



THE 21ST INTERNATIONAL
OPERATIONS & MAINTENANCE
CONFERENCE IN THE ARAB COUNTRIES

Performance improvement cycle of Egyptian water and wastewater treatment systems: review and climate change integration

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 #OmaintecConf

An Initiative by

Organized by



EXICON.
International Group
مجموعة أكزيكون الدولية



Agenda



**Introduction and
Background.**



Motives.



Sustainable Improvement.



Evaluation tools.



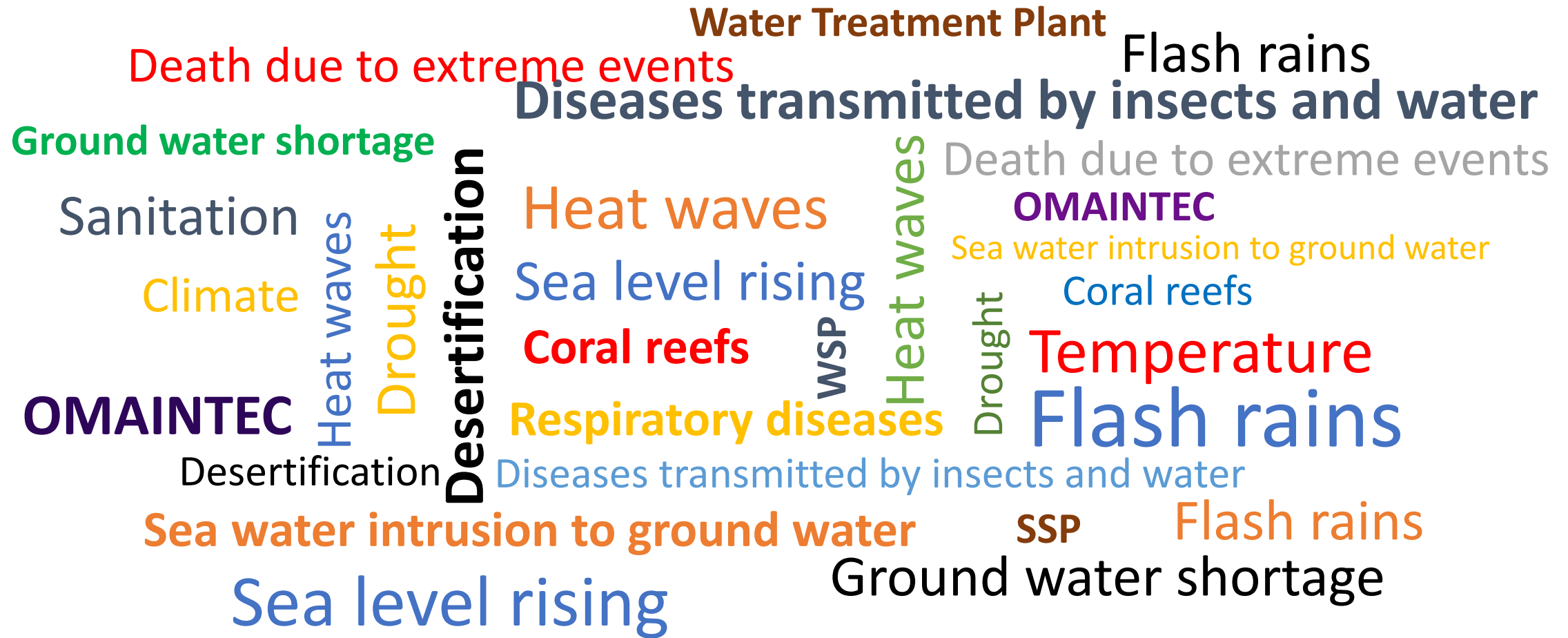
Case Study.



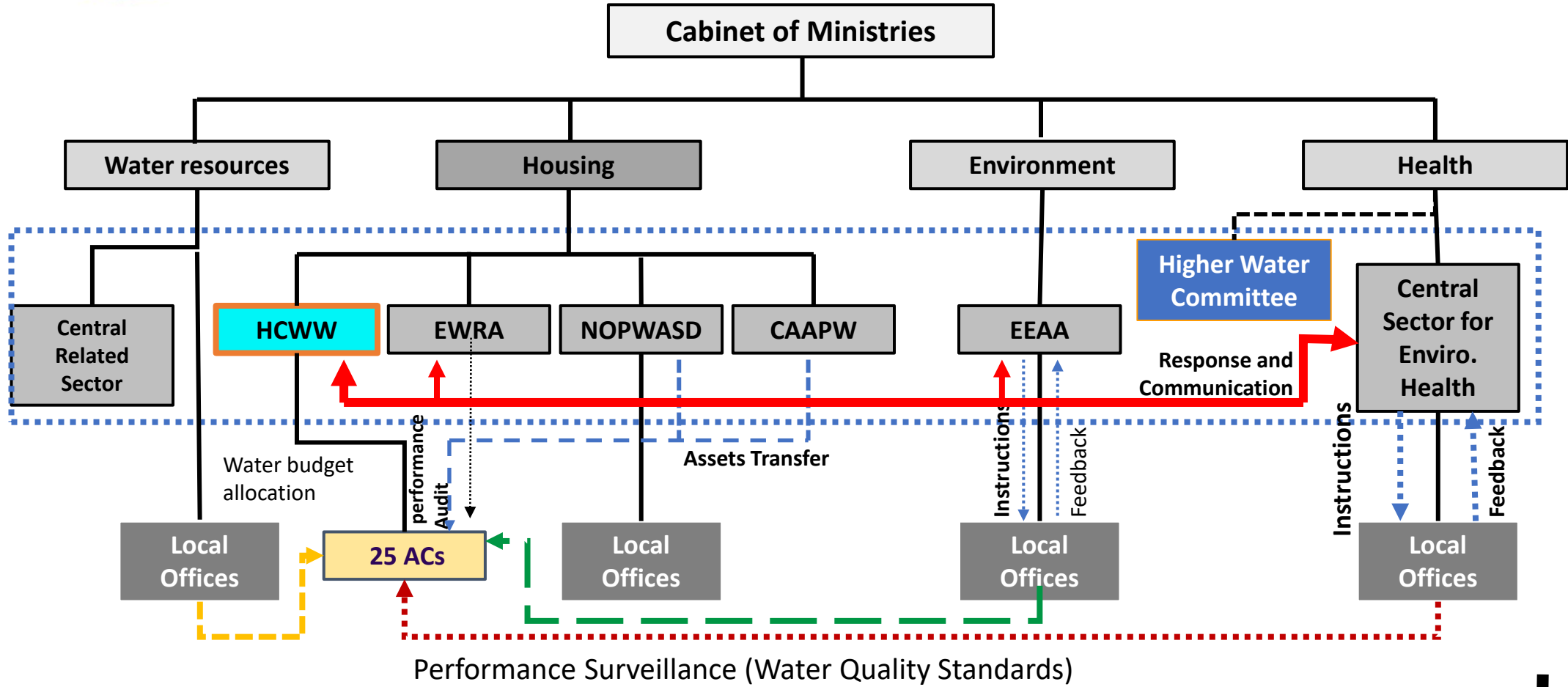
Conclusions



Introduction and Background



Introduction and Background

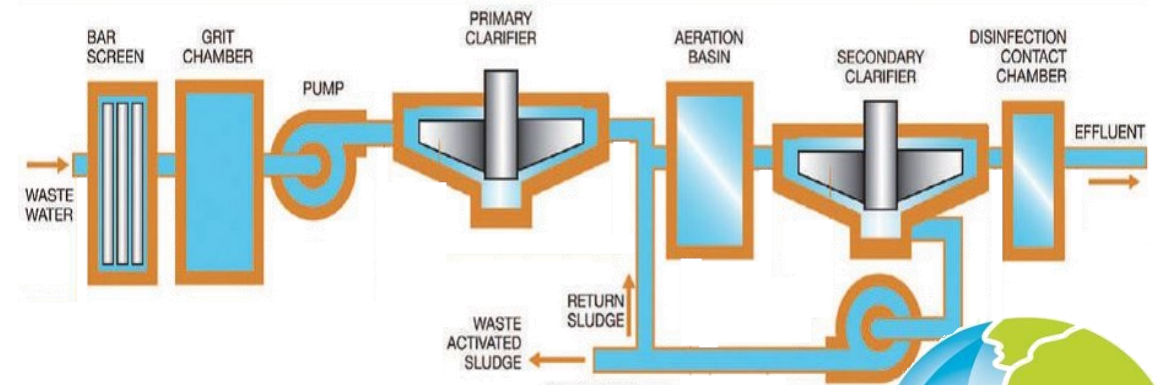
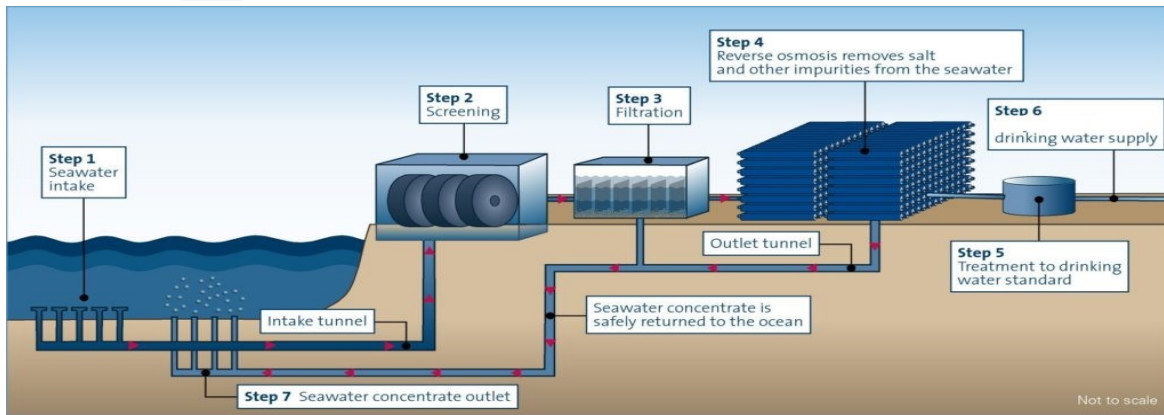
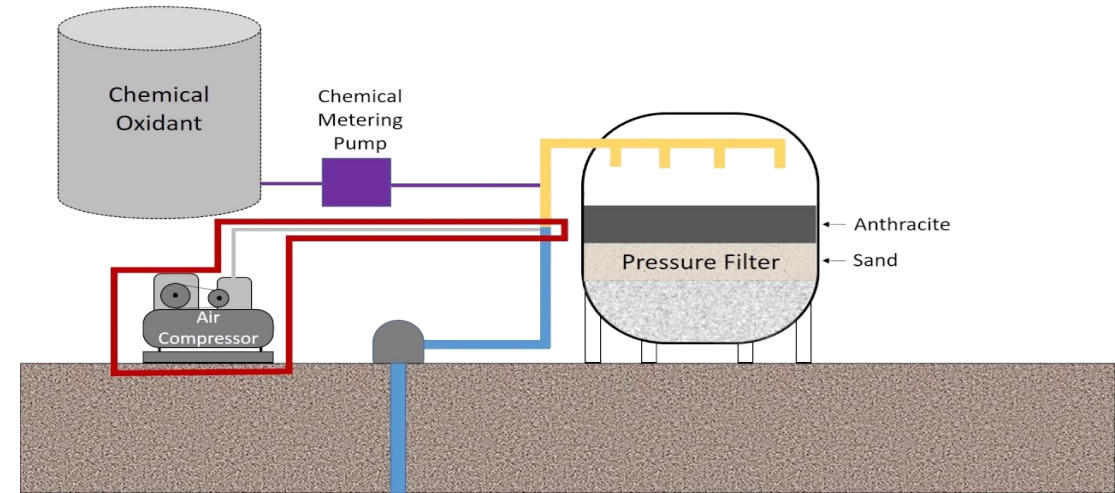
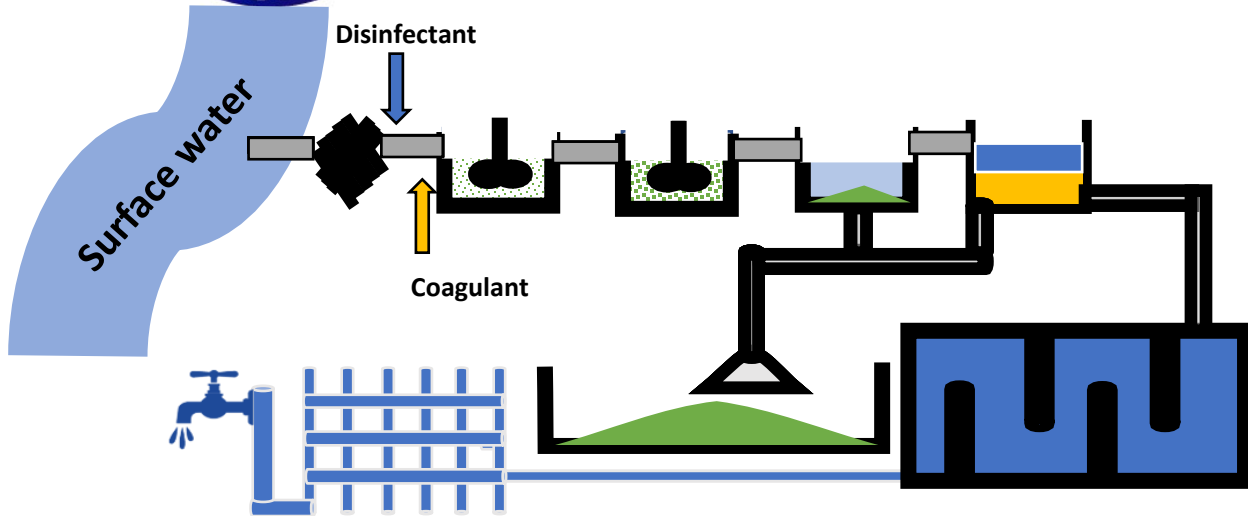


Performance Surveillance (Water Quality Standards)

Multiple Stakeholders

Multilayers

Introduction and Background





Motives

1st



“SDG 6: Ensure access to water and sanitation for all.”

UNSDGs, 2015



Motives

2nd



**World Health
Organization**

“Drinking water supply surveillance is the continuous and vigilant public health assessment and review of the safety and acceptability of drinking-water supplies.”

Chapter 5, Surveillance, 2022



“Those in charge of producing drinking water for drinking and domestic use must adhere to the work of tracking and monitoring the operating system and utilities.”

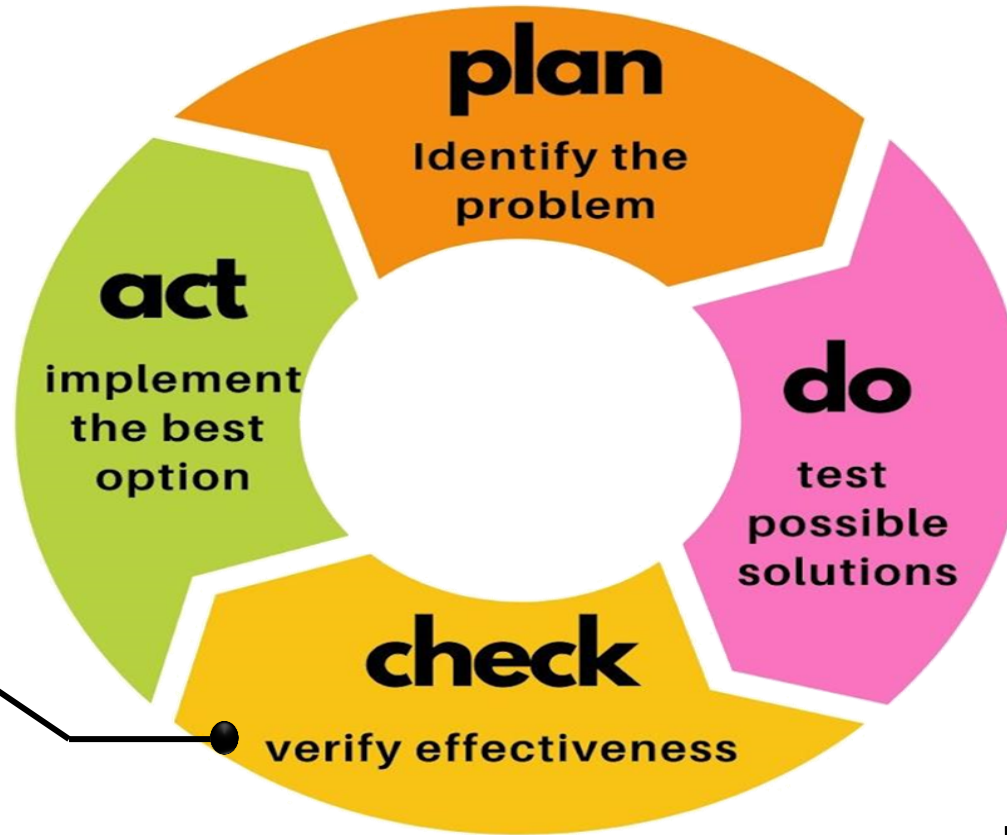
*Annex II to the decree no. 458 of 2007
Oversight & Reporting*



“Managing drinking water and sanitation companies to provide their services in accordance with Egyptian standards on a sustainable economic and development basis.”

HCWW Mission , 2024

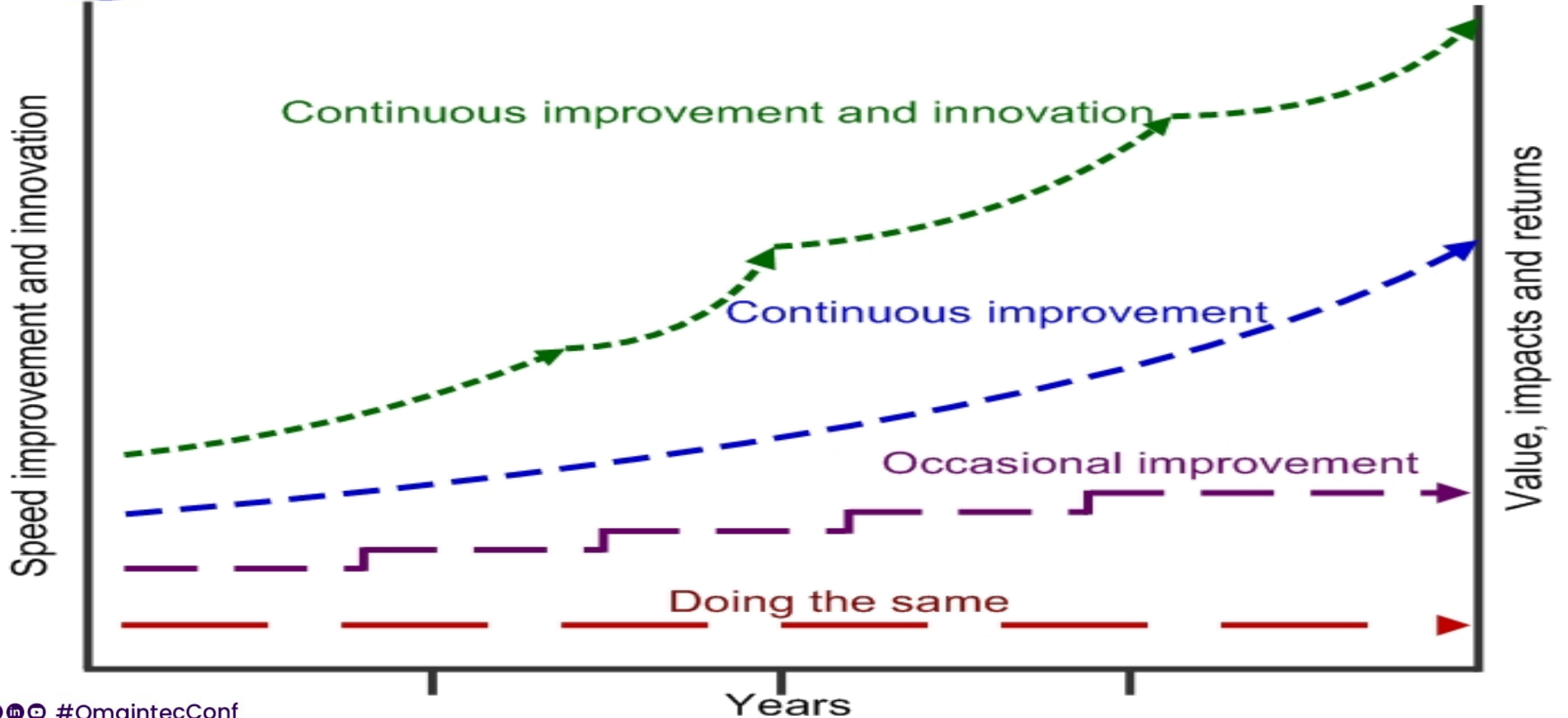
**Checklists for
Evaluation**



Sustainability



Sustainable Improvement.



Evaluation tools (System Buildup).

1

Laws, Codes, best practices and References



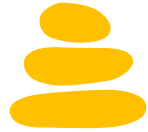
2

Technical and administrative conditions.



3

Formulate work packages.



4

Building Y/N questions for work packages.



5

Apply and update the questions.



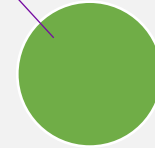
6

Readable reports.



7

Guidelines for questions, its value, and weight.



Evaluation tools (Types).



Water



Large water treatment plants



Small water treatment plants



Desalination plants.



Ground water treatment plants.



laboratories.



Wastewater

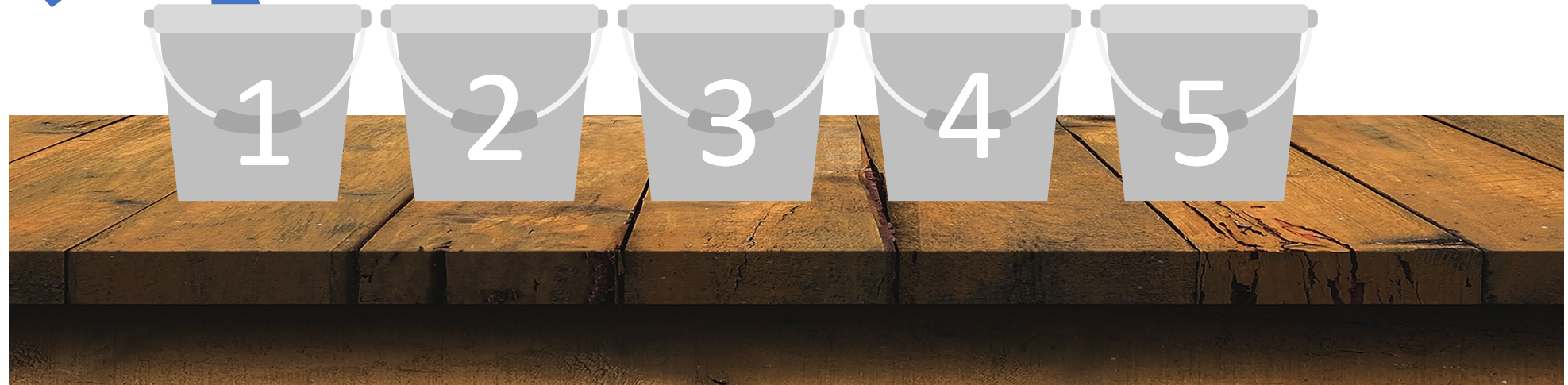
✓ **Wastewater treatment plants and its laboratories.**



Evaluation tools (**Application steps**).



**Auditing the system in WTPs
and WWTPs using the checklists**





Evaluation tools (Application steps).



Analyzing data using
QDSS software

Evaluation tools (Application steps).

Reporting
to several management
levels





Evaluation tools (**Application steps**).

Applying Internal Audit





Evaluation tools (**Application steps**).





Evaluation tools (**Application steps**).





Evaluation tools (Data Analysis and Reporting).



الشركة القابضة لمياه الشرب و الصرف الصحي
الإدارة العامة للجودة و الشؤون البيئية

نموذج تقييم محطة مياه جوفية

بيانات المحطة:			
شركة مياه الشرب و الصرف الصحي بحافظة:			
المركز/ الحي:			
توقيت المرور:	تاريخ الزيارة:		
نوع عملية معالجة الحديد والمنجنيز:	اسم المحطة:		
اسم مدير المحطة:	اسم المسئول:		
عدد الإبار العاملة:	عدد الكلي للإبار:		
الطاقة التصميمية للمحطة (م3/يوم):	الطاقة الفعلية للمحطة (م3/يوم):		
القائمین بالزيارة والتقييم من الشركة القابضة لمياه الشرب و الصرف الصحي:			
سعة الخزان:			
ممثل الشركة التابعة:			
جهات اخرى:			
1 - البئر (الملاح الخارجية للبئر)			
م	السؤال	المطابقة	الملاحظات
1.1	وجود خلفية عينات مناسبة اعلى سطح البئر؟		
1.2	هل حرم البئر آمن؟		
1.3	رأس البئر آمنة من تسرب المياه السطحية من سطح الأرض الى داخل البئر؟		

تقرير

المرور على محطات مياه الشرب

QDSS



الشركة القابضة لمياه الشرب و الصرف الصحي

مرکز / حي: بمشهور شارع النصر
محطة مياه: مشهور (4)
نتائج استبيان محطة

التقييم	النسبة المئوية %	الدرجة	الدرجة النهائية
ممتاز	84.38	27	32
ممتاز (نظومة امتلاك نظور)	34.88	15	43
ممتاز (مركز وحقن المروم (التبطين))	57.14	4	7
ممتاز	50.00	5	10
ممتاز	31.58	6	19
ممتاز	66.67	6	9
ممتاز	52.50	63	120

نتائج استبيان معمل

التقييم	النسبة المئوية %	الدرجة	الدرجة النهائية
ممتاز	100.00	10	10
ممتاز	90.00	9	10
ممتاز	0.00	0	9
ممتاز	37.50	6	16
ممتاز	23.08	3	13
ممتاز	40.00	2	5
ممتاز	18.18	4	22
ممتاز	16.67	5	30
ممتاز	33.91	39	115

Report



Checklist



Case Study (Questions?).

- 1 Does the treatment plant have faced a significant extreme climate event(s) in the last three months?
- 2 If the answer was yes, what were this event and its impact on the system?
- 3 Has the administration taken proper actions toward this extreme event?
- 4 Do the actions have been taken toward reducing the extreme event recorded and integrated into the management system to face similar future incidents?



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6 Does the management system record and analyze the climate data?

7 Are there communication plans and records with other national and international institutions caring about the climate state and

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Case Study (Recommendations and Actions).

Climate data and weather forecasts should be a part of the system to track the trend and increase preparedness and awareness for climate change.

More investments should be pushed in green fuel production and use through solar panels and other green alternatives in collaboration with the private sector, donors, MEA, EEAA and the ministry of electricity and renewable energy.

Controlling the leakage is important to save energy and reduce GHGs emissions.





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- The risk management approach should be the core of the system in the WTP to overcome damage due to climate change.
- An optimum operational setup should be followed to minimize the use of electricity and the consumption of fossil fuels to reduce GHGs.





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Case Study (Recommendations and Actions).

- Composting should be limited in dealing with fecal sludge to decrease the emission of GHGs.
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Conclusions, Remarks, and Recommendations



Green fuel and energy use.



Treatment process optimization.



More official collaboration between the stakeholders in climate change.



Risk-based thinking, planning and management.



Continuous monitoring of climate status.



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