

SUSTAINABLE WATER FINANCE

Professor Dr.-Ing. Dr.rer.pol. Dr.h.c.

Karl Ulrich Rudolph

IEEM gGmbH@Witten/Herdecke University

A. Why a keynote about WATER FINANCE -

a topic of „bad guys“ in the sector dominated by „do-gooders“

- We all want to meet the Sustainable Development Goals (SDG) in the water sector (which include wastewater and water re-use, of course) but there is **little chance to reach these SDG without financing**.
- We all know: Money is not everything. The **bottleneck of success is rather sustainable water management** than the lack of money (often found: poor operation and maintenance – O&M).
- Still: Financing is a fundamental issue to be considered when talking about SDG, especially in DTC (developing and transformation countries), because **financing mechanisms are of governing influence** on water management (on concepts, technologies, O&M).

B. Three Megatrends

1. Increasing variety of water systems

→ Downscaling in technologies vs. upscaling in management, operations
(MBR, decentralized systems vs. remote monitoring&control, IWRM, Global players)

Don't believe that ALWAYS „small“ is beautiful and „big“ is cost-efficient !

2. Increasing importance of „hybrid markets“

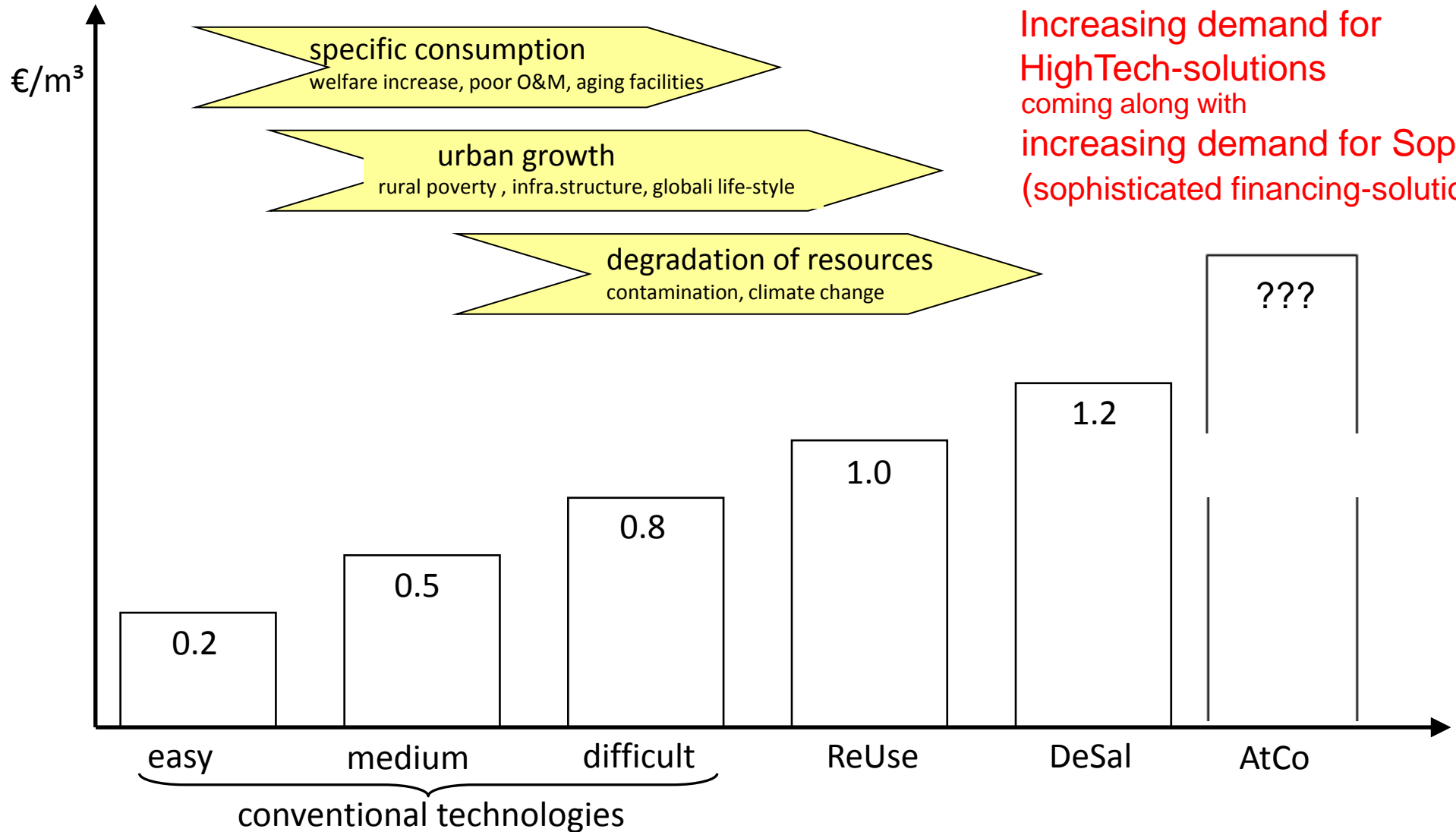
→ Donor Dominated mixed with Customer Dominated Market drivers
(DE municipalities vs. industries, VN,IN,CN go PPP, TR with KfW+IPEX etc...)

Financing concepts are getting more complex (“blended” hybrid finance)
which may have peculiar effects on SDG (like negative real interest rates).

3. Increasing demand for **HighTech-based solutions**

which are efficient in production and valuable in consumption

The Cost Hierarchy of Water Production



C. Financing Mechanisms – for big projects, only?

1. Investment Finance

Big Finance is good for big investments

(like for dams, new plants, new networks with >>10 / 30 or even 50 million € or so.)

But: To meet the SDG,

Small & Medium Finance is required, as well

(like for decentralised and rural facilities, water loss reduction water efficiency, , refurbishment / extension / upgrade / stage-by-stage-implementations et al).

WHAT WE NEED is a kind of „**Programme Finance**“
bundling a large number of single project investments,
possibly with DFIs re-financed through regional funds,
(as implemented with KfW through TNUDF
under the BMBF-sponsored project „WaLUE“ www.value-india.de)

C. Financing Mechanisms – for investment, only ?

The **Investment-only-financing** approach has failed in many cases, especially in DTC, mainly because O&M was insufficient, with the consequence of „**sunk investments**“. Banks have learned that O&M must be secured, even for successful investment-only- financing.

WHAT WE NEED is an **enhanced Financial Due Diligence** of the Lender's Business Model, preferably built on a professional performance guarantee - even if donor banks hold a sovereign state guarantee.

Furthermore, we need **innovative Financing Models** which allow for re-financing and incentivise successful O&M. This should be researched for application in DTC.

(**Forfeiting** has been applied in DE for WWTP investments of > billion 2.5 €, successfully, see dissertation Max Hermann, Witten University, 2015).

C. Financing Mechanisms – appropriately designed for pay-back ?

2. Cost Recovery (Re-Finance, Debt-Re-Pay)

Tariffs (connection rates, fixed and working charges et al.) must recover those costs which are not yet covered through other revenues (like grants or taxes).

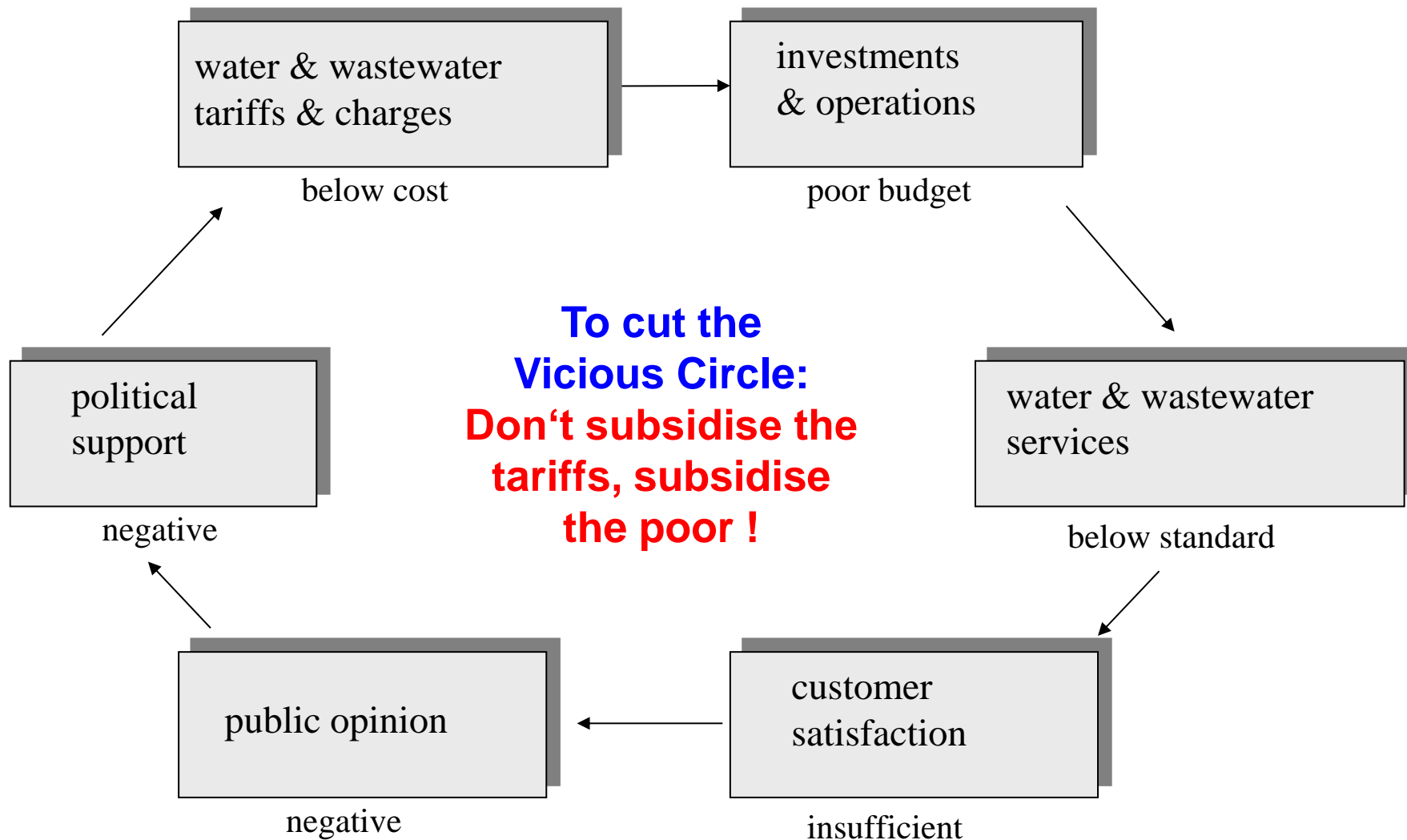
Social and hygienic considerations and political drivers are the reasons, why tariffs are set below costs in nearly all DTC.

Financial sustainability requires cost-recovering tariffs

(If tariffs are set too low, there is no driver for water, energy-, resources-efficiency, no demand management, no water reuse and poor customer services).

The DEMAND is for applied research and development to make this idea work (which has seldom come through for several reasons, so far),
or to find better ideas how to change the „Vicious Circle“.

The Vicious Circle in water and sanitation



C. Financing Mechanisms – incentivising sustainability ?

3. Financial Incentives

Institutional framework should be

- realistic (VN decree does not include structural maintenance as a eligible cost component)
- transparent (DE by-law allows to charge for virtual-only-costs in ww, different for w-supply)
- enforced (ZA -practice in water abstraction control and wastewater effluent monitoring)

Local water business development should happen („job per drop“) instead of importing full-serviced-solutions

(a well functioning PPP is better than a malfunctioning municipal scheme. Disregarding “P2or “P”, it’s mainly local empowered schemes which sustain - like Water Franchise developed and piloted under the BMBF-funded IWRM project MOSA www.iwrm-southafrica.de)

Financial incentives should empower SDG implementation
(okay, again, money is not all, but.....)

The DEMAND is for performance oriented financing,
like **SPV-lending** (SPV, special purpose vehicles with operational responsibility)
or performance-based **virtual debt-repayment**

(e. g. „negative“ ww effluent charge) **which will need further research**

C. Financing Mechanisms – incentivising sustainability ?

3. Financial Incentives

Institutional framework of water finance should be

- realistic (VN decree does not include structural maintenance as a eligible cost component)
- transparent (DE by-law allows to charge for virtual-only-costs in ww, different for w-supply)
- enforced (ZA -practice in water abstraction control and wastewater effluent monitoring).

Local water sector development („job per drop“)

preferable before imported, fully-serviced-solutions

(a well functioning PPP is better than a malfunctioning municipal scheme. Disregarding “P2or “P”, it’s mainly local empowered schemes which sustain - like Water Franchise developed and piloted under the BMBF-funded IWRM project MOSA www.iwrm-southafrica.de).

Financial incentives should drive SDG implementation

(okay, again, money is not all, but without money nothing might well be all we can get).

The DEMAND is for performance oriented financing,
like **SPV-lending** (SPV, special purpose vehicles with operational responsibility)

or performance-based **virtual debt-repayment**

(e. g. „negative“ ww effluent charge) **which will need further research.**

D. Conclusions

Financing may be unpopular in applied water research, but it is an indispensable and valuable part of water & sustainability.

To contribute innovations to reach the SDG, economics & financing need attention and „grounded“ efforts in research.

Thanks to BMBF for funding projects including water-specific modules in economics & finance, especially



E. The End of the Key-Note Presentation

Thank you for your attention!



KU Rudolph

IEEM gGmbH@Witten/Herdecke University
mail@professor-rudolph.de