



from
Water Resource Gardens
to
Data Driven Water Management

www.organicawater.com



Organica Water

Organica provides solutions for the entire wastewater treatment spectrum: from **optimizing** and **upgrading** existing facilities to brand **new Water Resource Gardens**

For owners and operators of existing traditional plants we provide **digital services** which range from **facility optimization** to **online monitoring**, ensuring automation and online data access

For new treatment facilities we have developed a vastly improved version of wastewater treatment, the **Water Resource Garden**

Water Resource Gardens provide **odorless, cost & space efficient** solutions for urban wastewater treatment and recycling, based on the company's Food Chain Reactor (FCR) technology

[Click to see an FCR in operation!](#)

20+ years
Experience

110+
References

15
Countries





Who is Organica

Nature Based Solution

The revolutionary, next-generation, biological wastewater treatment solution, the Water Resource Garden, enables **“localized” treatment** through utilizing engineered ecosystems that efficiently treat and recycle wastewater in 50-60% less space, and using significantly less energy than conventional treatment methods, all done in an aesthetically appealing and odor free way that integrates seamlessly into a broad range of environments

Proven, Widely Accepted

Organica’s Water Resource Garden was conceived in 1998 and has 115+ installations operating/under construction worldwide, including France, India, Canada, China, Hungary, Indonesia, Philippines, South Africa, UAE and Vietnam. Our treatment process has been validated by a network of industry leaders including Veolia, CH2M Hill, and Shanghai Water.

Reliable Partner

Organica works with reputable partners around the world who are key players in their markets and rely on the high-level technical expertise provided by the company. Partners chose to work with Organica because they win more projects and realize higher margins with the Organica solution. In addition, Organica’s high level of differentiation and competitive advantages significantly contribute to our partners’ market positions.

Sustainable Urban Development

Organica drives resource efficiency on every level: lower energy, less geographic footprint, lower infrastructure cost, and cost-efficient reuse. As we are embarking on the road to build an ecological society Organica’s botanical garden like structures become iconic symbols of sustainable urban development. These facilities blend into urban landscapes, redefining how people view the urban water cycle.





Water Resource Gardens Solve a Key Challenge in the Urban Water Cycle

The Problem

Conventional Wastewater Treatment
Centralized, High Pipeline cost and Destroys Economic Value



Result

- ✗ Pipeline costs 91%, while treatment cost is only 9%. Centralized plant **causing communities to spend \$5-10 on the sewage network for every \$1 spent on the treatment plant itself**
- ✗ Consumes a **massive amount of space and energy**
- ✗ Negative impact on surrounding with high buffer / set back required due to foul odors and ugly aesthetics)
- ✗ **Depress land value** in population centers and are therefore located in remote locations



The Solution

Organica's Decentralized Water Resource Gardens



Result

- ✓ Plants are garden-like water treatment facilities that are seamlessly integrated – **architecturally, technologically, and socially** – into urban and residential environments
- ✓ Up to **60 % savings on physical footprint** and **30% or greater reduction in OPEX**
- ✓ Enhanced Biodiversity and advanced digital monitoring and control, driving a **resilient and stable system**



*In increasingly urbanized world (68 of the world will live in cities by 2050 vs. 30% in 1950),
Conventional approach is no longer sustainable from economic and environmental perspective*



Mission: Replacement of WWTPs with Water Resource Gardens

Traditional technologies focus exclusively on the process, only targeting CAPEX/OPEX of the facility itself and ignoring land value and infrastructure cost impacts



Activated Sludge



SBR



MBR



MBBR



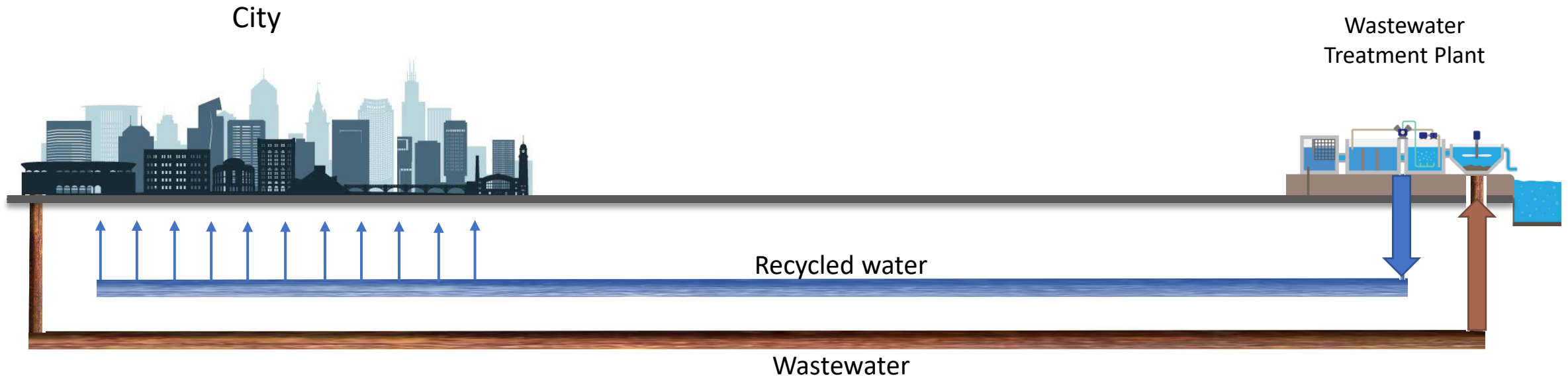
The Organica Solution focuses on the complete picture by integrating a host of engineering disciplines, architecture and nature, thus lowering TOTEX



Organica Solution



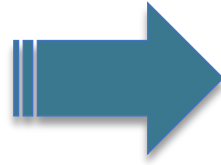
Pumping recycled water from far is expensive



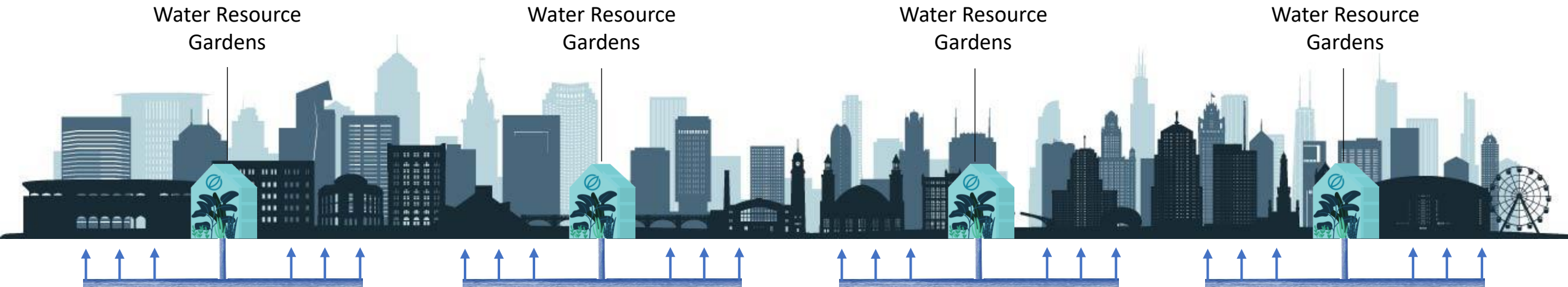
When it comes to recycling wastewater, the traditional approach involves transporting it over long distances outside of the city and then pumping it back into the city. However, this process is **energy-intensive and has a significant carbon footprint**.



Organica plants in the city



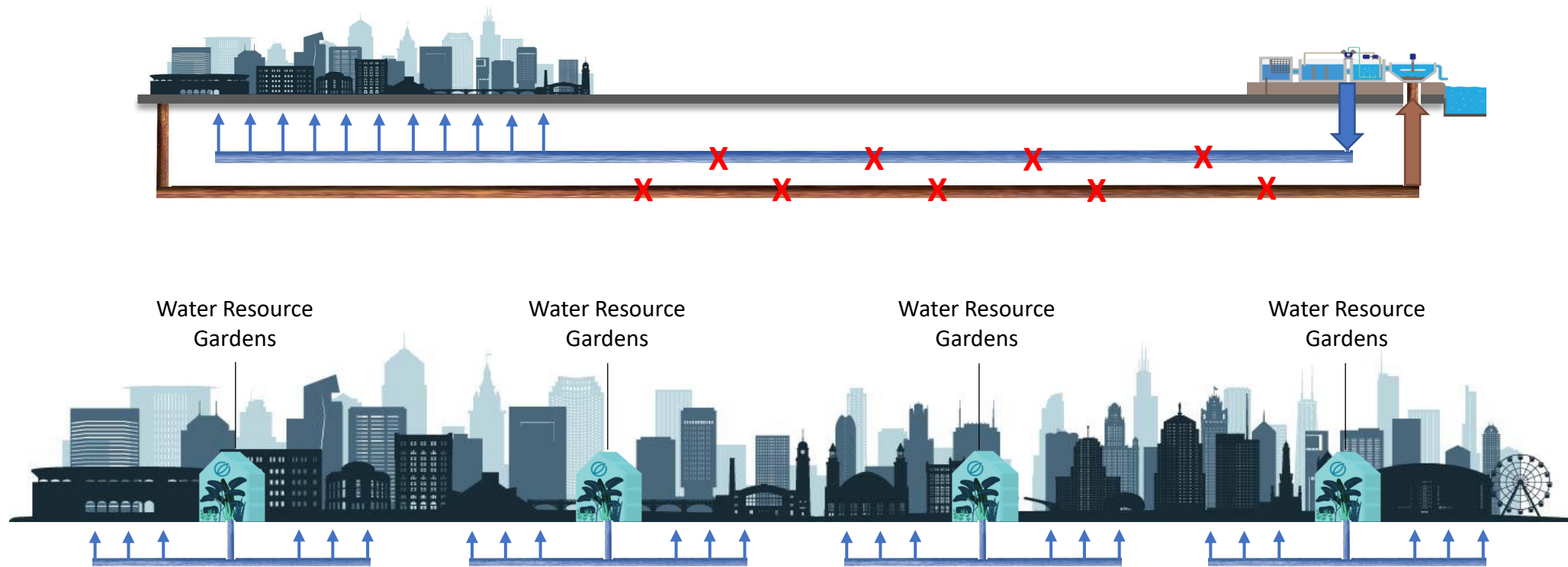
Recycling more economical



Organica's Water Resource Gardens were developed to be placed inside the city. This solution provides significantly more economical and sustainable solution than the tradition approach.



Significant opportunity in providing localized recycled water

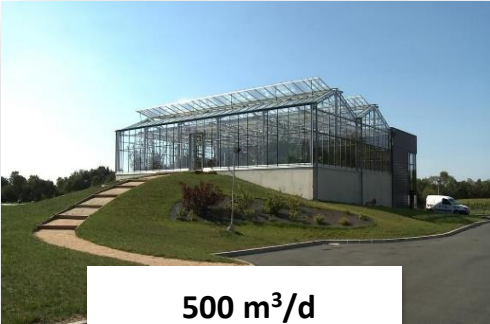


With Water Resource Gardens, can save massive infrastructure cost, and eliminating continuous long-distance pumping carbon footprint and operation expenses can be significantly reduced.



Water Resource Gardens are utilized in Various Capacities

Operation: 115
Construction: 10



500 m³/d
3,000 People



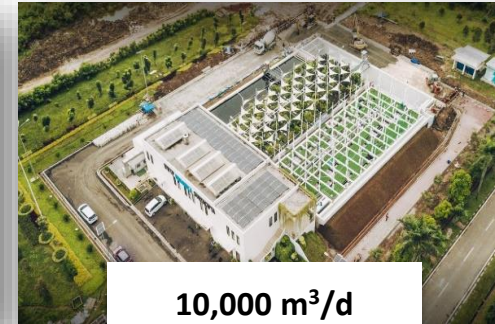
2,000 m³/d
10,000 people



3,500 m³/d
17,500 people



6,500 m³/d
32,500 people



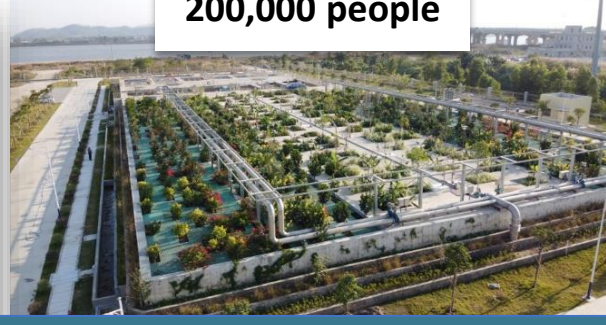
10,000 m³/d
50,000 people



80,000 m³/d
500,000 people



50,000 m³/d
250,000 people



40,000 m³/d
200,000 people



30,000 m³/d
150,000 people

Water Resource Gardens can cover a wide range of capacities, from small to large, with over 100 facilities built to date.



ORGANICA EUROPE
BUDAPEST

ORGANICA INDIA
NEW DELHI

ORGANICA ASEAN
JAKARTA

12	SERVICES CONTRACTS
115*	ORGANICA FACILITIES



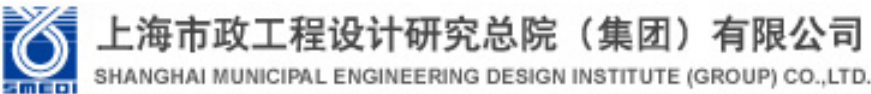
ORGANICA ASEAN
JAKARTA

115* ORGANICA FACILITIES

Private and Confidential



Organica's Clients and Partners Include Many of the Top Water Companies in the World



Awards



Private and Confidential

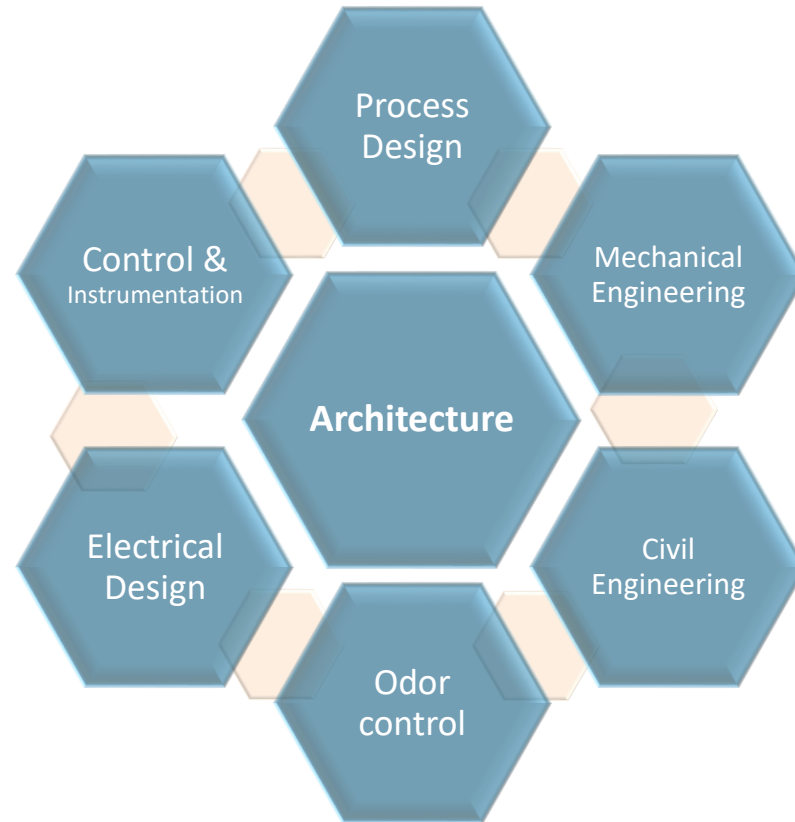
2022	Sydney Water Innovation Festival 2022 -Winner of both the Judges' and People's Choice of "Decentralized Water Reuse Solutions"
2021	COP26 -2021 Our Co-Founder was invited to present at the COP26 conference in Glasgow
2020	Cleantech 100 list and Cleantech Hall of Fame (2020)
2019	Frost & Sullivan Visionary Innovation Leadership Award - Decentralized Wastewater Treatment Global (2019) Environment and Climate change Award South Africa The Institute of Municipal Engineering of Southern Africa (IMESA) Paulson Prize for Sustainable Cities – Honorable mention (Wusong- 2018)
2018	Corporate Growth Award (2018) by Association for Corporate Growth Water Reuse Gardens- Best Presentation/Paper and Best Innovation (2018) by ALADYR Conference Technical Committee 2018 Corporate LiveWire's Innovation and Excellence Awards
2017	Recommended Technology (2017) Secretary General of the China Water Association,Qingdao Water Conference Best Performer in Global Expansion (2017) Idinvest International Frost & Sullivan Best Practices - Global Biological Wastewater (2017)
2016	Federation of Canadian Municipalities – Sustainable Communities Award, Sechelt Water Reuse Center (2016) Finalist of GWI Industrial Water Project of Year (2016), MM2100 WWTP
2015	Cleantech Connect Most Innovative (2016) by GP Bullhound Lux Research Top Ten Global Innovative Company (2015) Profiled 1200 companies across 20 sectors/selected 10 most innovative
2013	Global CleanTech "Company of the Year" - Europe & Israel (2013) by CleanTech Group Global CleanTech TOP 100 (2013, 2014, 2015, 2016, 2017, and 2018) by CleanTech Group (only water company 6 consecutive years) GWI Wastewater Project of the Year (2013) – Honorable mention, South Pest WWTP Water and Energy Exchange (WEX) Innovation Award (2013) recognizing significant achievement in field of Water and Wastewater





Components of Organica's Water Resource Gardens

EFFICIENT PROCESS
utilizing diverse biology



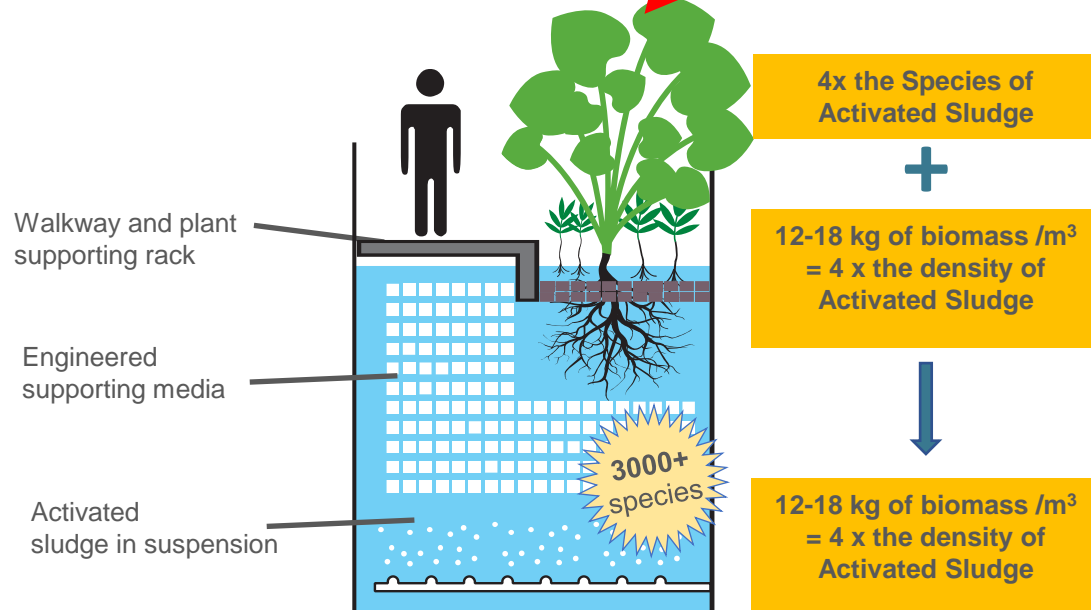
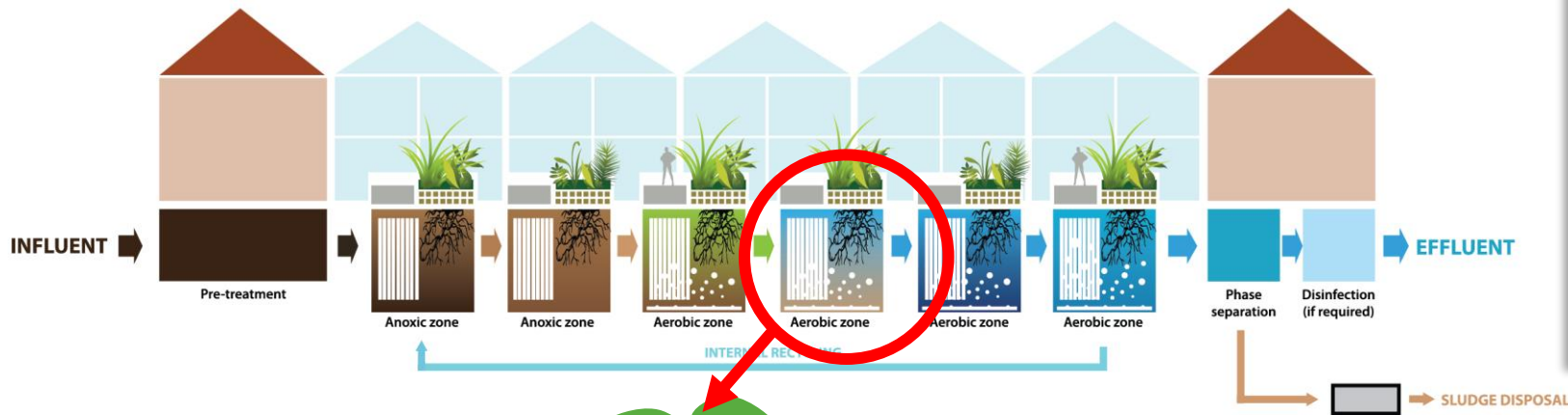
High level **INTEGRATION OF DISCIPLINES**,
including Architecture



This new water treatment facility came into being by high level of integration of a number of disciplines coordinated under the architectural umbrella



The Efficient Process Component



Organica treatment plants utilize complex ecologies with the look and feel of botanical gardens. Underneath the walking surface there are 5-6 m deep reactors teaming with life. The ecosystems in the reactors consume the contaminants in the wastewater producing superior quality reusable water.

The reactors are arranged in a cascade fashion with pretreatment steps in the beginning and final polishing at the end, depending on the local requirements.

As water flows from one reactor to the other different ecologies will develop in each reactor. Thus, the sub-ecosystems provide for enhanced removal efficiency while utilizing less energy and producing less sludge. The complex biology is managed by an intelligent process control software which regulates all engineering components necessary to maintain ideal conditions in the system.

Bacteria and higher organisms live in an attached form on fixed media inside the reactors. Providing a stationary habitat allows an incredibly diverse and robust biofilm to grow and thrive, ultimately offering significantly improved nutrient removal, energy efficiency, and resiliency, all in much less space than conventional technologies.

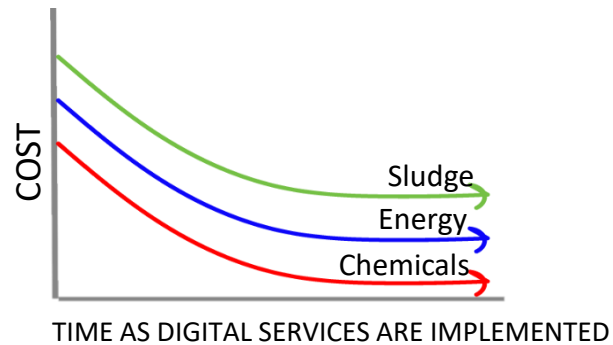
The FCR Solution is designed to enhance the natural processes of complex ecosystems by creating considerably more diverse biology than those already in use in the industry. In addition to the bacteria found in traditional activated sludge systems, Organica treatment plants are populated by over 3,000 species of microbes, aquatic flora and fauna.



Services

Operation support –ALL TECHNOLOGIES

- Facility supervision & management
- Performance optimization
- Water quality monitoring
- Online reporting & trends analysis



**Digital Services saves
10-20% OPEX on average.**

Projects

Water Resource Gardens

- Overall concept and basic design.
- Detailed process design and software for plant operation.
- Key reactor components and automation.
- Testing & commissioning supervision



There are two types of customers we support. On one hand we function as solution provider for clients who want to build Organica plants by providing the items listed under “Projects” above. On the other hand, we provide operational services to operators (“Services” above) who want to make their operations more efficient and more reliable.

80 000 m³/d, 500 000 PE upgrade in Hungary, Europe



This traditional activated sludge plant in Budapest was built 50+ years ago, but due to increased loading conditions, it needed to increase its treatment capacity. Fortunately, in 2011, the plant underwent an upgrade by Organica, allowing it to treat a significant increase in COD, BOD, ammonia, and TSS loading without the need to build additional reactors. This was accomplished by intensifying the biological capacity of the existing reactors through the incorporation of natural and engineered root systems, as well as optimizing the aeration system.

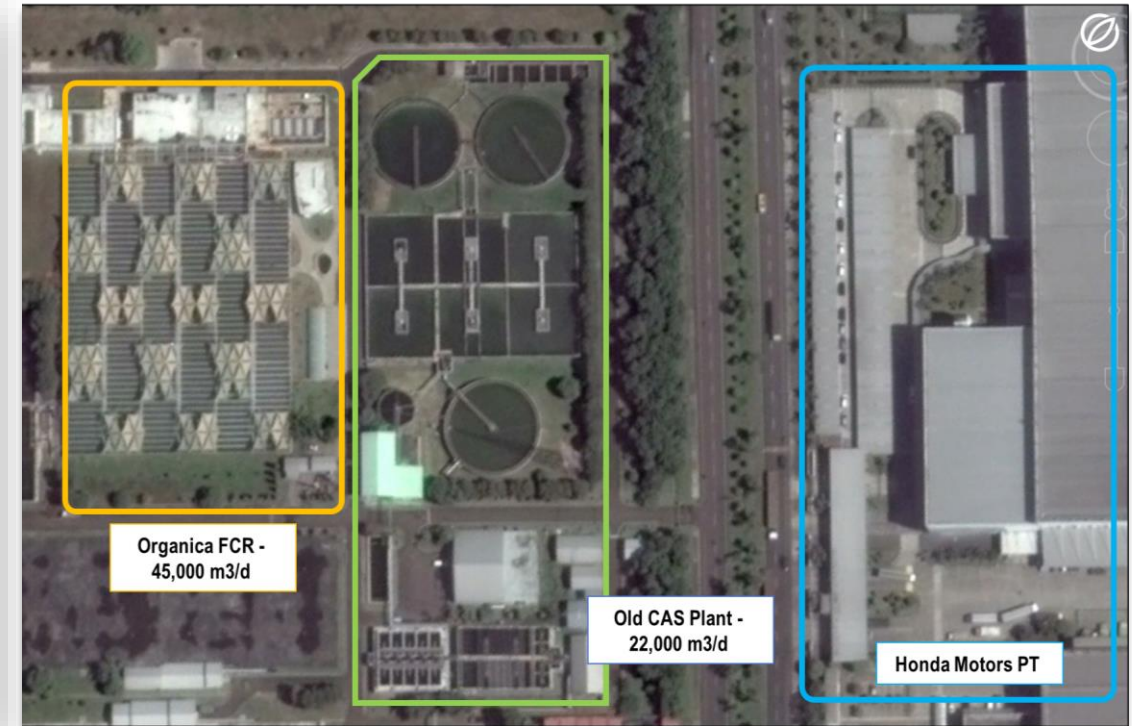




45 000 m³/d, 225 000 PE in Indonesia



The 22 MLD traditional wastewater treatment plant at Indonesia's largest industrial park (MM2100) needed to double its capacity. The Organica plant which replaced the old facility achieved doubling the capacity to 45 MLD in **half** the footprint. The area of the old plant can be thus cleared for real estate development. The new tenants have a garden as the neighbor (picture above) and thus no discount need to be given to developers of the adjacent property.





40 000 m³/d, 200 000 PE in Shanghai



The 40 000 m³/d plant was built 30 years ago and over time residential buildings surrounded the facility. Residents staged regular protests opposing the smell and the aesthetics of the plant. The city decided to upgrade the plant using the Organica solution and achieved increased treatment capacity and significant improvement of real estate values in the area at the same time. The project was awarded the **Paulson Prize for Sustainable Cities - Honorable Mention by Paulson Institute in 2018** and the **ENR 2019 Global Best Projects Award**





6 500 m³/d, 32 500 PE in the Philippines



The plant in Laguna Technopark facility (near Manila) needed to add additional capacity to treat the influent from the quickly expanding sewer network, septage delivery and influent from the industrial park.

The Organica solution provides highly economical solution showing the many advantages of the garden like treatment facility.





31 000 m³/d, 155 000 PE near Kolkata, India



With water scarcity becoming in the forefront of development challenges in India, finding a sustainable solution to the urban water cycle is important. This 31 000 m³/d capacity Organica plant occupies only 4 800 m² of land which is a fraction of what would be needed for conventional technologies. Low energy usage means lower operational cost and overall economic advantages.





120 m³/d, 600 PE BlueHouse in South Africa



The BlueHouse is a packaged plant solution, which is a custom-engineered and pre-fabricated facility that captures all the benefits of Organica-powered wastewater treatment and reuse in one easy-to-install package. While having an accelerated design and construction process, the facility still retains its compact, odorless and energy efficient features. As a result, the Organica BlueHouse is an ideal choice for applications where land value is a top priority, and hydraulic flow do not exceed 400 m³/d



40 000 m³/d, 200 000 PE in Jiangmen, China



Parameters	Influent	Effluent limit
Capacity	40 000 m ³ /d	
COD	250	40
BOD	150	10
TSS	200	10
TN	35	15
NH ₄ -N	30	5
TP	4	0,5
Temp	15°C - 28°C	

30 000 m³/d, 150 000 upgrade in Heyuan, China

This 30 MLD upgrade is located just North of Hong Kong. The effluent is discharged into the Dongjiang river which feeds the Hong Kong drinking water reservoirs. To protect water quality, discharge standards are extraordinarily strict, they have to comply with surface water quality standards. This upgrade has been reliably operating for close to 10 years with online monitoring directly connected to supervising state authorities

Parameters	Influent	Effluent limit
Capacity	30 000 m ³ /d	
COD	250	20
BOD	150	4
TSS	200	5
TN	-	10
TKN	40	-
NH ₄ -N	25	1
TP	5	0,2
Temp	18°C - 30°C	



2 200 m³/d, 11 000 PE in Canada



Amidst a glorious natural environment, the municipality of Sechelt lies on the lower “Sunshine Coast” of British Columbia, only 50 km northwest of Vancouver. Although the municipality had 2 existing wastewater treatment facilities, due to stricter effluent standards and operational expenses those facilities were insufficient for the community needs. To solve their challenges, an Organica powered facility was chosen due to the garden-like appearance and odorless operation, optimal for placing the facility in the middle of the town - reducing pumping and collection cost.





Service Contracts – Completed & Ongoing

Site	Country	Type	Year
Bekasi Fajar	Indonesia	Operation & Maintenance	2019
South Pest	Hungary	Energy Optimization	2020
Székesfehérvár	Hungary	Energy Optimization	2020
Debrecen	Hungary	Energy Optimization	2020
MM2100	Indonesia	Energy Optimization	2020
MM2100	Indonesia	Water Quality Monitoring	2020
Debrecen	Hungary	Automation	2021
Bekasi Fajar	Indonesia	Operation & Maintenance	2021
Laguna BNR	Philippines	Process Supervision	2021
V&A Bluehouse	South Africa	Automation	2021
Debrecen	Hungary	Sludge control upgrade	2022
South Pest	Hungary	Energy Optimization	2022
Debrecen	Hungary	Energy optimization	2023
SMPH	Philippines	Water Quality Monitoring	2023



Energy Optimization Summary

	Baseline	Improvement	Savings
Energy consumption	8997 kWh/day	5100 kWh/day	35 000 USD / month ROI: 12 months
Blower Pressure	533 mbar	400 mbar	
Specific Energy consumption	0.153 kWh/m ³	0.10 kWh/m ³	
		- 43 %	

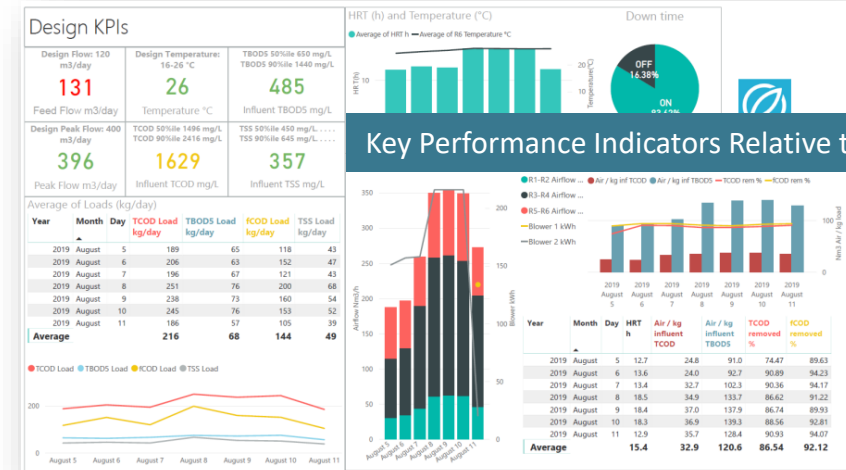
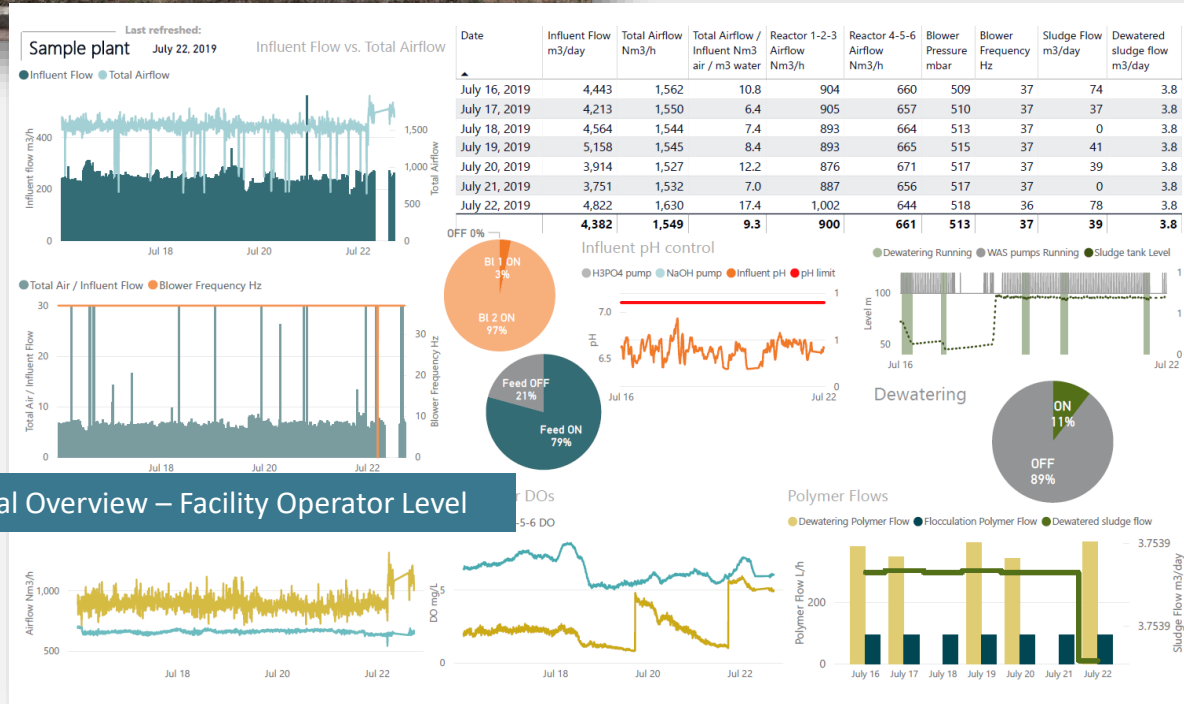
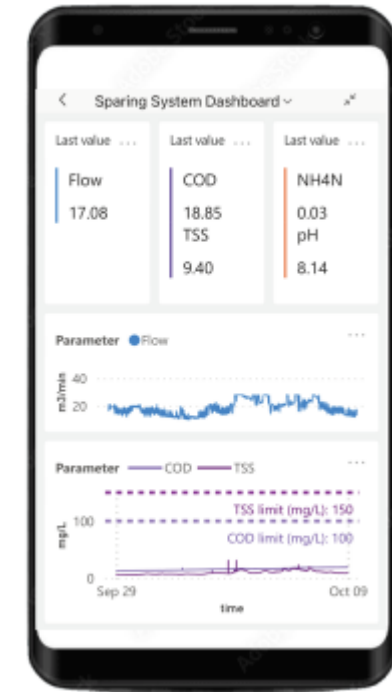
The vast majority of traditional plants represent low hanging fruits to bring about meaningful improvements in operations by applying a combination of digital savvy and thorough process knowledge. In a typical treatment plant aeration accounts for ~50% of the energy consumption. In this example we were able to reduce energy consumption by 25%



Online Monitoring & Reporting



Objectives range from government mandated monitoring of effluent, to detailed analyses of plant performance which is often coupled with advice to improve performance characteristics.



The wastewater industry is beginning to see the potential benefits of digital tools such as instruments, remote access to plant data, and data analysis.

Organica's data acquisition, transfer, and analysis expertise leads to cost savings and compliance improvements.



From Water Resource Gardens to Data Driven Water



We fuse the interdisciplinary integration necessary for urban inclusion , nature-based approach and high-tech data-based management to meet the challenges of a sustainable urban water cycle.

Organica Added Value for Clients and End-Users

Key Features and Benefits

Solution truly focused on **Sustainability** and **Circular Economy**

Physical Footprint Reduction by 60%

Reduction of carbon footprint: 30% - 40% energy savings

Reduction of psychological footprint with the appearance of a botanical garden

Lower overall CAPEX, with less infrastructure and distribution networks and pump stations

Installations **free of odor**

Preserving land value in urban areas, residential and commercial developments

Possibility of upgrading existing installations to Organica FCR



Contact



Oscar Palomino
Director – EMEA (Europe, Middle East, Africa)

oscar.palomino@organicawater.com