IRYGEN
LEADING YOUR TOMORROW

GENESIS
WATER TECHNOLOGIES

IRYGEN WATER SOLUTIONS

WATER AND WASTEWATER TREATMENT SOLUTIONS




Introduction

IRYGEN is a subsidiary of Genesis Water Technologies, Inc. (GWT), based in Maitland, FL is an award-winning leading water & wastewater treatment solutions company focused on developing, engineering and providing advanced treatment solutions and services for drinking water & wastewater treatment applications for industries and communities worldwide. IRYGEN a subsidiary, is specifically formed to cater the needs of Asian markets. Remarkable work leveraging innovation and proficiency to serve the desperately important water treatment needs of water utilities and industrial clients in 43 countries and counting,

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ABOUT THE COMPANY
IRYGEN WATER SOLUTIONS PVT LTD

A Professional Water Treatment Integrator with Long Term Vision

Innovation
Environmentally sustainable, while lowering construction costs through efficient process & construction technology

Good Workmanship
Effective project management & system construction process with improved quality standards through the use of Expert Know-how

Value Added Solutions
Process Improvements and capacity enhancement, retrofits, Data Analytics

International Brand Name
Synonymous with reliability and long lasting design construction solution, with system setup to optimize resources

Leverage for the Competitive Edge
Advanced Design & Technology, Modular System Construction
Fast Track Construction Program, Economies of Scale

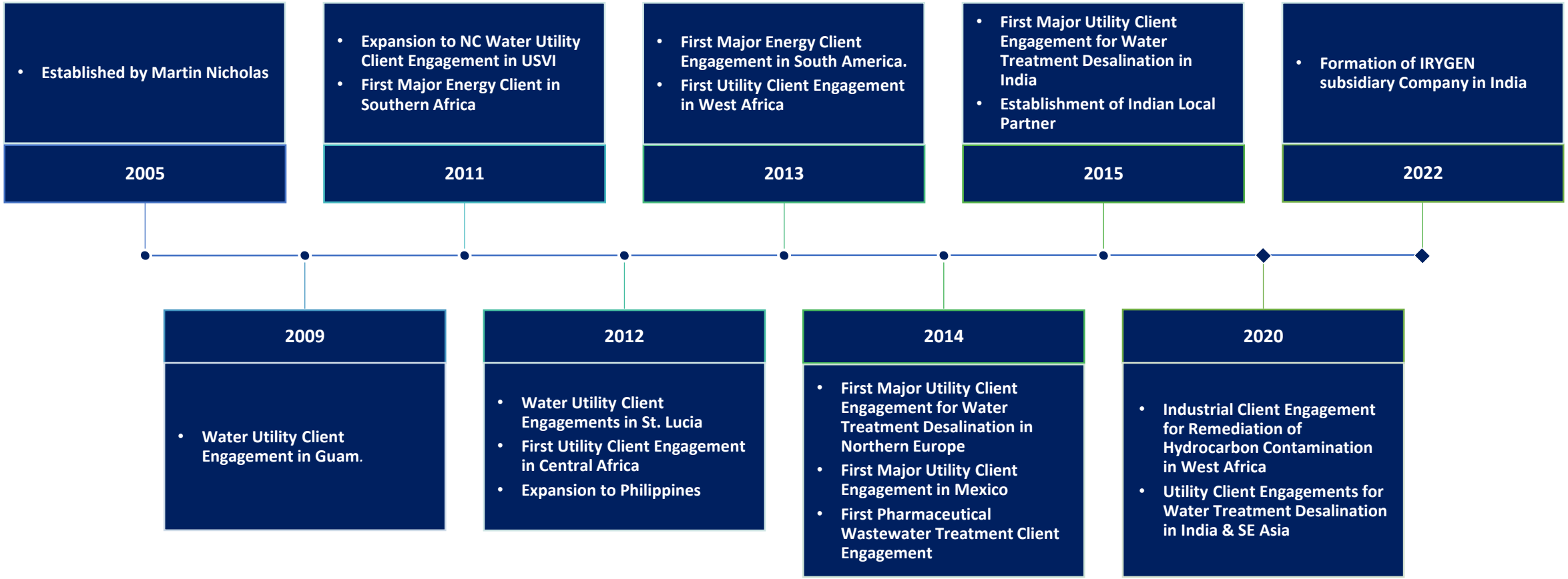
Core Values

Our Core Values - Excellence, Initiative, Shared Commitment, integrity, and teamwork serve as the Guiding Principles to our strategies and actions regardless of changes in market environments.

Our Company Goal

Our goal is to offer exceptional client service to improve the environment and infrastructure. To achieve our goal, we will remain as full-service firm that is strong and flexible by delivering the right treatment solutions and services setting the standard for exceptional value and service.

Evolution


2005
Established by Martin Nicholas
2009
Water Utility Client Engagement in Guam.
2011
Expansion to NC Water Utility Client Engagement in USVI
First Major Energy Client in Southern Africa
2012
Water Utility Client Engagements in St. Lucia
First Utility Client Engagement in Central Africa
Expansion to Philippines
2013
First Major Energy Client Engagement in South America.
First Utility Client Engagement in West Africa
2014
First Major Utility Client Engagement for Water Treatment Desalination in Northern Europe
First Major Utility Client Engagement in Mexico
First Pharmaceutical Wastewater Treatment Client Engagement
2015
First Major Utility Client Engagement for Water Treatment Desalination in India
Establishment of Indian Local Partner
2020
Industrial Client Engagement for Remediation of Hydrocarbon Contamination in West Africa
Utility Client Engagements for Water Treatment Desalination in India & SE Asia
2022
Formation of IRYGEN subsidiary Company in India

Technologies and Solutions Offered

Reverse Osmosis Desalination

Ultrafiltration Technologies

Advanced Oxidation Process

Moving Bed Biofilm Reactor (MBBR)

Self Cleaning Centrifugal Filtration

Electrocoagulation

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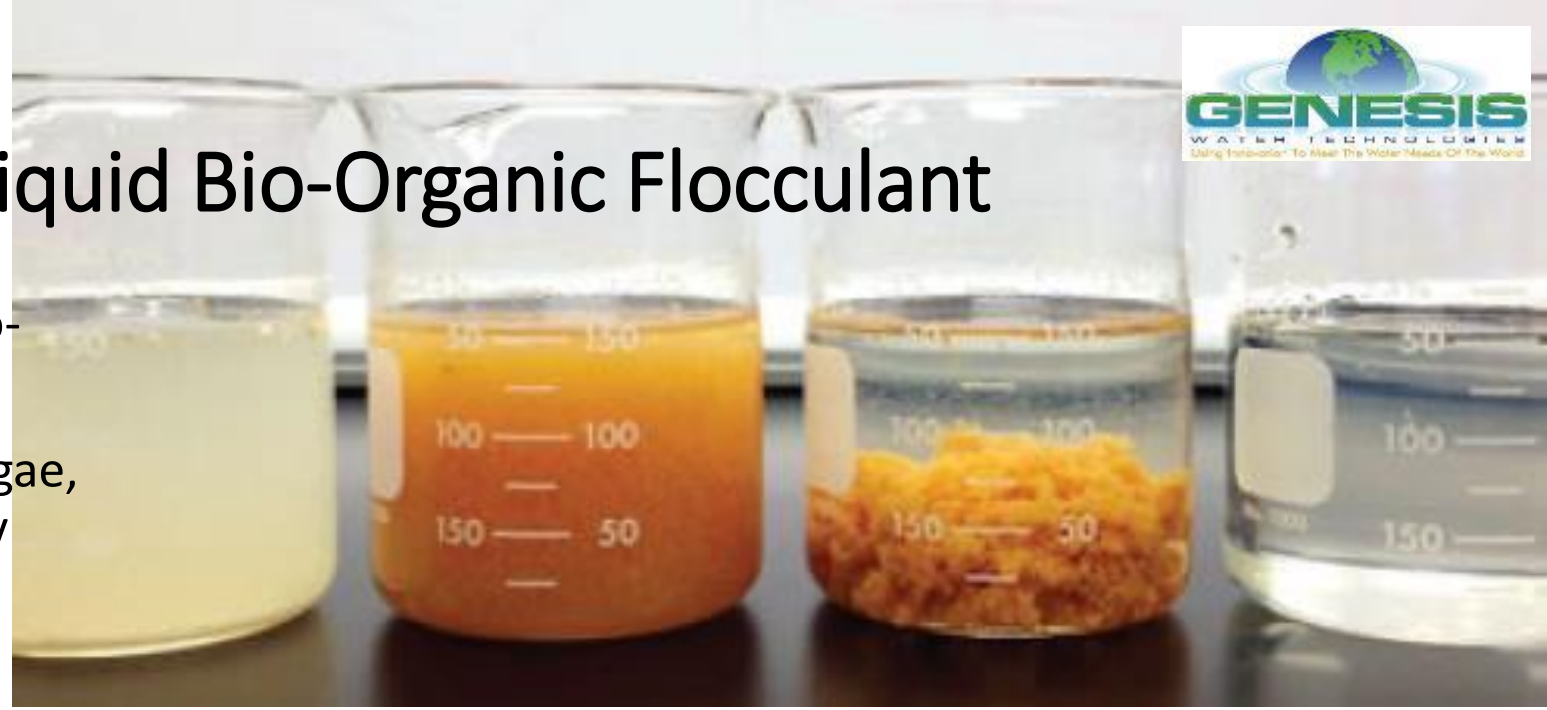
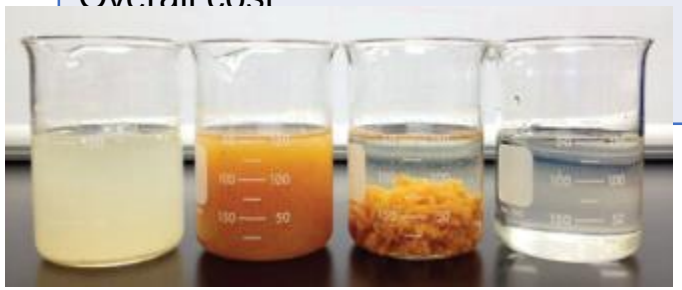
Zeoturb™ – A Liquid Bio-Organic Flocculant



- ZeoTurb™, a unique and advanced bio-organic liquid flocculant for clarifiers
- Used for reduction of TSS, turbidity, algae, color, dyes, phosphate and trace heavy metals
- Excellent substitute for synthetic polymers like polyamide, ferric chloride, poly-aluminum chloride that does not add synthetic chemicals in the water system
- More cost effective than traditional chemicals
- Produces low quantity and bio-friendly sludge

Zeoturb Liquid Flocculant vs. Conventional Metal Salts

Parameters	Zeoturb	Conventional metal salts Synthetic polymers
Sludge volume/dewatering	Lower sludge volume, easier dewatering	High sludge volume, with more complex dewatering requirement
Sludge disposal cost	Low Disposal Cost, Potential soil enrichment	Higher disposal cost, hazardous materials
Contaminants handled	• Total Suspended Solids • Turbidity • Algae • Color • Trace metals of ferric iron/manganese • Reduces DPB's & organic matter	• Total Suspended Solids • Color • Certain Organic Matter • Turbidity • Can Reduce DPB's in certain cases
Sustainability Goals	Yes	No
Overall cost	Reduce overall cost (dosage/sludge disposal)	Higher cost of dosage, pH adjustment and typical hazardous sludge disposal



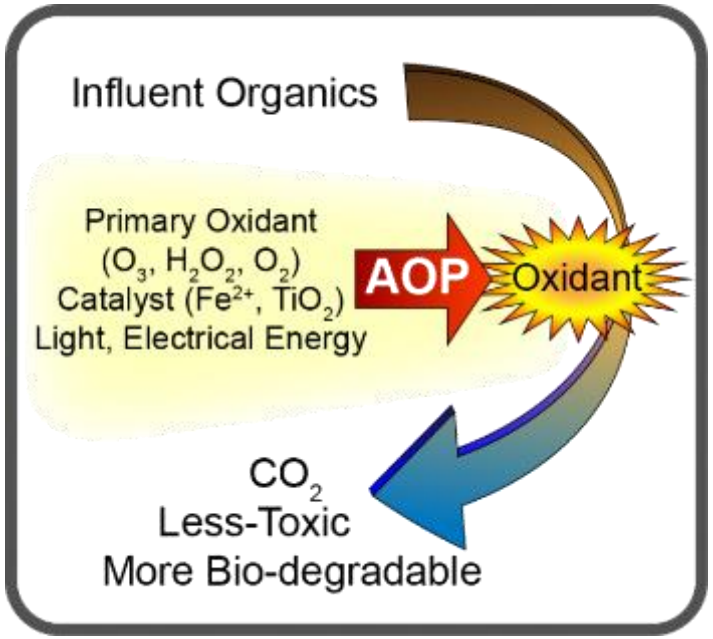
Genclean – Advanced Oxidation Process

What is Advanced Oxidation Process (AOP)

- A treatment process for hard-to-treat contaminants in water and wastewater using hydroxyl radical (OH) and other specific compounds.
- It commonly uses oxygen (O_2) or ozone (O_3) and a catalyst.

What is Genclean AOP

- A non-toxic, advanced oxidation (AOP) formula of minerals chelated with oxygen and stabilized in an aqueous water solution without the use of oxygen or ozone and catalyst.
- It has 2x the oxidation capability of chlorine (bleach) and almost 1.5x the oxidation capability of ozone, hydrogen peroxide, and similar non chlorine solutions.
- It is safer, more cost effective than traditional AOP products



The GWT Mbio™ MBBR Biological Reactors

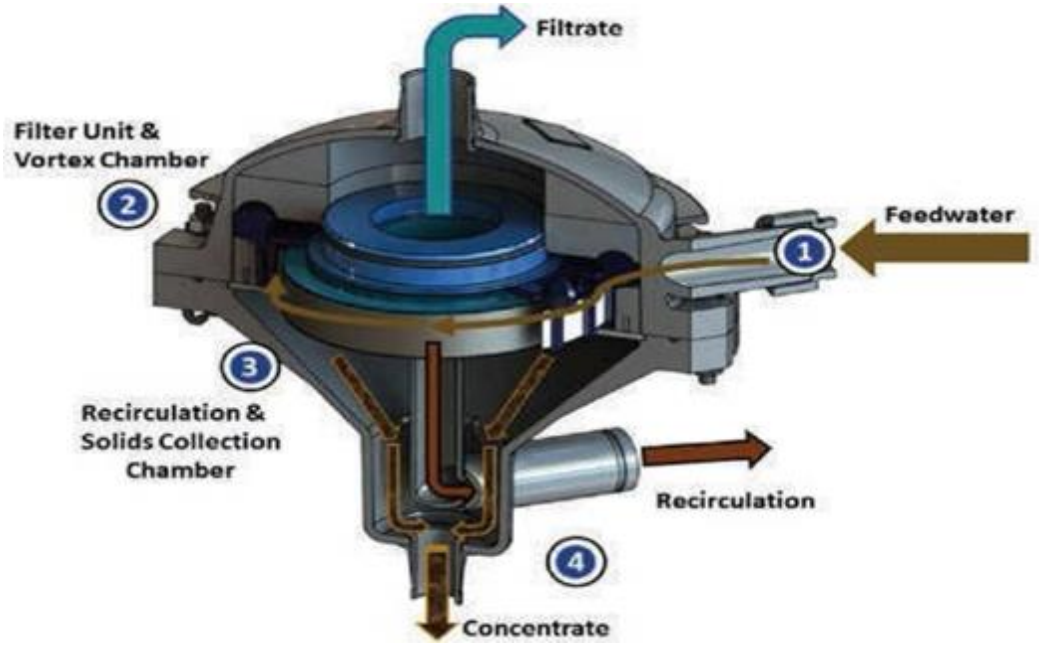
An advanced Fixed Film Biological treatment process using specialized biofilm carriers in a specifically configured reactor tank.

Unique buoyant biofilm carrier, designed for reduction of BOD, COD, TSS, and certain other pollutant contaminants absorbed and oxidized through microbiological organisms grown on these biofilm carriers

Integration of unique aeration with microbial bioTube feeders make for a highly effective and optimized biological treatment process.

Self Cleaning Centrifugal Filtration Systems

- Self Cleaning Centrifugal filtration systems use tequatic technology for efficient separation of high Total Suspended Solids (TSS) in liquids.
- Designed to handle high TSS levels of 10,000 mg/l due to fibers, fats/oils, and greases with filtration performance removal down to 15-20 micron.
- Modular systems can be manifolded for higher flow rates.
- Designed specifically for high TSS industrial and municipal effluents with no need for backwashing cycle
- Huge water cost savings
- Lower OPEX costs due to less use of downstream chemicals and consumables for secondary/tertiary treatment systems.



Ultrafiltration systems

GWT Ultrafiltration membrane treatment systems are designed and engineered to clean water from a variety of water sources including rivers, lakes, wells, greywater, seawater and tertiary wastewater. Ultrafiltration treated water can be used for drinking water, water reuse and for seawater reverse osmosis pre-treatment based on feed water quality.

Standard Features

- Excellent filtration performance with ability to achieve high flux rates with minimized fouling
- High temperature tolerance and chemical resilience to provide effective membrane cleaning
- Very fine nominal pore diameter (0.02 µm) filtration performance
- Low fouling membrane modules reduces cleaning frequency
- Excellent removal efficiency of TSS, turbidity, trace oil/grease, and microbiological contamination
- Can be periodically back washed to extend operating life by removing the fouling layer on the UF membrane surface.
- Modular, compact systems are easy to install to minimize the associated civil construction costs.
- Available in two system configurations (outside-in or inside-out) that are chosen based upon the water analysis of the feed water to optimize system performance and reduce operating costs.
- Intelligent PLC Operation with HMI

Inlet Feed Water Specifications

Feed Water TSS: Max. 300 NTU Surface Water / 1000 NTU (Wastewater Reuse) Optimum Water Temperature: 65 F – 85 F (18-30 C)
pH range: 3-11 Hardness: > 1 Grain Per Gallon requires pre-treatment Chlorine Tolerance: 200ppm for cleaning cycles Max. Pressure: 75 psi (5 bar), 20 psi (1.38 bar) transmembrane pressure
Power: 220/460V/3ph/60hz or 220/400v/3ph/50hz

Optional Features:

Clean In Place System (CIP) Pretreatment Systems (Based on Specific Application)

Applications

Municipal Drinking Water for Surface Water & Well Water Treatment
Seawater Desalination Pre-treatment
Greywater Reuse
Tertiary Wastewater Reuse (Municipal/Industrial)

Process Optimization Engineering Services

Objectives:

- System Output Optimisation
- Reduce Costs
- Comply to Safety Standards

Customer Benefits:

- Increased plant output
- Minimize system failures
- Reduce operational cost
- Meet stricter regulations

- Will optimizing my treatment plant operations enhance treated water quality, enable greater treatment capacity or assist my organization in treating emerging contaminants?
- What would the cost look like for integrating these system optimization recommendations?
- How can I reduce my treatment plants overall energy and chemicals costs?
- How can risks associated with my system process be minimized and protection of health ensured?
- What is my current purification/treatment and solids disposal costs?
- How can I optimize my treatment process to be more sustainable?

Reference Projects

Capacity	Technology	Country	Client	Year	Scope	Value
1500 m3/d	Zeolite Filtration System with Ultraviolet Disinfection System	USVI	USVI/ DEP	2011	Design/ Supply	$300,000.00
1000 m3/d	Zeolite/Carbon/Water Softener Systems, Brackish Water Reverse Osmosis System	Namibia	NamPower	2011	Design/ Supply	$500,000.00
15000 m3/d	Anthracite & Sand Filtration Systems	Caribbean/ St Lucia	Govt. of St. Lucia Water Authority	2012	Design/ Supply	$2.4 million
22080 m3/d	Screen filter systems, antiscalant dosage, brackish water RO systems, 1200 m3/d split into 4 train format	S. Sudan (Africa	Govt. of S. Sudan	2012	Design/ Supply	$22.4 million
18000 m3/d x (4) system	Screen filter systems, antiscalant dosage, brackish water RO systems, 600 m3/d split into 4 train format	S. Sudan (Africa	Govt. of S. Sudan	2012	Design/ Build	$15.46 million
3,000 m3/d	Containerized Seawater RO Systems (3) x 1000 m3/d	Brasil	Govt. of Sao Paolo	2015	Design/ Supply	$1.5 million
200000 m3/d	Prefiltration Systems, Antiscalant, Seawater Desalination System	Norway		2014-2015		
5,000 m3/d	Industrial Waste Water Reuse for oil well produced water treatment	Colombia	Eco Petrol	2014	Design/ Supply	$7 million
12000 m3/d	Zeolite Prefiltration, Seawater Reverse Osmosis Desalination System	Accra,Ghana	Govt. of Ghana, Navy	2013	Design/ Supply	$12 million
30000 m3/d	Oil Well Produced	Colombia	Emerald	2013	Design	$18.7 million

Reference Projects

Capacity	Technology	Country	Client	Year	Scope	Value
100000 m3/d	Zeolite Prefiltration, Seawater Reverse Osmosis Desalination System	India	Govt. of Gujarat, India	2015	Design	$100 million project value
2,700 m3/d	Industrial Waste Water Reuse for Textile Client including Specialized Filtration, AOP, Electrocoagulation, Highly Brackish Reverse Osmosis	Bangladesh	Confident Engineering	2016	Design	$4.46 million
4,500 m3/d	Zeolite & Activated Carbon Backwash Filtration Systems	Mexico	State of Veracruz, Mexico	2014	Design/ Supply	$750,000.00
1,000 m3/d	Industrial Wastewater Treatment, Specialized EC, Centrifugal Filtration, Oxidation, Tertiary RO	USA	Vidalia Mill	2019 - Ongoing	Design/Supply	$1.2 million
360 m3/d	Industrial Wastewater Treatment, Specialized EC	Hong Kong	Atal Eng.	2019 - Ongoing	Design/Supply	$296,000.00
600 m3/d	Industrial Wastewater Treatment, Specialized EC	Pakistan	Watercare Svcs	2019 - Ongoing	Design/Supply	$394,000.00
500 m3/d	Industrial Wastewater Treatment, AOP	USA	Mallinkrodt Pharma	2019 - Ongoing	Design/Supply	$350,000.00
2200 m3/d	Industrial Wastewater Treatment, Specialized Filtration, MBBR, post clarification with Zeoturb flocculant	Bangladesh	Water Engineering ltd	2019- Ongoing	Design/Supply	$583,425.00
5,420 m3/d	Industrial Wastewater Treatment Optimization, Centrifugal Filtration, Specialized EC, Introduction of Zeoturb into post DAF	USA	Danone Foods	2019 - Ongoing	Design/Supply	$2,300,000.00

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Thank You

Contact: sales@irygen.com

Corporate Headquarters – FL, USA

Genesis Water Technologies Inc
555 Winderley Place
Suite 300
Maitland, FL 32751 USA

Regional Office:

IRYGEN Water Solutions Pvt Ltd
RVR Towers, Level 5, #6-3-1089/5
Raj Bhavan Road, Somajiguda
Hyderabad, Telangana India

Genesis Water Technologies Philippines
Block 4 Lot 2 Sto Nino St
San Dionisio Village, UPS 5
Paranaque City, Philippines