste water fees for waste water disposal
- **Can fees cover costs of multifunctional facilities?** Waste water charges can not cover the complete costs of multifunctional storm water facilities, there is a limitation to those costs that are necessary for storm water disposal
- **Are there legal standards regarding cost allocation?** Under the cost covering principle costs are allocated to the waste water fee as far as possible. Financing pretends monofunctionalty.

Multifunctional infrastructures as a particular challenge for refinancing – water management

- Under the WFD all discharges are subject to measures, selection by cost-efficiency
- In these cases waste water facilities have two functions: providing a public service **and** serving water management
- **Can fees cover costs of multifunctional facilities?** As long as they are individually allocatable costs can be covered by fees.
- **Are there legal standards regarding cost allocation?** Art. 9, 11 Abs. 3 lit. b) WFD distinguishes between those, who are addressed by a measure and those who need to cover the costs (polluter pays principle). This can be opposed by the user-pays-principle and cost-covering-principle in the law of fees. To fulfill the obligation of Art. 9 WFD, financing instruments need to change.

Multifunctional infrastructures as a particular challenge for refinancing – water management

- Art. 9, 11 Abs. 3 lit. b) WFD distinguishes between those, who are addressed by a measure and those who need to cover the costs (polluter pays principle)
- In Germany there are no instruments to meet the requirements of Art. 9 WFD
 - Fees are monofunctional and allocate costs by the user-pays-principle, which can be opposed to Art. 9 WFD
 - Waste water charge is not adjusted to the goals of Art. 4 WFD and only includes point sources
- Therefore additional instruments are needed, such as charges on pharmaceuticals or pesticides

- Waste water disposal and water management are closely connected to each other, in particular due to the WFD
- Sustainable wastewater disposal will contain decentralized, privatized and multifunctional infrastructure and facilities, which challenges refinancing instruments and consequently may prohibit a transformation towards sustainable waste water disposal
- The existing refinancing instruments are in line with monofunctional waste water infrastructures
- While waste water facilities change, refinancing instruments need to change accordingly to support and enable a transformation towards sustainable waste water disposal



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