ISSUE
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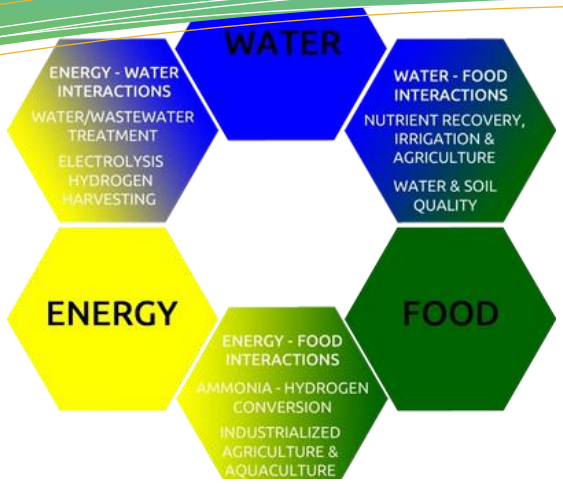
YOUR SOURCE FOR
WATER, ENERGY, AND
FOOD SECURITY
INNOVATION INFO

Water Life



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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.

An Integrated Water, Energy, Food Security Solution

A case study written by WLS President, Thomas Murphy, was accepted into the Singapore International Water Week 2022 convention. "An Integrated Water, Energy, Food Security Solution" will be listed under the Nexus and Circularity theme (System of systems for a circular economy – Different combinations of Nexus – water, energy, food).

Humanity must effectively plan for infrastructure required to adapt to climate change realities. Previous work fails to consider distributed Water, Energy, Food Security (WEFS) solutions as integrated systems. Considering civil infrastructure from the centralized viewpoint misses the opportunity to add significant resiliency for water stressed areas.

The value of integrating centralized with distributed water systems has become evident throughout the world. **Distributed WEFS systems integration into centralized infrastructure have the potential to alleviate centralized infrastructure weaknesses and provide resiliency benefits that centralized systems are unable to provide.**

The key impact of this paper is to explain the importance of integrated WEFS systems with closed loop plumbing system to conserve resources in a cost-effective manner. Utility services and city planners are given the justification to proactively integrate distributed WEFS systems into their centralized systems for greater sustainability and resiliency of core human living systems.

The goal of this paper is to provide rural and urban planners with the justification to proactively deploy integrated Water, Energy, Food Security (WEFS) systems that accommodate the Water, Energy, Food Nexus (WEFN) which is fundamental to human existence and adaptation to climate change (FAO 2014; Daher et al. 2019; Abulibdeh et al. 2019; Rasul 2015; McNabb 2019).

The global systemic risks associated with the pollution created by rapid global population growth and urbanization, as well as climate change derived natural disaster frequency increase and event intensification, present a variety of human existential challenges that fundamentally involve freshwater supply and wastewater treatment infrastructure (Le Billon 2017; Levy 2019; Zhang et al. 2019; Allen 2019; Lim 2019).

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Water, Energy & Food Security

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.

UN Sustainable Development Goals: Can We Do It?

In the December Water Life issue, we covered the ability of WLS wastewater treatment systems to efficiently process and reuse ammonia in Aquaculture RAS infrastructure. This issue we will take a look the United Nations Sustainable Development Goals (SDGs) progress and what is needed to accomplish the goals.

It is interesting how many people in this world do not accept the realities of climate change, population growth, and existing inequalities. The title of this World Bank Data Blog entry says in all: "Are we there yet? Many countries don't report progress on all SDGs according to the World Bank's new Statistical Performance Indicators".

The SDG indicators are not only more in numbers compared to previous global initiatives such as the Millennium Development Goals, but they are also so complex that most countries' statistical systems do not have the sophistication to provide all of the data on the SDG indicators.

While progress is being made to bring countries' statistical systems up to date, the blog notes that the current pace is insufficient. **Research suggests that countries' performance on measuring progress towards development goals causally associated, with making progress on the goals.** If we cannot even measure if the SDG's are being achieved, what progress is being made on the goals themselves?

From a January 2020 article on the SDG Knowledge Hub website, "Are We Serious About Achieving the SDGs? A Statistician's Perspective", the UN Food and Agriculture Organization "has proposed a new, common data validation platform that would relieve countries from the deluge of data validation requests coming from different international organizations using varied approaches." The article also stresses the importance of integrating the private sector as a significant amount of alternative data points originates from the private sector.

The current President of the United Nations Economic and Social Council (ECOSOC) that is tasked with coordinating UN efforts on sustainable development and advancing internationally agreed goals, Botswana's Ambassador Collen Vixen Kelapile, recently stated in a November 2021 interview that nations can achieve the SDGs if they find a common position around investment and socioeconomic development opportunities. This includes:

- clean energy based on renewable energy solutions
- climate change adaptation
- gender equality
- peacebuilding
- increasing access to health, education and more

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 16

Peace, Justice, and Strong Institutions

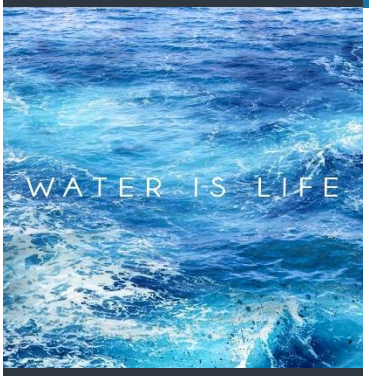
16.1 Target
By 2030, significantly reduce all forms of violence and related death rates everywhere
16.1.1 Indicators
Number of victims of intentional homicide per 100,000 population, by sex and age
16.1.3 Indicators
Proportion of population subjected to (a) physical violence, (b) psychological violence and (c) sexual violence in the previous 12 months
16.1.4 Indicators
Proportion of population that feel safe walking alone around the area they live

16.2 Target
By 2030, end abuse, exploitation, trafficking and all forms of violence against and torture of children
16.2.1 Indicators
Proportion of children aged 1–17 years who experienced any physical punishment and/or psychological aggression by caregivers in the past month
16.2.3 Indicators
Proportion of young women and men aged 18–29 years who experienced sexual violence by age 18

16.3 Target
Promote the rule of law at the national and international levels and ensure equal access to justice for all
16.3.3 Indicators
Proportion of the population who have experienced a dispute in the past two years and who accessed a formal or informal dispute resolution mechanism, by type of mechanism

16.5 Target
Substantially reduce corruption and bribery in all their forms
16.5.1 Indicators
Proportion who had contact with a public official and who paid a bribe, or were asked for a bribe by public official

16.8 Target
By 2030, Broaden and strengthen the participation of developing countries in the institutions of global governance
16.8.1 Indicators
Proportion of members and voting rights of developing countries in international organizations



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.

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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