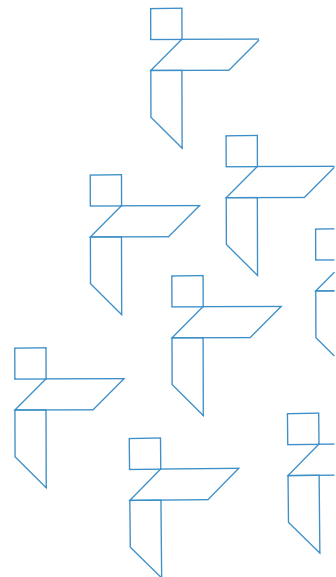




Nothing Can Be **Something.**



Waste Water Management





Nothing Can Be
Something.

Kochi Based Clean Tech Enterprise

requiner | **fervo**
fermenting value

Solid Waste Management



requiner | **liora**
promise of the future

Waste Water Management



requiner | **solis**
illuminate the challenge

Bio Medical Waste Management





Co branding partnership for the promotion of sustainable and patented
RBP waste water purification (ETP/ STP) systems



Introducing

Versatile

ETP/ STP Portable
Waste Water Management
System



Path Breaking Technology

Patented Radical Bubble Purification (RBP) Technology





Liora specializes in the treatment and management of wastewater, ensuring that water resources are purified, protected, and responsibly managed.

At Liora, we focus on addressing the current issues in the waste water treatment segment by introducing Plug-and-Play Portable Models of Effluent Treatment(ETP) and Sewage Treatment(STP) units using a patented Radical Bubble Purification (RBP) Technology in partnership with a technology innovator.

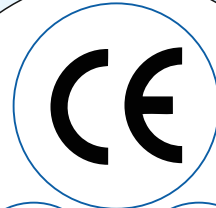
This vertical addresses the critical need for sustainable water use and the prevention of water pollution, contributing to ecological balance and community health. Our team is diligently working on this project, with a formal launch anticipated soon.



CREDENTIALS



DPIIT
#startupindia



TIGREEN

requiner

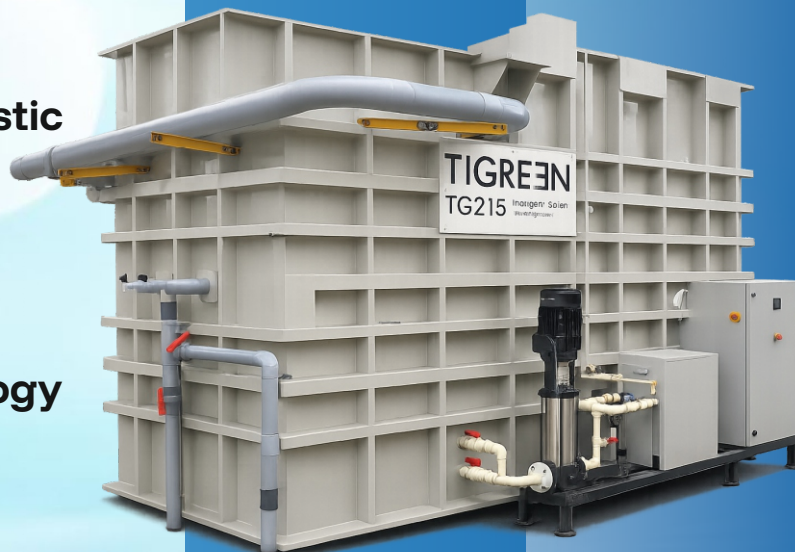
WASTEWATER MANAGEMENT

Creating A Positive Environment

A portable industrial and domestic
water treatment plant using

RADICAL BUBBLE PURIFICATION

technology, a patented technology
aiding advanced oxidation



Why Tigreen - equiner?

New disruptive patented technology



Portable plant. Can be shifted to any location.



Can be operated completely on OpEx model.



Up to 90% savings in real estate.



Easy to install, operate and to scale capacity



Treat water from various water sources like industrial and domestic effluents, sewage, river water



No civil work requirement 'plug and play model'

60% savings in CapEx and OpEx

Salient Features

- Micro bubble of consistent quality is generated using patented technology.
- Air blower/air compressor system is not required unlike present available options, thus resulting in noiselessness and savings in real estate.
- Reduced plant foot print saving substantial cost on real estate and no permanent civil structure is required.
- Connected power of the system is considerably low.
- Substantial reduction in process time to treat waste water.
- Reduction of treatment chemicals cost.
- Reduction of TSS, colour, COD and BOD, Nitrates, Ammonia, Heavy metals, Microfiber & related parameters is expected to be above 70-80% depending on the source water.
- Lesser man hours required.



Technology Application Areas

- As Effluent Treatment Plant (ETP) to handle various Industrial/Trade effluents
- As Sewage Treatment Plant (STP) to handle grey & black waste water from apartment complexes/ large office spaces individually or collectively (Community STP)
(Treated water could be released to the Under Ground Drainage (UGD) system as per the State Pollution Control Board (SPCB) norms OR recycled & reused for other allied industrial activities viz. cooling tower, toilet flush, floor cleaning & gardening etc.)
- With end of the line Multi Stage Filtration systems, water can be rendered potable.
- Detoxification/Purification of Lakes/Ponds/Rivers/Brackish & Marine Ecosystems



RBP Technology

DISSOLVED AIR FLOTATION: (DAF)

- Established water treatment technology using micro-bubbles
- Micro-bubbles shrink and disappear inside the water creating OH radicals.
- OH radicals are negatively charged
- Suspended solids in flocculated waste water are positively charged and gets attached with micro-bubbles and raises to surface
- Flocks are removed as sludge from top
- Bottom layer water becomes free of suspended solids
- Clean water from bottom is extracted for further treatment/re use.

Performance of DAF depends on consistent quality of micro bubble generation.

Standard DAF use compressed air to saturate water with air to generate micro-bubbles. Generation of consistent quality of micro bubbles is a challenge as air water mixing

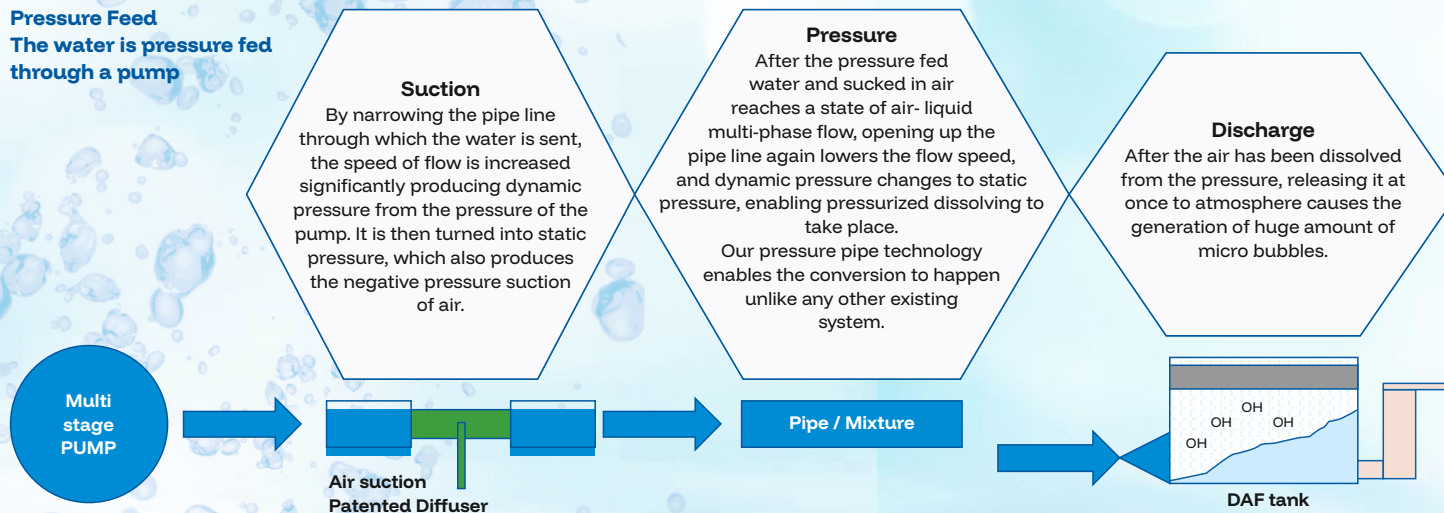
Adachi Svipegreen - ADVANCED DAF system that use PATENTED MICROBUBBLE GENERATING TECHNOLOGY

Technology

PATENTED TECHNOLOGY Invented by Mr K Adachi San

This micro bubble generation technology used in the RBP Water System enables air-liquid multi-phase-flow using specifically manufactured nozzles and mixer in a pressurized hydraulic line.

Pressure Feed
The water is pressure fed through a pump



Tigreen - equiner RBP Process



**Biological
Decomposition /
Chemical Treatment**



**Radical Bubble
Technology**



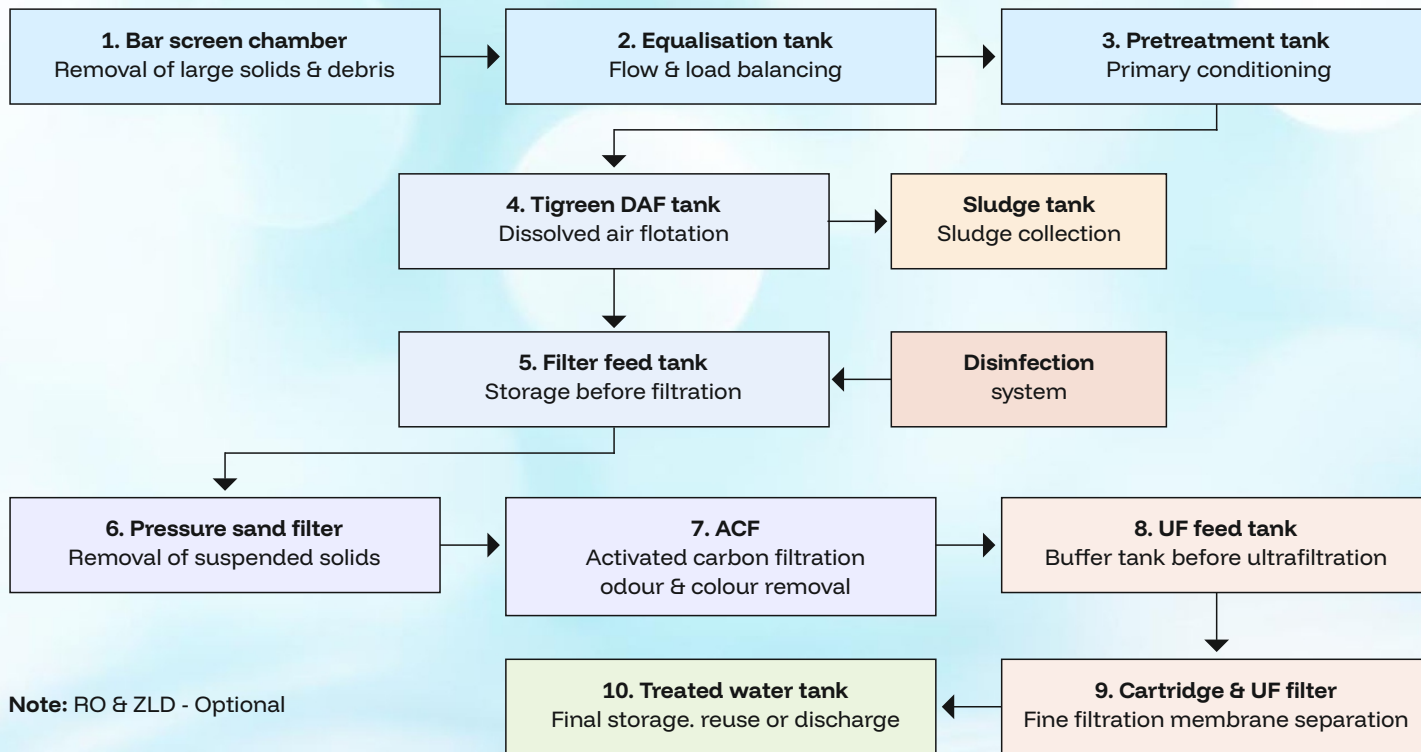
**Dissolved Air
Flotation**



**High Quality Water
Purification**

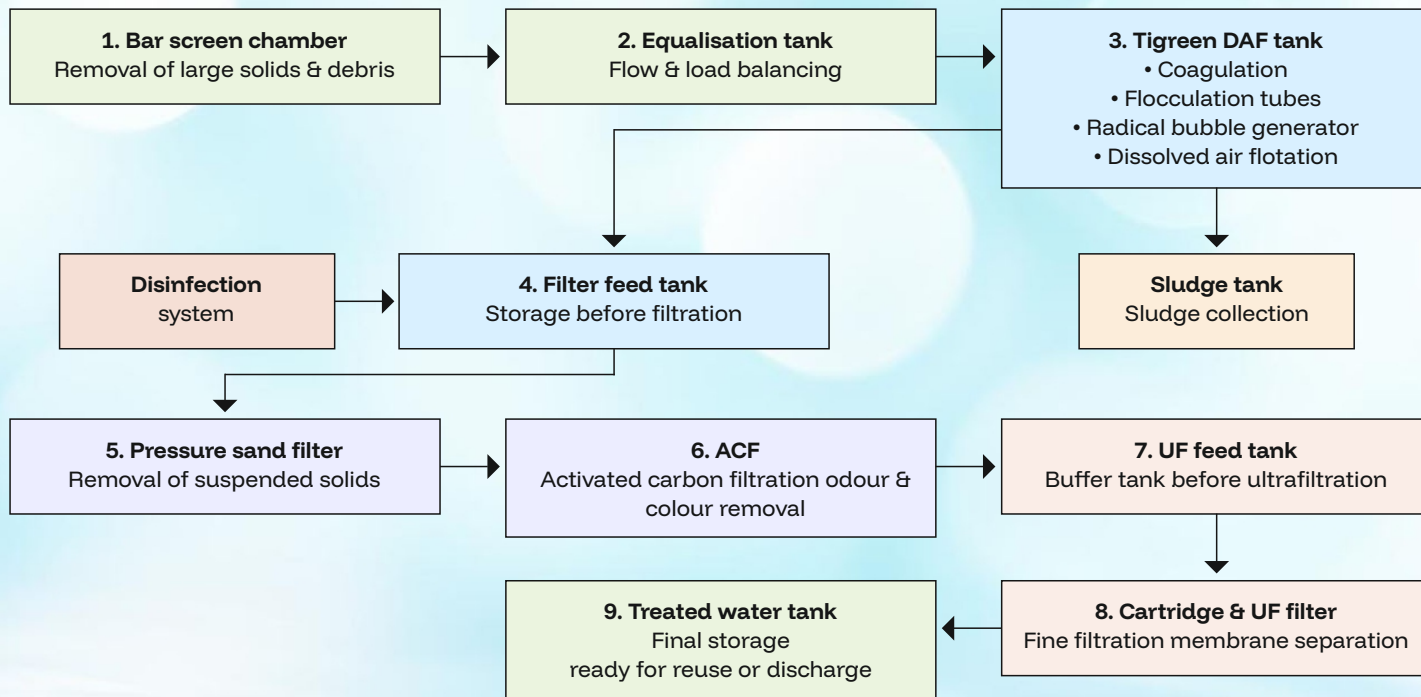
Can Handle Following Waste Water Contaminants

- | | |
|-------------------------|-----------------------------------|
| ■ SURFACE ACTING AGENTS | ■ SOLVENTS |
| ■ NITROGEN COMPOUNDS | ■ ACID |
| ■ ACETIC ACID | ■ STARCH |
| ■ SODIUM SUB-SULPHATE | ■ ENZYMES |
| ■ SODIUM SULPHIDE | ■ CELLULOSE |
| ■ NAUSEATES | ■ AHA- ALPHA HYDROXY ACID |
| ■ ANILINE | ■ WAX |
| ■ COPPER SULPHATE | ■ OIL |
| ■ RESINS | ■ ALKALI |
| ■ FORMALDEHYDE | ■ VOC -VOLATILE ORGANIC COMPOUNDS |
| ■ POLYESTER | ■ EMULSION FUEL, ETC. |
| ■ GLYCOL | ■ MICRO FIBRE |

Flow chart for ETP

Note: RO & ZLD - Optional

Typical flow chart for STP



Frequently Asked Questions (FAQ)

STP & ETP Tigreen-Equiner patented systems with Microbubble DAF Technology

General

Q1: What types of wastewater can your STP and ETP Tigreen-Equiner patented systems treat?

A1: Our Tigreen-Equiner patented systems can treat a wide range of wastewater, including industrial effluents, domestic sewage (grey and black water), commercial laundry wastewater, healthcare wastewater, dairy wastewater, chemical industry waste, kitchen wastewater, and contaminated water from lakes, ponds, and rivers.

Q2: What is unique about your water treatment technology?

A2: We use patented Radical Bubble Purification (RBP) technology featuring microbubbles smaller than 10 microns. These microbubbles are negatively charged and attract positively charged pollutants, lifting contaminants to the surface as sludge which creates free radicals that degrade harmful chemicals efficiently. This results in high-quality water, effective treatment with reduced footprint of ETP/STP, noise and power consumption.

Q3: What is Dissolved Air Flotation (DAF) and how does it work in your Tigreen-Equiner patented system?

A3: DAF is a water treatment method where microbubbles lift suspended solids, oils, and greases to the water surface, forming a sludge layer that can be easily removed. Our advanced Tigreen-Equiner patented system generates consistent, high-concentration microbubbles using a patented nozzle and mixing device? under pressure, greatly enhancing treatment efficiency over conventional DAF systems.

Tigreen-Equiner patented system Features and Benefits

Q4: What are the main advantages of your STP/ETP Tigreen-Equiner patented systems compared to conventional treatment plants?

A4:

- Modular, portable and compact, saving up to 90% in real estate space
- Lesser civil construction required – plug and play model
- Very low power consumption (depending on capacity)
- Reduced noise and odour due to no blower/compressor use
- Quick installation (within 6 to 8 weeks) with minimal manpower required
- High treatment efficacy with up to 90% recycled water recovery
- Reduction in TSS, BOD, COD, colour, and other pollutants
- Lower operational and chemical costs
- Modular design allows easy expansion and relocation
- System is non biological, hence can be operated for required time only depending on the flow.

Q5: What capacities are your Tigreen-Equiner patented systems available in?

A5: We offer models from 2 KLD up to 500 KLD and beyond, along with engineering for the required capacity.

Q6: Is your Tigreen-Equiner patented system suitable for decentralized wastewater treatment?

A6: Yes, our Tigreen-Equiner patented systems are ideal for decentralized wastewater treatment, protecting public health, conserving water resources, reducing infrastructure costs, and maintaining community economic vitality.

Performance and Compliance

Q7: Does your treated water comply with regulatory standards?

A7: Our treated effluent meets State Pollution Control Board (SPCB) norms and can be safely discharged to underground drainage (UGD) or reused for non-potable purposes such as toilet flushing, floor cleaning, gardening, firefighting and cooling towers. With additional filtration, treated water can also be rendered potable.

Q8: What contaminants can your Tigreen-Equiner patented systems remove?

A8: Our Tigreen-Equiner patented system effectively removes suspended solids, oils, grease, surface-active agents, nitrogen compounds, acids, solvents, heavy metals, microbial load, VOCs, microfibers, emulsified fuels, and more.

Q9: How effective is the Tigreen-Equiner patented system in reducing BOD and COD?

A9: The Tigreen-Equiner patented system achieves reductions of 70-80% or more in BOD and COD values depending on the wastewater source.

Operation and Maintenance

Q10: How easy is it to install and operate your Tigreen-Equiner patented systems?

A10: The Tigreen-Equiner patented systems are plug-and-play with lesser requirement of civil construction, allowing quick installation and easy operation. With minimal training Tigreen-Equiner patented system can be operated easily. Maintenance is low because of fewer mechanical parts and no requirement of air blowers/compressors.

Q11: What are the power requirements?

A11: Power consumption ranges from 2 KW (2 KLD) to 20 KW (500 KLD) depending on Tigreen-Equiner patented system capacity which transforms in to less electricity consumptions.

Tigreen-Equiner DAF Pump & Motor are driven by VFD, which further reduce the power consumption.

Q12: How is sludge handled?

A12: Sludge generated during flotation is removed from the surface and can be managed as per local disposal regulations, often yielding less sludge volume compared to conventional plants due to the Tigreen-Equiner patented system's efficient microbubble technology.

Customization and Scalability

Q13: Can the Tigreen-Equiner patented system be scaled or relocated?

A13: Yes, the Tigreen-Equiner patented system's modular and portable design allows capacity scaling as per your evolving requirements and can be shifted to different locations easily.

Q14: Can this technology be integrated into existing wastewater infrastructures?

A14: Yes, our Tigreen-Equiner patented systems can be customized and integrated into existing sewage or effluent treatment setups to boost efficiency or replace older treatment components.

Q15: Can the Tigreen-Equiner System be Automated?

A15: Yes, Tigreen-Equiner System can be integrated with IOT Systems and can also be automated fully avoiding man power intervention.

Environmental Impact and Sustainability

Q16: How does your technology contribute to sustainability?

A16: By water recycling & reuse, reducing chemical usage, minimizing sludge generation, and lowering energy consumption our Tigreen-Equiner patented system promote conservation of water resources and reduce environmental footprint.

Q17: Is the technology environmentally friendly?

A17: Yes. Tigreen-Equiner's patented Radical Bubble Purification system uses no harmful chemicals for treatment, generates fewer odors, and reduces noise pollution, ensuring environmentally responsible wastewater treatment.

Comparison between Tigreen - Equiner system & Conventional System

Parameters	Conventional System	equiner System
Real Estate Requirement	High	Negligible
Civil works	Must	Nil
Blower Requirement	Must	Nil
Noise of the system	High	Nil
Power Connection	High	Less
Portability of the unit	No- Fixed	Yes- Modular
Ease of Expansion	Difficult	High
Manpower Requirement	More	Less
Process system	Batch- Biological	Online- Non-Biological
Process time	High	Less
Treatment Efficacy	Less	High
Mechanical parts	High	Less
Maintenance	High	Easy
Sludge generation	High	Low
Smell	More	Lesser
Installation & Commissioning	Delayed	Quick
Capex	More	Lesser
Opex	More	Lesser

Pilot Testing

WASTE WATER-ELECTROPLATING UNIT



WASTE WATER

AFTER TIGREEN-EQUINER

STP WATER - APARTMENT



STP WATER

AFTER TIGREEN-EQUINER

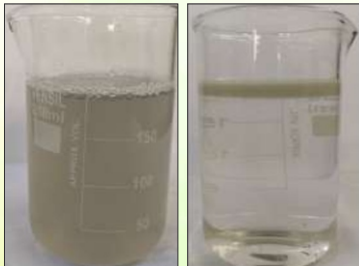
LAKE WATER



WATER BEFORE

AFTER TIGREEN-EQUINER

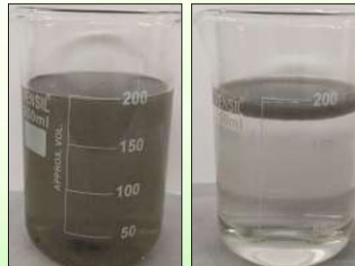
WASTE WATER-COMMERCIAL LAUNDRY



WASTE WATER

AFTER TIGREEN-EQUINER

WASTE WATER-VEHICLE SERVICE CENTER



WASTE WATER

AFTER TIGREEN-EQUINER

WASTE WATER-TEXTILE DYEING UNIT



WASTE WATER

AFTER TIGREEN-EQUINER

Installation Across the Spectrum



ETP 60 KLD



ETP 20 KLD



ETP 120 KLD



STP 140 KLD



ETP 300 KLD



STP 50 KLD



ETP 80 KLD



2 KLD



ETP 20 KLD

Tigreen - equiner Modular Units

SI No	Model	Skid capacity- LPH	Skid capacity- KLD (20 Hr)	Real Estate Required (Sq. Ft.)	Connected Electrical Load (KW)
1	Tg202h	2000 LPH	40 KLD	50 Sq. Ft.	2.5 KW
2	TG206	6000 LPH	120 KLD	60 Sq. Ft.	4.75 KW
3	TG210	10000 LPH	200 KLD	100 Sq. Ft.	7 KW
4	Tg225	25000 LPH	500 KLD	300 Sq. Ft.	15 KW



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