



Standardisation Project „Water Services“ ISO TC 224

Consequences on Operational Practice (Wastewater Services)

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Management of Utilities and Assessment of Services in the Water and Wastewater Sector

- Scope
- Components
- Objectives
- Guidelines for the Management
- Service Quality Assessment
- Related Performance Indicators (PIs)
- Use of PIs for Operation



Who writes the Standard?

ISO Technical Committee 224

- Secretariat and Presidency from France
- 4 Working Groups
 - WG 1 – Definitions ... France (D. Olivier)
 - WG 2 – Service to Users ... Spain (E. Cabrera)
 - WG 3 – Water Supply ... Canada (D. Ellison)
 - WG 4 – Wastewater ... Austria (K. Rohrhofer)
[supported by Austrian Federal Life Ministry, BMLFUW]

ISO member countries can participate
also international water / consumer bodies and
organizations



Structure of the Standard



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WG1 Terminology

WG2

DIS 24510
Guidelines for the Improvement and for the Assessment of the Service to Users

WG3

DIS 24512
Guidelines for the Management of Drinking water Utilities and for the Assessment of Drinking water Services

WG4

DIS 24511
Guidelines for the Management of Wastewater Utilities and for the Assessment of Wastewater Services

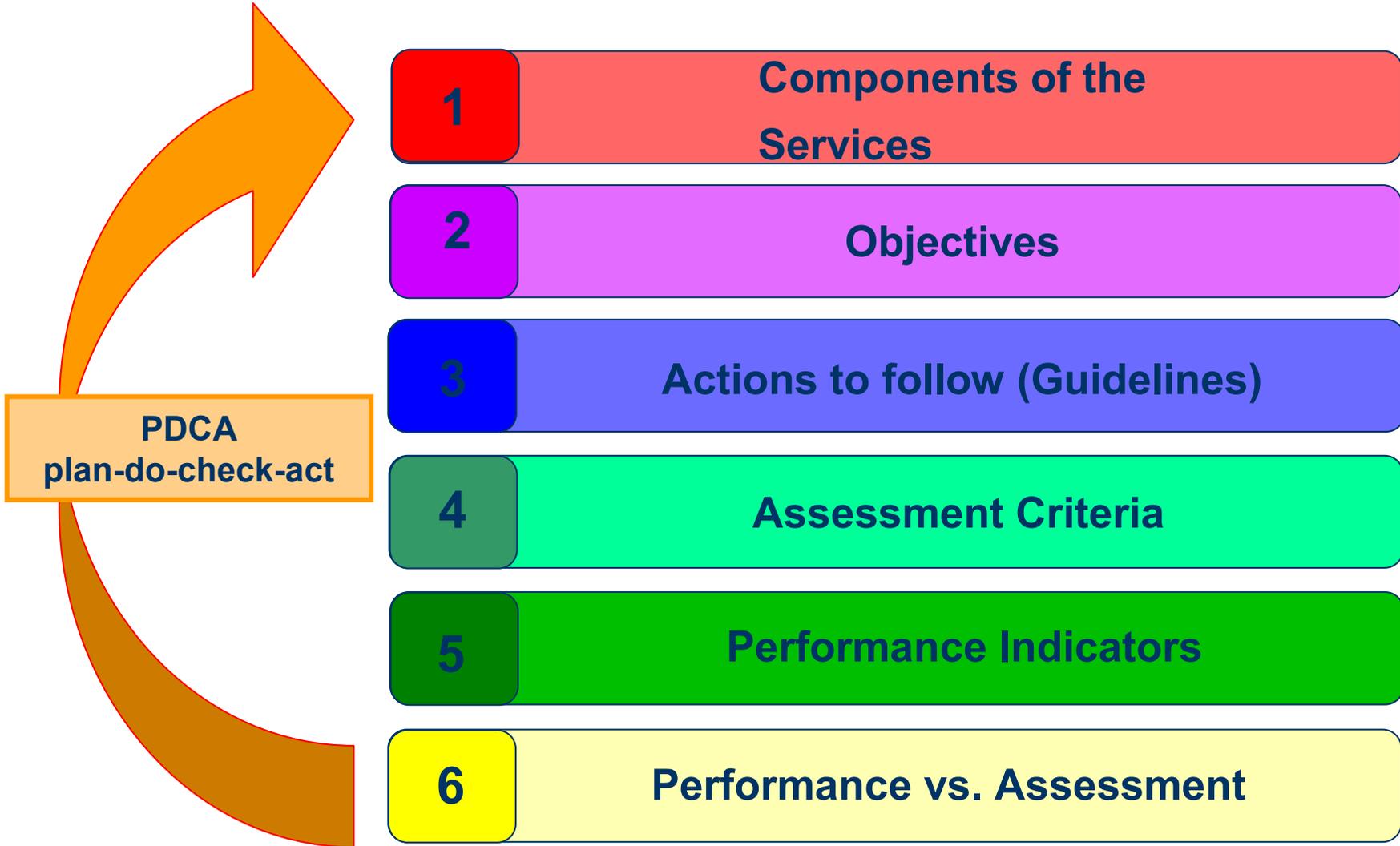
Status Quo: DIS-Stage; finalization: beginning of 2007





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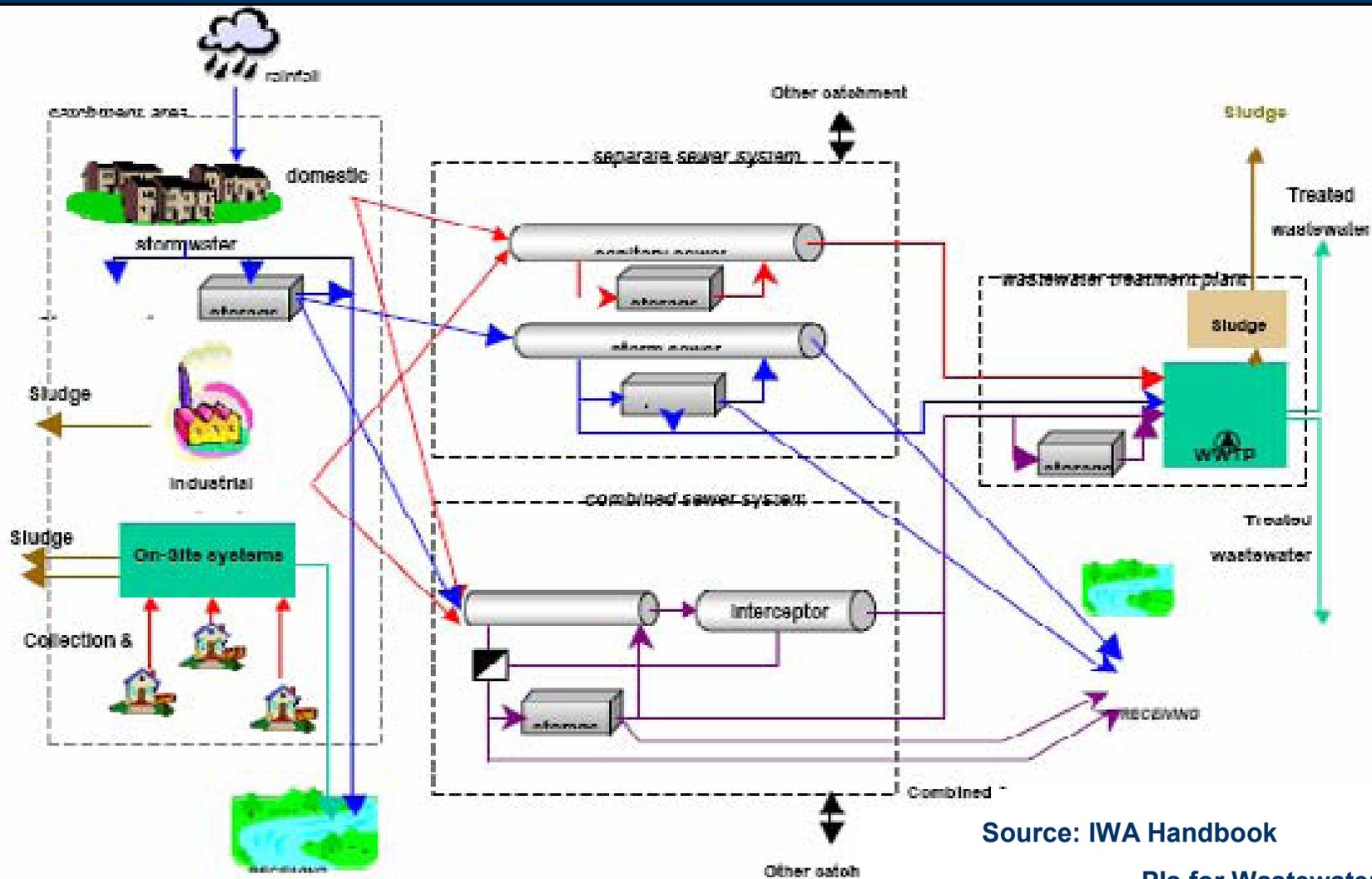


Schematic of WW Services



International Water Association

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Source: IWA Handbook

Pls for Wastewater

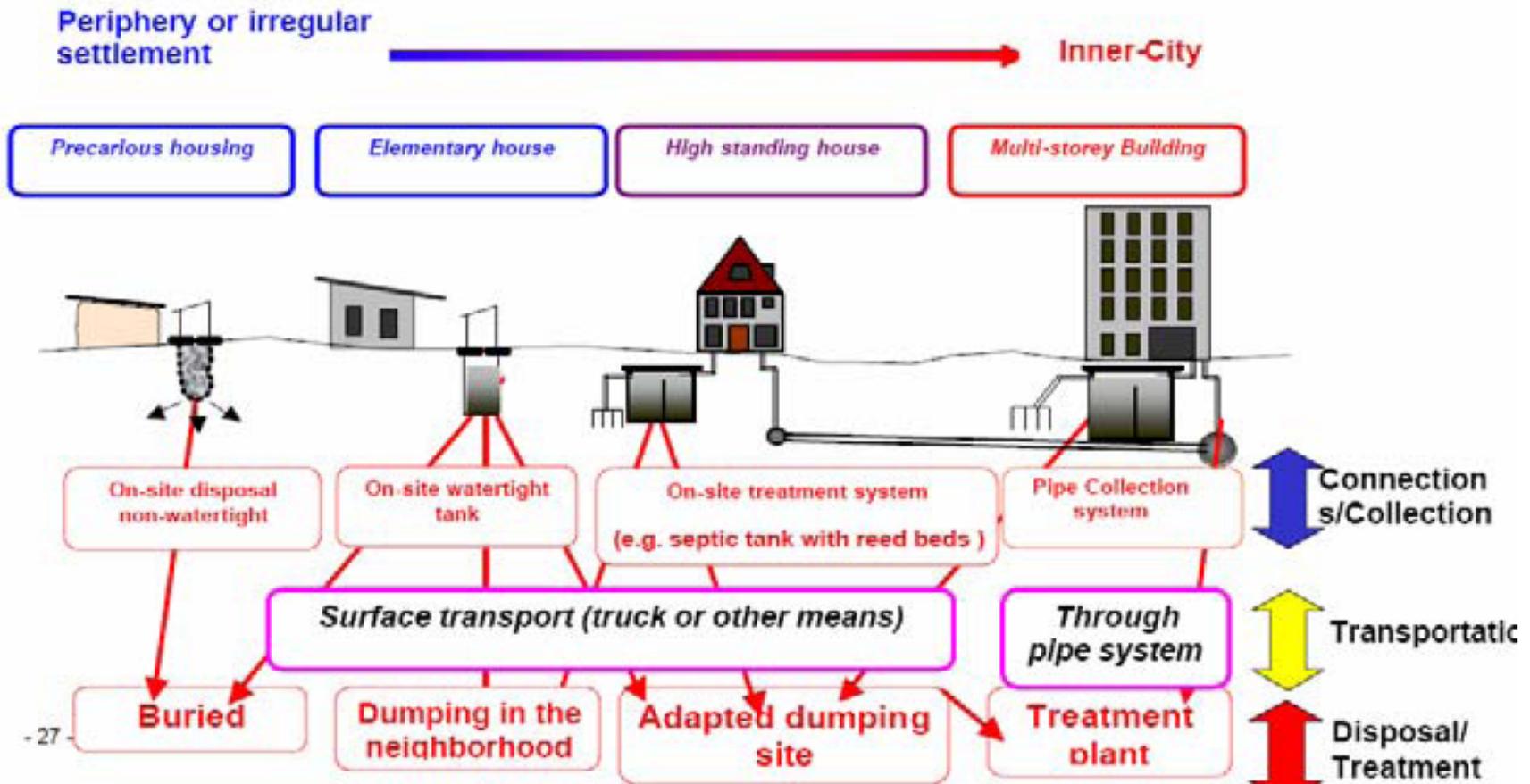
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Types of WW Systems



Source: Hydroconseil France





Example: REPAIRS

Objectives	Guidelines	Assessment Criteria
<p><u>the Users expect:</u></p> <ul style="list-style-type: none"> repair in approp. time information in time minimum disturbance 	<p><u>the Service Supplier shall:</u></p> <ul style="list-style-type: none"> inform user about time, duration and consequences minimize disturbance 	<p>Consequences of service interruption:</p> <ul style="list-style-type: none"> execution in planned time extent of user information

PIs Average Interruption Time Interruption per Connection



Objective: Protection of Public Health

→ **SAFE DISCHARGE OF WASTEWATER**

PI: **WWTPs compliance with discharge consents (%)**

Definition:

Percentage of the population equivalent that comply with the applicable discharge consents

Comment:

Discharge consents refer to the effluent quality standards that apply.





Intended Benefits

The ISO Standards 24510 / 24511 / 24512

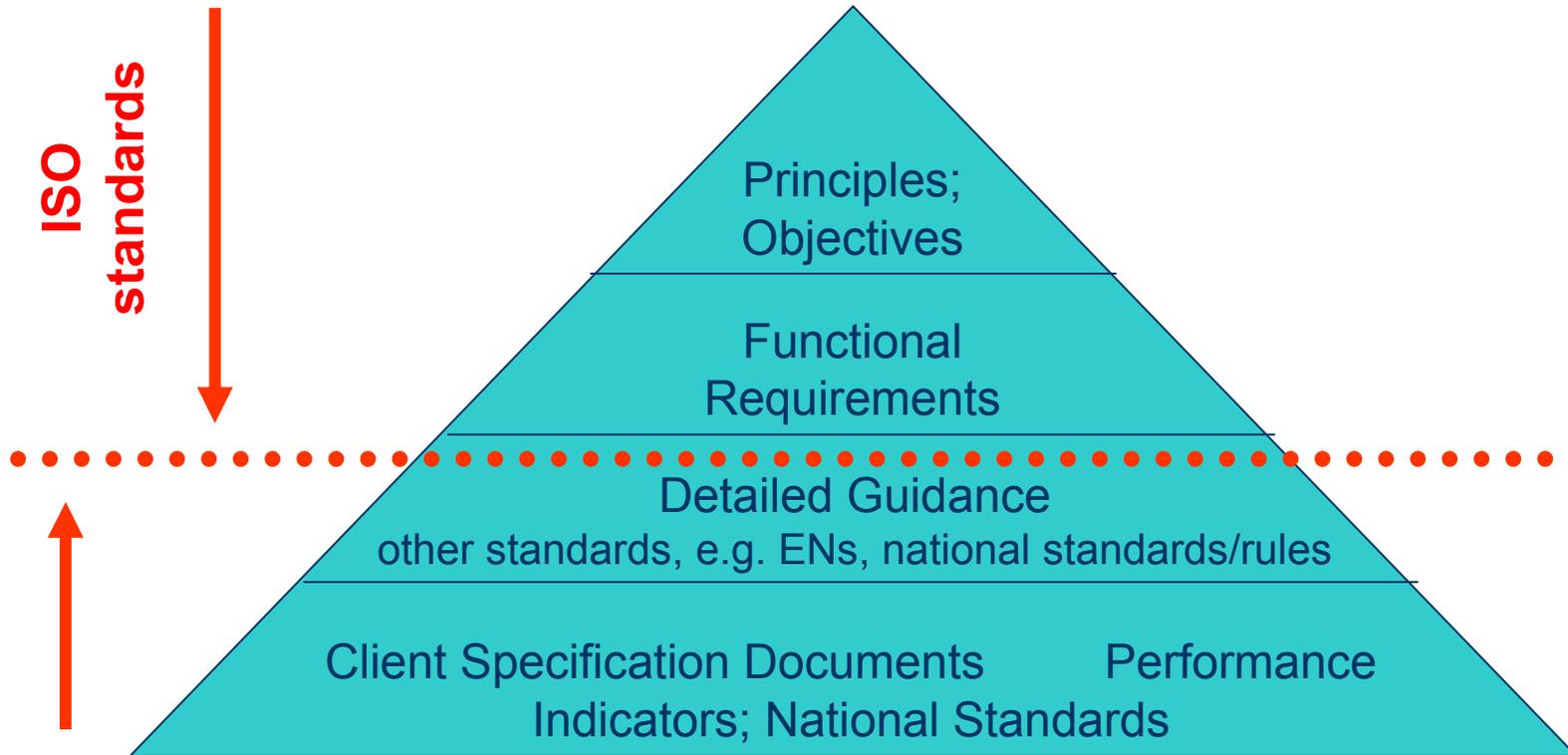
- provide a common language
- are applicable, both in the industrialized and in the developing world
- give guidance for the management and the assessment of Water Supply and Wastewater Services
- provide tools (PIs) to make these services visible and measurable.



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Levels of Details



Source: Drs.ing. C. Snaterse MMC / NL



Performance Indicators (PIs)

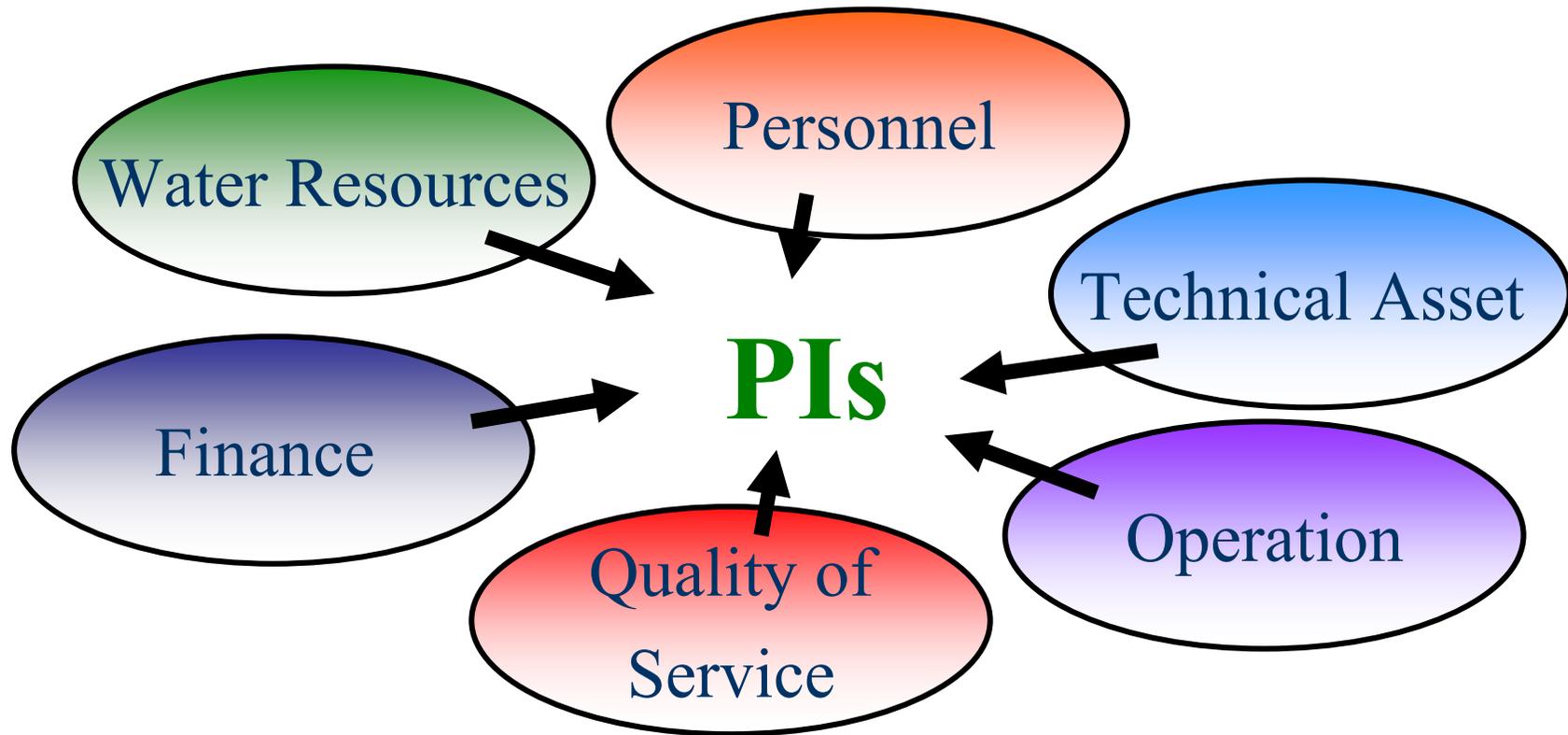
- ... are tools to measure performances
- ... influence / regulate the whole business life
- ... not only limited to water and waste water management

Main questions concerning the use of PIs:

- For which purpose?
- Who creates the PI System?
 - Utility itself
 - User [e.g. via „user associations“]
 - Authority/Regulator



PI System



PI Systems Wastewater

- IWA offers in the PI handbooks a large number (approx. 150) of different PIs
- Any PI System must be „tailor-made“ with regard
 - to location, social circumstances, size, economy
 - to the questions to be answered
 - to the problems to be solved
- Always: selection of a “small” number of appropriate PIs (approx. 10 – 25 PIs) is recommended
- Note: “Data Collection” alone is not a “PI System”!



PI System for Wastewater Services

Table 1. Structure of the performance indicator framework

	Code	
Performance indicators	<i>En</i>	Environmental indicators
	<i>Pe</i>	Personnel indicators
	<i>Ph</i>	Physical indicators
	<i>Op</i>	Operational indicators
	<i>QS</i>	Quality of service indicators
	<i>Fi</i>	Economical and financial indicators

Source: IWA Handbook. PIs for Wastewater



Quality Indicators



International
Water Association

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wQS3	Treated Wastewater	Volume of wastewater treated in WWTP / collected sewerage x 100
wQS7	Tertiary Treatment	Volume of wastewater receiving tertiary treatment / collected sewerage x 100
wQS14	Interruption of WW collection and transportation services	SUM [Number of properties affected by discontinuities/interruptions x duration of interruptions in hours / (connected properties x 365 x 24) x 100]



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Operational Indicators



International
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wOp1	Sewer Cleaning	Length of sewers cleaned / total sewer length * 100
	<i>Note:</i>	<i>Actions under proactive management strategy (not curative cleaning due to blockages!)</i>
wOp20	Sewer Rehabilitation	Length of sewers rehabilitated / total sewer length * 100

Source: IWA Handbook. Pls for Wastewater



Operational Indicators



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wOp28	Inflow Infiltration Exfiltration	Volume of water entering sewers (from groundwater and wrong connections) less the leakage from sewers into ground / (collected sewage + inflow + infiltration – exfiltration) x 100
wOp32	Blockages	Number of blockages / total sewer length
	<i>Note:</i>	<i>blockages in service connections only included where these are the responsibility of wastewater utility</i>

Source: IWA Handbook. Pls for Wastewater



Operational Indicators



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wOp34	Flooding from Sanitary Sewers	No. of flooding incidents related to sanitary sewers / total sewer length x 100
	Note:	<i>Only include incidents to sewers under responsibility of the utility</i>
wOp36	Sewer Collapses	Number of sewer collapses / total sewer length x 100
	Note:	<i>does not include collapses on service connections</i>

Source: IWA Handbook. PIs for Wastewater



Findings and Shortcomings

Only based on

PERFORMANCE INDICATORS,

it is feasible to “measure”/”assess”/”execute”

- Self-Assessment of Utilities
- Strategic Asset Management
- Metric and Process Benchmarking



Findings and Shortcomings

Also financing Institutes/Institutions/Donors

e.g. Ministries,

Development Agencies,

Worldbank,

EBRD

should base all Funding-/ Loan-/ Donor-
Contracts

on **PERFORMANCE INDICATORS!**



Thank you for your attention!

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**WWTP of
the City of
Vienna**

4.000.000 PE

BSB5 15 mg/l
CSB 75 mg/l
TOC 25 mg/l
NH4-N 5 mg/l

**For further questions:
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