

A close-up photograph of a single water droplet falling into a pool of water, creating a splash. The background is a solid light blue color.

Achievements and Challenges of Cooperation in Sewerage Sector in Vietnam

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1. Water Environment in Vietnam

Water environment in the capital and its suburbs

- Severe water pollution and inundation -



Water environment in Vietnam



National regulation value



Rivers in Hanoi

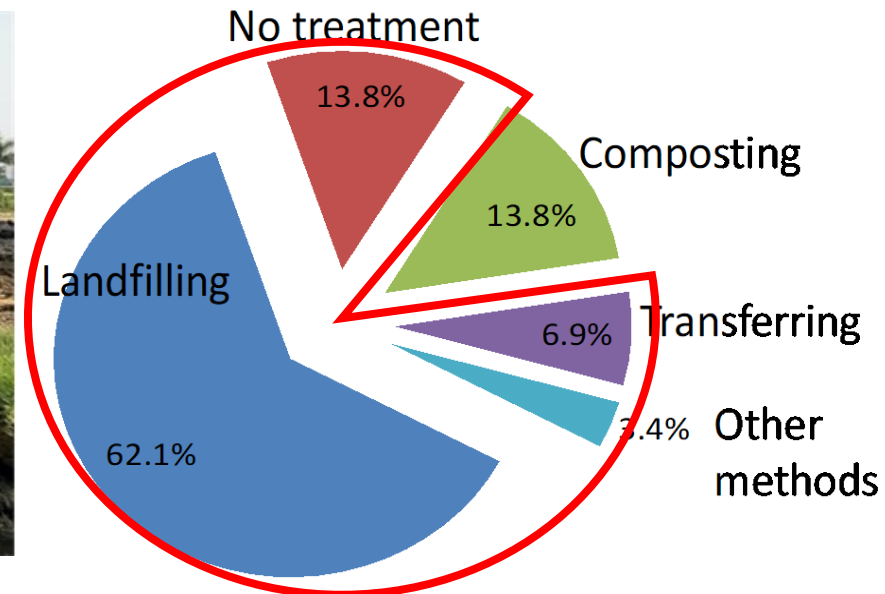
Ammonia concentration in rivers in Hanoi from 2012-2016

Sludge treatment in Vietnam

- In Vietnam, most of sludge from wastewater treatment is landfilled or dumped directly, at the present time.

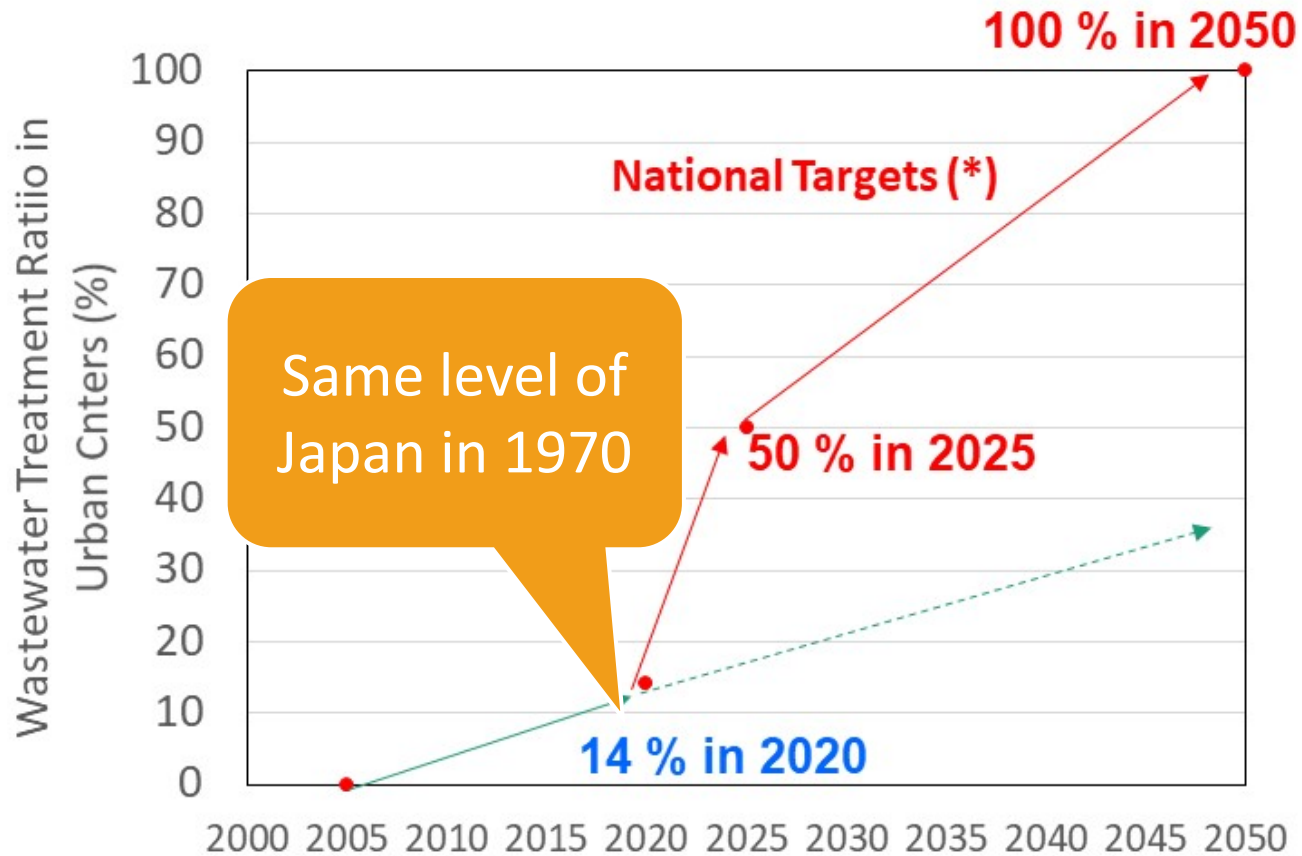


Yen So Backfilling Site of Hanoi Sewerage and Drainage Company (22 Aug. 2018)



Source: Presentation on "MANAGEMENT AND PLANNING OF SEWERAGE & DRAINAGE – WASTEWATER TREATMENT IN VIETNAM" by ATI of MOC at JICA VSC training course in HCMC on 10th Oct. 2018.

Wastewater treatment ratio in Vietnam



Tokyo in 70's



Tokyo Bay



A river in Tokyo



Kanda River

Common issues and conditions in sewerage sector in Japan and Vietnam

Both countries have experienced serious water pollution problem



1. Projects are owned by local governments, while central government show policy orientation and technical standards.
2. Most construction and operation works in the fields are subcontracted to (private) companies.
3. Introduction of new technologies is needed to address various urban problems (such as climate change, rapid urbanization etc.).



2. Past Achievements and Present Status

MoU between both governments

- Ministry of Construction, Vietnam (MOC) and Ministry of Land, Infrastructure, Transport and Tourism, Japan (MLIT) signed MoU for technical cooperation in sewerage sector in 2010
- For more than 10 years, both ministries have closely cooperated by holding 14 bilateral meetings and many other activities



Signing ceremony (Dec. 2010 at MOC Vietnam)



Left: 14th bilateral conference (Mar. 2021)



Right: Technical seminar (Nov. 2018)

Cooperation between local governments



Quang Ninh Province (VN)
– Shiga Prefecture (JP)

Hanoi City (VN) –
Yokohama City (JP)

Hai Phong City (VN) –
Kitakyushu City (JP)

Ho Chi Minh City (VN) –
Osaka City (JP)

Kien Giang Province (VN) –
Kobe City (JP)



Technical cooperation for
operating WWTP in Hanoi City



Environmental education in
Kien Giang Province

Cooperation at various levels

-Role of each sector-

Central Government (MLIT)

- Building relationship between Vietnam and Japan
- Dispatching experts to Vietnamese government

Local Governments

- Sharing knowledge and experience of construction, operation and management as project owner, by utilizing JICA funds

Private companies

- Sharing knowledge and experience of new technology
- Assistance of implementation of sewage works in Vietnam

Related organizations and Universities

- Providing scientific and technical advices



GCUS
(Japan Global center for Urban Sanitation)

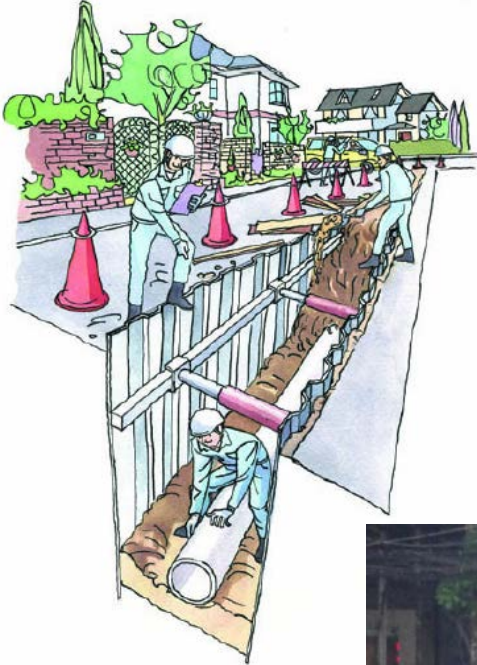
Established in 2009

- (Article 4 of the MoU) “Both sides will encourage and support technical cooperation activities among cities/private companies of Vietnam and Japan.”

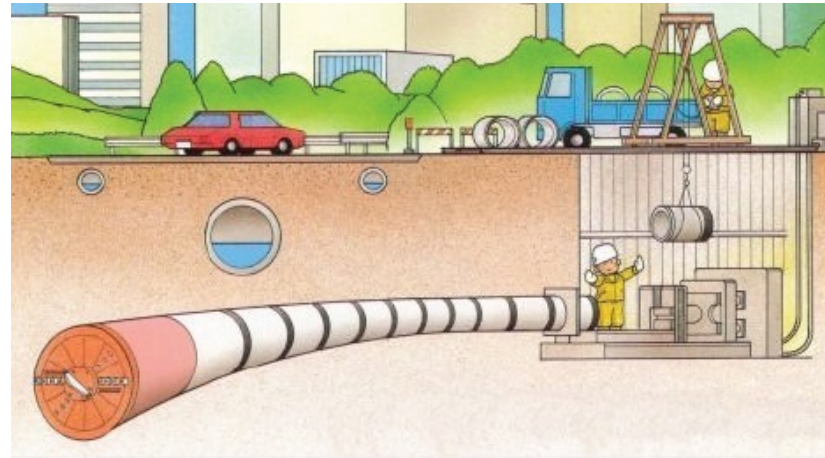
Example of good practice

- Introducing **new** technology (**Pipe Jacking**)-

Open Digging



Pipe Jacking



Quoted from the Yao City's website



- <Advantages of Pipe Jacking>
- ✓ Smaller digging Area
 - ✓ Less impact to road traffic
 - ✓ Less noises, vibrations and dusts

Heavy traffic in Vietnam

Introducing Pipe Jacking Technology in Vietnam



Providing technical standard (1st edition in 2014)

Training course in Japan and Vietnam



Adopting sewerage construction projects by JICA loan
(Photo: Yen Xa project, Hanoi)

Central Government

- Providing technical standards for pipe jacking and dispatching experts

Local Governments

- Supporting training course in Japan

Private companies and associations

- Support for drafting technical standards
- Support for implementing training course

Universities

- Providing scientific and technical advices

GCUS Vietnam Committee
(Established in 2014)

Major Sewerage Projects in Vietnam



- Yen Xa WWTP in Ha Noi City
- CAS, 270,000m³/day, JICA, Under construction
- Pipe jacking is adopted

(Photo: JFE Engineering, Oct. 2021)



- Binh Hung WWTP in Ho Chi Minh City
- CAS, 141,000 + **328,000** -> 469,000m³/day, JICA
- Pipe jacking is adopted

(Photo by : Mr. Ibaraki, JICA Expert, Feb. 2019)

Technical standards of Pipe Jacking -From Vietnam to Southeast Asian countries-



Standards of pipe jacking technology for Vietnam



Pipe jacking

Photo: JICA Vietnam Facebook

Sewerage Projects by Japanese ODA in Vietnam



Under Planning: 3 Projects

As of Dec. 2021

- ① Ha Long City: WWTP (New/Expansion) + Sewer Pipe
- ⑦ Bien Hoa City: WWTP + Pipe
- ⑨ Ho Chi Minh City : Pipe Renewal

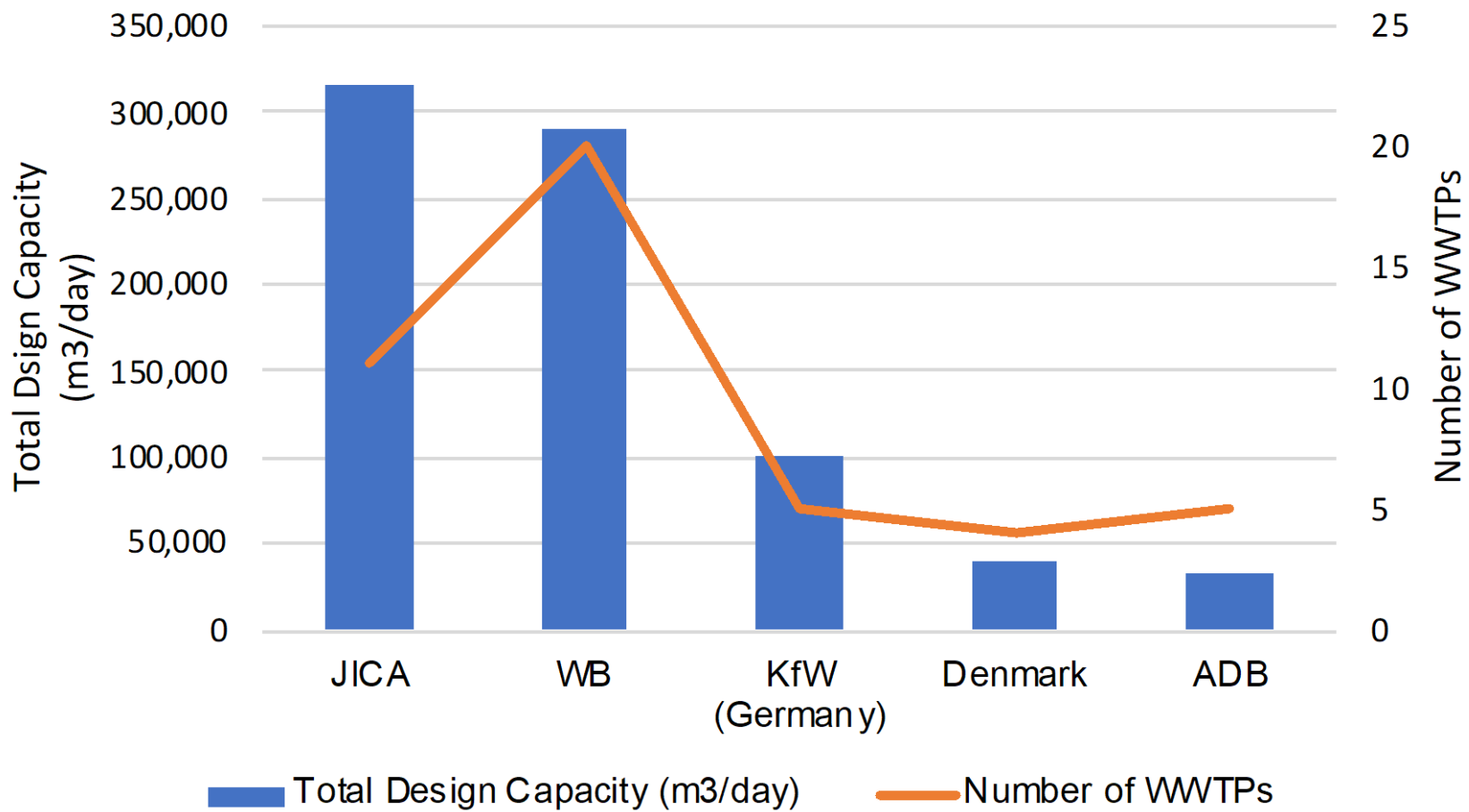
Under Construction: 3 Projects

- ② Yen Xa in Hanoi City: WWTP+Pipe
- ⑤ Hue City: WWTP(Sing + Korean)+ Pipe
- ⑨ HCMC (2nd) : WWTP Expansion+ Pipe+ Chanel Improvement etc.

Completed : 10 Projects

- ② Hanoi Infra PJ (1st) : Completed in 2009, WWTP(1)
- ② Hanoi Drainage (1st) : Completed in 2005 Pump (WWTP(2))
- ② Hanoi Drainage (2nd) : Completed in 2016, WWTP, Pump Expansion
- ② Hoa Lac in Hanoi: Completed in 2020, WWTP+Pipe
- ③ Hai Phong City: WWTP + Pipe + Solid Waster Treatment
- ④ Vinh Phuc Province: Completed in 2015, WWTP and Pipe
- ⑥ Hoi An City: Completed in 2018, WWTP and Chanel
- ⑧ Binh Duong Province (1st): Completed in 2013, WWTP and Pipe
- ⑧ Binh Duong Peovince (2nd): WWTP+ Pipe
- ⑨ HCMC (1st) : Completed in 2012, WWTP/Pump/Pipe+ Channel/Drainage Pump

Major donors in sewerage projects in Vietnam





3. Future Challenges

Future Challenges

1. Promoting Investment

- Utilizing ODA loan and seeking possibility for PPP
- In small cities, combination of centralized and decentralized system (such as Jokaso) is effective

2. Improving poor quality of house connection and sewer network

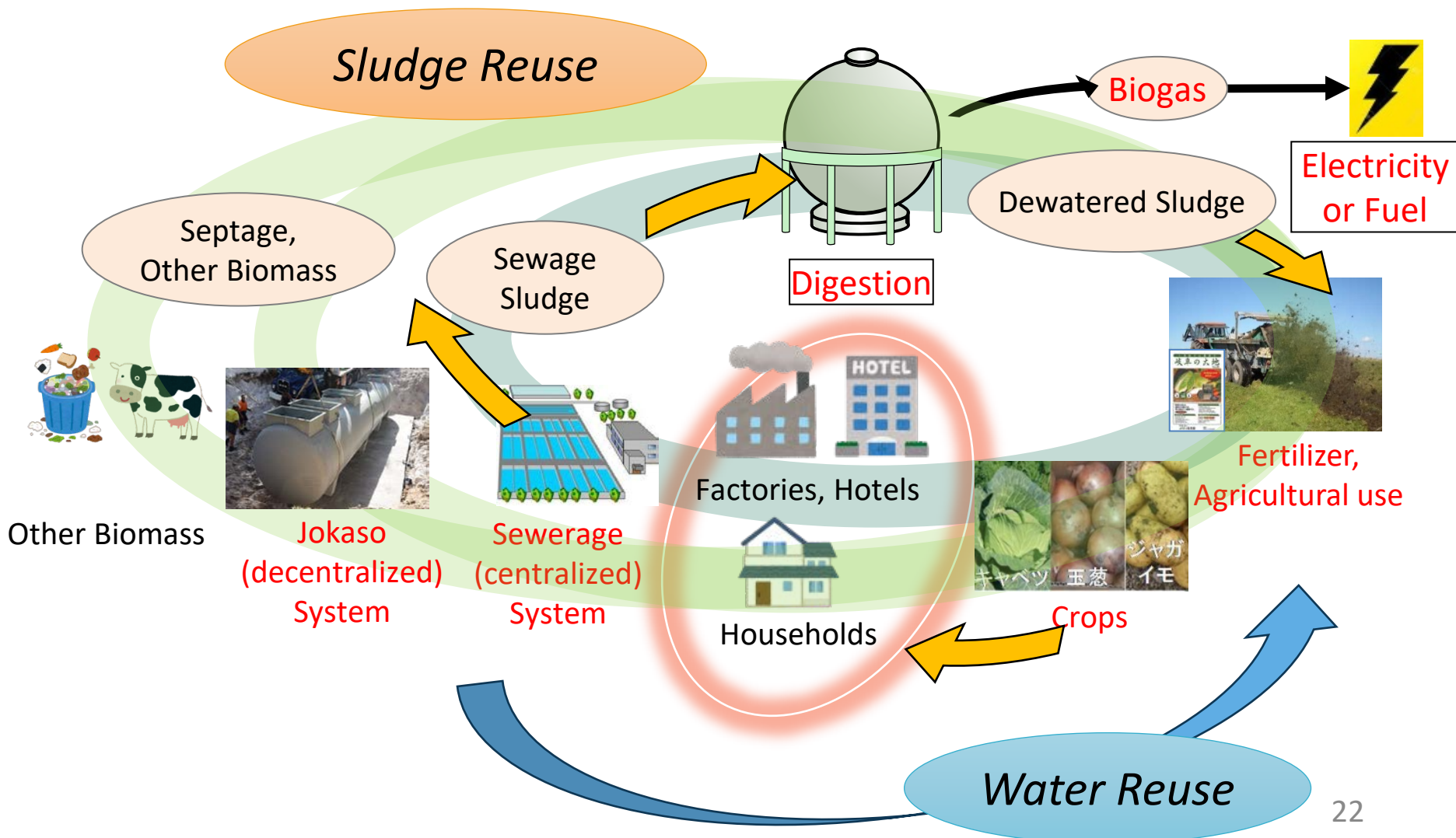
3. Cost & Resource recovery

- To establish sustainable sewerage system both in terms of finance and environment is crucial in Vietnam

4. Capacity development and Public Awareness

Ideal circulation of water and sludge

- Integrating centralized and decentralized system-



Towards “Clean City”

- **Longstanding partnership** between both countries has given steady results in Vietnam.
- **Cooperation at various levels** and **working together to achieve common goal** are key factors.
- Vietnam has much **possibility of developing innovative and sustainable infrastructure** to solve various urban problems, while now Vietnam is on the way to newly construct sewerage and drainage system.



Create “Clean City”

Thank you for your attention!

