EUROPEAN EXPERIENCE ON HOW TO PREPARE AND SELECT COST-EFFICIENT AND AFFORDABLE WATER SOLUTIONS

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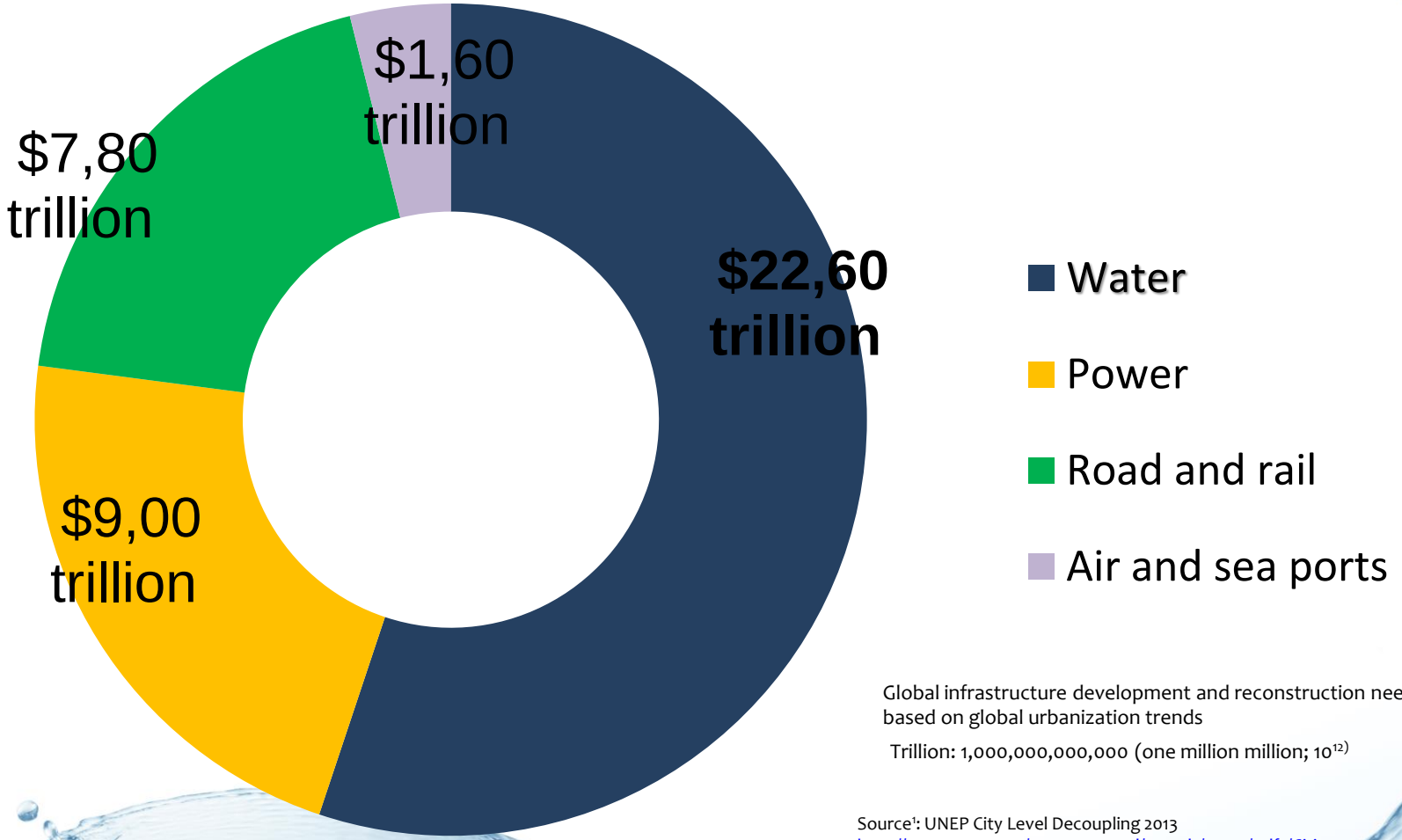
Urban infrastructure investment needs during the next 25 years



Global infrastructure development and reconstruction needs based on global urbanization trends

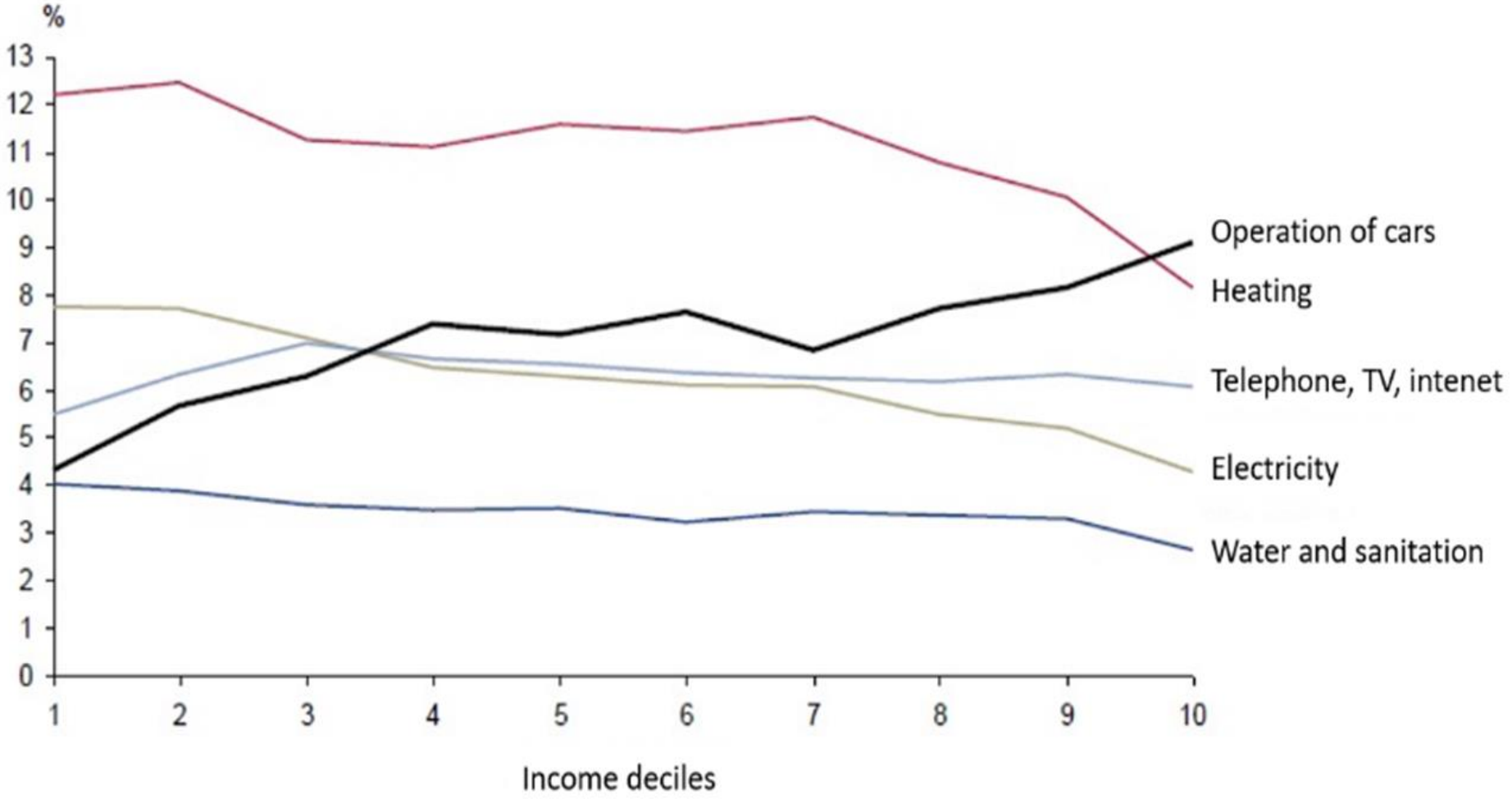
Trillion: 1,000,000,000,000 (one million million; 10^{12})

Source[1]: UNEP City Level Decoupling 2013
http://www.unep.org/resourcepanel/portals/24102/pdfs/Cities-Full_Report.pdf

Water infrastructure

- The oldest
- The most essential
- The most expensive
- The least appreciated
- The longest life cycle

Income-proportional overhead costs



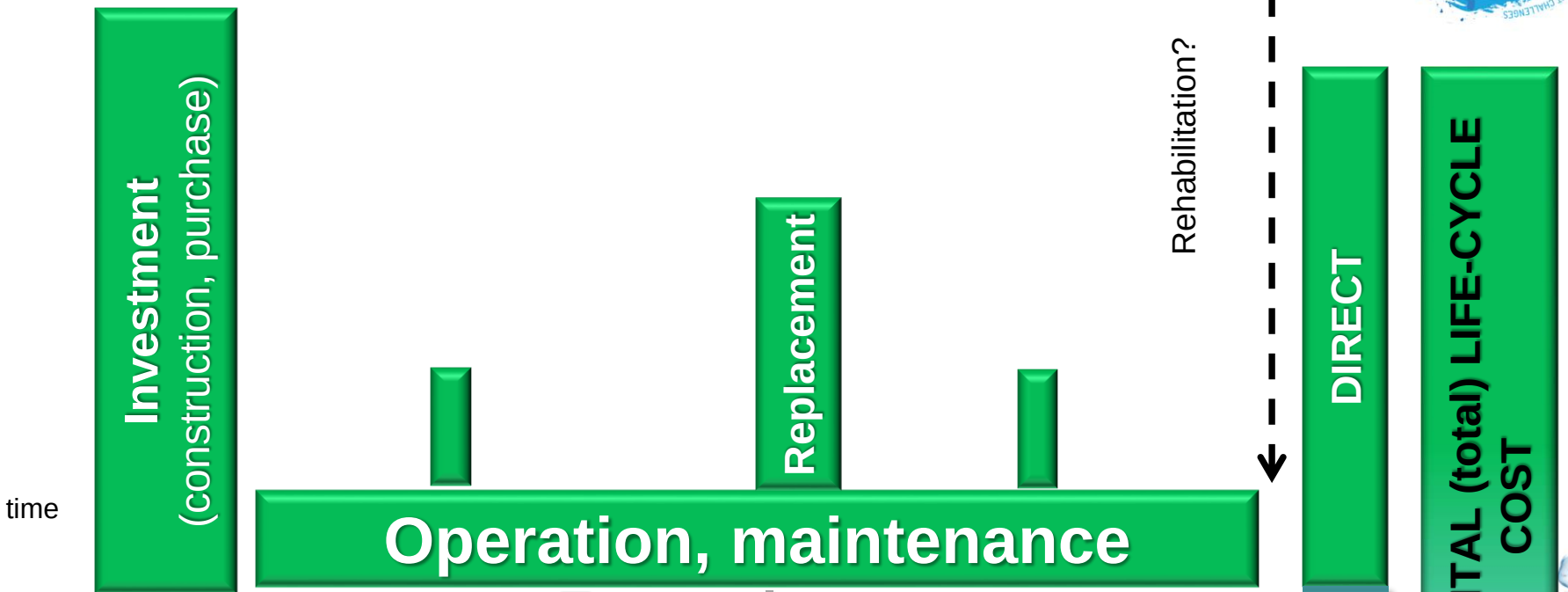
Special characteristic of water infrastructure

- Public service, quasi public goods
- Cost-based (authority) pricing
- Long life assets
- Far reaching affect of water investment decision
- Intergenerational cost sharing
- No return on infrastructure investments
- No cost recovery

WATER:

PRICE of service < **COST** of infrastructure < **VALUE** of water

The elements of life cycle costs

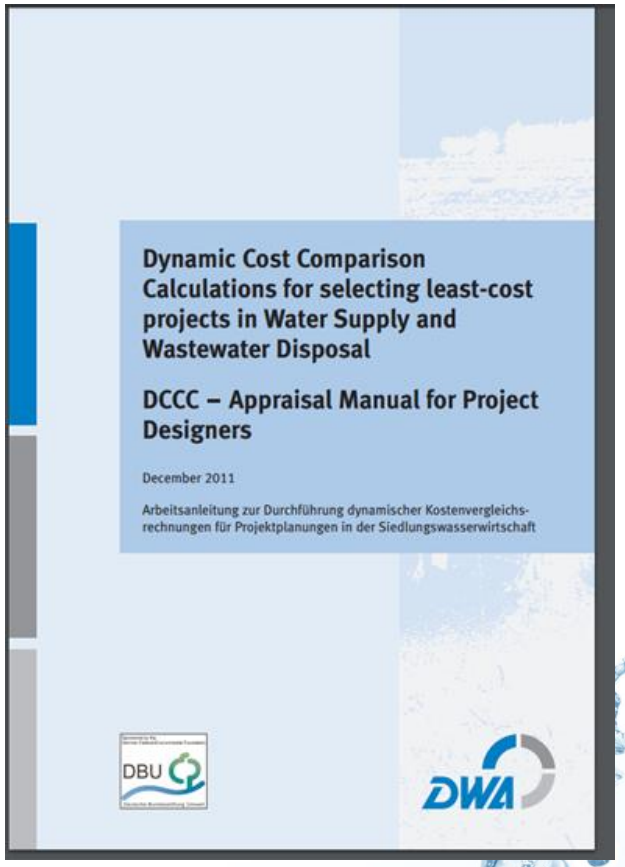


Life cycle approach– International outlook

- Well researched and widespread scientific literature (from the 1960's)
- Several guidelines, manuals and recommendations
- Practical references and experiences from all over the world (eg.: Germany, Canada, England, South-Korea etc.)
- Several methodologies and tools

Life cycle approach– International outlook

- the proper tool for „selecting least-cost projects in Water Supply and Wastewater Disposal" is EWA DCC guide[4]



[4] http://www.dwa.de/dwa/shop/produkte.nsf/1A34AF1A8F92595DC12579A4001ECE52/$file/vorschau_DCCC-Guidelines.pdf

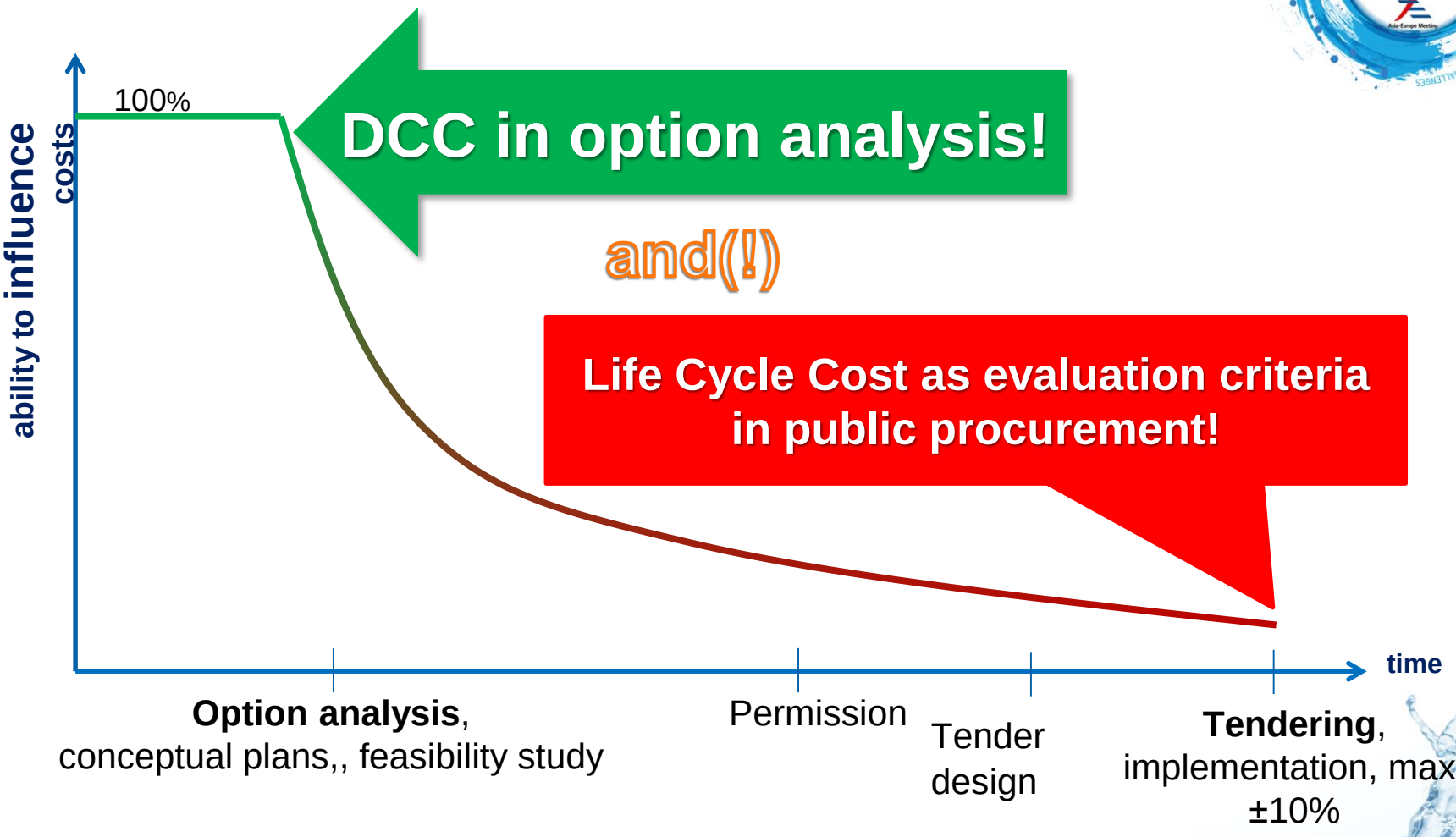
Dynamic cost comparison

Main principle of (DCC)

For the correct evaluation of cost-efficiency, **all costs of the whole life cycle** should be taken into account, and cost should be compared **on their present value.**

- Life-cycle approach
- Dynamic approach
- Considers all costs
- In line with EU methodological guidelines
- Well-established, professional, transparent
- Mutual language of engineers and economist

What is LCC about?



Water infrastructure – challenges and opportunities

Challenges

- Climate change - Water scarcity
- Urbanisation - Infrastructure scarcity
- Financing initial investments
- Financing operation and reproduction
- Aging infrastructure
- Increasing requirements

Opportunities

- knowledge sharing and cooperation
- benefit from new concepts like
- Circular economy
- Resilient infrastructures
- „right water to the right user”
- economic development
- new jobs
- significant savings on social level (tap water vs. bottled water)
- 3T: Tariffs, Taxes, Transfers

Challenges of EU water sector

- Further development needs
- Legal compliance (e.g. UWWTD 50-300 bnEUR!)
- New regulations (e.g. EU ROADMAP Strategic approach to pharmaceuticals in the environment!)
- New concepts: circular economy, water reuse, resource efficiency, resilience,
- Pricing of water: cost recovery vs. Affordability? >> 3T (tariff, tax, transfer)
- „… lack of harmonised and operational concept of cost recovery.” (EEA report on cost recovery No.16/2013)

Challenges of EU water sector

- changing legal framework
- social changes, urbanization
- further development needs
- ageing infrastructure
- ageing professional community
- non-effective, non-efficient decision-making
- unaffordable, unsustainable water service

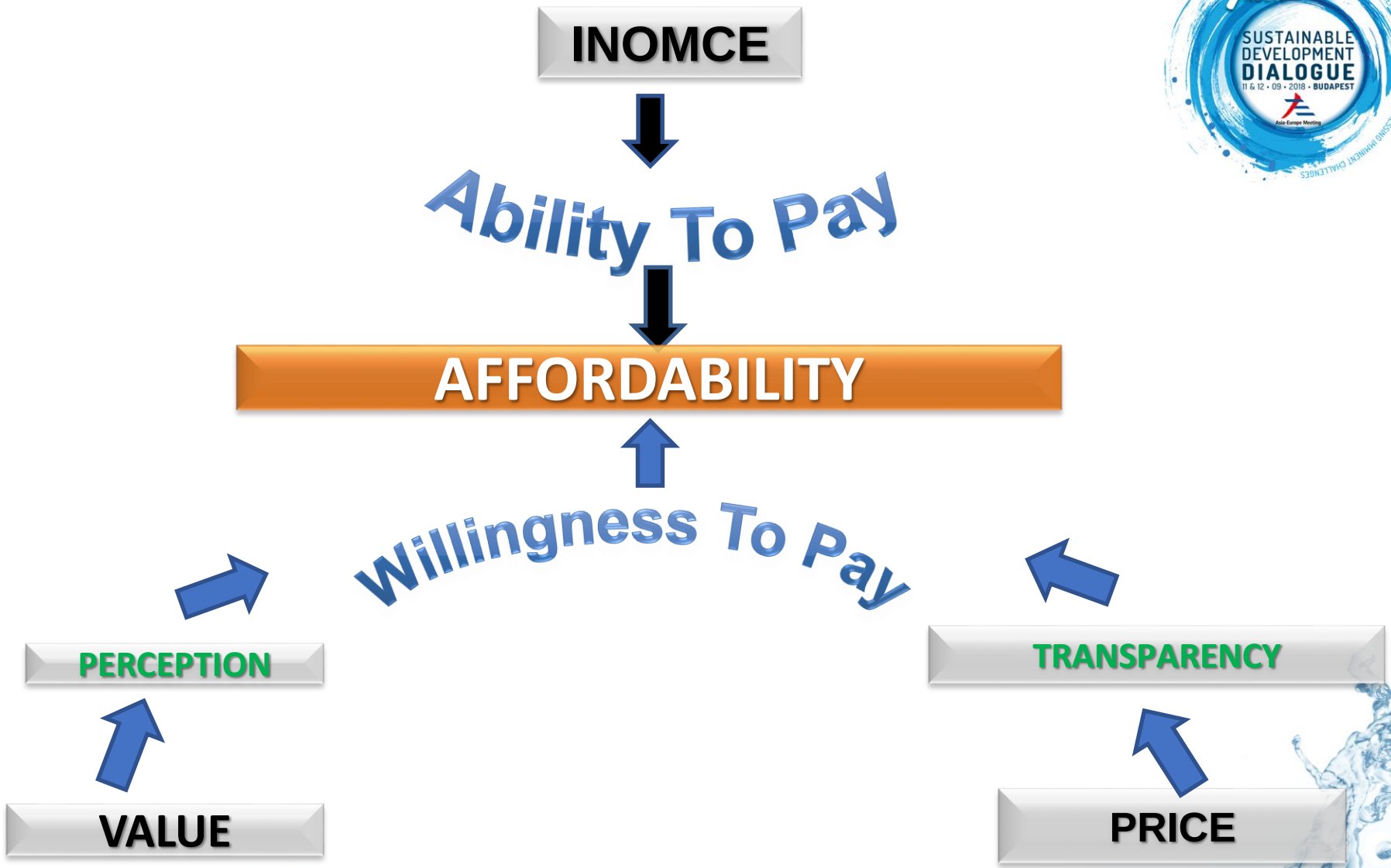
A change of mind set is needed
in order to adopt changes and meet challenges!

Solutions for water challenges

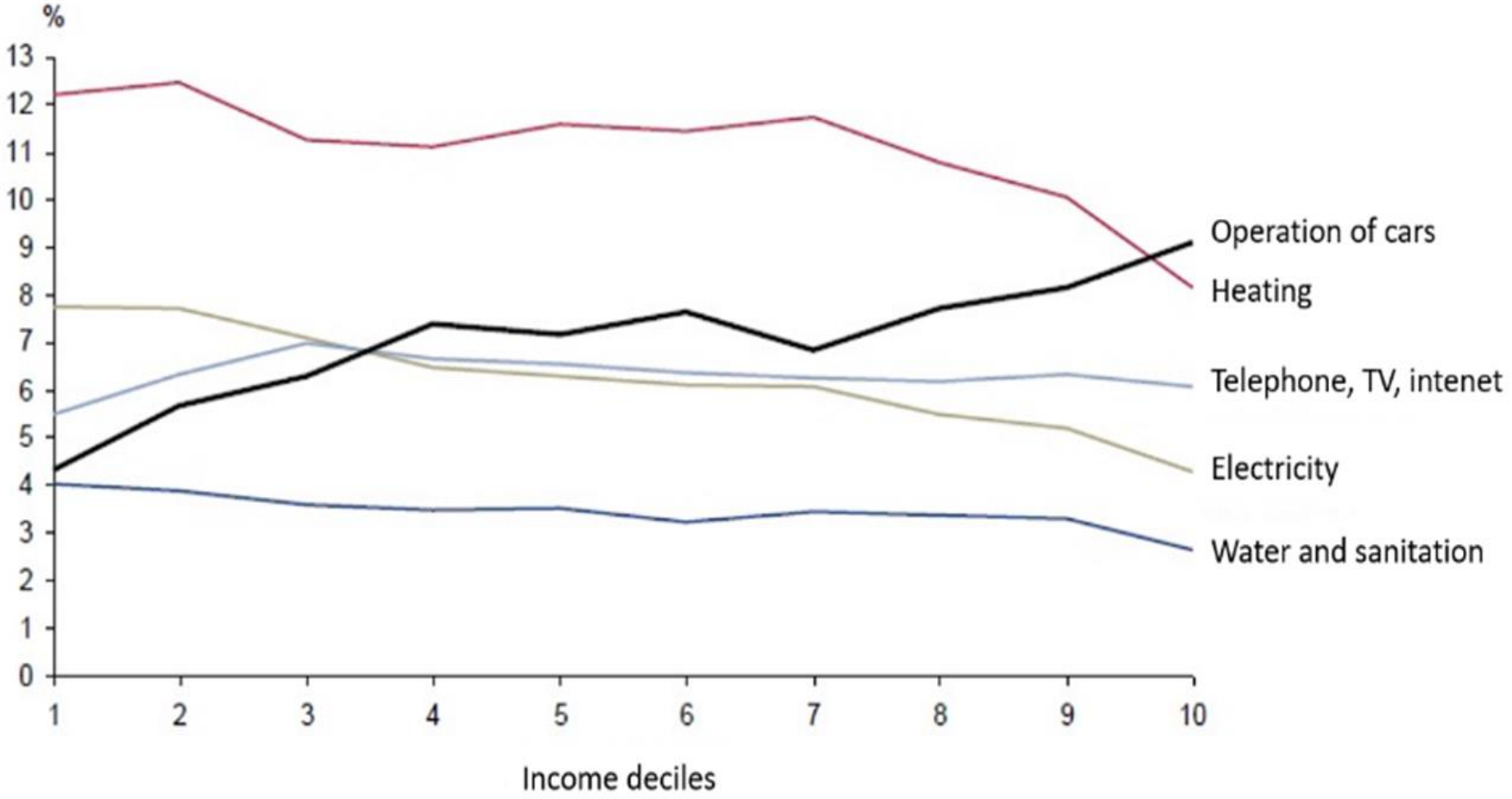
- **Good practice of investment planning**
  - Dynamic Cost Comparison (DCC)
    - Life Cycle Costing (LCC)
    - Option analysis

- **Affordability**:
  - The three ultimate ways to finance water services : the 3T's (OECD methodology)
    - Tariffs: price of water services, including environmental taxes on the water bill.
    - Taxes: national, regional or municipal general taxes.
    - Transfers: money coming from another sector/country

- **Selecting least cost solutions**


INOMCE
Ability To Pay
AFFORDABILITY
Willingness To Pay
PERCEPTION
TRANSPARENCY
VALUE
PRICE

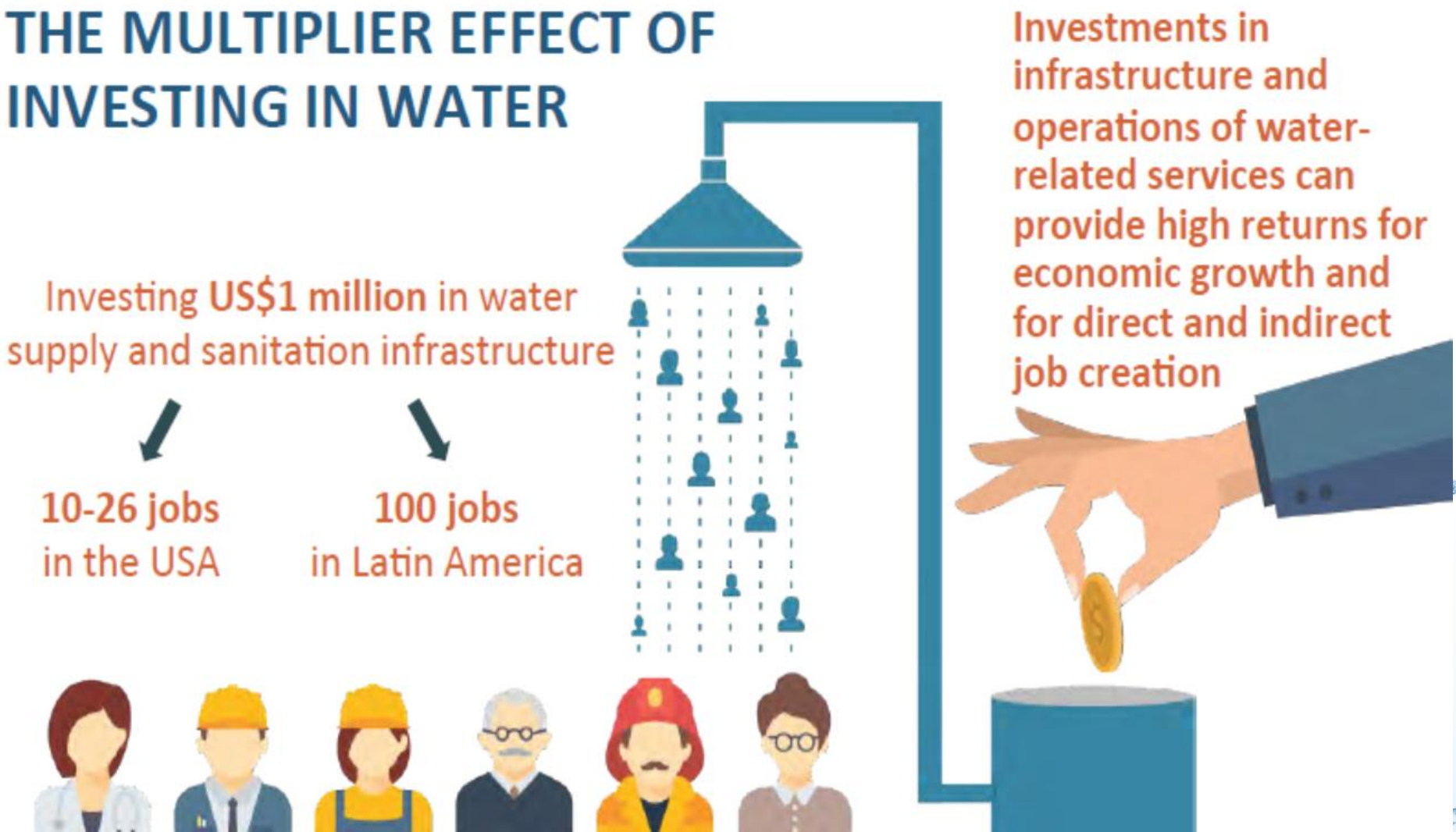
Income-proportional overhead costs



Pricing of water services

- User/Polluter pays principle
- full cost recovery !/?
- economy of scale
- affordability, and solidarity
- the hidden economy of alternative solutions
  (jar<<>>bottle)
- comparison with other utility services
  (energy, telecommunication, transportation)

Investing in water infrastructure – investing in life



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INTEGRATED WATER MANAGEMENT IN THE 21ST CENTURY: ADDRESSING IMMINENT CHALLENGES

Thank you for your kind attention!