



water life
systems



What We Do

WATER & WASTEWATER

Water is life... for both people and business. Our scalable prefabricated systems treat ground, surface, and wastewater sources to supply:

- Drinking / Domestic Water
- Industrial / Process Water
- Agricultural / Irrigation Water

The COVID-19 pandemic has raised the awareness of global water challenges and the lack of proper sanitation. Public health conditions related to clean drinking water, and adequate treatment and disposal of human excreta and sewage, are a top priority.

RENEWABLE ENERGY

GREEN HYDROGEN ENERGY HARVESTING - Hydrogen (H₂) is a WLS wastewater treatment system byproduct that is recovered to allow small municipalities and businesses to participate in the Green Energy revolution. Standalone H₂ production systems also provided.

SOLAR POWER READY - WLS systems are designed for low energy consumption. Optional Solar Power kit designed for WLS systems.

FOOD SECURITY

WLS systems recover water and nutrients from wastewater for reuse, and provide closed-loop plumbing hydroponics and aquaculture infrastructure for significant resource and cost savings. WLS systems can optimize nutrient levels based on crop species.

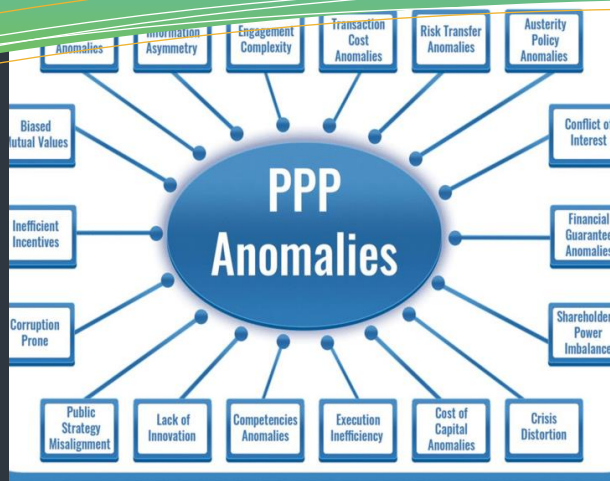


Image source: Albulaihed, Khaled & Adem, Hamid. (2019). Intelligent Multisided PPP Marketplace

Don't PPP Away Your Time and Money With South African Water Projects

From a September 9, 2021 Water Show Africa follow-up discussion between WLS President, Thomas Murphy, and [Eng. Konstant Bruinette](#) of the Development Bank South Africa and Global Water Partnership, "There are only two water themed PPP's in South Africa that I know of, and they were developed in the 1990's."

Murphy was moderator at The Water Show Africa 2021 panel, "Aligning the financial case for water, with social and environmental sustainability goals" that Eng. Bruinette was a featured panelist. In a subsequent conversation, **Eng. Bruinette expressed his frustration with the lack of both political will and project preparation in South Africa**, for a variety of speculative reasons, to bring much needed water and sanitation themed PPP's to bankability.

SA is a developing country and there is a big social component with water. While there are grants being distributed to municipalities, the owners of water and sanitation infrastructure, the funding is primarily for, often inadequate, indigent population infrastructure solutions. According to Eng. Bruinette, additional financing and private sector participation solutions are needed if South Africa is going to avoid the predicted systemic water shortages before 2030.

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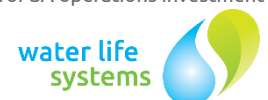
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Scaled solutions are required that includes all inhabitants, both indigent & non-indigent, to allow the proper structuring of tariffs to pay for the needed infrastructure. **DBSA is trying to bring in private sector initiatives that provide ownership transfer back to the municipalities but working within legislation is difficult. "These things take time".**

DBSA is developing three national-level blended finance programs that provide alternative water and sanitation infrastructure funding strategies outside of PPPs. The programs provide centralized expertise and customized funding solutions to achieve success.

This said, according to Eng. Bruinette, **the two existing water themed PPP's in South Africa do offer good case studies on successful PPPs.** The 1st is in Mbombela (Nelspruit) near Kruger national park, and the 2nd is in Dolphin Coast in the KwaZulu-Natal province.

[WLS Africa](#) is working with the UNIDO sponsored www.PFAN.net project for SA operations investment and project financing.



OUR MARKETS

INDUSTRIAL

Agriculture | Aquaculture |
Automotive | Commercial
Livestock | Disaster Management
| Environmental Rehab | Food &
Beverage | Military | Mining | Oil
& Gas | Paper & Pulp |
Petrochemical | Pharma | Power
| Specialized Industry | Steel |
Tourism

MUNICIPAL

Urban, Peri-Urban & Rural
Utilities | Commercial Buildings |
Public Facilities | Mixed-Use
Buildings | Developments | Multi-
Tenant Residences | Single
Homes

OUR GUARANTEE

Water Life Systems guarantees that you will receive enhanced security and higher quality with Water Life Systems' products and services. The service starts with customizing our solutions to your specific needs and continues through equipment delivery and life cycle maintenance. We back up what we design and manufacture to ensure that you receive complete technical and process support on-demand.



Ferrous Chloride Treatment Problems and Solutions

In the September *Water Life* issue, we discussed the multifunctionality of the *Water Life Systems PureBOX* and its *Water, Energy, Food Nexus* solutions. This issue we will take a look at a commonly used phosphate removal method in wastewater treatment plants, ferrous chloride injection, its hidden disadvantages, and the cost-effective solution provided by the *WLS PureBOX*.

Ferrous chloride (FeCl_2) is a chemical wastewater treatment to remove environmentally harmful phosphates before the treated wastewater is discharged into the environment. While ferrous chloride is relatively cheap to procure and inject into the wastewater treatment process, its use has considerable disadvantages:

- Extremely hazardous.
- Stains, therefore, can't be used directly before UV disinfection.
- Poor dewatering.
- Narrow effective pH band.
- Requires pH adjustment or alkalinity addition to make it work effectively and suppresses alkalinity requiring post-treatment adjustment.

Then we come to the perceived low cost of ferrous chloride. Aside from chemical costs rising, **the introduction of ferrous chloride into the wastewater treatment holding ponds/lagoons requires frequent dredging operations** to remove the ferrous chloride

discharge that settles throughout the traditional wastewater treatment plant. This costs millions of dollars for small and average sized settling ponds.

Here is a HAZARD SUMMARY. You decide if ferrous chloride is right for your community.

- **Ferrous Chloride can affect you when breathed in.**
- **Ferrous Chloride is a CORROSIVE CHEMICAL and contact can irritate and burn the eyes and skin.**
- **Breathing Ferrous Chloride can irritate the nose and throat.**
- **Prolonged contact may cause brown discoloration of the eyes.**
- **Repeated or high-level exposures may lead to too much Iron build-up in the body causing nausea, stomach pain, vomiting, constipation, and black bowel movements.**
- **Ferrous Chloride may damage the liver.**

The *WLS PureBOX* proprietary phosphate filters use no chemicals and the *PueBOX* solution requires no ferrous chloride dredging. Instead of eliminating nutrients found in wastewater, the freshwater and nutrients are recovered for cost-saving and revenue-generating reuse applications, environmentally friendly wastewater is discharged with the *PureBOX*, and closed-loop water infrastructure is accommodated for water stressed areas.

Don't flush money down the toilet, get the *PureBOX*!

SUSTAINABLE DEVELOPMENT GOALS



#WeCanSaveTheWorld

The core mission of WLS is to increase global resiliency and sustainability in water, renewable energy, and food security systems.

The world's rapid population growth, coupled with rapid climate change, is increasing the competition for resources. At WLS, we're committed to doing our part to operate sustainably. Our innovative solutions provide resource conservation, energy savings, the reuse of water, food security, and better population well-being and health outcomes.

Advanced **O3In-Gen™** technology is one example of WLS' focus on cost savings and increased treatment effectiveness. **O3In-Gen™** is used in WLS' **PureBOX™** decentralized wastewater treatment package plants with closed-loop capabilities, **Hydrogen production**, and food security systems. The systems are ideally suited for a scalable solution to provide clean water, wastewater treatment, and food security for all by 2030 in a world where billions of people do not have access to sufficient water supply and sanitation services. We envision a world without waterborne pollution

and the abundance of freshwater for all using our water treatment and monitoring systems, which correspond most directly to the United Nations Sustainable Development Goals SDG 6 - Clean Water and Sanitation.

At WLS, we're committed achieving the United Nations Sustainable Development Goals (SDGs) by the 2030 goal date. This collection of 17 global goals is designed to be a "blueprint to achieve a better and more sustainable future for all." Our operations and solutions contribute to all the UN's SDGs.

This Issue's SDG Provided by Water Life Systems

World Economic Forum 2020: "The global water crisis is one of the greatest threats to humanity."

The "traditional" way of living is not sustainable for life on Earth. Water Life Systems leadership, in living through their own climate-caused near disasters, being Vancouver 100-year drought in 2015 and the 2017-18 Day Zero scare in Cape Town, South Africa, have developed water supply, sanitation, and food security Micro-Utility solutions that can be deployed into the built environment on a global scale. Tech components can be integrated into centralized systems.

WLS systems are at the core of providing water stressed populations with clean water and sanitation services. Currently some 2.2 billion people worldwide do not have sufficient drinking water services, 4.2 billion people do not have safely managed sanitation services, and 3 billion lack basic handwashing facilities.

Much of the world is not set to meet United Nations Sustainable Development Goals with current systems thinking. No single solution will result in universal access by 2030. A range of adaptable and scalable solutions are needed to overcome geography, gender, and socioeconomic barriers.

SDG 17

Partnerships For The Goals

17.2 Target

Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of ODA/GNI to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries

17.2.1 Indicator

Net official development assistance, total and to least developed countries, as a proportion of the Organization for Economic Cooperation and Development (OECD) Development Assistance Committee donors' gross national income (GNI)

17.5 Target

Adopt and implement investment promotion regimes for least developed countries

17.5.1 Indicator

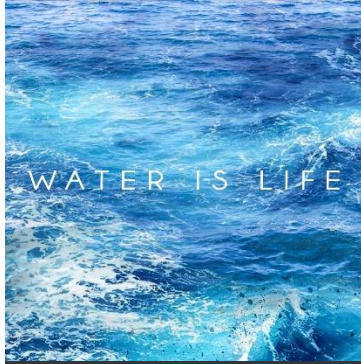
Number of countries that adopt and implement investment promotion regimes for least developed countries

17.6 Target

Advance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism

17.6.1 Indicator

Number of science and/or technology cooperation agreements and programmes between countries, by type of cooperation



Would you like to participate in the WLS Investor & Partnership Program? Please fill out the application to help us determine how to best approach the partnership to ensure mutual success.

Water Life Issue 12 October 2021

Partnership Tracks

WLS offers various partnership solutions including:

- Integrated product distribution
- Individual tech component licensing
- Complete tech transfer programs for national solution integration

Technical expertise, geography and solution area of your business will determine which track best fits your business model. Partners can participate in one or more tracks, based on expertise and available production facilities.

[Click here for more information and to complete the inquiry form](#)

For More Information

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