

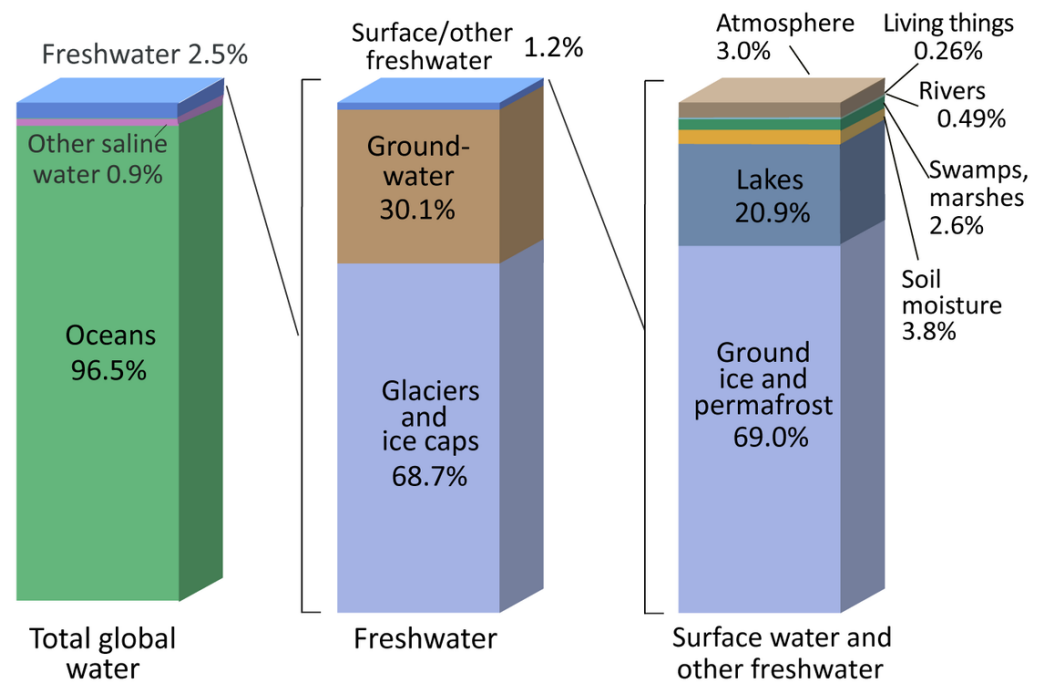
Water and gender equality initiatives in the agricultural sector

International Consultant

January 17, 2025

Rivers / Lakes fresh surface water is 0.006% of total mass !

Where is Earth's Water?

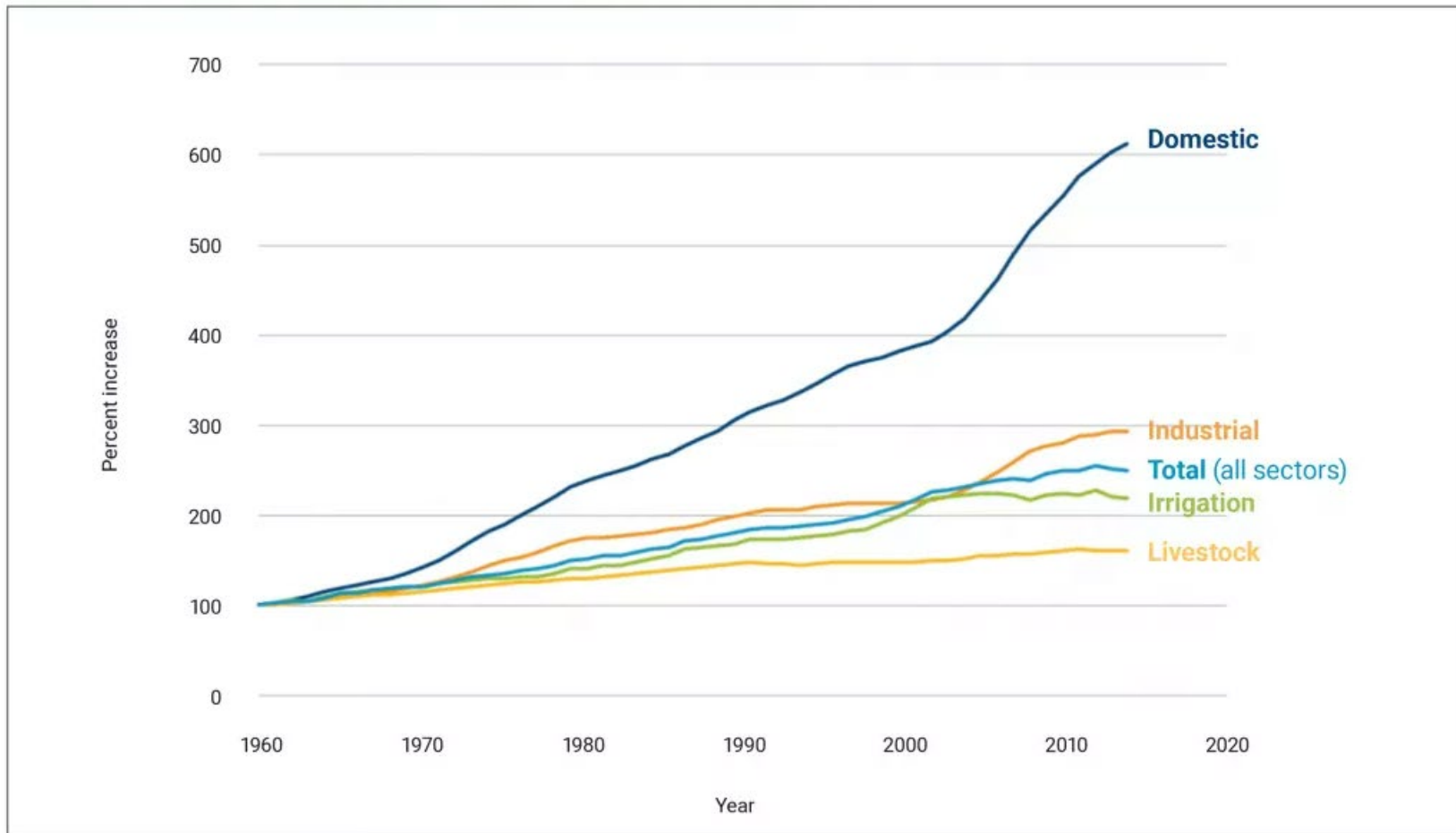


Source: "WikipediA"



Worldwide Trend 1960-2014

(Agriculture use 70%, Industrial use 18% and Domestic use 12%)



Source: Otto and Schleifer (2020).

- **POLLUTION**

- Water pollution comes from fertilizers, untreated human wastewater, and industrial waste

- **CLIMATE CHANGE**

- more carbon dioxide and other greenhouse gases into the atmosphere

- **AGRICULTURE**

- high percentage of leaky irrigation systems, Impact of salt damage on agricultural crops

- **POPULATION GROWTH**

- the human population has more than doubled in the last 50 years with its accompanying economic development and industrialization

4. Result of site check

- Water Supply System for Home Gardening



- 1. Save water !*
- 2. Save time !*
- 3. Save manpower!*

- Environmental Improvement

Fish Processing



Sun Drying



Wastewater





Comparison of Typical Water treatment Technologies

| Resource: | Freshwater | | Seawater / Brackish water | Water from Air |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Scale: | Large / Medium | Small | Medium / Small | Small |
| |   |   |   |  |
| Method: | Coagulation / Sedimentation /Filtration | ← | UF+RO | Condensation |
| Capacity: | >10,000m3/day (100L/person x 10,000) | <10,000m3/day (100L/person x 10,000) | 100 – 50,000m3/day (100L/person x 100-50,000) | 30L/day (2L.person x 15) |
| Energy: | Low | Low | High | Middle |
| Installation: | > 2 years | > 6 months | > 1years | depend on stock |
| Source: | Hanshin Water Supply Authority | Kobelco Eco-Solutions | Fukuoka District Waterworks Agency | Watergen |

6. Water Situation in Viet Nam and Japan



| | Viet Nam  | Japan  |
|------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Population *WB (2020) | 96 Million | 124 Million |
| GDP per capita | US\$3,586 | US\$40,041 |
| Water Supply Ratio *MLIT | 70% | 98% |
| Sewerage Coverage Ratio | 40-50% | 81% |
| Tap water standard (NTU) | <2NTU | <2NTU |
| (Residual Chlorine) | >0.5mg/l | >0.1mg/l |
| Water Tariff (Capital/m3 = 1,000L) | VND 7,500 (USD0.295) | JPY 110 (USD0.71) |
| 20L Water tank Price | VND15,000-20,000 (USD0.59 – 0.78) X 50 = USD29.5-39 /1,000L | JPY 2,000 (USD12.9) X 50 = USD645 / 1,000L |

- **CENTRAL WATER SUPPLY SYSTEM**



- **SMART WATER GATE FOR WATERWAY**



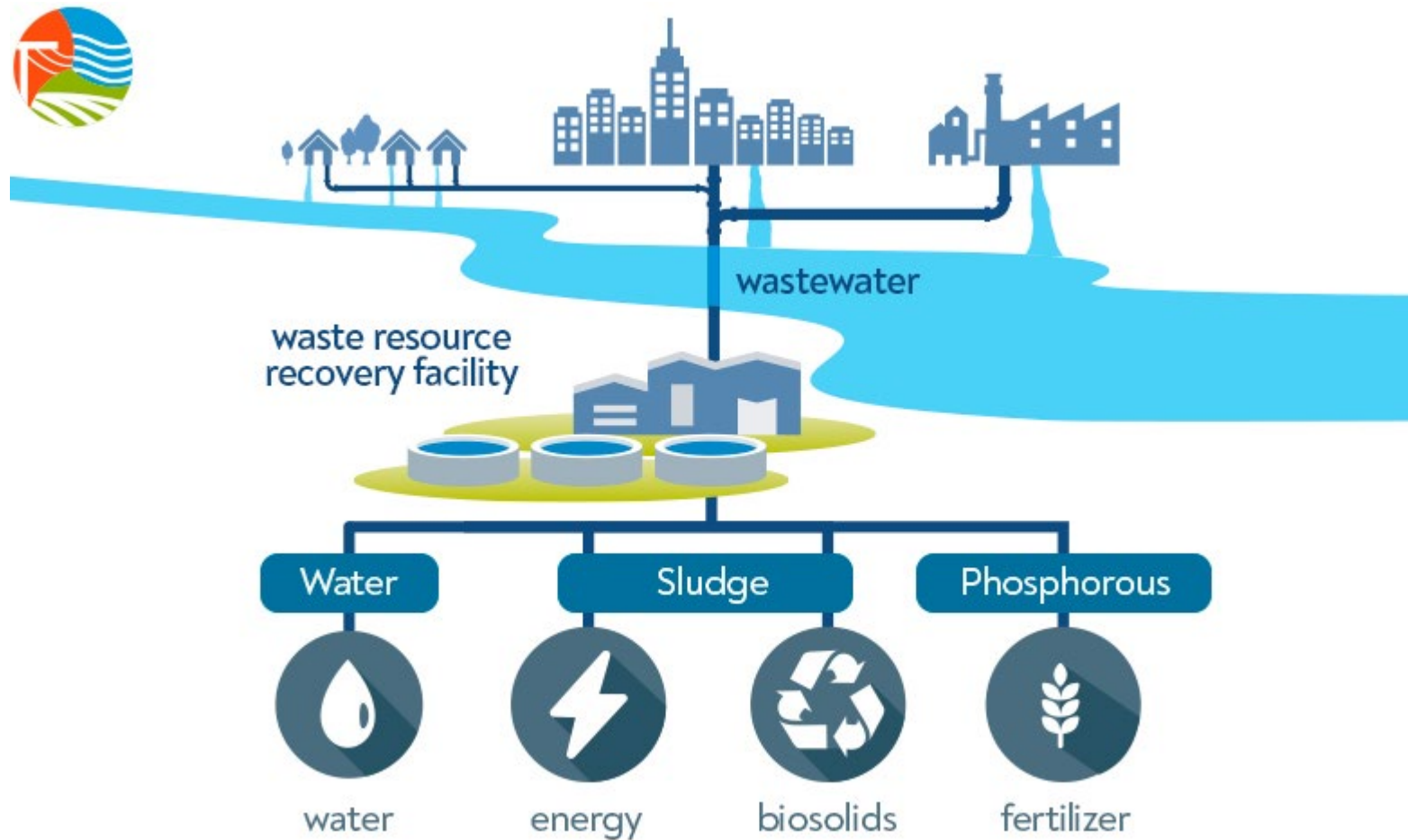
- **IRRIGATION PUMP**



- **ORGANIC FERTILIZER / OZONE WATER**



It is time to see wastewater as a resource to achieve a circulate economy.



1. Japanese Embassy, “Grassroots Human Security Projects”.

- https://www.vn.emb-japan.go.jp/itpr_ja/Jp_ShikinKyoryoku.html#:~:text=%E6%97%A5%E6%9C%AC%E5%9B%BD%E6%94%BF%E5%BA%9C%E3%81%AF%E3%80%811992,%E3%81%A7%E5%A%E%9F%E6%96%BD%E3%81%99%E3%82%8B%E3%82%82%E3%81%AE%E3%81%A7%E3%81%99%E3%80%82

2. JICA SDGs development, “JICA Biz”

- https://www.jica.go.jp/activities/schemes/priv_partner/activities/sme/index.html

3. PPP by Japanese company

- https://www.jstage.jst.go.jp/article/jamsjsaam/27/0/27_149/_article/-char/en