Workshop on Science, Technology and Innovation (STI) for SDGs

SDG6: Ensure Availability and Sustainable Management of Water & Sanitation for All

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What Korea has done and learned

Current Status of Korean Sewerage Works

Sewage Works

- 1st Sewage Treatment Plant (STP) in Korea (1976)
- Currently 597 STPs in Korea (2014)
- STP Effluent Standards = 6 items
- National Service Rate = 92.5%
- From Conventional Process to Tertiary Process
- O&M by Municipal Gov't (35%) vs Private Sector (65%)

STP Effluent Standards in Korea

1978	1994	2001	2008	2012
Env. Protection Law	Water Quality Control Law	Water Quality Control Law	Sewerage Law	Sewerage Law
BOD (30 mg/L)	BOD (20 mg/L)	BOD (20 mg/L)	BOD (10 mg/L)	BOD (5 mg/L)
SS (70 mg/L)	SS (20 mg/L)	SS (20 mg/L)	SS (10 mg/L)	SS (10 mg/L)
	TN (120 mg/L)	TN (60 mg/L)	TN (20 mg/L)	TN (20 mg/L)
	TP (8 mg/L)	TP (8 mg/L)	TP (2 mg/L)	TP (0.2 mg/L)
			Coliforms (3,000 EA/mL)	Coliforms (1,000 EA/mL)
				Ecotoxicity (1 Tu)

Advancement of Sewage Treatment

Q1. What are the most effective ways that STI could support the achievement of the SDGs?

A. Thru "Back to Basic" approach of knowledge sharing and technology transfer, develop its own capability to achieve the SDG 6 target

1) Develop the National Technology Road Map (NTRM) for Water and Sanitation

Objective – Goals – Strategy – Action / Implementation Plan – Measure

based on SMART (Specific, Measurable, Attainable, Realistic, Timely)

Figure.1 Technology Tree for Water Pollution and Liquid Waste Management

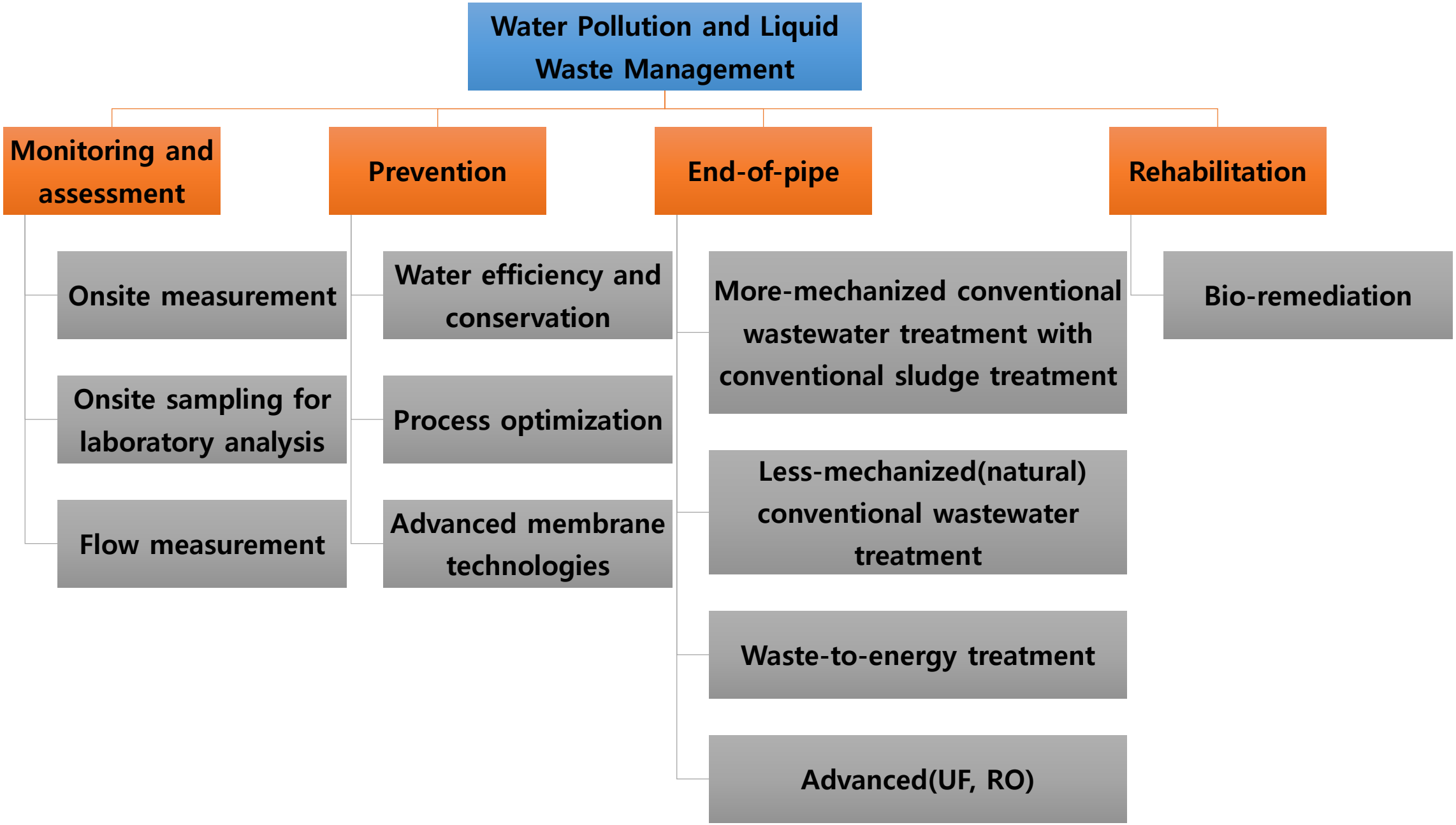

Table 1. Technology Timeline for Water Pollution & Liquid Waste Management

Water pollution and liquid waste management					
Technology Areas	**Key technologies**	**Final target By 2025**	**Element technologies**		
			Short Term (2years)	**Mid Term (4years)**	**Long Terms (8 years)**
Monitoring and assessment	**Onsite sampling technologies for laboratory analysis**	**Target:** monitoring coverage to 50% from the current value (assumptions: 15%)	20%	30%	50%
Preventive	**Water efficiency and conservation technologies**	**Target:** Increasing water efficiency and conservation practices to 60% (baseline: 15%)	25%	35%	60%
End-of-pipe treatment	**More mechanized conventional treatment technologies (ETP)**	**Target:** Decreasing the pollutant load in effluents released to the environment by 50% (baseline: 10%)	20%	30%	50%
Rehabilitation	**Bio-remediation technologies**	**Target:** Decreasing the pollutant load of natural water bodies by 25% from baseline value	10%	15%	25%

Q1. What are the most effective ways that STI could support the achievement of the SDGs?

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2) Develop its "Total Solution" Capacity for the Entire Value Chain of Water & Sanitation

Policy – Plan – Program – Project (4Ps)

EPC O&M

(Engineering – Procurement – Construction - Operation – Maintenance)

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Issues & Challenges:

1. Growing Demand of Water & Sanitation Infrastructure
2. Shortage of Water Officers & Specialists
3. Inadequate Financial Resources to achieve SDG 6
4. Alternative and Affordable Technologies to SDG 6
5. Lack of Enforcement

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Opportunities for Improvement:

In most countries,

1. **Presence of National Policy for Water & Sanitation**
2. **Presence of National Guidelines for Water & Sanitation**
3. **Presence of National Laws & Regulations for Water & Sanitation**
4. **Need of Mainstreaming the SDG 6 into National Policies**

   (Institutional & Legal framework, Policies & Plan)

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Select & Focus on STI for Water and Sanitation:

1. **Water Efficiency (Urban, Industrial, Agricultural)**
2. **Energy Efficiency in Water & Sanitation (W-E Nexus)**
3. **Resource Recovery from Wastewater**
4. **Smart Water Management (IOT, Big Data, AI, Cloud)**
5. **Membrane Technology for Water & Sanitation**

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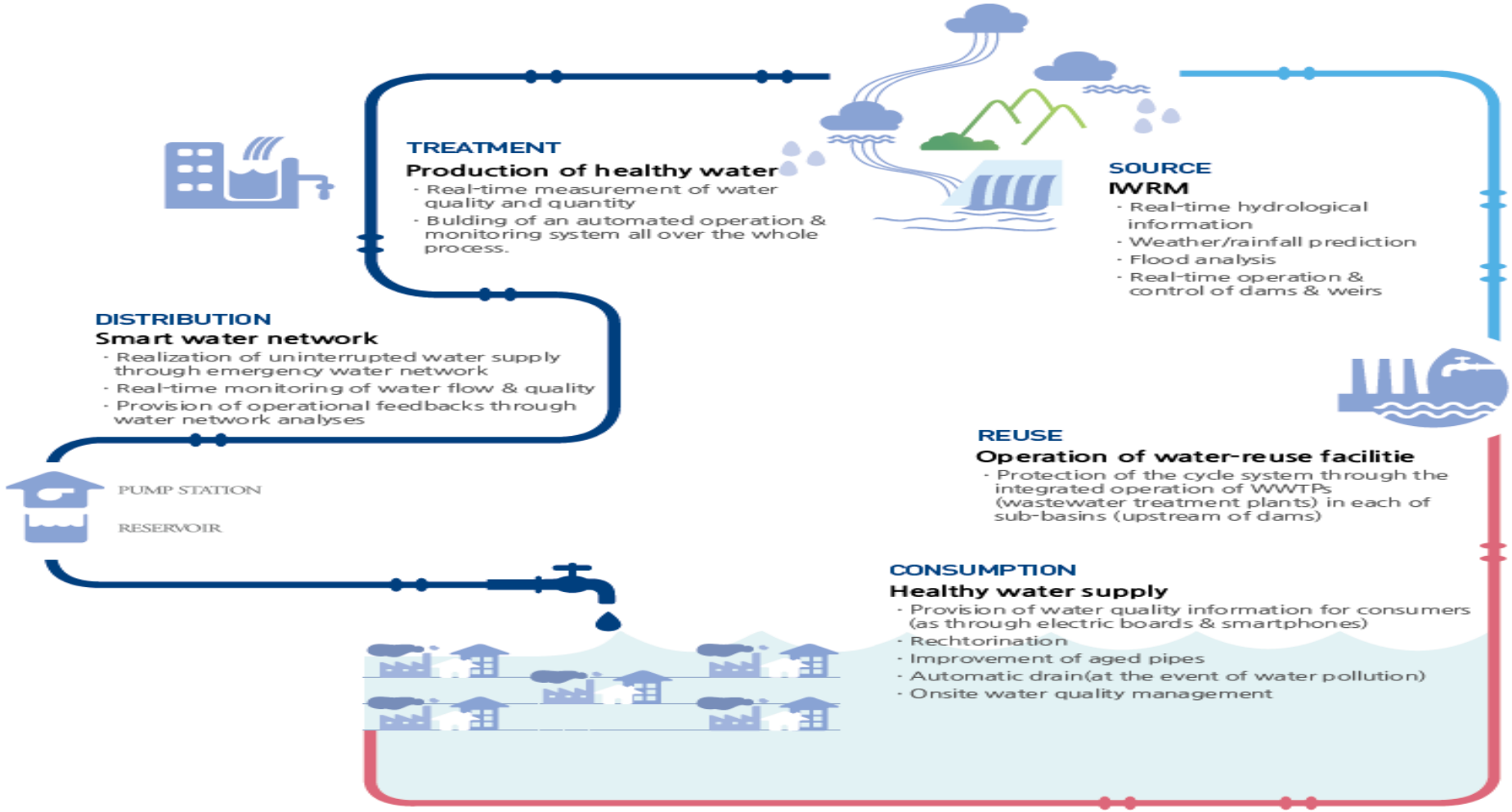
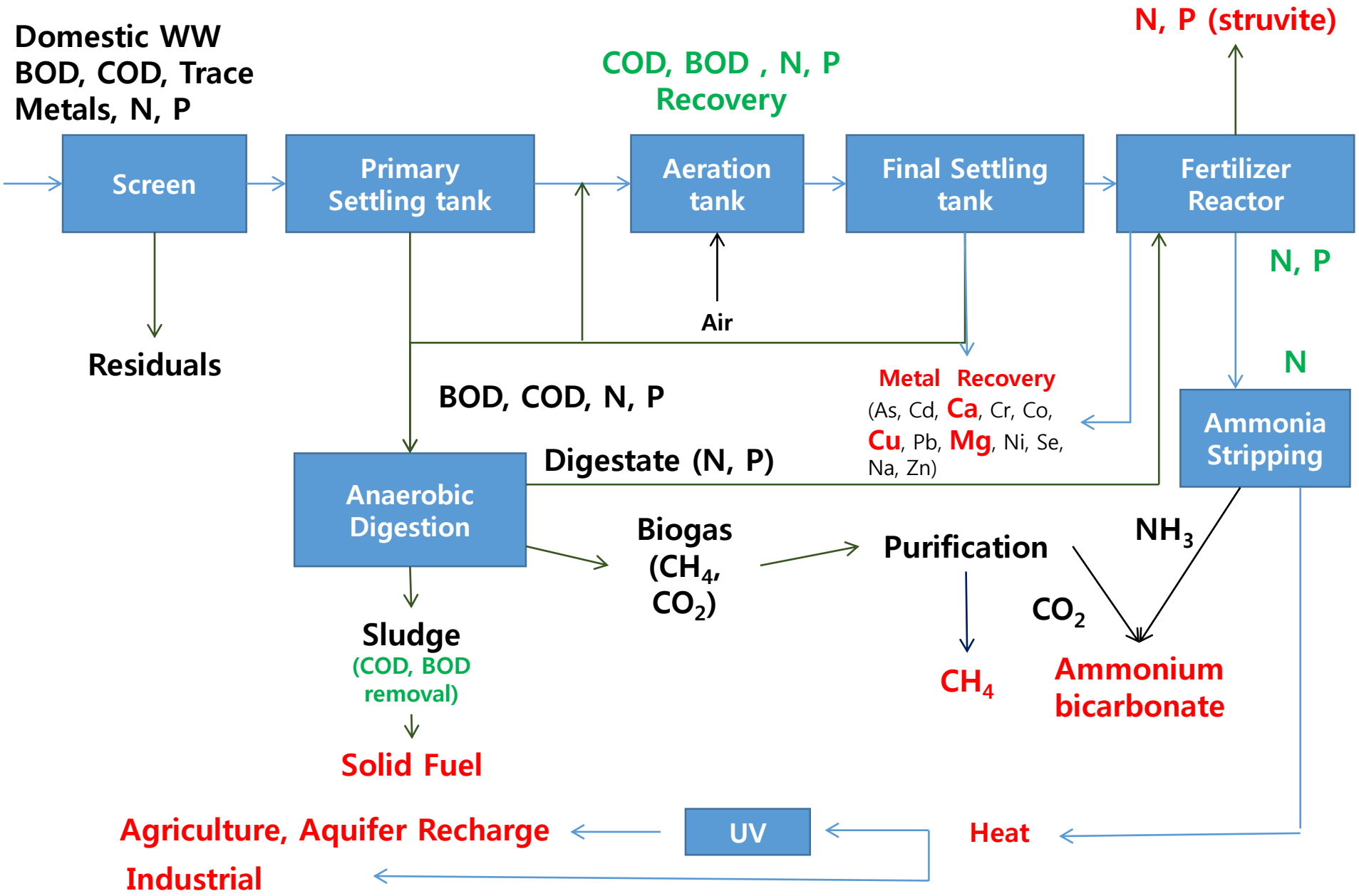
Demonstrate and Deploy "Smart Water Management Inititative" (SWMI)



New Paradigm Wastewater Treatment



Thank you

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