



National Institute for
Land and Infrastructure
Management

Introduction of Water Quality Control Department

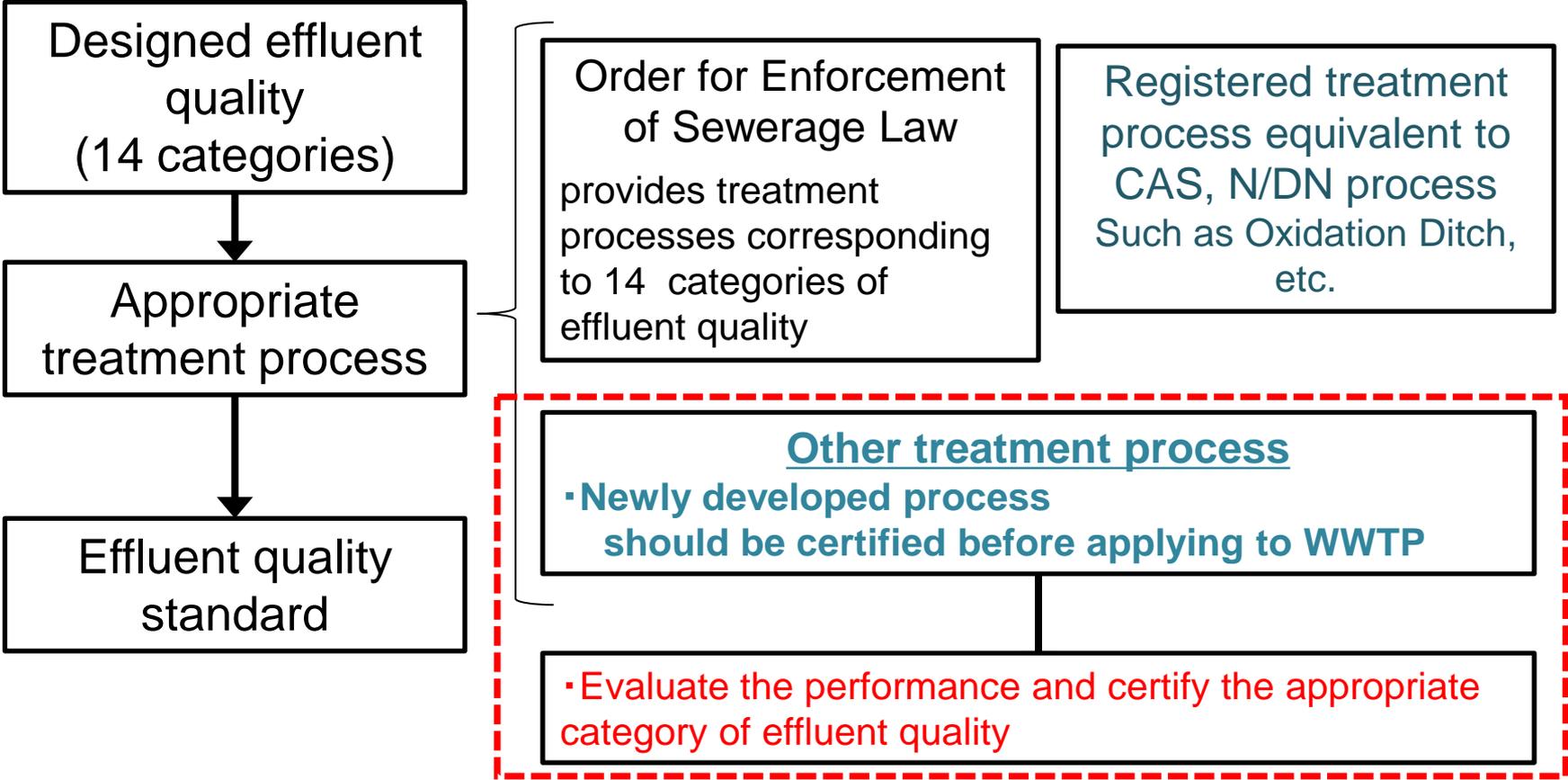
June 10, 2016

Water Quality Control Department
NILIM

Water Quality Control Department

- Research Coordinator for Water Quality Control
 - Research Coordinator for Wastewater System Restoration
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- Researching **technical standards** and management methods for sewerage facilities
 - **Wastewater System Division**
 - Stock management
 - Earthquake countermeasures for wastewater facilities
 - System planning at a lower cost
 - **Wastewater and Sludge Management Division**
 - Utilization of resources, energy and stocks of wastewater system
 - Improving hygienic safety
 - Global warming measures for wastewater system

- Schematic of effluent quality standard on Japanese Sewerage Law



Treatment processes corresponding to 14 categories of effluent quality standard

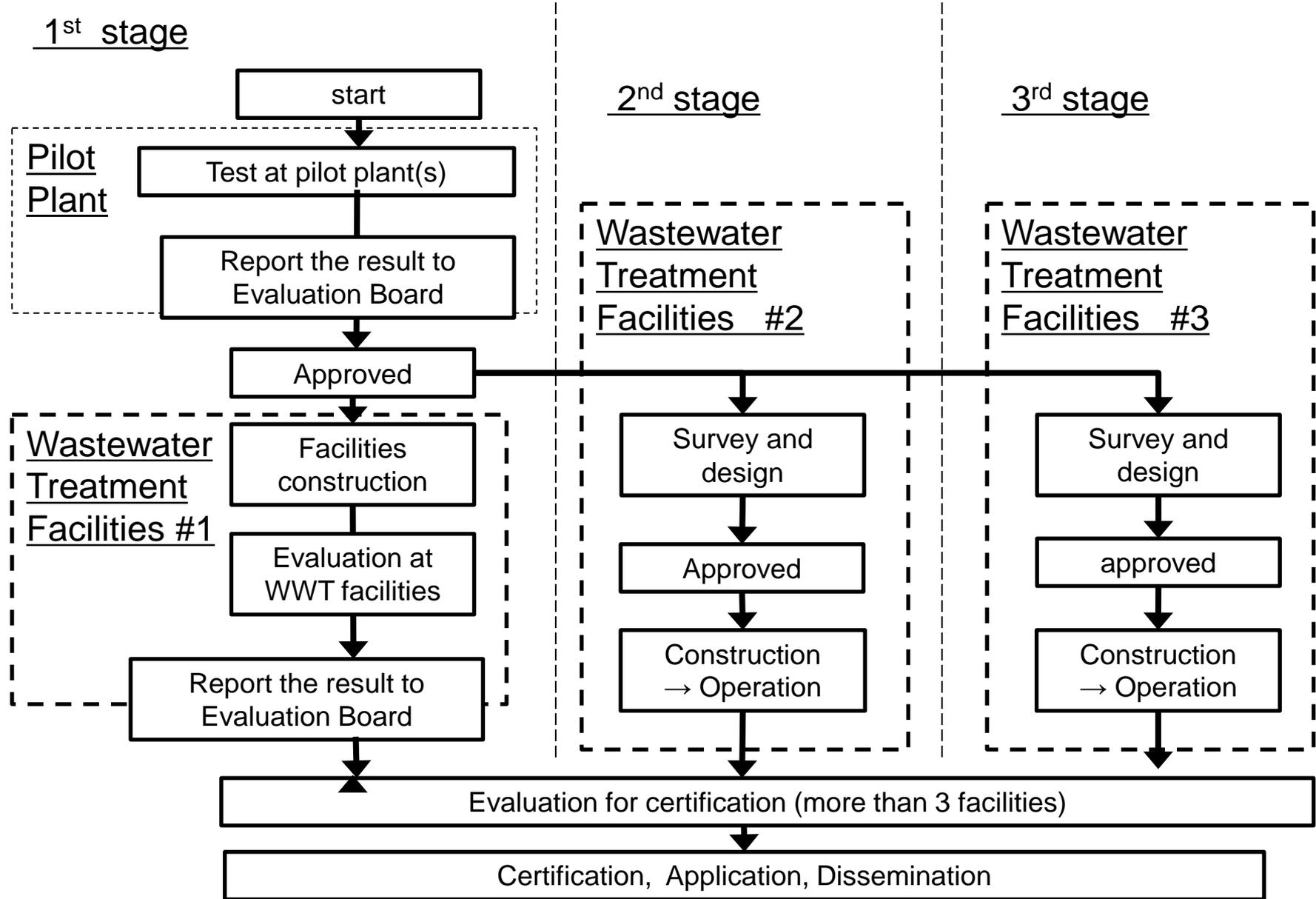
Effluent Water Quality Standard for Wastewater Treatment Plant

pH	Coliform group (CFU/mL)	SS (mg/L)	BOD (mg/L)	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	Treatment Process			
						Main	Addition for Denitrification	Additioin for Phosphorus removal	Particulate matter removal
≥5.8 ≤8.6	≤3,000	≤40	≤10	≤10	≤0.5	A ² /O process	Carbon source	Chemical	Sand filtration
					>0.5				
					≤1	N/DN process	Carbon source	Chemical	Sand filtration
					>1				
				≤10	≤3	A ² /O process	Carbon source		Sand filtration
					-				
						N/DN process	Carbon source		Sand filtration
				>10 ≤20	≤1	A ² /O process		Chemical	Sand filtration
						N/DN process		Chemical	Sand filtration
					>1				
					≤3	A ² /O process			Sand filtration
				-					
						N/DN process			Sand filtration
≤1	A ² /O process		Chemical		Sand filtration				
	A/O process		Chemical		Sand filtration				
>1	A ² /O process				Sand filtration				
≤3	A/O process				Sand filtration				
>10 ≤15									
		CAS process			Sand filtration				
	≤3	N/DN process		Chemical					
		A ² /O process							
	-								
		N/DN process							
-									
	≤3	A ² /O process							
		A/O process							
	-	CAS process							

N/DN process: Circulated nitrification & denitrificaitoin process

CAS process: Conventional activated sludge process

Flowchart of evaluation and certification



- MLIT conducts the new technology development project (2011~)

B-DASH -- **B**reakthrough by **D**ynamic **A**pproach in **S**ewage **H**igh technology

- Accelerate the government-led development of new technology and its practical application
 - by promoting technical validation through installation of actual size plants and by formulating guidelines.
 - To support overseas expansion of water business by Japanese companies
- Achieving **cost reduction** in the sewerage projects and **generation of renewable energy**

Dissemination Strategies of B-DASH Technologies

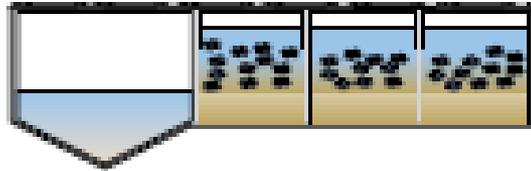
- Publishing Technical Guideline on each developed technology
- Technical advise from MLIT to municipality governments for development of effective energy use in sewage works
- Describing the developed technology to Design Manual on Sewerage System



- Promoting cost reduction, energy saving and energy generation by dissemination of the technologies in Japan
- Supporting world water-business by reflecting to international standards etc.



The concept and the collaborators of B-DASH



Energy-saving sewage treatment applying existing facilities



Electricity generation from biomass



Recovering phosphorus

Major cities and prefectures in B-DASH project

Ikeda City, Wakayama City
Electricity generation from biomass (from 2013 fiscal year)

Fukuoka City
Hydrogen generation (from 2014 fiscal year)

Kochi City and prefectures of Saitama, Ibaraki, & Fukuoka
Energy-saving sewage treatment (from 2014 fiscal year)

Saga City
CO₂ recovery from bio-gas and exploitable algae cultivation (from 2015 fy)

Fukui City and Toyama City
Rainfall prediction and flood control for urban storm (from 2015 fy)