About Us

Akshaya InnoTech is an End-to-End solution provider focused on the discovery, development and commercialization of Novel Water and Wastewater treatment technologies, Foods, Biopharmaceuticals, Probiotics, Feed Supplements and Specialty Molecules. The company has a dedicated focus on catering to the needs of customers looking for Water, Solid waste, Bioenergy, Wastewater, Food, Feed and nutritional requirements for human healthcare and human healthcare. Backed by a Young and Energetic team consisting of Biotechnologists, Chemists, Marketing and Management Professionals, our products have been developed through extensive research over many years. The company has proven capability in R&D, Scale-up, and has state-of-the-art production facilities to manufacture a wide range of API's and bioactive molecules.

Akshaya is a technology-based enterprise, where tradition mixes well with courageous entrepreneurship. Akshaya, emphasis is in research, development, manufacture and marketing of innovative value-added products and services of highest quality.

Akshaya invests the sum of its knowledge, resources and experiences in developing ways to keep the world healthy and focuses on safe production technologies in its core areas. **Akshaya's** emphasis is on Research and Development and has state-of-the-art manufacturing facilities, modern built R&D units and well-equipped Quality Control Laboratory.

Akshaya has an immaculately laid portfolio based on its core strengths of knowledge and experience in diversified Sciences such as **Environment, Food Technology, Engineering, Aquaculture, Veterinary Biotechnology**, **Pharmacy, Biochemistry, Microbiology, Chemical engineering** and many more. Akshaya's Environment vertical deals with Liquid and solid waste treatment, pollution abatement and control, wastewater treatment and recovery, biofuel production from solid wastes, recovery and reuse of water, organic manures and providing clean solutions. This vertical also deals with Bioremediation, Reclamation of contaminated water bodies and sites, control of aquatic weeds using its proprietary biomolecules and enzymes. The livestock vertical deals with different livestock segments such as Poultry, Aquaculture and veterinary feed supplements and medicines (Antibacterial agents, Feed mixes, Sanitizers, Powders, Premixes etc.), whereas the chemistry vertical deals with new process development, process optimization and development of new biomolecules and API's. We also provide R&D in development and profiling of impurities for critical API manufacturing. The medical vertical deals with health care products such as sanitizers, disinfectants, home care products, medical equipment and health supplements.

Akshaya recognizes the reality of the fast-changing world of today, the challenges it faces and with a staunch belief that the only guarantee of success is to offer Value through Innovation coupled high quality products and services.

The Core value of ***Akshaya*** is it's committed approach to provide simple, yet effective solutions to multiple problems related to Water, Wastewater, Environment, Chemistry, Food

Technology and Aquaculture problems. Working towards a cleaner environment, Akshaya's dedicated team of experts constantly work on bringing the latest and advanced technologies at an affordable cost.

Sister firms:

Vegesna Biosolutions, **Akshaya Engineering Innovatives** are the sister concern firms of **Akshaya InnoTech** works on large scale projects in association with the company and has experience in completing projects both in govt and private sector.

Administration:

The administrative office of the company is located at **D.No. 47-11-24, Flat No. 504, Chilapalli Complex, Dwaraka Nagar, First Lane, Visakhapatnam, Andhra Pradesh, 530016.** At Akshaya**,** we know that each day our employees make an important commitment to our company – the commitment to work to the best of their ability in support of our mission to provide the highest quality products.

We believe that our greatest assets are the gifts, talents and abilities of our employees. We foster a sense of community throughout our organization that respects a diversity of perspectives, opinions, talents and backgrounds.

The Team:

Management:

Dr. V Renu Sarath Babu, Ph.D. in Biotechnology: Partner

Dr. Sarath Babu holds a Doctoral degree in Biotechnology and has 20 Years of Research and Development Experience. He has initiated a startup **Vegesna Biosolutions** which is now a sister concern of Akshaya InnoTech and has to his credit, the best technology award by IIT Mumbai, Best startup award by Times of India, Innovative water treatment technology award for his Bio oxidation technology by the state of Andhra Pradesh. Dr. Sarath is involved in the development of New technologies for drinking water, wastewater and sewage treatment, solid waste management, production of Biofuels from wastes, Bioremediation of contaminated water bodies and contaminated soils. He has developed enzymatic formulations for the control of aquatic weeds, enzymatic cleanup of pollutants and sludge in water bodies, cleanup of underground water line blocks. His work has been recognized by the Government of India and has sanctioned an Indo-European Union collaborative project for Rs. 36 Crores for the development of a Smart, Autonomous, Enzymatic System for the reclamation of water bodies for the cleanup of water bodies including drinking water and wastewater. He has 6

publications in international Journals, 7 Indian and International Patents and book chapters. He is also an honorary R&D professor for many Institutes in India.

Mr. K. RAJKUMAR; M.Tech in Structural: Chief Architect

With an enriched experience of well over 26 yrs executed various projects, like Residential, Commercial, Industrial structures etc. Also the panel of Consultants in the capacity of Senior Structural Engineer for various Govt. Organizations. He is the Honorary Secretary of Association of Consulting Civil Engineers(India) and a member of IGBC. He is empanelled and licensed to practice as Structural Engineer with Greater Hyderabad Municipal Corporation.

Ms. Chetana Jain. P.G.(Dip)in Interior Design and MBA from XLRI Jamshedpur: Architect

She is a Life member of Indian Institute of Interior Designers. Has dealt with various projects rendering architectural and Interior Designing prowess. Is an empanelled architect with various Govt. Organizations with an experience of over 16 years. She has been the creative force of the organization.

Er. Y. Srikanth, B.E., CSE.: Managing Partner

Er. Srikanth is an engineer with 30 years of experience in engineering and business. He has an Agricultural implements manufacturing unit with a turnover of more than 30 Crores per annum through Ranga Automobiles which has its manufacturing facilities in Vizianagaram and Srikakulam. He has singly grown the enterprise from a dealership of Mahindra Tractors to an Implements manufacturing facility within a span of 5 years. He has to his credit many awards and accolades as the best business unit.

He is the managing trustee of **Gitasrikanth Foundation**, serving many poor and underprivileged girl children providing them education support, skill training and protecting girls and women against atrocities. The foundation has won several awards and accolades by the Governments of Andhra Pradesh and Telangana.

Dr. Y. Gita Srikanth, Ph.D. in Social Sciences: Partner

Dr. Gita Srikanth holds a Ph.D. degree in Social Sciences and has worked on the topic of Protection of Girl and Women from Social and economic atrocities. She is the founder trustee of GitaSrikant Foundation. She is a member of the Confederation of Women Entrepreneurs, India and a member of the Association of Lady Entrepreneurs of AP. She has been awarded

at several occasions for her social work through Nirbhaya Foundation, in which she is the lead person. She is a Director of Ranga Automobiles Pvt. Ltd. Srikakulam.

Er. Satish Kumar, B.Tech. Chemical Engineering, M.Tech Nanotechnology: Partner

Satish Kumar has completed his Engineering in Chemical Engineering and Masters in Nanotechnology. He is involved in the areas of Technology Development, Business Development and Management of the company. He has over 10 years of experience in business in the areas of Health care, IT and Environment. (Please elaborate on Satish garu experience).

Er. Ravi Teja Baggam, B.Tech in Mechanical Engineering, MBA in Project Management: Partner

Ravi Tea Baggam hold an experience of above 13 years in the field of Piping Materials for LNG Plants, Refineries, Offshore, FEED Projects along Water projects and worked in international locations like Seoul, South Korea and Tokyo, Japan over 8 years. His expertise over piping related activities plays a key role in the implementation our projects along Dr. V Renu Sarath Babu.

Er. N. Swami, B.Tech in Mechanical Engineering: Partner

N Swamy, Mechanical Engineer with 25 years' experience in MNC's and expert in

equipment design for Lakes, water treatment & Biowaste units.

Dr Mallikarjuna Rao Duvvada, MSc MTech PhD's Post: R&D Team

A researcher with more than 10 years of experience teaching and Research at the University level. Distinguished record of publication in academic journals all over the world. Strong philosophy of teaching, and knowledge of many different methods in Environmental Science Concepts.

Er. B.Keerthi Priya, Ph.D, M Tech: R&D Team

B.Keerthi Priya hold a bachelor's degree from Andhra University and Master's degree from GITAM UNIVERSITY on VLSI Design and presently associated as Assistant Professor in the Department of ECE, Gayatri Vidya Parishad College of Engineering (Autonomous) and Ph.D. in Biomedical image processing. She holds an Experience of 8 Years in teaching & research development and skyscraping knowledge on sensors applications. Her key Memberships in Professional Bodies are Member IETE, Member ISSS, Member ISOI, and Member IEEE. She is holding position of EC member for IETE Visakhapatnam chapter. She

published more than 20 research articles in various reputed journals. Her other research interests are VLSI System Design, Signal Processing, and Nano Technology.

Technical team:

The technical team of Akshaya has personnel from Mechanical, Electrical, Pipeline Engineering, Food Technology, Biotechnology, Civil and Electrical Engineering. The team has a consolidated experience of 50+ years in the fields of Water Treatment, Construction, R&D, Electrical and Management.

Support Team:

The support team of Akshaya consists of a team of 15 technicians trained to handle the projects from all stages of installation, commissioning and maintenance. With the strong team expertise, Akshaya provides very prompt service.

Manufacturing facility

Akshaya InnoTech is involved in the manufacture of enzymes and bioactive molecules and Biotechnology Formulations for Food, Environment, Water, Livestock, Poultry and Aquaculture. The company's manufacturing facility is located at **Plot No. 54 &55, Industrial Development Area, Kothur, Mahbubnagar District, Telangana** in India.

Akshaya intends to operate modern manufacturing plant facilities and follow current Good Manufacturing Practice Guidelines (cGMPs). We promise our clients and customers to provide fully finished product: packed, bottled, labeled, and boxed for shipment, resale and end use.

In bringing together R&D capabilities with marketing, business development, and sales teams as well as our customers, **Akshaya Innotech** creates a working environment that encourages openness and the rapid exchange of new ideas while at the same time ensures high-performance discipline in development. We have established business relationship with many clients in India and abroad.

Our main focus is on the supply high quality products with the most competitive prices and punctual delivery, every trade step, like negotiation, documents preparations, delivery and supply.

Solutions Offered:

a. Domestic and Industrial Raw Water Treatment Solutions.

b. Sewage and effluent treatment solutions.

c. Solid waste management solutions, inclusion of Biodigesters, Biomethanation and Biocomposting.

d. Solar Energy Solutions.

e. Project monitoring, Resource Management and Quantity Surveying.

f. Agriculture, Food, Environment Equipment and Plant design, installation and commissioning.

g. Aquaculture Systems including Recirculatory Aquaculture Systems, Biofloc, and Biomimicry.

h. Aquaponics and Hydroponics.

i. Closed Farming including Green Houses and Shade Houses.

j. Integrated Farming Systems.

k. Waste Dump solid waste management.

l. Industrial Effluent Treatment Plants,

m. Advanced Oxidation Technologies,

n. Bioremediation,

o. Reclamation and Restoration of Polluted Water Bodies,

p. In-Drain Sewage Treatment Technology,

q. Landfill Leachate treatment,

r. Vermicomposting and Windrow composting technologies.

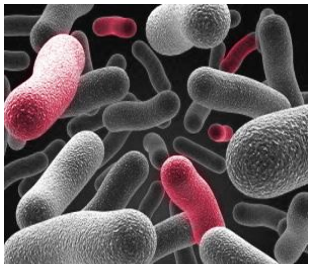
Product Profile:

Harnessing the power of Biology, we have developed products based on enzymes and Microbes which are 100% safe to humans and environment. These inputs do not leave any toxic residues and provide a fresh environment wherever they are applied. We are offering solutions to manage Sanitation and cleanup of Industrial Wastewater, Sewage and solid wastes generated at your campus to simple nutrients which can be used as fertilizer.

A. Oxytech Reclamation: Bioremediation of Polluted drinking water bodies.

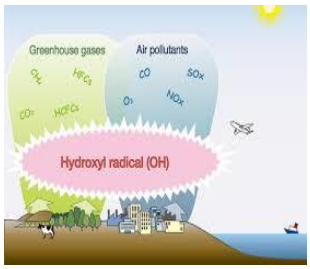
Combining the benefits of Biotechnology with Green chemistry we have developed Highly Advanced Oxidation technologies, which are safe, only produce oxygen, release no toxic gases and improve the ambient air quality while treating the polluted waters.

These reagents are economical and complement the biological processes. While chemical treatment systems like chlorine and bleaching release toxic fumes, produce carcinogenic chloramines, Trihaloamines and dioxanes, Products manufactured by Akshaya do not have any of these ill effects. They are completely safe to humans and have zero exposure risk.



Advantages of Oxytech Reclamation:

a. Powerful Hydroxyl radical Power degrades organic matter in minutes.
b. Reduces foul odors in closed tanks, pools, septic tanks and drainages.
c. Improves oxygen levels in water as well as in ambient air.
d. Improves freshness of rooms and living spaces.
e. Repels insects and rodents.
f. No harmful chemicals used so no risk to environment.
g. Degradation products are only carbon dioxide, water and oxygen.
h. Does not pose any health risks to users.
i. Does not release toxic and corrosive fumes like chemical cleaners.
j. Free from chlorine and bleach.



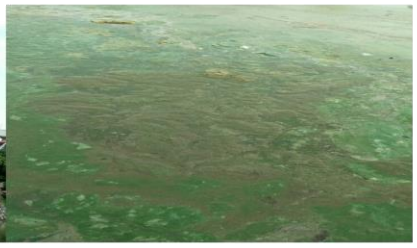
Projects:

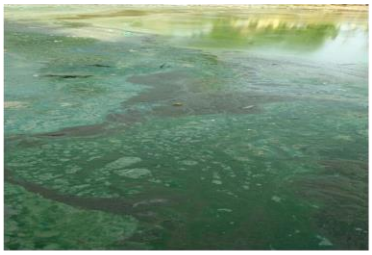
Cleanup of Polluted Drinking water Tanks:

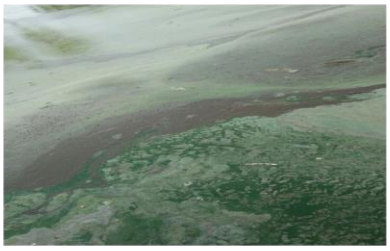
Application of Advanced Oxidation Technology in Polluted tanks


Tank before Treatment


Tank before Treatment


At 30 minutes of Treatment


At 1 Hr of Treatment


At 2 Hrs of Treatment


After 4 Hrs of Treatment

Treatment of 8 Acres Drinking water tank contaminated with Sewage and Eutrophicated in Velivennu Village, Andhra Pradesh, 2017.

The contaminated water tank was cleaned up using our enzymatic technology. The tank was contaminated by sewage and was fully eutrophicated with stink and water not safe for domestic consumption. Application of the enzymes resulted in complete eradication of the algae, reduction of stink and sludge and clean water within 6 hours of application. The application was completely safe for aquatic life like fish. Mosquito breeding and larvae were eradicated completely. The tank was clean even after 1 year of application without any contamination.

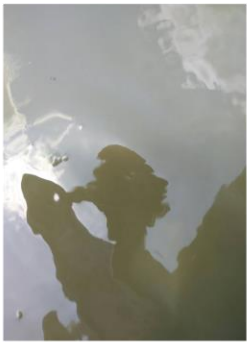
Clean up of flowing Water Bodies polluted with industrial and domestic effluents.

Application of Advanced Oxidation Technology in drains contaminates with Sewage and Industrial Effluents

Demonstration on Yenamadurru Drain at Palakoderu Bridge during May 2017

a. Untreated

b. during application



c. 15 Minutes after Treatment

Yenamadurru Drain is a Fresh water system which flows through a length of 116 Kilometers and joins the Bay of Bengal. It has two rivulets joining it Viz. Gostani River and Yerrakaluva river. The rivulet is now contaminated by effluents from 10 paper and pulp industries, 15 Aqua processing Industries, more than 15 Rice processing industries, 1 sugar processing industry, 3 Municipalities and several villages. The river turns pitch black during summer due to reduced flow from the fresh water sources and stinks. The river was cleaned up for a period of 6 days by continuous dosing of the enzyme by dosing system fixed to a bridge. The river showed a visible reduction in pollution loads and stink within 4 hours of application during peak flow. The state Pollution control board has assessed the water quality and expressed their satisfaction.

Remediation of Polluted Lakes:

Case Study : Kudikunta Lake

Extent : 8 Acres

Location : Masjid Banda, Kondapur
Surrounded by many lake view apartments.

Population impact : Around 10000.

Once a Drinking water source to 22000 People.

Now turned to a cesspool.

First Visit report:

- ❖ Unbearable stink
- ❖ Floating Garbage
- ❖ Plastics
- ❖ Muck with Sulfur bacterial biofilm.
- ❖ No life in lake.
- ❖ Pathogens
- ❖ Bottom Anaerobic digestion
- ❖ Low oxygen levels.
- ❖ Mosquitoes
- ❖ Rags
- ❖ Flowing Sewers

- ➢ Few Deaths due to Dengue and Typhoid in Cyber meadows society.
- ➢ Unbearable stench causing respiratory problems.
- ➢ Residents planning to leave the area to other areas.

First stage of Cleaning: January 2018

Initiation of enzyme application

Enzyme application over the lake.

Active Enzyme reaction (2nd Hr of dosing)

Floating Muck being digested by Enzymes

End of Day 1:

- **Stench reduced by 90%.**
- **Organic matter reduced in the lake.**
- **Turbidity reduced by 60%.**
- **Clarity of water increased.**
- **Residents happy with reduced stench.**
- **Mosquitoes reduced.**

Third dose of Cleaning: February 2018

Enzyme application

Enzyme digesting organic matter.

Enzyme dosing

Lake cleaned off the debris and sludge.

The lake was cleaned with our enzymatic technology within 1 days and a booster dose to maintain the health after 3 and six months to accommodate the incoming sewage into the lake. The lake is now a clean lake with the residential areas around the lake having clean air and quality ground water, with no mosquitoes, no stink and a lake park developed by an NGO.

B. Ecokleen: Biological Oxidation solution for Blocked Underground drains and Open drains.

Cleanup of Open Drains in Guntur City during Diarrhoeal Outbreak in 2018.

Before Application 2 Minutes of Application

10 minutes after application

The contamination of drinking water pipelines with Sewage caused 150 Deaths in Guntur District in March 2018. The Government of Andhra Pradesh has requested our company to clean up the drains using our Enzymatic Biooxidation technology. By dosing the enzymes, we cleaned up 550 Kilometers of Drain Length in Guntur city and there was a reduction in the mortality which affected around 50 % of Guntur City. The sludge piled up in the drains was completely digested and increased flows in the drain, controlled the blockages and overflowing of the drains. The mosquito larvae, smell and breeding were controlled instantly.

A drain length of 20 Kms was cleaned up in Yelamanchili Municipality, Visakhapatnam District.

Cleaning up Blocked Underground Drains in 21st Division of Vijayawada with Biooxidation

Before Application

10 Minutes after Application

1 Hour after Treatment

No Blocks in UGD lines treated with Biooxidation for more than 1 month in 21st division.

The results of our work in Guntur, have opened up an opportunity in Vijayawada where the problem of overflowing Manholes due to blockages in the underground sewer systems. a pilot was done in an area of 25 Square kilometers. The enzymes were dosed at manholes without any human intervention and cleaned up. Each manhole has an average accumulation of debris and organic matter up to a height of 2-3 mts and blocks in the sewers cleared up to 300 meters downstream within 20-30 minutes allowing free flow of sewage.

C. Iron Removal Water Filter Plant

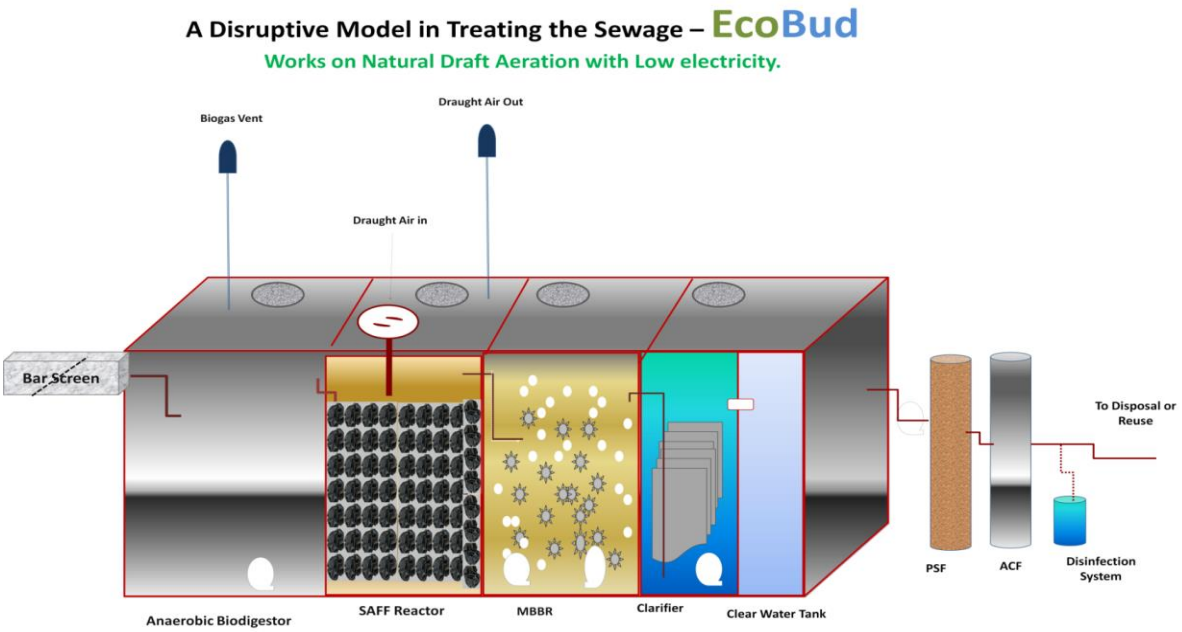
Purpose: An iron removal water filter plant is designed to remove iron and other impurities from water, making it safe for consumption and other uses. The purpose of such a plant is to improve water quality by reducing iron levels, which can cause various issues such as staining, unpleasant taste, and potential health risks.

Uses and Application Areas:

1) Residential Use: Iron removal water filter plants are commonly used in homes to improve the quality of drinking water and prevent staining of fixtures, dishes, and laundry caused by iron deposits.
2) Commercial Use: These plants are also used in commercial establishments such as restaurants, hotels, and offices to ensure the quality of water used for drinking, cooking, and other purposes.
3) Industrial Use: Industries use iron removal water filter plants to treat water for various processes, including manufacturing, cooling, and boiler feedwater.
4) Agricultural Use: Iron removal plants are used in agriculture to treat water for irrigation purposes, preventing iron buildup in soil and improving crop yield.
5) Municipal Use: Municipalities use iron removal plants to treat water for public supply, ensuring safe and clean drinking water for residents.
6) Groundwater Remediation: Iron removal plants are used in groundwater remediation projects to treat water contaminated with iron and other pollutants.

D. EcoBud (Sewage Treatment Systems)

EcoBud: A Revolutionary Low powered zero maintenance system for treatment of sewage and commercial effluents.



Salient Features of EcoBud STP:

- ✓ STP shall be compact, have minimum Moving Parts, Consume Very Low Power and be odor free.
- ✓ The first stage of treatment provides for recovery of biogas while removing over 30-40% of the BOD/COD. The equalization tank shall be utilized for the same obviating the need for a separate tank.
- ✓ Second Stage consists of a Submerged Aerobic Fixed Film (SAFF) Bioreactor, which allows for a very high MLSS (High Microbial loading rate in a compact space).
- ✓ Also, a natural draft aeration system (Venturi aeration) provides the necessary aeration for the microbial consortia in the fixed film bioreactor.
- ✓ The honeycomb structure of the SAFF Bioreactor provides longer paths for the air bubbles to travel allowing for a very high oxygen transfer between the sewage and the microbial biofilm.
- ✓ This is the unique feature of the **Eco-Bud system** which enables a very high rate of biodegradation of organic pollutants in the sewage**.**
- ✓ Another 45-50% of the organic loads are removed in this stage reducing the power requirement by 30-40%.
- ✓ A turbine blower-based aeration system is provided in the next MBBR stage to remove the remaining organic loads.
- ✓ The blower is a low power consuming, high efficiency equipment, and the aeration grid is a non-clog type system.
- ✓ Collection cum equalization tank is used as anaerobic digester as well to reduce power requirement and recover biogas and constructed of RCC is placed below the ground level.
- ✓ All other tanks of STP in RCC can be built below the ground as required.
- ✓ A metered dosing system is provided to have better control on dosing rate and to avoid the wastage of chemical.

Ecobud- Skid Mounted System

Advantages of EcoBud STP:

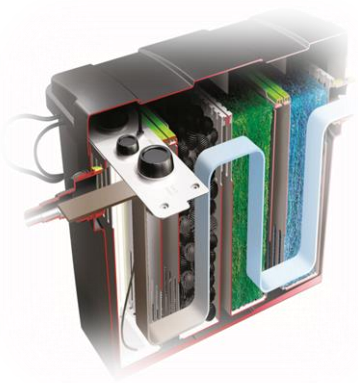
- Works on very low power (60-70% less electricity used)
- Zero maintenance
- Minimum chemical intervention
- Zero sludge generation and Zero odors
- 100% water recovery and reuse.
- Capable of handling shock loads.
- Customized Microbes with high Enzymatic activity.
- Scope for energy recovery through Biogas.
- Faster Return on Investment.
- All electro-mechanical equipment's are proposed with standby units. Pumps, blowers shall be operational in auto mode through level controllers, timers etc. for easier operation.
- The system can be run on an ON-OFF Mode.

E. Water Mate: Prefabricated Enzymatic system for sewage treatment.

A low energy sewage treatment system based on Biodigester technology and immobilized enzymes for individual Homes, and small establishments.

Features:

- Requires very low power.
- Space Required: 6 Ft L x 4 ft L x 5 ft D Below ground.
- Total Footprint is 5 x 5 sq. ft.
- Filtration equipment place above the STP.
- Water treated to quality of reuse in flush and gardening.
- Minimum moving parts.
- Single 200 W blower, 1 KW motor required.
- Operating hours 10-12 /day.
- Can be operated in a On-Off Mode
  Can be integrated to home automation.



F. Effluent Treatment Plant

An Effluent Treatment Plant (ETP) is designed to treat industrial wastewater to remove contaminants and pollutants before it is discharged into the environment or reused. Here is an overview of the purpose, uses, and application areas of Effluent Treatment Plants:

Purpose:

Pollution Control: The primary purpose of an ETP is to control pollution by treating industrial wastewater to remove harmful pollutants and contaminants.
Environmental Protection: ETPs help protect the environment by treating wastewater before it is discharged into water bodies, reducing the impact on ecosystems.
Compliance: ETPs help industries comply with environmental regulations and standards regarding wastewater discharge.
Resource Conservation: ETPs can also help in resource conservation by treating and reusing wastewater for non-potable purposes, reducing the demand for freshwater.

Uses and Application Areas:

Industrial Applications: ETPs are used in various industries such as chemical, pharmaceutical, textile, food processing, and manufacturing to treat wastewater generated during production processes.
Municipal Wastewater Treatment: ETPs are used in municipal wastewater treatment plants to treat sewage and other wastewater before it is discharged into water bodies or reused.
Recycling and Reuse: ETPs can treat wastewater for recycling and reuse in industrial processes, irrigation, and other non-potable purposes.
Water Conservation: ETPs can help in water conservation efforts by treating and reusing wastewater, reducing the demand for freshwater sources.
Environmental Remediation: ETPs can be used in environmental remediation projects to treat contaminated groundwater and industrial effluents.

Overall, Effluent Treatment Plants play a crucial role in controlling pollution, protecting the environment, and conserving resources by treating industrial wastewater before discharge or reuse.

G. Swimming Pool Filtration System

Purpose: Swimming pool filtration systems are essential for maintaining clean and safe pool water. They serve several purposes, including removing debris, dirt, and contaminants from the water, ensuring the water is properly circulated and filtered, and maintaining the chemical balance of the pool water. Here are some details about the purpose, uses, and application areas of swimming pool filtration systems:

Debris Removal: The filtration system removes leaves, insects, dirt, and other debris from the pool water, keeping it clean and visually appealing.

Contaminant Removal: It removes contaminants such as body oils, sweat, and bacteria from the water, ensuring it is safe for swimmers.

Water Circulation: The filtration system circulates the water, distributing chemicals evenly and preventing stagnant areas where algae and bacteria can grow.

Chemical Balance: It helps maintain the chemical balance of the pool water by removing impurities that can interfere with the effectiveness of pool chemicals.

Overall Water Quality: The filtration system improves the overall quality of the pool water, making it more enjoyable and healthier for swimmers.

Uses and Application Areas:

Residential Pools: Filtration systems are used in residential pools to maintain clean and safe water for homeowners and their families.

Commercial Pools: They are used in commercial pools such as those in hotels, resorts, and fitness centers to ensure water quality and safety for guests.

Public Pools: Filtration systems are used in public pools, including municipal pools and water parks, to provide a safe and enjoyable swimming experience for the public.

Aquatic Facilities: They are used in aquatic facilities such as spas, hot tubs, and therapy pools to maintain water quality and hygiene.
Water Features: Filtration systems are used in water features such as fountains and decorative pools to keep the water clean and free of debris.

H. **Biogest:** Eco toilet based Biodigester for remote areas and portable toilets suitable for camping sites, workers sites, melas and pilgrimages.

The sewage treatment system is designed for use in remote locations with no access to electricity especially for camping sites for mine and construction workers.

I. **Biogest S: Akshaya Biodigester** for Biomethanation of food, vegetable, and agriculture wastes.

Food Waste (FW)

FW = Left Over foods, Vegetables, Peels, Oil and Fruits**.** FW is the waste that is collected in the municipal bins / containers
Sources of FW: Domestics, hotels, Food Outlets, commercial establishments, etc.

Problems associated with FW:

It is consistently INCONSISTENT. Design of the treatment facilities is difficult. Although it is not hazardous, it is associated with many problems such as large Quantity/Volume and stinks. It is a problem in Cities / Towns / Municipalities; but not a big issue in Villages / Rural areas. The problem is FW can be seen and smelled.



Biogas Production/kg of Waste = 0.45 Kg	
Food waste Considered per day	100 Kg each Plant
Commercial Cylinder Equivalent/day	1 Commercial cylinder Per Day (19 Kg Weight)
Cost of Each commercial cylinder	Rs. 2500/Cylinder
No of commercial cylinders replaced per month	30
Cost recovery per month	Rs. 75,000/-
Recovery Per Year	Rs. 9,00,000/-

a. FRP Biodigester for Homes Housing complexes.

b. Baloon Biodigester for Dairy farms, Hostels and



Commercial Biogas Unit for large scale production of Bio CNG from Poultry, Slaughter House, Fruit and Vegetable processing, Municipal solid wastes.

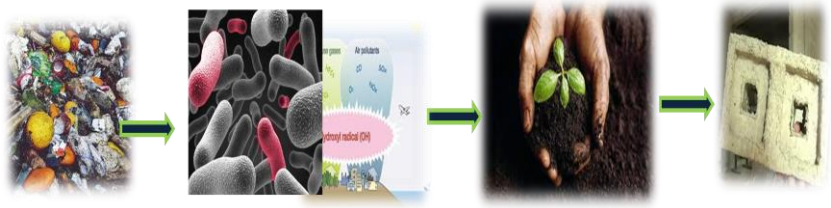
J. Akshaya SWM Series: Solid waste management solution for garbage and domestic wastes to organic manure and Briquettes/Blocks.

Domestic Solid Wastes:

Solid wastes generated in households generally are not segregated and directly disposed off in bins. They contain 30-40% organic matter comprising food wastes, vegetable and fruit peels, leftover foods etc. Generally packed in polythene bags and disposed off. When disposed improperly, foul odors and air pollution caused. Attracts pests and rodents which transmit diseases. Converting wastes to manure is an option but needs segregation manually. Lack of manpower leads to improper disposal and treatment. Require individual units for operation. Require high capital cost, operational costs and skilled manpower. Composting done in open piles. Non-biodegradable materials not completely utilized. Often polythene bags contain leftover organic matter which stinks. Lead to piles of woody materials, rags and trash which cannot be disposed off. Associated with foul odors and nuisance of rodents. Economic viability low. So, a simple and effective solution is preferred.

Working Principle of Akshaya SWM Series Biocomposter:

A. Feeding of un-segregated organic waste into composting machine.
B. Shredding of waste and adding Bio-culture as Suggested.
C. Processing of waste into compost machine.
D. Segregation of compost and undegraded wastes, Ready compost for use.
E. Non-biodegradable wastes compacted into blocks.



Salient Features:

a. No pre-segregation is required.
b. Inbuilt shredding system opens up the polythene and boxes.
c. In-built enzyme dosing system doses microbial inoculums and enzymes to hasten the process of composting.
d. Organic part of the solid waste converted to high quality compost within 24 hours.
e. Compost Segregation done to separate non-biodegradable matter.
f. Composted material stored for maturation.
g. Undegraded solids sent to a compactor machine to prepare Blocks.

Advantages of Akshaya SWM Series:

a. Low power and Minimal Manpower requirement
b. Single structure completely enclosed modular system with Complete automation.
c. No Physical Handling of equipment.
d. Valuable Compost Recovered.
e. Low Investment and Requires Low space.
f. No risk of pests, flies, disease spread and rodents.
g. Zero Odor and zero nuisance.
h. Aesthetically designed.
i. All parts made of high-quality Mild steel, and contact parts of SS-304.
j. Meets ASTM quality norms and IE-54 Safety norms.

APPLICATION OF AKSHAYA SWM Series Equipment:

a) Vegetable and Fruit markets.
b) Corporate canteens.
c) Hotels and resorts, Restaurants,
d) Parks and stadiums.
e) Hospital, school, Colleges and
f) Military canteens, Mess.
g) Railway stations.
h) Highway service centers.
i) Temples and other religious institutions.
j) Airports, Manufacturing facilities for foods.
k) Supermarkets and food distribution centers.
l) Municipal Councils and corporations.
m) Group Housing societies etc.

F. **DeWort:** Biocontrol solution for aquatic weeds.
De-Wort is a combination of oxidative enzymes and photosynthesis inhibitors of microbial origin. The synergistic blend of enzymes and inhibitors kills the weeds within a few days. No harm will be posed to any aquatic life like fishes and other aquatic animals.

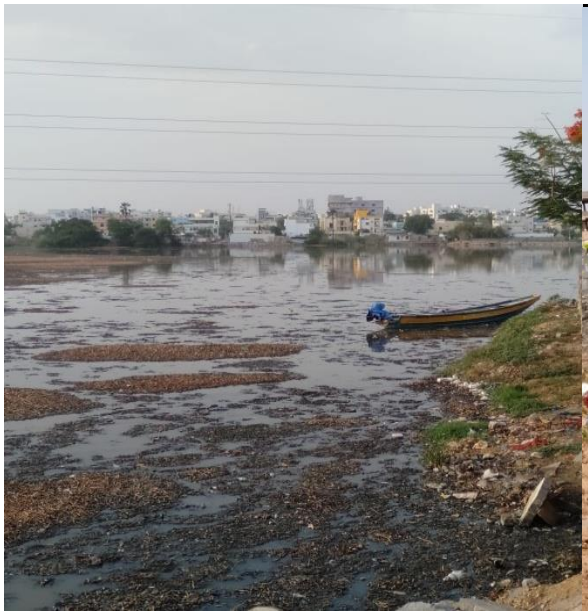
Cleanup of Peerjadi Guda Lake in Hyderabad filled with Water Hyacinth:

Lake before application of Bioenzymes

Lake after 1 day of application.

Lake at 1 week of application

Lake after 10 days of application



Lake after 15 days of application

Cleared lake

The lake is spread in an area of 36.5 Acres. The lake was covered with water hyacinth and weeds. The growth of weeds was due to the sewage emerging in the lake from the surrounding colonies. The application of enzymes was done using a boat and high-power spraying equipment. The enzymes were spread across the lake by complete drenching the weeds. Within first day the weed started to wilt and killing effect started on day one itself. By the end of first week, the whole application was completed. Buy 10^{th} day most of the weed was dead and another spray of organic matter digesting enzyme was applied to digest the dead weeds biomass. This application was to prevent the formation of sludge at the bottom and decaying of the water hyacinth plant material to avoid foul odors from the lake. The complete digestion of the weed was completed by the end of second week. Within a month the lake was clear of the weeds and clean. The effect lasts for a year and fresh weed growth occurs only if there is an incoming sewage from other lakes.

G. **Akshaya Dhara Series:** Drinking and Process Raw water Treatment Systems

Water Treatment Plants based on Softeners, Reverse Osmosis Systems, Dissolved Air floatation and Clariflocculation technologies.

Akshayadhara Domestic RO Systems 12-100 LPH

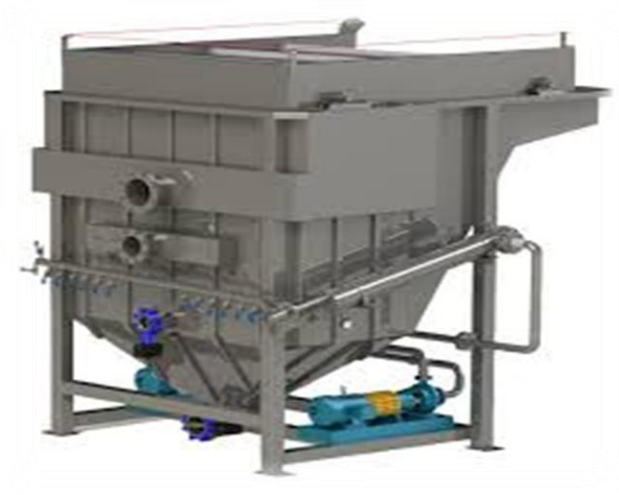
Alkaline Water Generator

Akshayadhara Reverse osmosis and Desalination Systems from 1 KL to 100 KL per hour.

Akshayadhara Ultra and Nanofiltration System

Water Softening systems

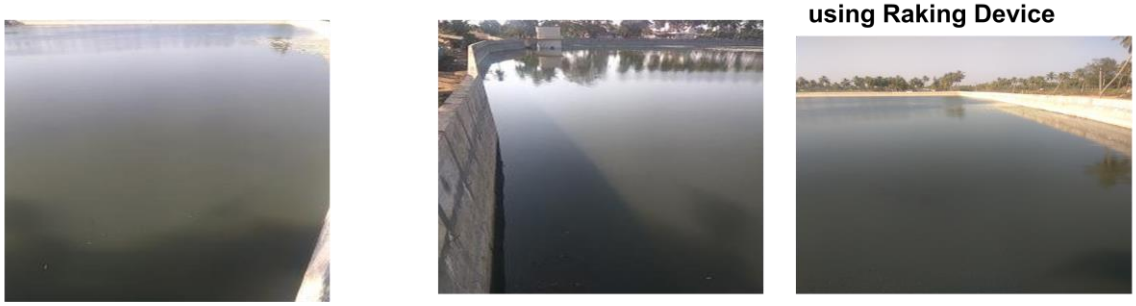
Demineralization system for Ion free water



Dissolved air Floatation system for clariflocculation of drinking water.

Cleanup of (10 MLD RWSS Scheme) Summer Storage Tank in Bondada, West Godavari District A.P

Before Application **During Application** **Weeds Skimmed off using Raking Device**



6 Hours after Application **2 Months after Application**

H. **Desilting and clean up Services for Lakes and reservoirs.**

The organic matter present in Lakes and reservoirs will be digested by our Oxytech enzymatic system. Followed by enzymatic oxidation which removes all the organic debris and breaks up the cementitious nature of settled grits and sand at the bottom, the enzymatic oxidation converts the organic matter to water, oxygen and carbondioxide.

The silt is then mixed continuously by an impeller, sucked by a high-power vacuum system and pumped out of the well

I. Recirculatory Aquaculture Systems:

We offer turnkey solutions for Setting up RAS systems from 5 Ton per cycle to 100 Ton per cycle and above.

RAS System is a technology in which Species such as fish and shrimp are grown in indoor systems where very high yields of fish and shrimp can be grown in a smaller space with very less water.

J. Hydroponics and Aquaponics.

We also help clients establish and grow crops in closed systems within a small space using Aquaponics and Hydroponics technologies. We provide complete equipment supply, installation and commission services for the establishment of Hydroponic farms.

Awards and accolades:

The best Technology startup by XLR8AP of the Andhra Pradesh Innovation Society, 2018.

Recognized and acknowledged by the Andhra Pradesh Government in the State assembly as a startup for its works during diarrhoeal outbreak in Guntur 2018 and cleanup of underground sewer system in Vijayawada.

By the Rural Water Supply and Sanitation Department of the Andhra Pradesh Government for cleanup of drinking water reservoirs using our enzymatic Biooxidation Technology.

కలుషిత చెరువులకు దివ్యౌషధం!

- జీవ ప్రక్రియ ద్వారా నీటి ప్రక్షాళన
- కొద్ది గంటల్లోనే దుర్వాసన దూరం
- అతి తక్కువ ఖర్చుతో చెరువుల శుద్ధి
- వేగేశ్న సంస్థ చేపట్టిన వినూత్న పద్ధతి
- ఇదే పద్ధతిలో హుస్సేన్‌సాగర్ ప్రక్షాళన..
- సైతం సాధ్యమే అంటున్న నిపుణులు

Thu, 17 May 2018
epaper.vijayakranthinews.com/c/28731188

హాంఫట్.. చెరువులు శుభ్రం!

నిజం.. చూడటానికి అదో ఇంద్రజాలంలాగే ఉంటుంది. ఎంతగా మురికిపట్టిన నీటి వనరులైనా సరే.. కొన్ని గంటల్లో శుభ్రంగా మార్చేస్తోంది వేగేశ్న బయోసొల్యూషన్స్ సంస్థ. ఇదివరకు ఎక్కడాలేనివిధంగా జీవసాంకేతిక సాయంతో ఈ మాయ చేస్తోంది. గుంటూరులో ఆమధ్య అతిసారం ప్రబలినప్పుడూ, హైదరాబాద్‌లో జలగం వెంగళరావు పార్కు చెరువు ప్రక్షాళనలోనూ ఈ సంస్థే తోడ్పడింది.

హైదరాబాద్ వంటి నగరాల్లో 'లేక్ వ్యూ' అనే మాటకున్న క్రేజ్ అంతాఇంతా కాదు. ముఖ్యంగా స్థిరాస్తి రంగంలో 'లేక్ వ్యూ' ఉన్న అపార్ట్‌మెంటుకో, ఇంటికో చెప్పే మామూలు ధరకంటే ఎక్కువ ధర చెప్పి అమ్మేస్తుంటారు. హైదరాబాద్ మణికొండ ప్రాంతంలో ఖాజాకుంట చెరువు చుట్టూ అలాగే గత మూడేళ్లలో ఎన్నో అపార్ట్‌మెంట్లు లేచాయి. ఈ అపార్ట్‌మెంట్ల మురుగునీటి నంతా నేరుగా చెరువులోకి వదిలేయడం మొదలుపెట్టారు. ఇంకేముంది.. ఎనిమిది నెలల్లో ఈ చెరువు చూస్తుండగానే పాడైపోయింది. ఓ వైపు దుర్వాసన, మరోవైపు దోమలు వంటి రోగాలు. ఇక్కడ కొన్నాళ్లలో కొందరు వేరే చోట అద్దెకి తీసుకుని వెళ్లడం మొదలుపెట్టారు. అలాంటి పరిస్థితుల్లోనే చెరువు ప్రక్షాళనకి నడుంబిగించింది వేగేశ్న సంస్థ. తను పని మొదలుపెట్టిన నాలుగు గంటల్లోనే దుర్వాసనని 90 శాతం లేకుండా చేసింది. మరో నాలుగురోజుల్లో.. చుట్టూ ఉన్న వాళ్లు చూస్తుండగానే ఆ చెరువులో పాచి మాయమై శుభ్రంగా మారిపోయింది. ఈ చెరువుని చూశాకే తెలంగాణ ప్రభుత్వం హైదరాబాద్ నగరంలో ఉన్న జలగం వెంగళరావు పార్కులో ఉన్న కొలను ప్రక్షాళన పనులూ ఈ సంస్థకే అప్పగించింది. హుస్సేన్‌సాగర్‌ని కలుషితం చేసే కాలవల్లో ఒకటైన బల్కాపూర్ నాలా శుద్ధి పనులూ చేస్తున్నారు.

మరో రెండు..

గుంటూరు నగరంలో ఇటీవల డ్రైనేజీ పైపుల్లో లీకులు ఏర్పడటంతో అక్కడ అతిసారం ప్రబలింది. పదిమందిదాకా చనిపోయారు. ఆ సమయంలోనే రంగంలోకి దిగింది సంస్థ. కేవలం నాలుగు గంటల్లోనే ఆ డ్రైనేజీ పైపుల్లో ఉన్న హానికారక బ్యాక్టీరియాని పోగొట్టి అతిసారం కేసులు కొత్తవి రాకుండా అడ్డుకోగలిగింది. ఈ సంస్థ పని తీరు గురించి ఆంధ్రప్రదేశ్ శాసనసభలో ప్రత్యేకంగా ప్రస్తావించారు పురపాలక శాఖామంత్రి పి.నారాయణ. విజయవాడ సూర్యారావుపేట, బీసెంటు నగర్ ప్రాంతాల్లోనూ ప్రయోగాత్మకంగా ఇలాంటి శుద్ధీకరణ చేపట్టారు వీళ్లు. ఇప్పటిదాకా ఆంధ్రప్రదేశ్, తెలంగాణల్లోని 40 చెరువుల్ని బాగుచేశారు.

నాలుగ్గంటల్లో ఎలా?

రసాయనాలతో పనిలేకుండా జీవసాంకేతిక సాయంతో నీటి వనరులను శుభ్రం చేసే పద్ధతులు గత దశాబ్దం నుంచీ ఉపయోగంలో ఉంటున్నాయి. మానవాళికి మంచిచేసే బ్యాక్టీరియా నుంచి సేకరించిన ఎంజైములని వాడతారు ఈ విధానంలో. అవి నీటిలోని కాలుష్యకారకాలను ఆహారంగా తీసుకుని నీటిలో ప్రాణవాయువుని విడుదలచేసి వాటిని స్వచ్ఛంగా మారుస్తాయి. కాకపోతే ఇప్పటిదాకా దుర్వాసనకీ, రసాయనాల కాలుష్యానికీ, పాచికీ, విషకారకాలకీ.. ఇలా ప్రతి సమస్యకీ వేర్వేరు ఎంజైములు వాడుతూ వస్తున్నారు. అందువల్ల మొత్తం శుభ్రం కావడానికి కొన్ని రోజులు పట్టేది. కానీ వేగేశ్న వాడే ఎంజైము ఒక్కటే అన్ని పనులూ చేస్తుంది. అందువల్లే కేవలం నాలుగంటల్లోనే- ఇలా చూస్తుండగానే కాలుష్యం తగ్గిపోతోంది. ఈ పద్ధతిని ఆక్సిలేట్ రీక్లమేషన్ అని పిలుస్తున్నారు. వేగేశ్న రేజు శరత్‌బాబు దీని ఆవిష్కర్త. సంస్థ వ్యవస్థాపకుడూ ఆయనే.

అతి తక్కువకే...

రేజు శరత్‌బాబుది భీమవరం. బెంగళూరులోని సెంట్రల్ ఫుడ్ టెక్నాలజీ ఇన్‌స్టిట్యూట్‌లో పీహెచ్‌డీ చేసిన ఆయన తన ఇంటిపేరుతోనే వేగేశ్న బయో సొల్యూషన్స్ సంస్థని స్థాపించారు. ఏడాది పరిశోధన తర్వాత మనకు మంచి చేసే నాలుగు బ్యాక్టీరియాలని కనిపెట్టారాయన. 'మామూలుగా హైదరాబాద్ వంటి నగరాల్లో 10 లక్షల లీటర్ల (ఎంఎల్‌డీ) నీటిని శుద్ధిచేయాలంటే పదివేల రూపాయల వరకూ ఖర్చవుతుంది. ఈ కొత్త పద్ధతితో మూడువేల రూపాయలకే దేన్నైనా ప్రక్షాళన చేయగలం. పైగా ఇప్పుడున్న పద్ధతిలో నీటి శుద్ధీకరణ ప్లాంటుకి కోసం మూడు కోట్ల రూపాయలైతే మాకు కేవలం ఐదులక్షల రూపాయలే అవుతుంది.' అని చెబుతున్నారు రేజు శరత్‌బాబు. 'అవకాశమిస్తే మూడురోజుల్లో హుస్సేన్‌సాగర్‌ని స్వచ్ఛంగా మార్చిచూపుతాం..' అన్నది ఆయన కొత్త నినాదం!

After an eight-month-long restoration drive, the Kudikunta Lake in Seri Lingampally has sprung back to life and how. For the first time in decades, the 7.78-acre lake is once again looking like how it used to, when it was a drinking water source for 22,000 people. And the residents of the locality are overjoyed. "The lake had been reduced to a life-less pool of blackish water following decades of neglect and dumping of waste, pollutants and sewage water. But now the stink is completely gone and the water has regained it's original blue colour. It's remarkable," says Ramesh Marupaka beaming. In fact, there is a visible change in the lake and surrounding areas as well, as Ramesh Chander, another resident, points out, "The odour has completely disappeared and now we can go for our morning walks near the lake again. The mosquitoes are also gone. but consistent efforts are needed to protect it from those who throw garbage and connect their drains to this lake."

Experts say that the restoration of Kudikunta lake is "one of the greatest success stories in the history of lake rejuvenation in our city". Relentless efforts by the GHMC and local communities have brought life back into the water body. "The purification process made use of an enzyme called, Oxidase which generates powerful oxidising radicals that treat the polluted water," said treatment expert Sharath Babu, who has been striving to purify ponds and water tanks in Telangana and Andhra Pradesh for last one decade.

Elaborating on the cleaning procedure, he explains, "The enzyme helps in purifying the water through a water-splitting process, ie, dividing all the organic materials into oxygen and carbon dioxide. Also harmful particles in the lake, like hydrogen sulphide are broken down into sulphides, and ammonia is converted to nitrogen gas, and methane is broken into carbon dioxide. (The stink of the lake is primarily due to the combination of hydrogen sulphide, ammonia and methane). The existing technologies only help in masking the stink, but, oxidisation removes stink by completely eliminating the root cause behind the stink, and thus improving the quality of the lake. The process treats a wide range of pollutants, which do not degrade normally. Oxidase also causes oxygen levels in the lake to rise, thereby kills mosquito larvae which thrive on carbon dioxide."

Experts believe that this experiment is one of the greatest success stories in the history of rejuvenating lakes in Hyderabad. "It took us four major clean ups and four minor ones in last eight months to see life coming back to this once-neglected lake. The stench and mosquitoes have reduced substantially. The turbidity has come down and removing organic floating waste and plastics have made a big impact to the lake. Many species of wetland birds and fish have also returned to the lake which show that Kudikunta is once again brimming with life," said Kalpana Ramesh, founder of city-based lake conservation group, Live The Lakes, adding, "We also created a Lake Protection Committee for the first time in city in last week to hand over the responsibility of maintaining the lake to the local communities so that they can protect the lake for the future."

Following the successful restoration of Kudikunta Lake, the GHMC is gearing up to adopt these sophisticated technologies for cleaning other city lakes as well. "We gave a nod to adopt these technologies for cleaning city lakes after seeing the positive results at the Kudikunta Lake, where they were used for the first time in city. We plan to use bio-oxidisation and bio-remediation technologies to purify other water bodies in Hyderabad," said GHMC West Zone Commissioner, Hari Chandana.

Now that sure is a reason to rejoice, isn't it.

Technical Collaborations:

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Our clients/ Projects:

1. Peerzadiguda Lake reclamation (26.56 Acres)
2. Kudikunta Lake rejuvenation and reclamation (8 Acres)
3. Velivennu Tanks Bioremediation (5.5 & 4.5 Acres)
4. Paravatpur Lake Bioremediation (8.5 Acres)
5. Drinking water summer storage tanks in Akiveedu, Veeravasaram, Bondada etc. in AP (4.5 Acres)
6. Khazaguda Pedda chervu reclamation (54 Acres)
7. Enzymatic cleanup of lakes in Goa, Madgaon (6 Acres)
8. Bioremediation of contaminated soils in west Godavari district fish and shrimp farms (1200 Acres)
9. Sukrali Lake reclamation (2Acres)
10. Meerakamuddiam Koneru (3 Acres)
11. Sadpura Lake, Faridabad (4 Acres)

12. Leachate treatment plant, Ramky Municipal Dump yard, Hyderabad (60KLD)
13. Durgam Cheruvu (84 Acres)
14. Pragati Nagar Lake (174 Acres)
15. Sentini Bioproducts Pvt. Ltd., Gandepalli. (2 MLD ETP)

16. Continental Coffee (India) Limited, Duggirala, A.P. (2 MLD ETP)

17. Ananda Enterprises India Pvt Limited: Palakoderu, Ramayanapuram. (1 MLD ETP)
18. Chromolabs Pvt. Ltd., Hyderabad (60 KLD ETP.)
19. Godavari Mega Aqua Food Park Pvt Ltd., SEZ (2 MLD ETP)
20. Genosynth Laboratories Pvt. Ltd. Hyderabad (25 KLD ETP)
21. DS Techno Feeds, Nellore, A.P (50 KLD ETP)
22. Rice Mill., Miryalaguda (60 KLD ETP.)
23. Win-win ETP, Vishakhapatnam, (50KLD ETP Restoration)
24. Medicover Hospital, Srikakulam. (50KLD WTP)
25. Habbia hotels, Vishakhapatnam. (16KLD WTP)
26. Giridhari Executive Park, Residential Flats, Hyderabad, (550KLD STP Restoration & AMC)

27. Everest Organics Limited, Sadasivapet, Telangana. (50 KLD STP)

28. Chaitanya Chloride Pvt. Ltd., Pashamailaram, Hyderabad. (20 KLD STP)
29. Vishnu Educational Institutions, Bhimavaram. (0.4 MLD STP)
30. Kanaka Durga Hospital, Vishakhapatnam. (25KLD STP)
31. Akshaya Hospital, Vishakhapatnam. (35KLD STP)
32. Greencity Residential Flats, Vishakhapatnam, (100KLD STP Restoration)
33. Medicover Hospital, Srikakulam. (50KLD STP)
34. Hotel Chanakya, Palakkad, Kerala. (0.2 MLD STP)
35. Vishnu Educational Campus, Bhimavaram (300 & 200 KLD STP Optimization.)
36. Behara Hospital, Vishakhapatnam (30 KLD STP)

37. Amrutha Sangam, Residential Flats, Hyderabad. (200KLD STP)
38. STP, Paderu Hospital (20 KLD STP)
39. STP, Swamy Hospital, Parvathipuram (20 KLD STP)
40. STP, Sanjeeveni Hospital, SKota (20 KLD STP)
41. Globe Infra Multiplex, Vizianagaram. (50 KLD STP & 100KLD STP)
42. Win-win STP, Vishakhapatnam, (70KLD STP Restoration)
43. Mahbubnagar IT Park (50KLD STP)
44. Shivani Hospital STP, Vishakhapatnam (20 KLD STP)
45. Queens NRI, Ramabradrapuram (20 KLD STP)

46. Amrutha Shmabhala, Residential Flats, Hyderabad. (175 KLD STP)
47. Sardar Empire, Residential Flats, Gajuwaka. (225KLD STP)
48. Prefab STP, DDR Hospital, Madugula (20 KLD STP)
49. Prefab STP, Srirama Hospital, Anakapalle (20 KLD STP)

50. Pace Institute of Technology and Sciences, Ongole (30 KLD STP.)
51. Vigan Nizampet, Hyderabad (50 KLD STP.)
52. Indrain sewage treatment of Tadepalli drain (5MLD, Indrain STP)
53. Firmus Pradhama, Penamaluru (30 KLD Iron Removal Plant)

54. Commercial RO Plant, Natayapalem, Vishakhapatnam. (1000LPH RO)

55. Double RO Plant, LG Hospitals, Vishakhapatnam. (1000LPH Double RO)

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