

ADB

ASIA WATER FORUM 2018

INFORMATION, INNOVATION, AND TECHNOLOGY



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Methods and approaches for NON REVENUE WATER

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Suez Consulting...

1400



35 Nationalities

41%


4,2%
Of alternants


 **70**
countries

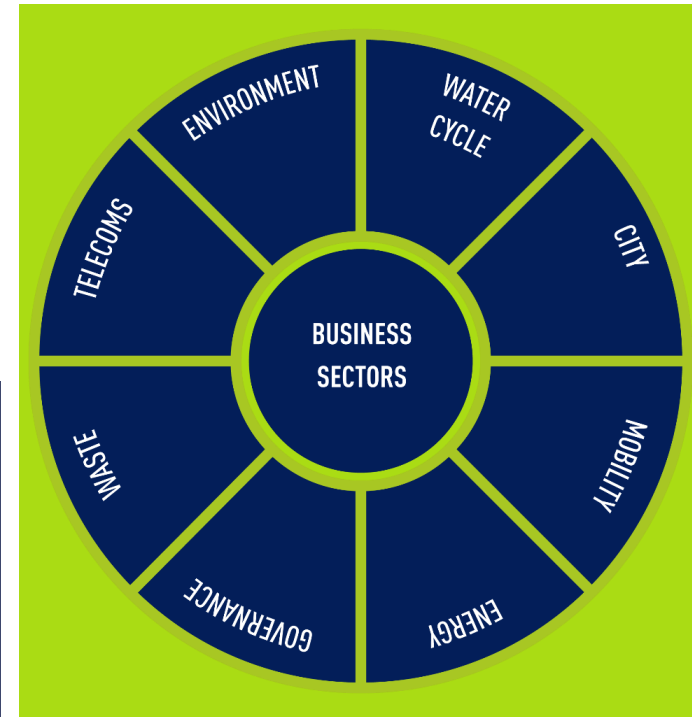
provider of services to Europe Aid

strategic consulting

engineering


+60 years
clients trust



€108 million
turnover in 2014

40%
international



optimize resources use
promote circular economy


L@b
To develop disruptive innovations


PARIS2015
Chosen by the French government for model countries for COP 21 contribution

Services

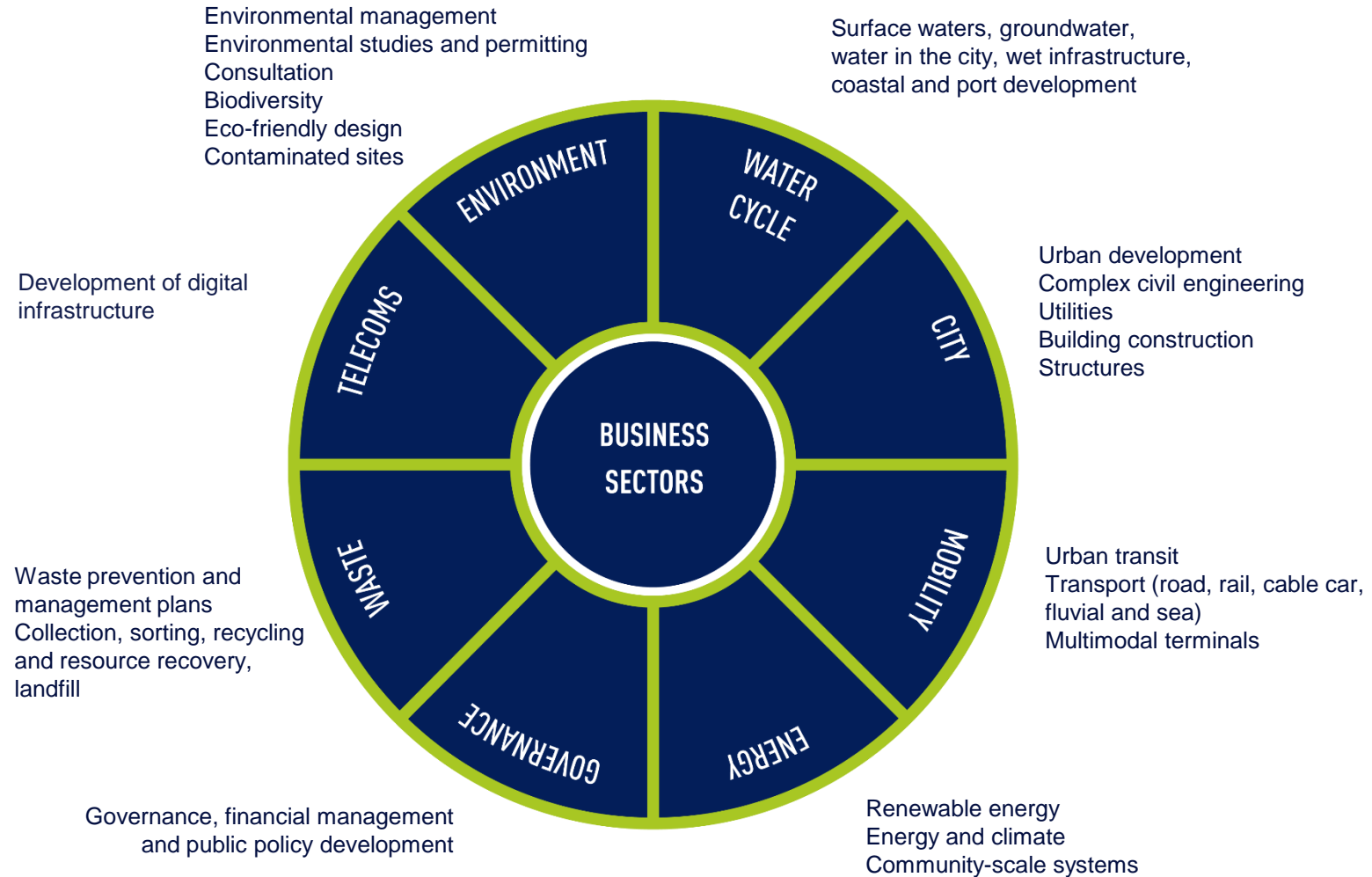
supporting you through every step of your project...

- project and programme management
- studies
- design and construction supervision
- technical assistance
- training
- due diligence



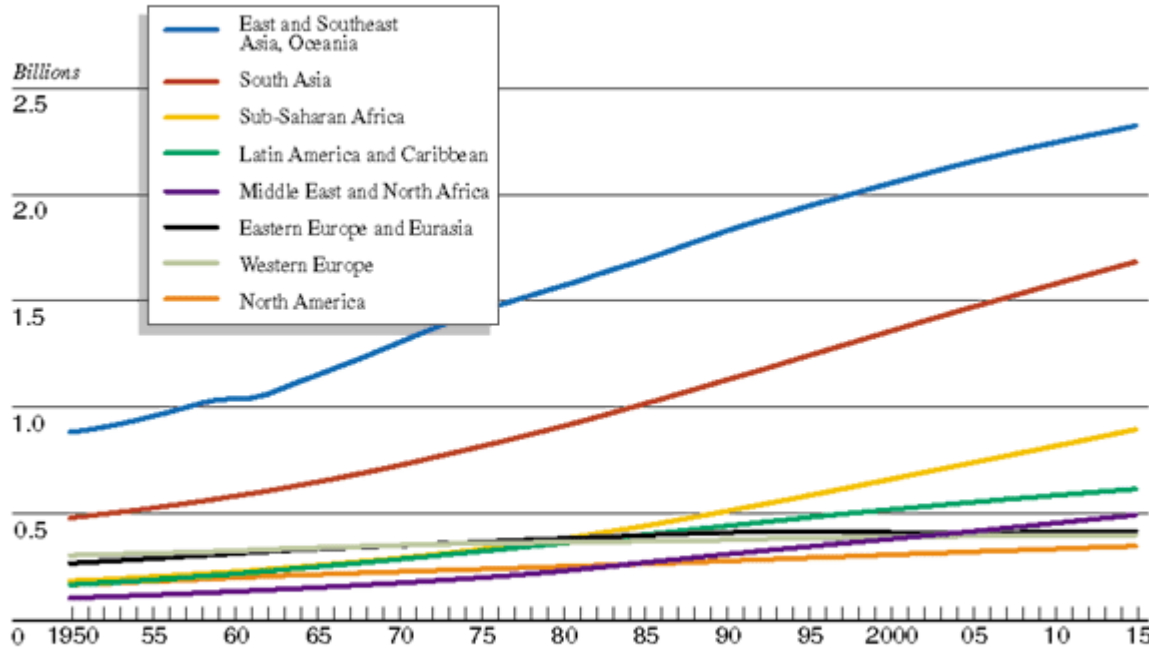
Our sectors

a multidisciplinary engineering capability dedicated to urban and regional development...



WHY IS NRW REDUCTION CRUCIAL?

Regional Population: 1950-2015



Source: US Bureau of the Census.

DI Design Center 375778AI 09-00

Rapid growth of Asian cities
Increase of industrial, irrigated agriculture, energy needs

Loss of 29 billion m³ of treated water/year

Increase of industrial, irrigated agriculture, energy needs...

...Valued at \$9 billion

Source: ADB, The Issues and Challenges of reducing of reducing non revenue water, 2010

WHY IS NRW REDUCTION CRUCIAL?

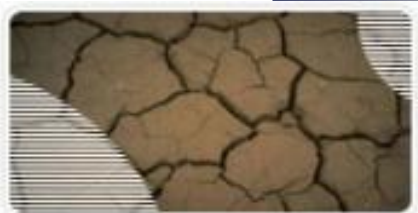
Main stakes



Protect
water resources



Optimize the
operating costs



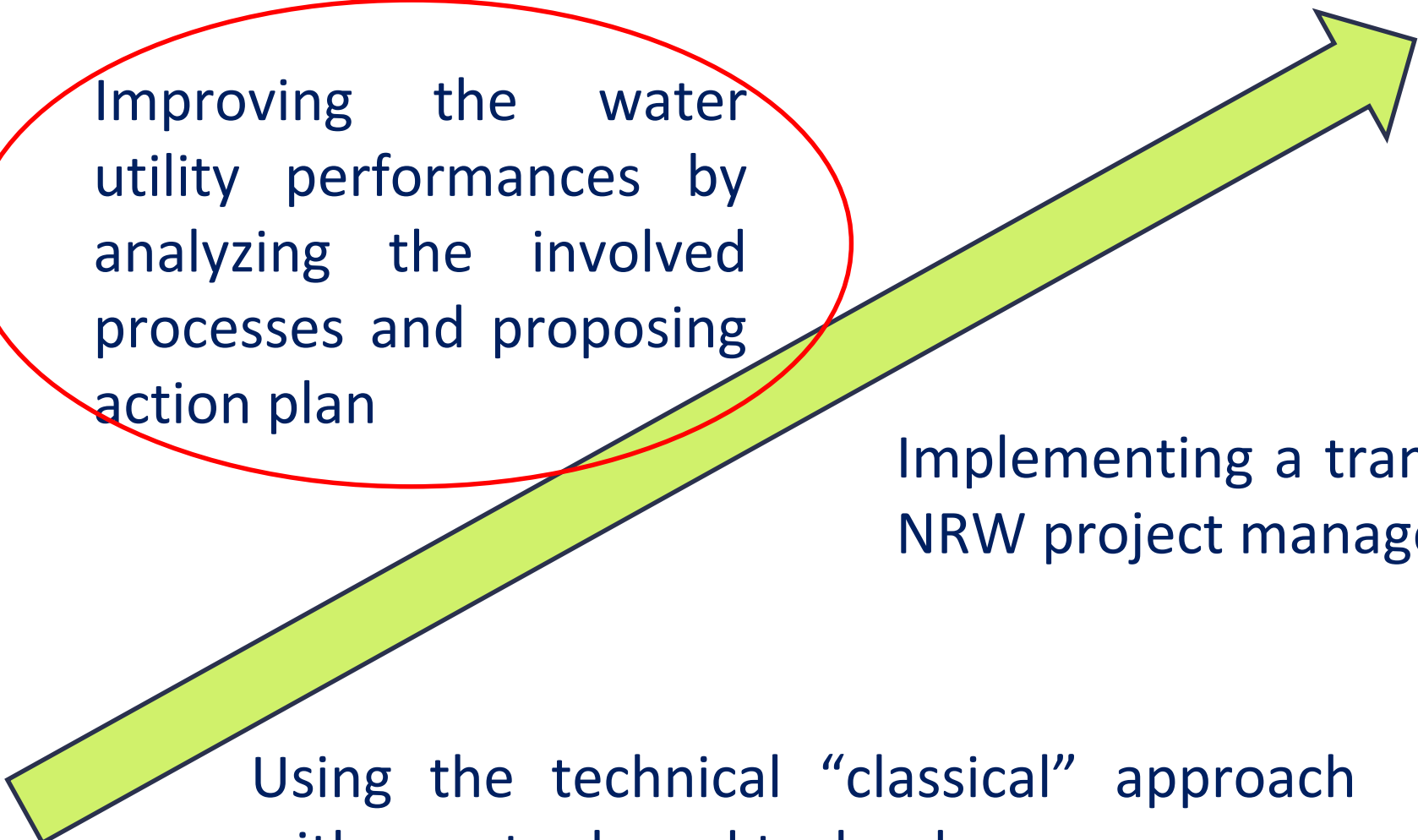
Ensure a
continuous supply of
water of
excellent quality



Provide equitable
access to
water



HOW APPROACHING NRW?



Improving the water utility performances by analyzing the involved processes and proposing action plan

Sustainable results for NRW

Implementing a transversal approach with NRW project management

Using the technical “classical” approach with new tools and technology

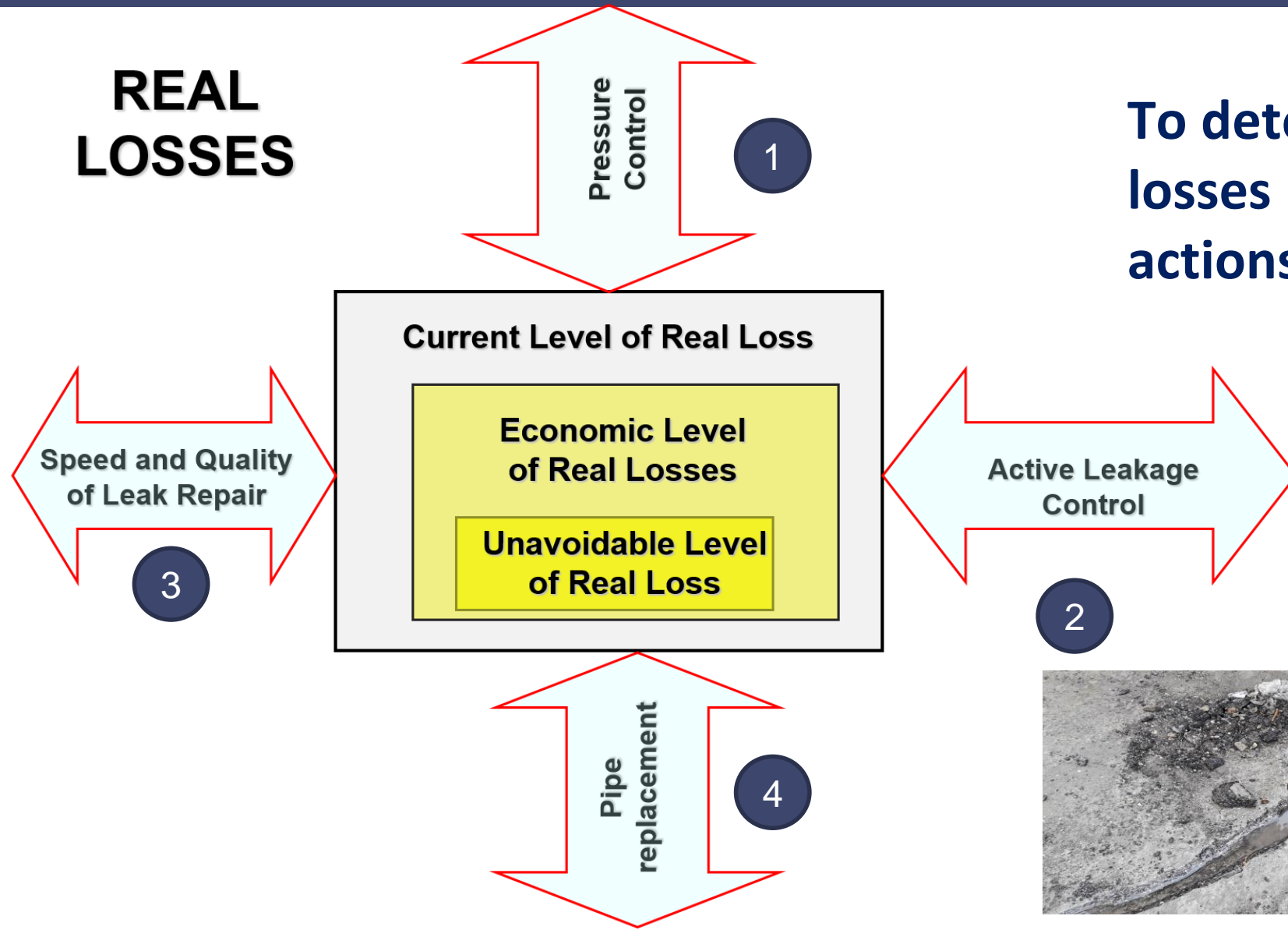
HOW APPROACHING NRW?

System Input Volume	Authorized consumption	Billed authorized consumption	Billed metered consumption	Revenue Water (or billed volumes)
			Billed unmetered consumption	
		Unbilled authorized consumption	Unbilled metered consumption	
			Unbilled unmetered consumption	
	Water losses	Apparent Losses	Metering inaccuracies	Non Revenue Water or (unbilled volumes)
			Estimate of Unmetered Consumption	
			Unauthorized consumption	
			Errors linked to the data acquisition processes	
		Real Losses	Transmission and distribution mains	
			Overflow or leakage of storage tanks	
Service connections to meter				

To achieve a water balance (IWA water balance)!

HOW APPROACHING NRW?

REAL LOSSES



To determine the level of real losses and the associated actions!

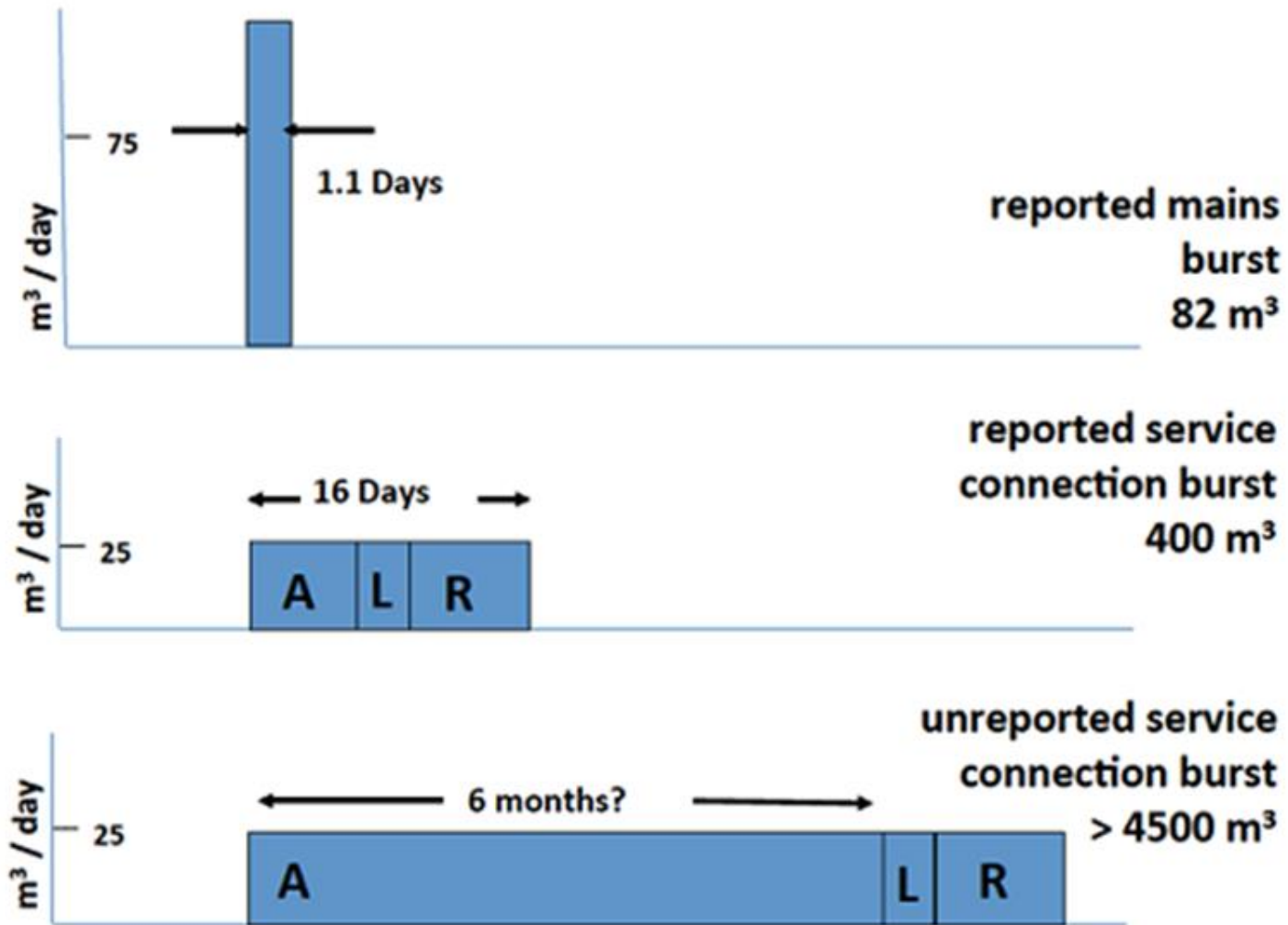


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4

HOW APPROACHING NRW?

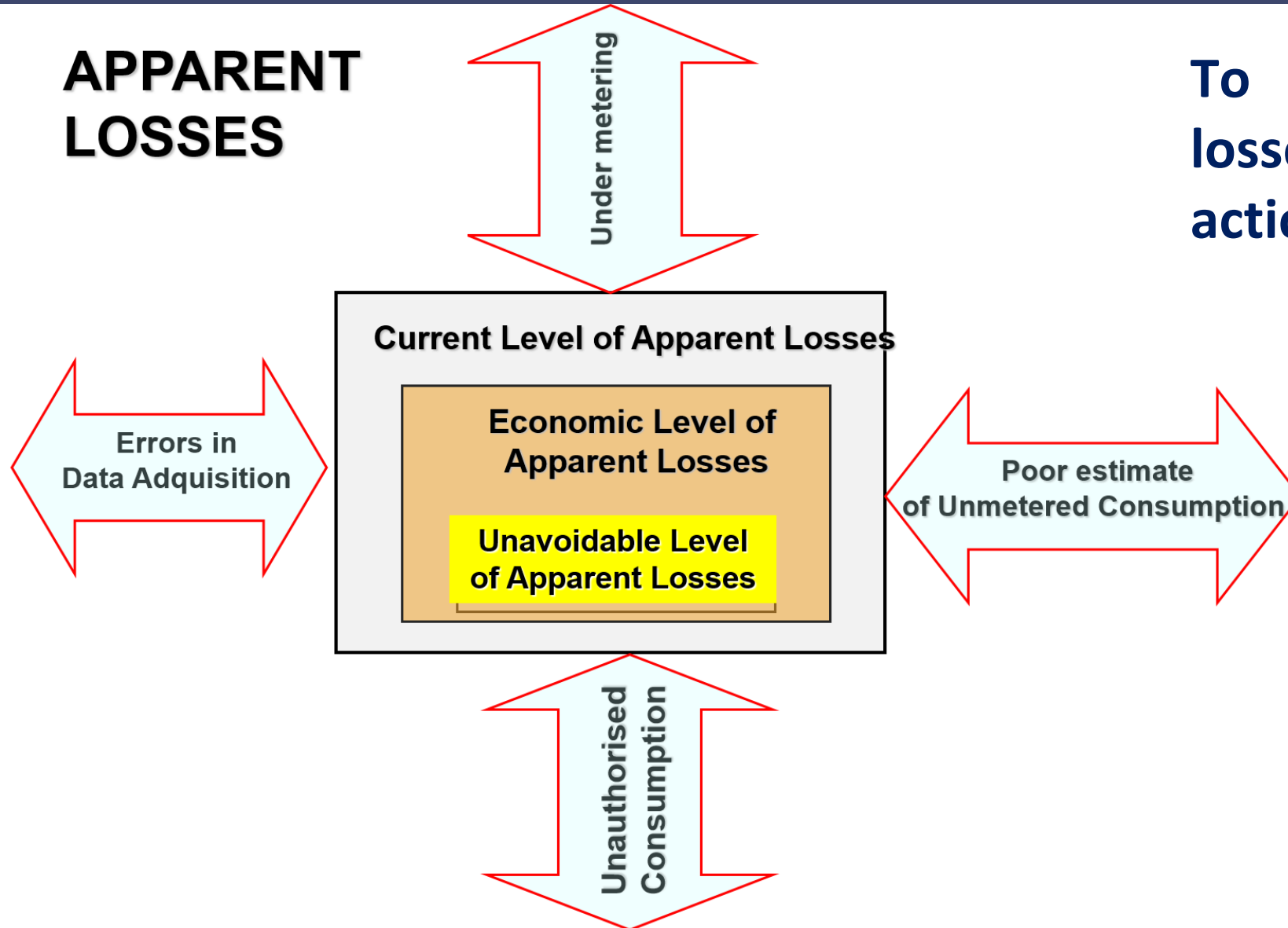


Speed and quality of repair



HOW APPROACHING NRW?

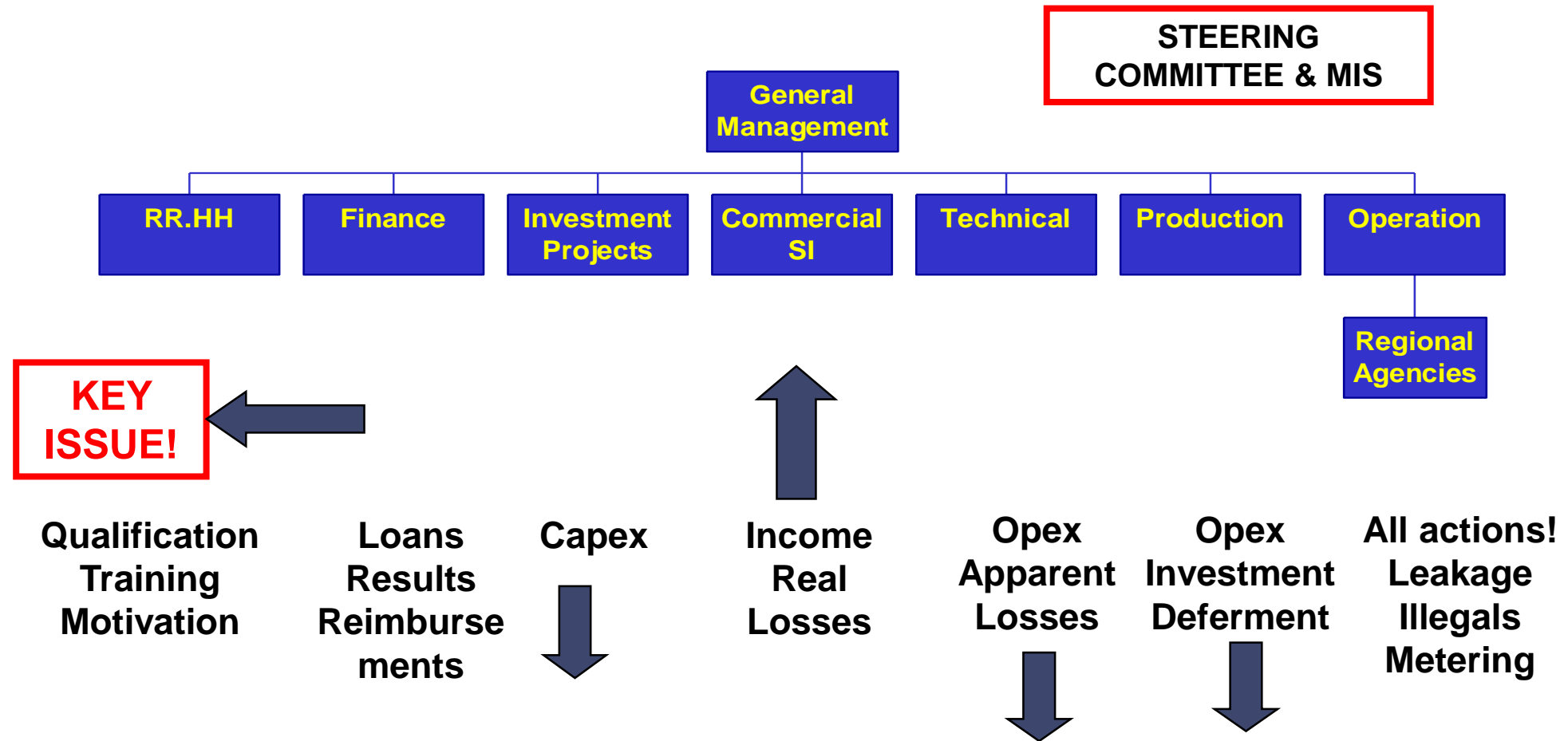
**APPARENT
LOSSES**



To determine apparent losses and the associated actions!



HOW APPROACHING NRW?



Need for transversal actions & coordination !

BUT...

Several failures can avoid:

- Poor design of the plan
- No coordination between the components
- No coordination between the investments
- Poor involvement of the management
- Difficulties under estimated
- T factor under estimated
- Considering that each department is autonomous



Taking into account the operational and transversal dimension is necessary but not sufficient

Taking into account the maturity of the water utility is absolutely necessary to get sustainable results

OUR NRW MANAGEMENT APPROACH



To assess the maturity and the capacity of the water utility to implement on a sustainable manner the NRW project, we use WIKTI to implement the action plan and to go beyond the technical issues

OUR NRW MANAGEMENT APPROACH

WIKTI® (Water International Knowledge Transfer Initiative) is a **maturity assessment tool** which aims to drive forward a water utility.



Evaluate objectively at 360° the maturity level of core & support businesses



Define targets & deserved action plans to achieve them

Stay connected to SUEZ know-how through a simple, structured & up-to-date method

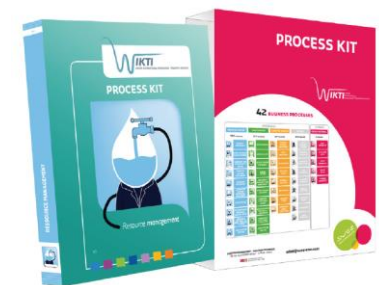
OUR NRW MANAGEMENT APPROACH

- Continuous improvement since 2006
- 2000 assessment criteria
- Maturity Levels
 - Level 1-2: All in place to allow a good water system
 - Level 3-4: All processes supported by IT systems; requiring important human resources and financial investments
 - Level 5-6: High standard of technology and technical level to allow a complete automation of the process

Deployed on **20** countries
in **5** continents

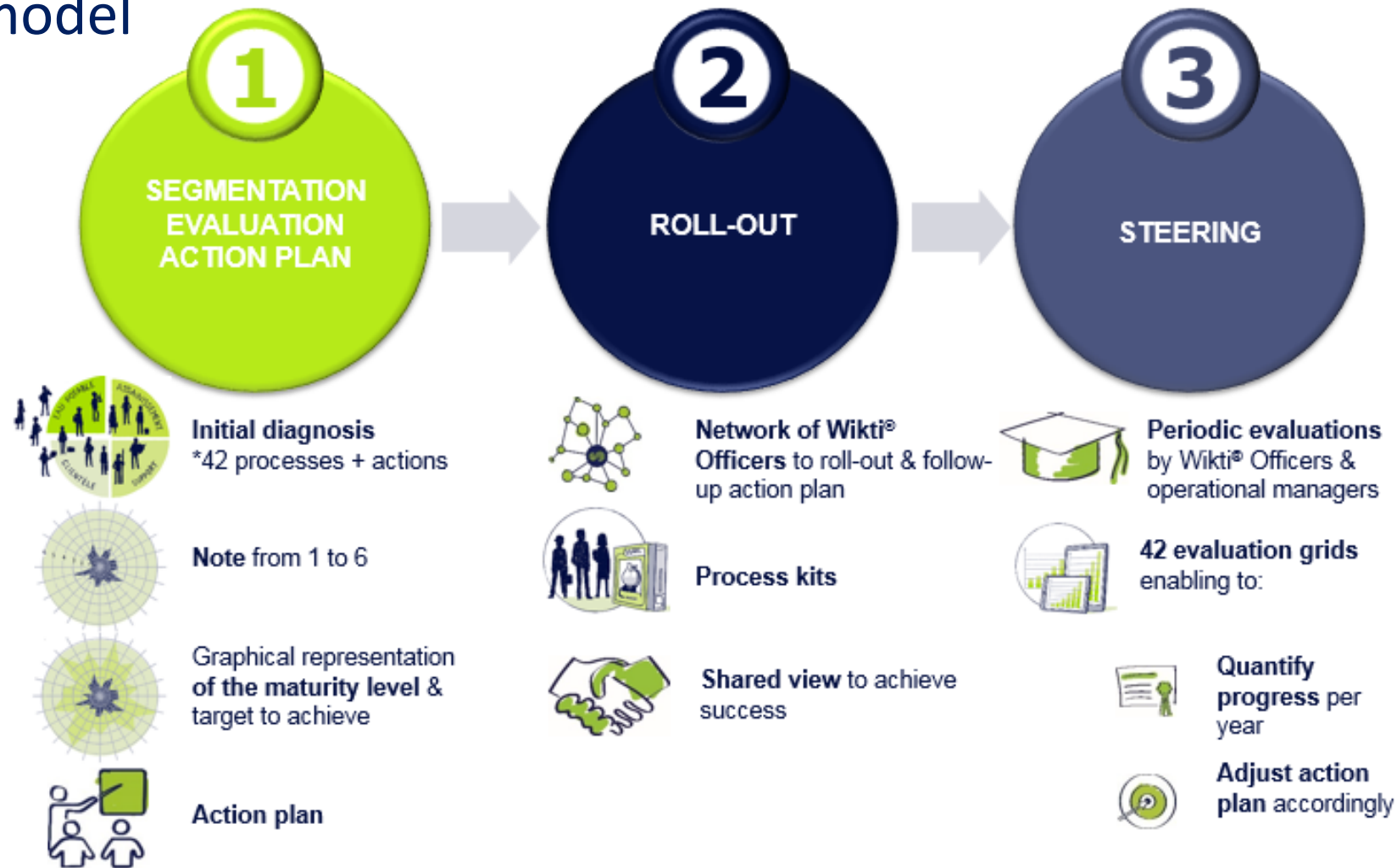


42 process kits

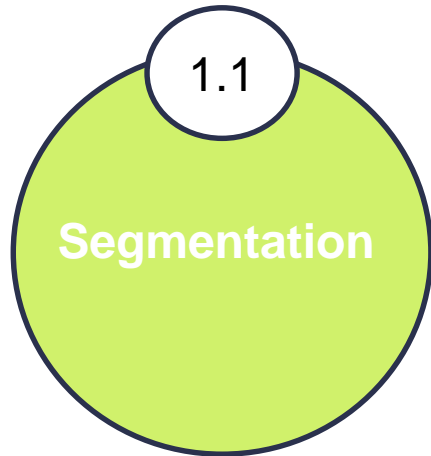


OUR NRW MANAGEMENT APPROACH

A 3-step model



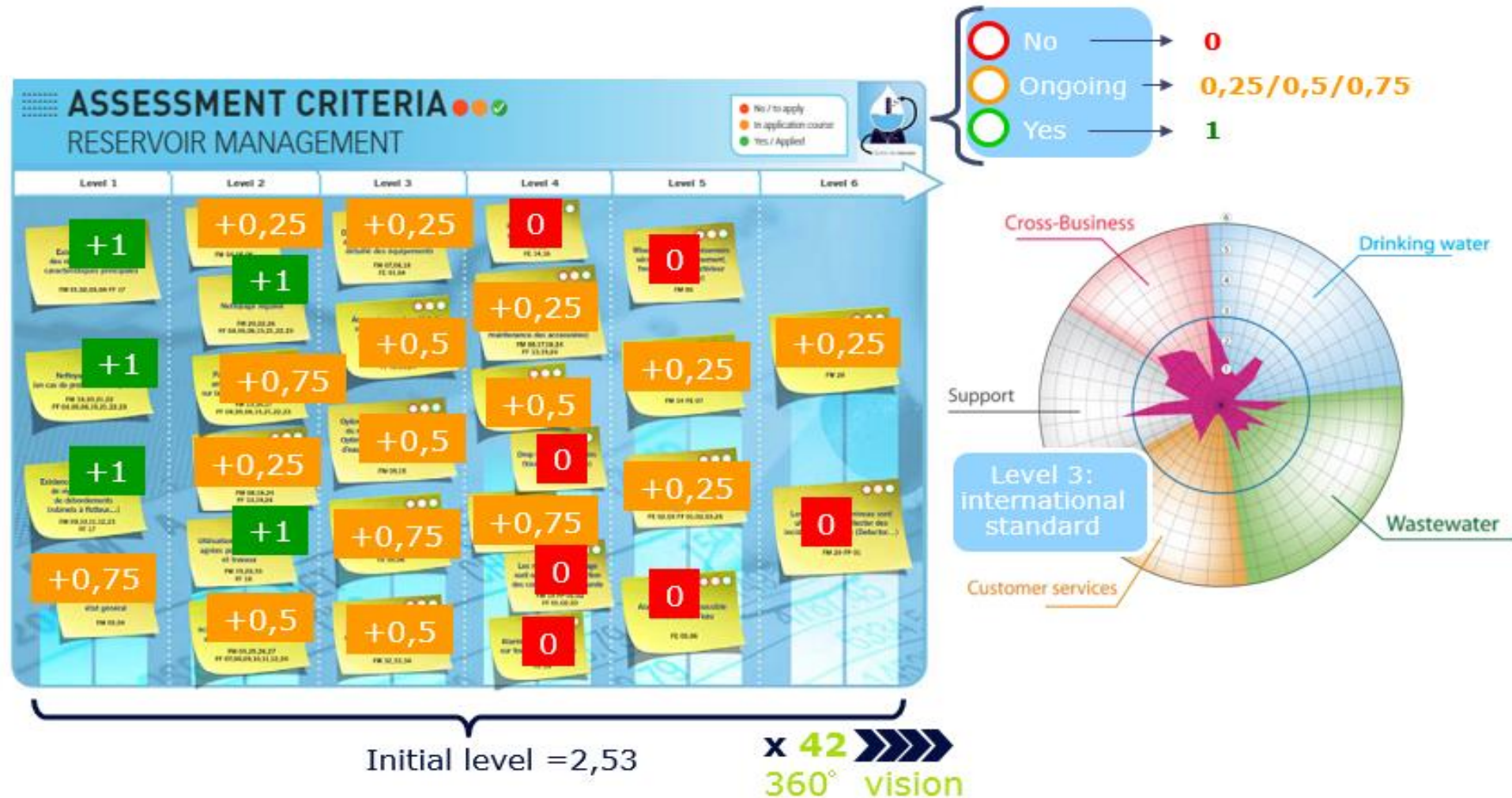
OUR NRW MANAGEMENT APPROACH



DRINKING WATER	WASTEWATER	CUSTOMER SERVICES	SUPPORT	CROSS-FUNCTIONAL
10 Processes	10 Processes	8 Processes	9 Processes	5 Actions
RESOURCE MANAGEMENT	SEWER DIAGNOSIS	CUSTOMER DATABASE MANAGEMENT	HUMAN RESOURCES / TRAINING	ASSET MANAGEMENT
WATER TREATMENT PLANT & PUMPING	SEWER CLEANING	METER MANAGEMENT	ACCOUNTING / CONTROLLING	NON-REVENUE WATER
LABORATORY AND WATER QUALITY CONTROL	SEWAGE NETWORK MANAGEMENT	METER READING	PREVENTION / HEALTH & SAFETY	ENERGY MANAGEMENT
TRANSPORT NETWORK MANAGEMENT	PUMPING STATIONS	INVOICING / BILLING	CRISIS MANAGEMENT	SERVICES FOR ALL
RESERVOIR MANAGEMENT	WASTEWATER TREATMENT PLANT MANAGEMENT	PAYMENTS / COLLECTION	INFORMATION TECHNOLOGY	WORKFORCE MANAGEMENT
DISTRIBUTION NETWORK OPERATIONAL MANAGEMENT	SLUDGE TREATMENT & RECOVERY	DEBT RECOVERY	REAL TIME MONITORING	
LEAK DETECTION	LABORATORY & DISCHARGE CONTROL	CUSTOMER CONTACT	STAKEHOLDER RELATION	
ELECTROMECHANICAL MAINTENANCE - DRINKING WATER	ELECTROMECHANICAL MAINTENANCE - WASTEWATER	MANAGEMENT OF NEW CONNECTIONS	PROCUREMENT	
MAINTENANCE OPERATIONS & SITE WORKS - CONNECTIONS & NETWORK	CONNECTIONS & SITE WORKS - WASTE WATER		CAPEX MANAGEMENT	
WATER NETWORK MAPPING	SEWER NETWORK MAPPING			

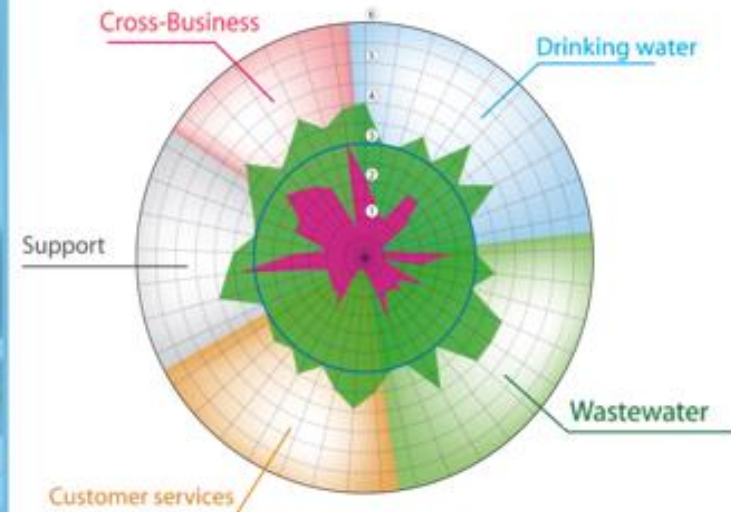
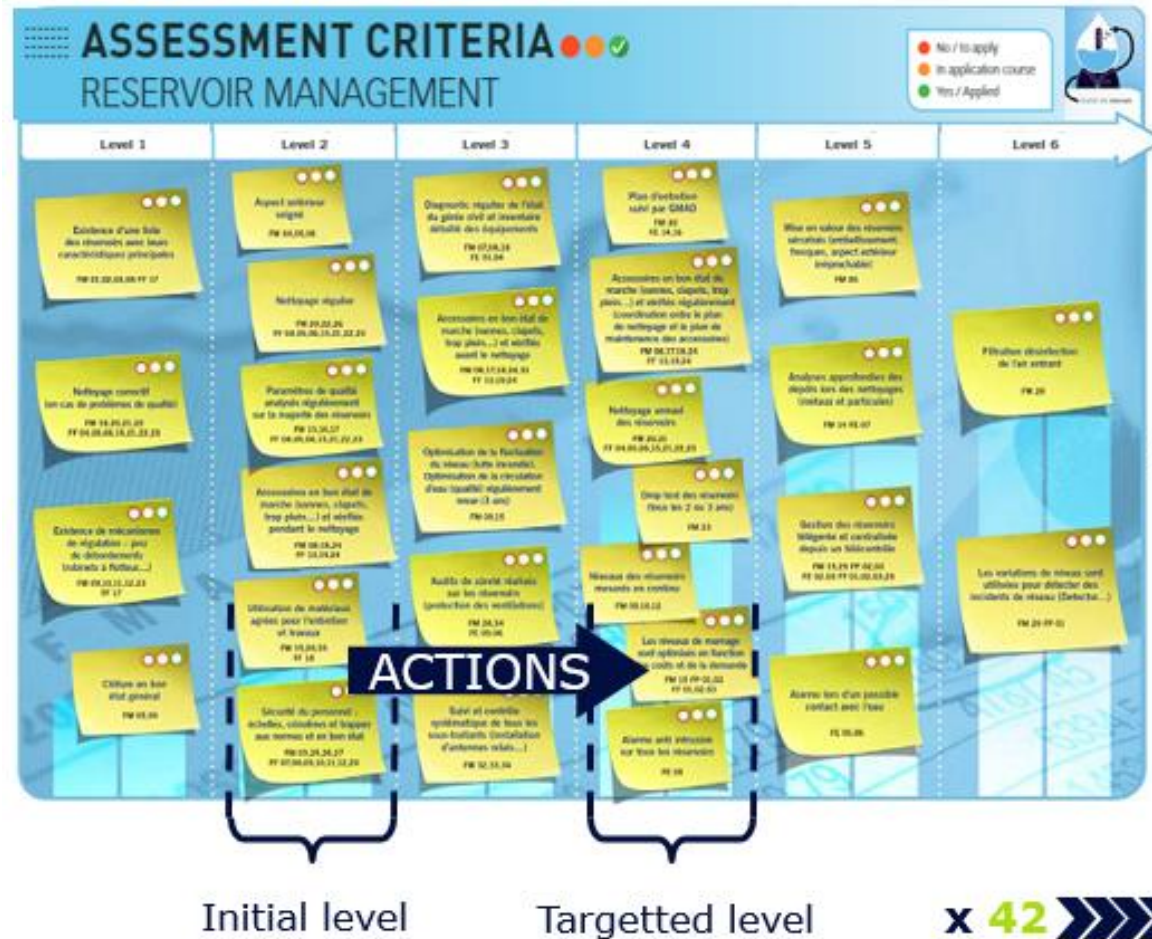
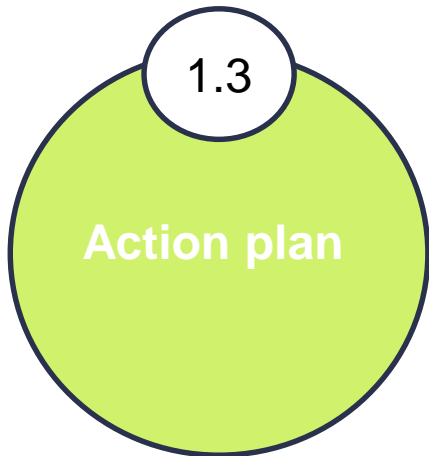
22 processes to be analyzed to have the global picture regarding NRW

OUR NRW MANAGEMENT APPROACH



Objective evaluation criteria per process

OUR NRW MANAGEMENT APPROACH



x 42 360° Vision

SOME CASE STUDY

Example 1: MCDC, Mandalay, Myanmar

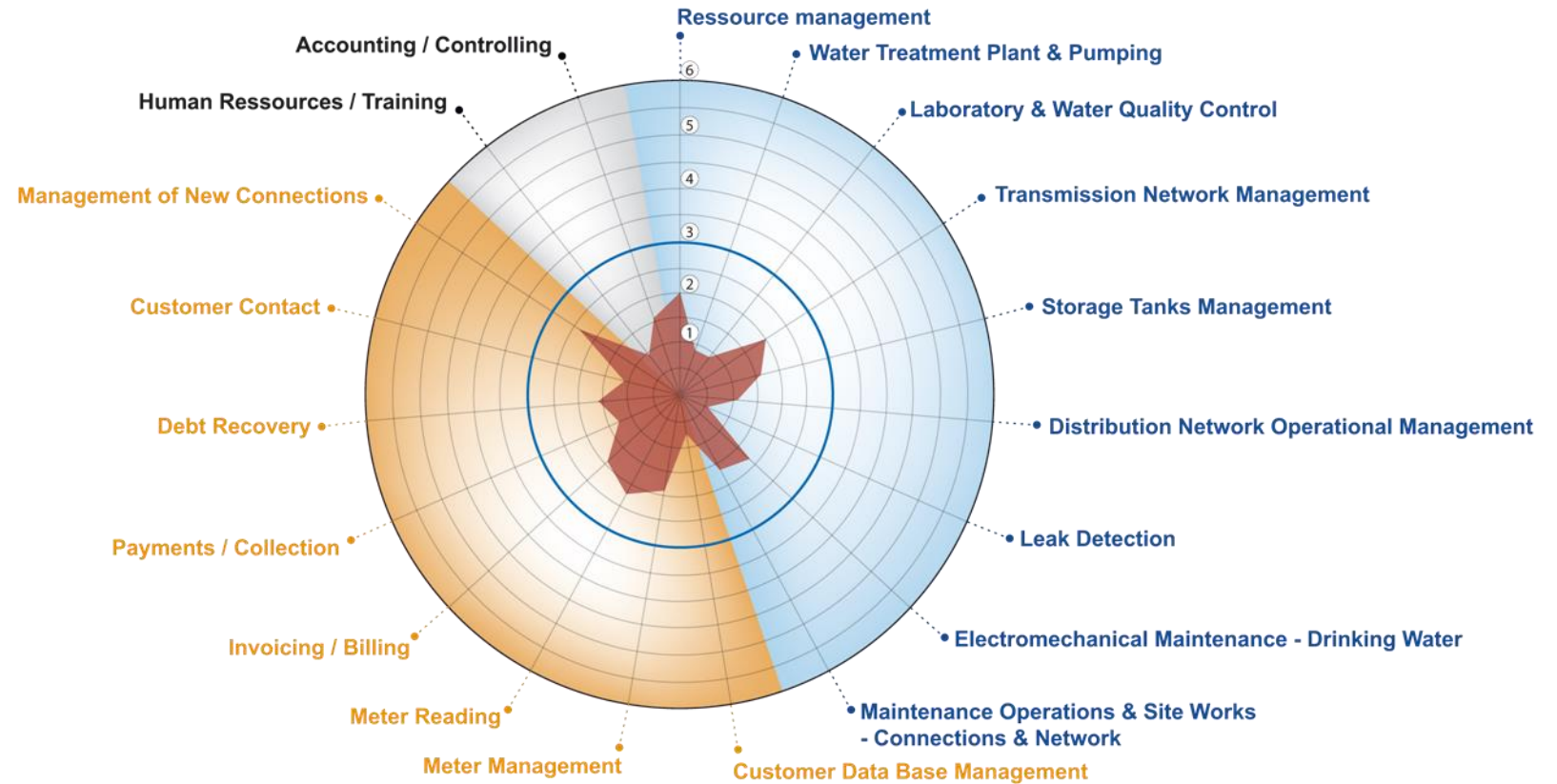
Diagnostic of Utility

- Average score very low
- Low score is due to the closure of Myanmar and the lack of exposure of MCDC to modern utility operations

For such a utility, WIKTI can be used as a guide for mapping and following the development of the utility as well as the NRW reduction project

• TRANSVERSAL

• DRINKING WATER



• CUSTOMER SERVICES

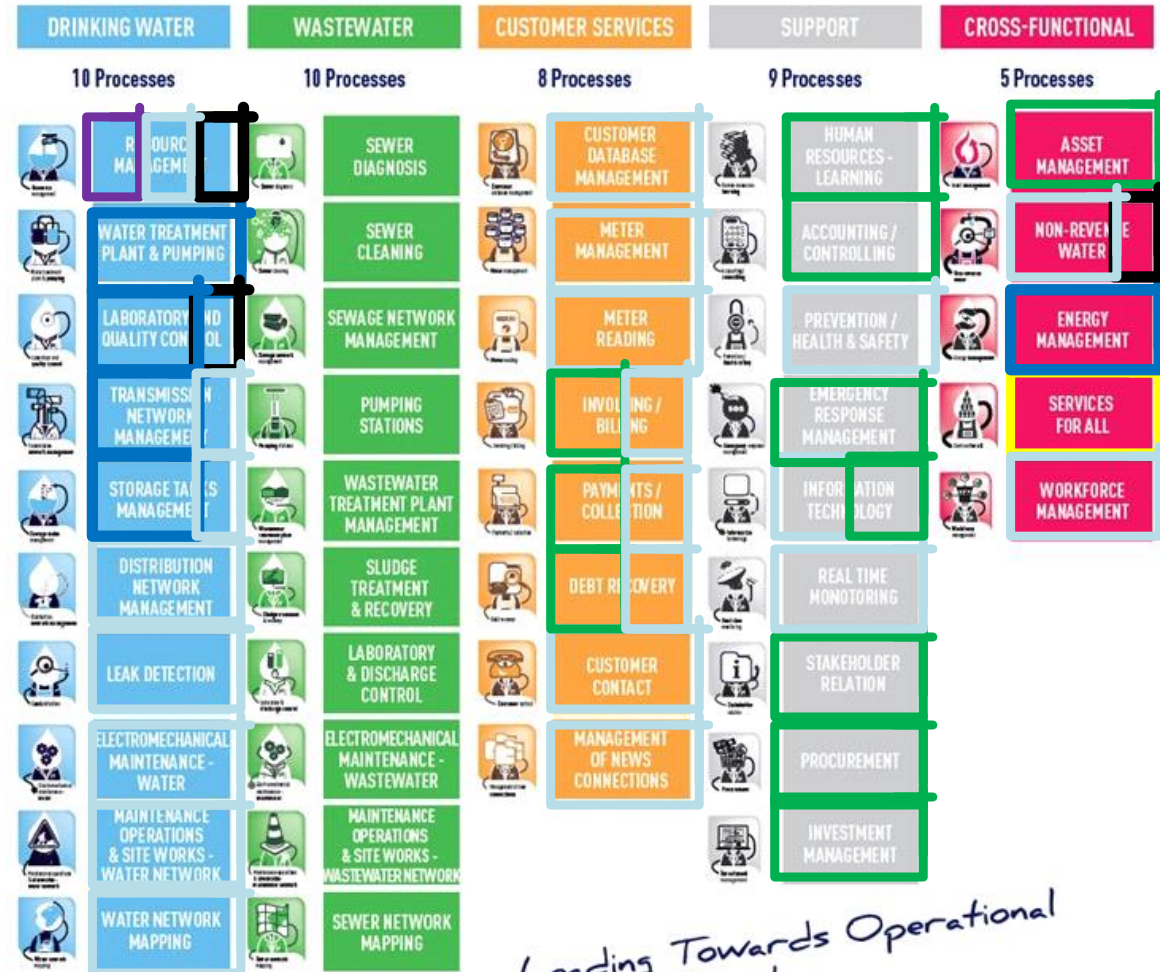
■ May 2015

— International standard

SOME CASE STUDY

Mapping of Water Supply Technical Assistance (a variety of actors) in MCDC

- Vitens & Evides WOP
- DB Full
- DB Partial
- PBMC Full
- PBMC Partial
- PISC AFD Full
- PISC AFD Partial
- Amarapura + EU Grant
- Kitakyushu



Leading Towards Operational Excellence!

SOME CASE STUDY

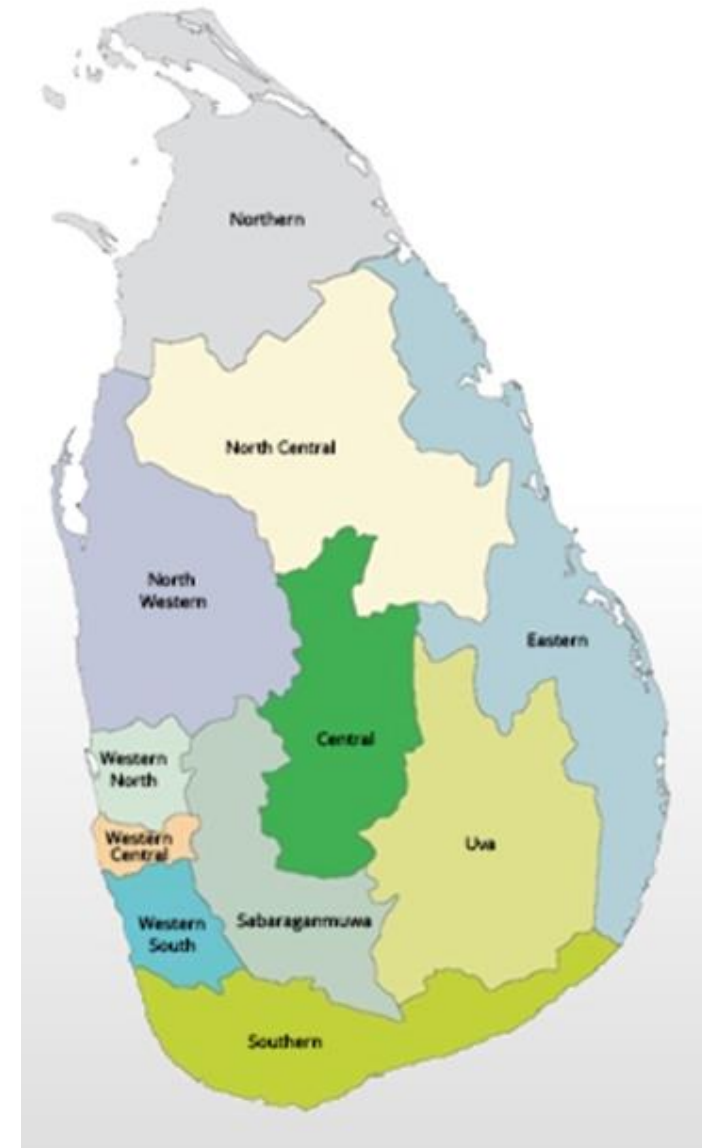
Example 2: NWSDB, Sri Lanka

Undertaken as part of CDTA 8835

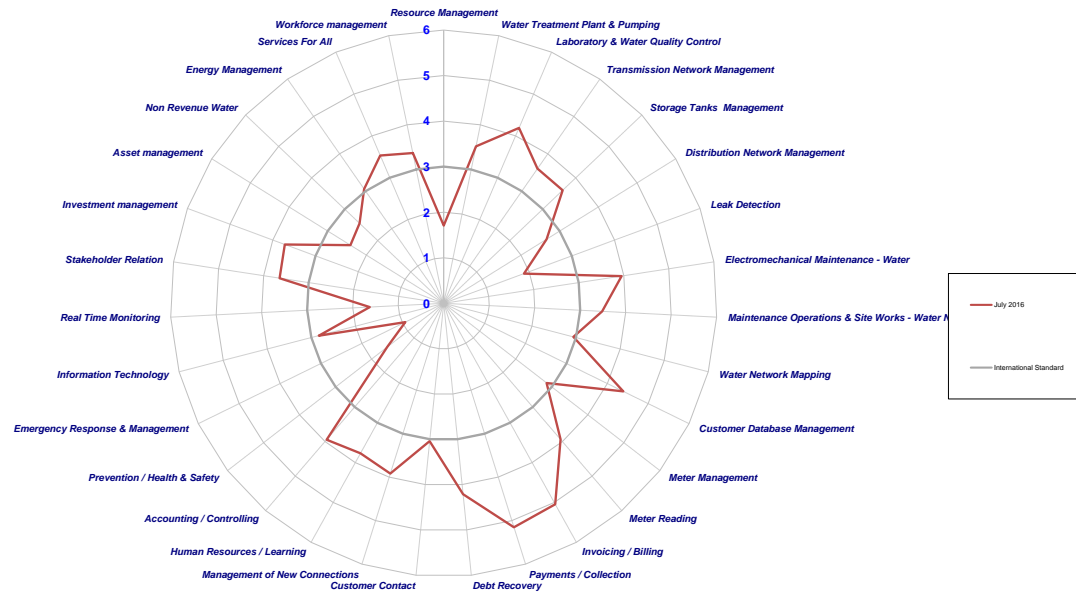
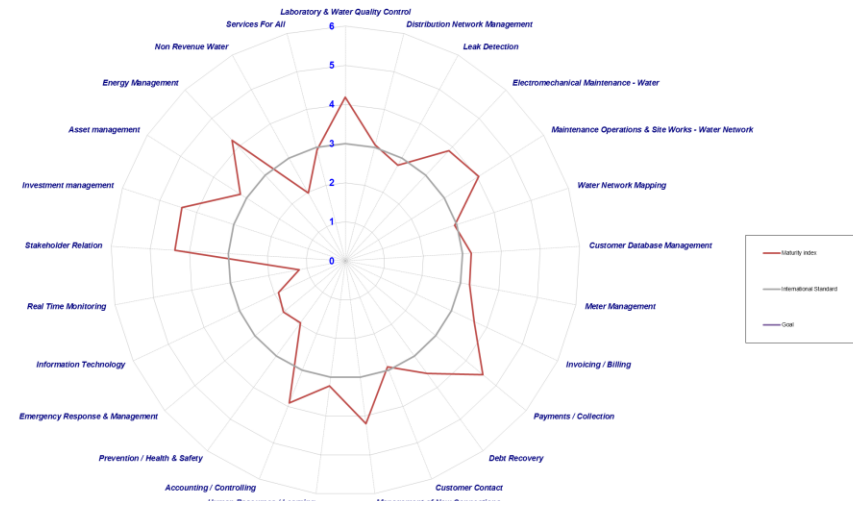
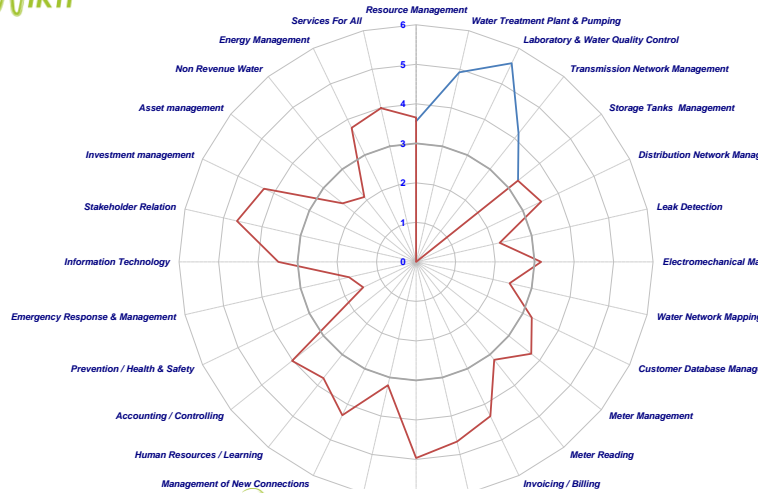
- Setting Up of Independent Regulator of NWSDB
- Enhanced NWSDB Institutional Structure (including NRW, Asset Management, ...) and reinforced autonomy
- Enhanced Planning & Design function as well as NRW and development of E&S Division

Scope

- Link the analysis to the setting up of the regulation scheme for the NWSDB - readying the NWSDB for regulation
- All of the distributed operations of the NWSDB – the so-called Regional Support Centres. Covering water supply services only within the three major zones of NWSDB
 - Western Zone (4 RSCs)
 - South Eastern Zone (4 RSCs)
 - Northern Central Zone (4 RSCs)



SOME CASE STUDY



WIKTI Western Zone

SOME CASE STUDY

Overall Summary & Business Priorities

WKTI	North Central	Sabagaramuwa	Uva	North Western	Northern	Western Central	Central	Eastern	Western North	Western South	Southern	NWSDB
NOTE OF THE BU	2.62	2.96	2.98	3.11	3.13	3.21	3.21	3.29	3.28	3.42	3.47	3.15
Min	0.54	1.02	0.55	1.27	0.60	1.20	1.22	1.66	0.94	1.48	1.67	1.11
Max	4.38	4.61	4.48	5.04	5.22	4.56	4.74	5.14	5.15	4.96	5.00	4.84

	Priority 1	Priority 2	Priority 3
Drinking water	Leak Detection		
	Water Network Mapping		
		Distribution Network Management	
		Transmission Network Management	
		Storage Tank Management	
		Resource Management	
Customer services		Customer Contact	
		Meter Management	
Support	Prevention / Health & Safety		
	Emergency Response & Management		
		Real Time Monitoring	
	Information Technology		
Cross functional	NRW		
	Workforce management		
		Asset management	

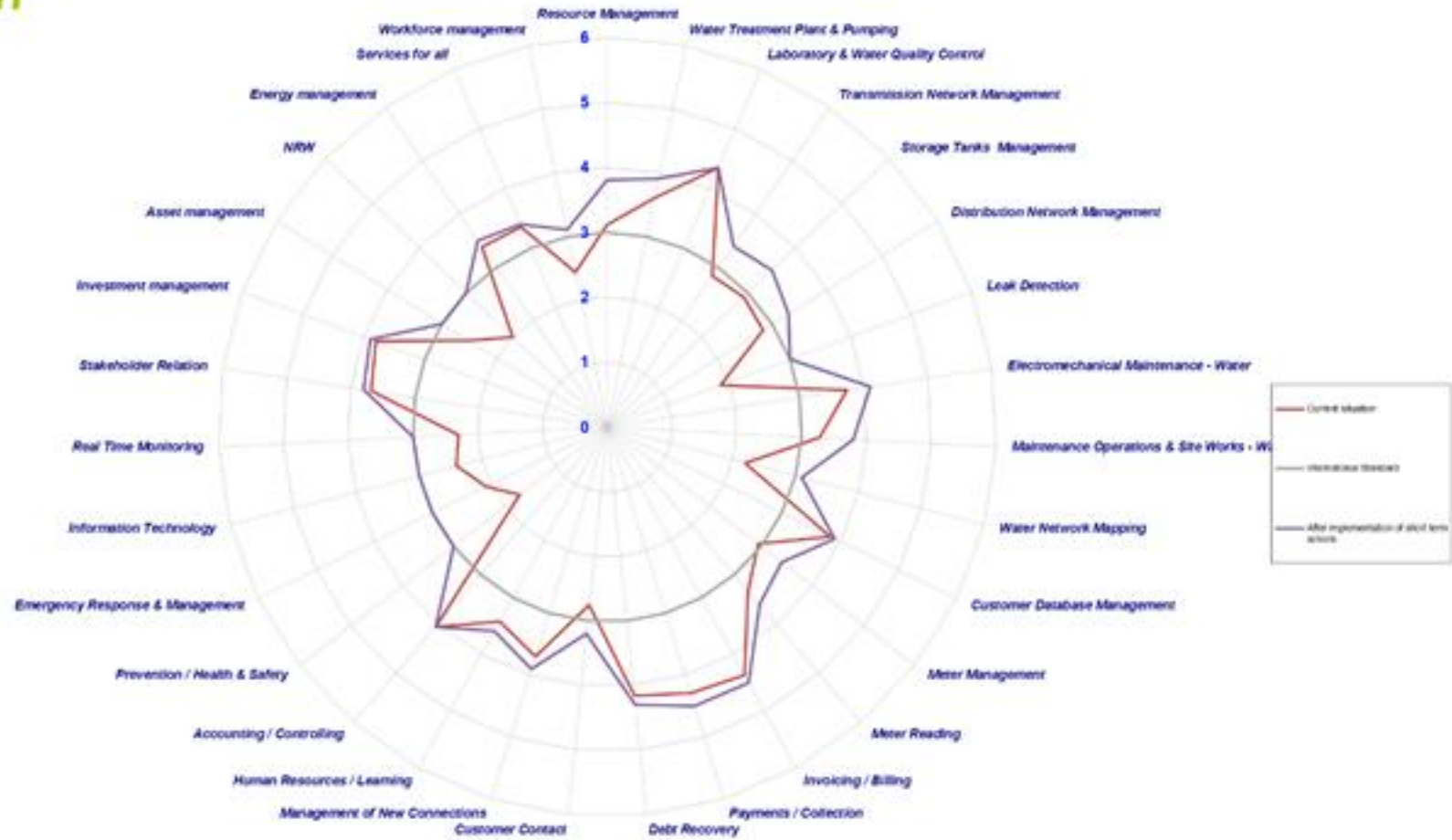
SOME CASE STUDY

Example of detailed action plan

	Priority 1		
	Priority short term actions	Mid term actions	Long term actions
Leak Detection	Elaborate a leak detection plan (identify priority sectors, define KPI to follow up the activity (including invisible leaks), define a main sectorization strategy)	Create procedure for leak management plan (program description, leak detection methods, organization (human and material resources))	Analysis of the correct leak research system according to the context (effectiveness of leak detection)
	Define a person in charge of managing leak detection for each RSC	Define a strategy for a detailed sectorization (DMA implementation)	Use of advanced detection methods (gas tracer)
	Complete / control the equipments to measure each production volumes	Follow up of night time flows for each sector and correlation to other technical and customer data	Implement microsectorization and use of remote leak location
	Complete the acoustic detection equipment	Organize recurrent training on leak detection methods and equipment	
	Record the detected leaks on the GIS (location, method of lodetection, type of leak, material,...)	Quality control after a leak repair	

SOME CASE STUDY

Average Maturity & Projected Maturity after completion of short term actions

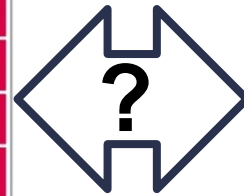
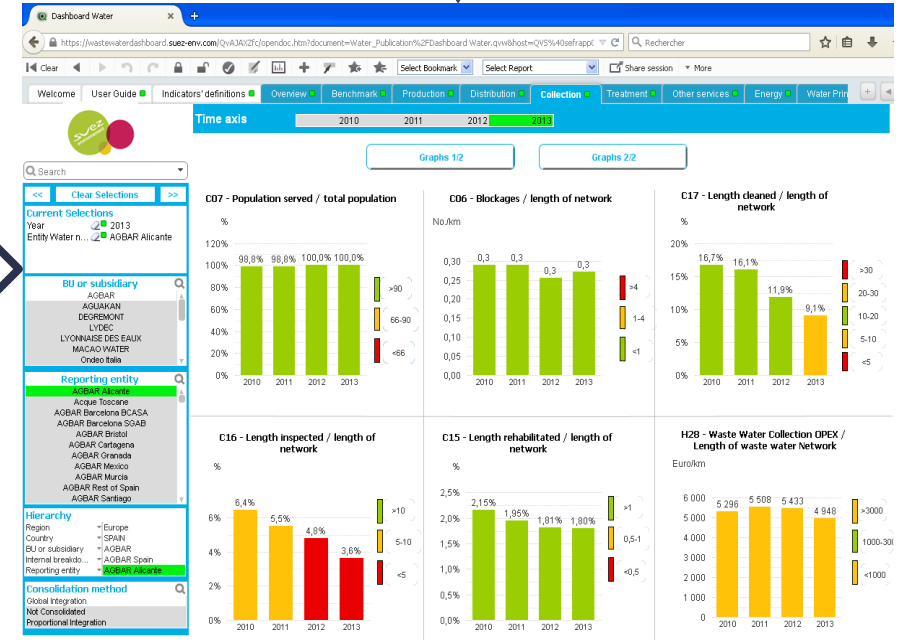
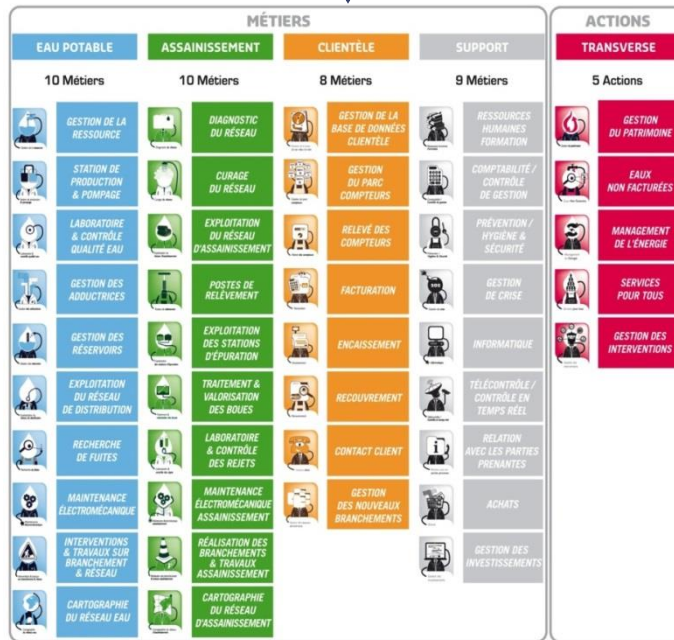


MATURITY PROCESSES IS A GOOD TOOL?

Tools

WIKTI

Water Dashboard

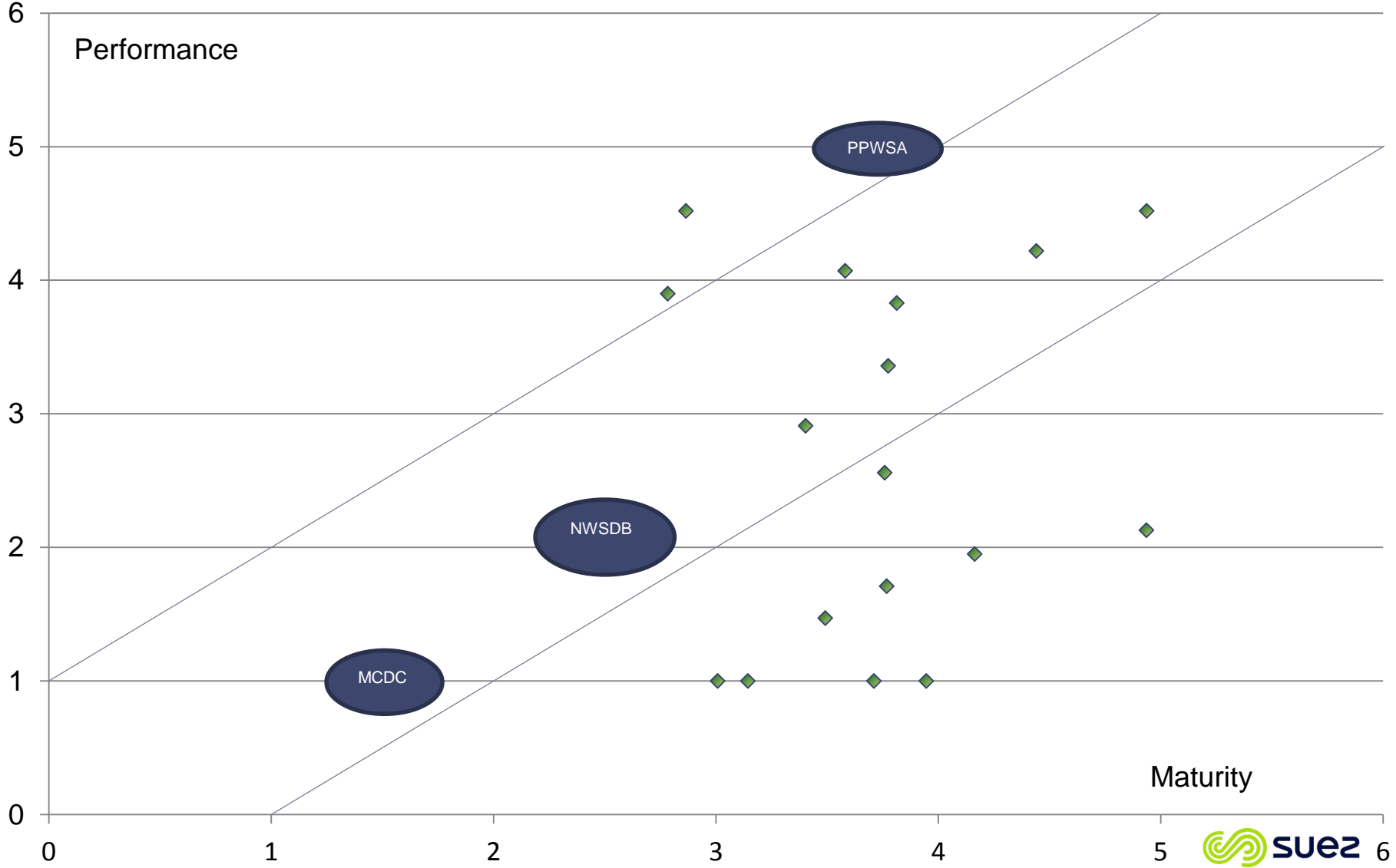


Maturity, Processes

Operational Performance

MATURITY PROCESSES IS A GOOD TOOL?

Non Revenue Water : comparison Performance / Maturity



CONCLUSION



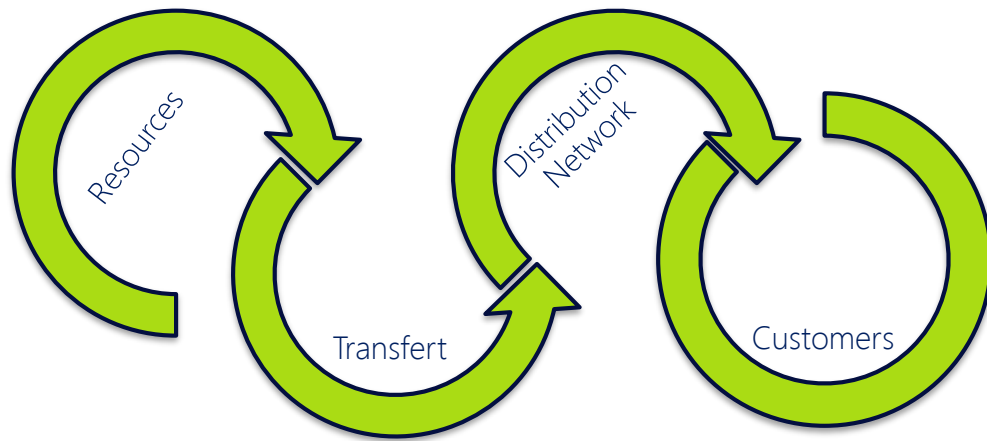
To understand what is actually going on in your **day-to-day operations**



To identify opportunities to improve **operations**
& increase your **value/cost** ratio



To detect **strategies** across business processes that have a **strong fly-wheel effect** & are **mutually reinforcing** for best performance on NRW reduction



Enhancement of global maturity level for water cycle business processes

Effective know-how transfer from SUEZ to our customers

360° vision of business processes and a **roadmap** shared by all the stakeholders

A structured methodology: shared business segmentation, shared tool, shared HR organization

Objective measures based on **1,500 precise & concrete criteria** validated by international experts

Decision support tool for Management

Securing the Whole Value Chain by capacity building and knowledge transfer with our operator vision to the Water Utility