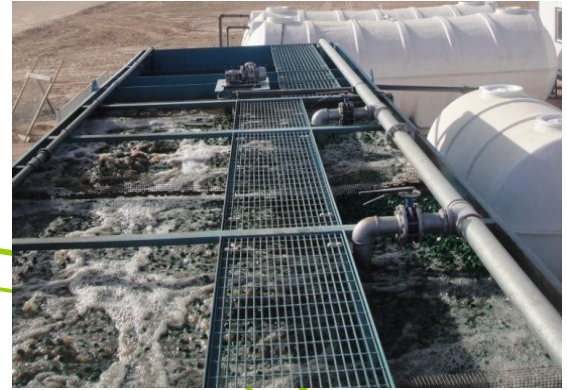


Company Profile

Sustainable Water and Wastewater Solutions



7/10/2012 7:29:51 PM
STATUS

DESCRIPTION	Values	Unit	RESET
Permeate Flow	7.97	m ³ /hr	
Dissolved Oxygen	3.99	mg	
Trans Membrane Pressure	-12.7	mBar	
Flow Totalizer	121.33	m ³	
Daily Flow	66.97	m ³	Daily Flow Reset Time 0 0 0 hr min sec

DESCRIPTION	RUN HOUR	DESCRIPTION	RUN HOUR
Sewage Feed Pump - P01A	14	Air Blower - ABO1A	18
Sewage Feed Pump - P01B	2	Air Blower - ABO1B	0
Recirculation Pump-P02A	16	Air Blower - ABO2A	17
Recirculation Pump-P02B	0	Air Blower - ABO2B	0
Permeate Pump - P03A	13	Air Blower - ABO3A	0
Permeate Pump - P03B	0	Air Blower - ABO3B	1
NaOH Dosing Pump - DP01	0	Aromatic Tk Mixer - DP01	10
Chlorine Dosing Pump-DP02	0	Screens - SC01	15



INDIA OFFICE

Iram Earthcad Environment Pvt Ltd.

15, Zakir Bagh, Okhla Road
New Delhi 110025, India
Telephone/Fax: 91-11-26844192
Email: iram@vsnl.com
www.iramconsult.com

FOR COMPLETE INFORMATION CONTACT:

Sameer Khan
Director Business Development

skhan@iwater-tech.com
skhan168@eim.com
www.iwater-tech.com
Cell: +971-52-8078080

Earthcad Environment FZ-LLC
Office 3/3 RAK Business Square, 12th Floor
Amenity Center, Tower -1, PO Box 86301
RAK Investment Authority Free Zone, RAK, UAE

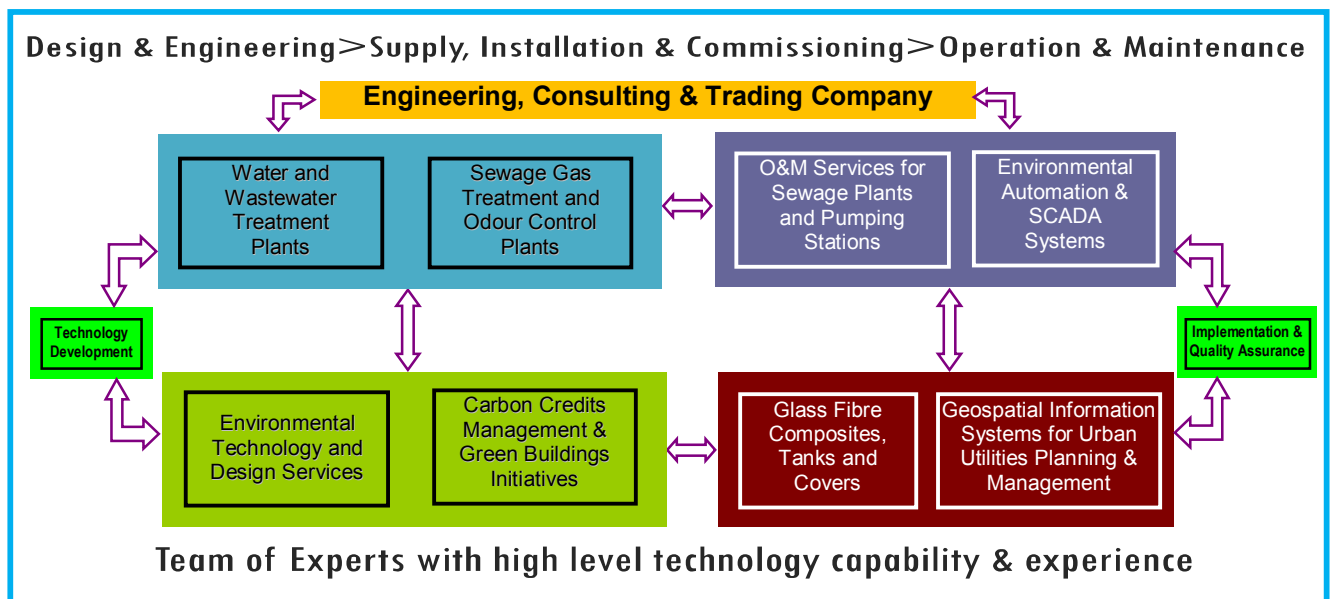
The Company

Earthcad Environment FZ LLC is a Multidisciplinary **Engineering, Consulting & Trading Company** undertaking Supply of Wastewater Treatment Plants and all ancillary Electrical and Mechanical Equipments like Pumps, Blowers, Air Diffusers, Electrical Motors, Dual Media Filters, Membrane Filtration Units, Centrifuge, DAF, Electrical Control Panel, SCADA Systems and Odour Control Equipments. The complete package also includes Design and Engineering Package, Detailed Engineering Drawings and full Technical Submittal, Operation and Maintenance Manuals and Installation and Commissioning of Plants. Our Activities related to above mentioned products including Imports and Exports of Plants and Equipments. The company is incorporated as a Free Zone Company in the Ras Al Khaimah Investment Authority (RAKIA) Free Zone, RAK, UAE.

Earthcad Environment FZ LLC is an affiliate/associate of Iram Earthcad Environment Pvt. Ltd., New Delhi, India and many International Vendors and Suppliers.

Fields of Activities

The operations of Earthcad Environment FZ LLC are divided into four independent divisions which act as independent profit centers. These divisions are shown below;



Countries with Business Operations

Earthcad Environment FZ LLC has business partners and clients in various parts of the world for sourcing technology and equipments as well as for providing services and solutions. We are a globally competitive international company providing value for money and state of the art solutions. Amongst others we have operations in GCC Countries, India, Europe and United States of America.

Wastewater Treatment Plants

Earthcad Environment FZ LLC has supplied and commissioned large Wastewater and Effluent treatment plants worldwide based on Combination of Anaerobic UASB technology and Activated Sludge Process System as well as other Biological/Aerobic systems for Municipal wastewater treatment as well as Industrial wastewater Treatment Plants. This includes MBBR-IFAS, MicroFAST, and MBR Technology System.

Turnkey Projects (Containerized & Package Plants)

- Design and Detail Engineering of Packaged Plants based on MBBR-IFAS, MicroFAST, MBR, SBR and Extended Aeration System Technology
- Fabrication of Containerized MBBR-IFAS, MicroFAST, MBR Tanks and Systems Integration
- Supply of Equipments and related ancillary at Project Site
- Installation, Testing and Commissioning at Project Site
- Operation and Maintenance including Supply of Consumables and Chemicals

Possible Applications:

- Rural or Suburban Areas where presence of a septic tanks
- Residential Areas are not connected to Sewers
- Housing Complexes and New developments
- Commercial Establishments like Shopping Malls, Hotels, etc
- Construction Sites, Labour Camps and Staff Accommodations
- Small industries and Factory

Our Clients

- Sewerage Authority, Govt of Ras Al Khaimah, UAE
- Black and Vetch, Ajman, UAE
- IFFCO Group for Delmon Products Ltd, Yanbu, Saudi Arabia
- Strabag Austrian Company in Oman
- Gulf Petroleum Services in Oman
- Union Paper Mills, Al Quoz, Dubai
- Al Hajri Group in Muscat Oman
- Bahwan Engineering and L&T Oman



Ajman Sewage Treatment Plant



Ras Al Khaimah Sewage Treatment Plant



Top View of the MBR STP



Up-gradation of Industrial Wastewater Treatment Plant at Union Paper Mills, Al Quoz, Dubai

Detail Design & Engineering, Project Management and Manufacturing

Due to its vast experience and technical knowledge, Earthcad Environment FZ LLC is a one - stop shop for comprehensive Design and Build solutions across the entire spectrum of water and wastewater treatment. Earthcad Environment FZ LLC has a very skilled Design & Engineering, Project Management and Manufacturing Team which makes sure that all projects are done in a extremely professional manner and the end product is exactly what the client is looking for.

Design and Engineering Services include:

- Project Feasibility Studies
- Selection of Appropriate Technology
- Detailed Process Design based on Tender Document and Site Visit with computerized design tool
- Detailed Engineering Design including Hydraulic and Structural works
- Generation of Detail As Built Drawings
- Selection of appropriate Electrical and Mechanical Equipment
- Finalization of Bill of Quantities for all equipments, including pipes, cables, etc.

Project Management

Project Management Team liaises between the clients and various departments within the company to ensure timely completion of projects, while maintaining an exceptional standard of work.

The team of Project Managers is well versed in MS Project which is used to breakdown the overall work-plan into specialised tasks and allocate time to each task depending on the level of complexity. This also helps in identifying issues in a timely manner.

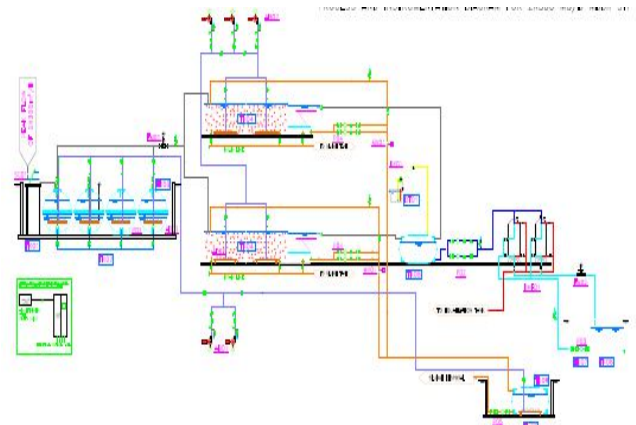
Manufacturing

The Manufacturing Team ensures that all fabrication, assembling and testing works related to any job is done with extraordinary attention to quality.

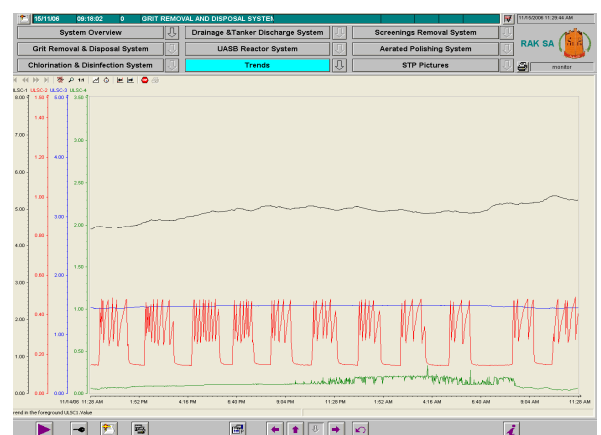
Special attention is given to Fabrication of MSEP Tanks for packaged plants. The Team ensures there is no bulging when the tanks are filled with water since the tank has been analysed structurally with STAD Software.



Detail Design of Hydraulic Structures



Detail As Built Drawings



Reports generation capabilities for STP Operation

MBBR –IFAS Wastewater Treatment Plants

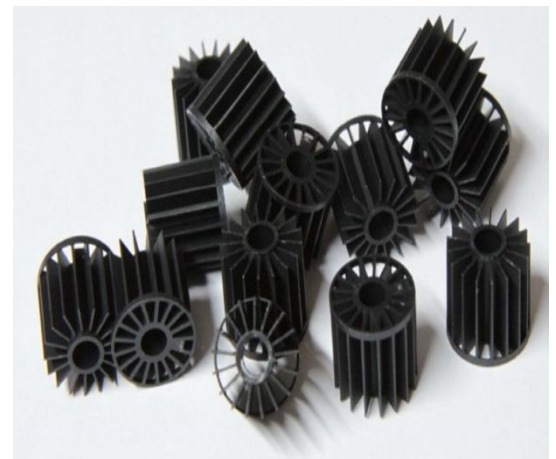
MBBR-IFAS Process or MicroFAST is an Attached Growth Fixed Film Activated Sludge Process System which is capable of giving high level of biological treatment due to the presence of aerobic bacteria which are cultured on a plastic media surface. MBBR-IFAS plants also provide high quality effluent at lower costs.

Design and Process Flow Scheme of MBBR-IFAS

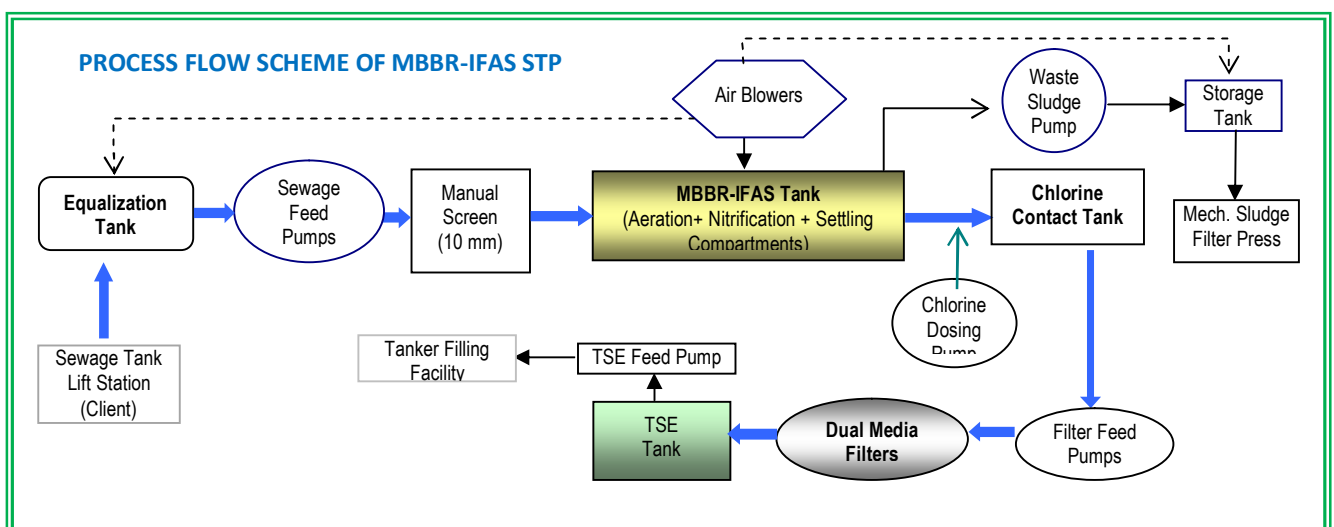
- Equalization Tank
- Sewage Feed Pumps
- Manual/Mechanical Screen
- MBBR-IFAS Tank with Compartments for Aeration, Flocculation and Settling. The tanks are 6-8 mm thick Mild Steel and externally and internally Epoxy paint.
- Diffusers and Air Grid in Aeration and Nitrification Tanks and Sieves.
- Bio-Film Media for Aeration and Nitrification Tanks.
- Air Blowers with all accessories including air distribution system in GI.
- Tube Deck Media for Settling Chamber.
- Chlorine Dosing System for disinfection.
- Dual Media Sand Filter with filter feed pumps & backwash pump.
- Sludge Pumps and Mechanical Press to dewatering of the sludge
- Treated Sewage Effluent Storage Tank
- Electrical control panel for operation and control of equipments



Top View of MBBR-IFAS Tank with MBBR Bio Media



GEA 2H- MBBR-IFAS BIO Media

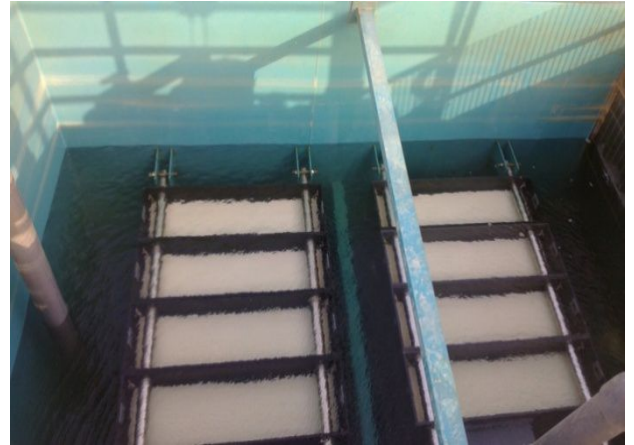


MBR Wastewater Treatment Plants

The Earthcad Environment Membrane Bioreactor system (MBR) process is combined in a prefabricated; skid mounted, standardized and containerized tank system with variable length, suitable for overseas transportation. We have partnership with reputed European and of membrane units like Microdyn-Nadir and other International manufacturers of blowers, diffusers, pumps, Instruments and PLC Control Panels.

Design and Process Flow Scheme of MBR

- Equalization Tank with Diffused Aeration System
- Sewage Feed Pumps
- Manual/Mechanical Fine Screening
- Separate Compartments for Anoxic and Aeration.
- Submersible Mixer for Denitrification
- Fine Bubble Silicon Diffusers and Air Grid in Aeration Tank
- Positive Displacement Air Blowers with all accessories
- MBR Tank with Membrane Filtration Modules
- Membrane Chemical Cleaning System
- Permeate Pumps and Accessories
- Chlorine Dosing System for disinfection.
- Internal Sludge Recirculation Pumps for Nitrification
- Centrifuge to dewatering of the sludge
- Online Instrumentation including DO, Pressure, MLSS and Flow Meters
- Treated Sewage Effluent Storage Tanks
- Electrical control panel for operation and control of equipments



Submerged BIO CELL Modules in MBR Tank

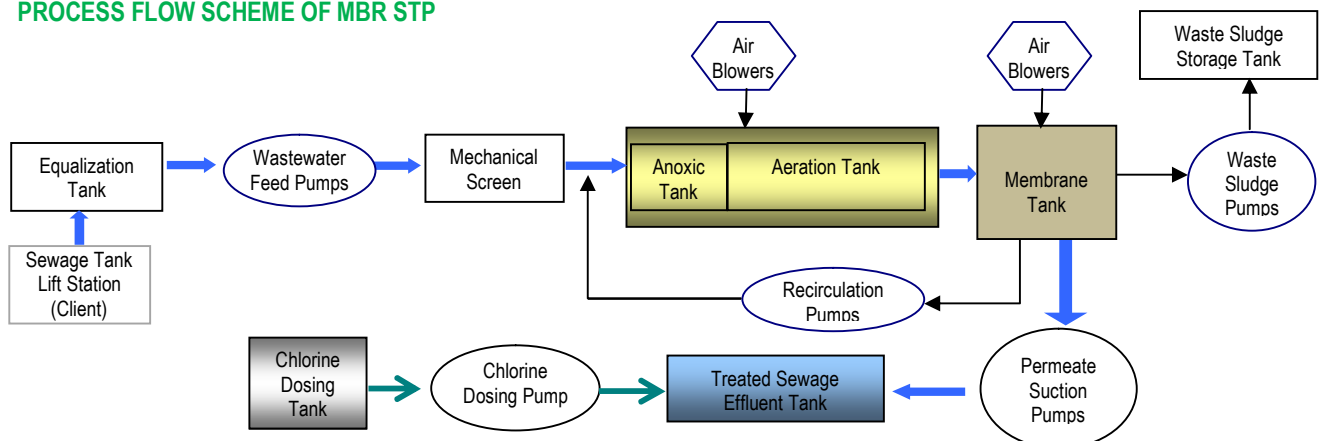


Anoxic/Aeration/Nitrification MSEP Tank

Benefits of Microdyn-Nadir Bio Cell Modules

- Installation in separate MBR Tank increasing flexibility
- Ultrafiltration Flat Sheet Membrane Modules with Backflush
- Filter pore size 0.04 μm
- BIO-CEL®-MCP (mechanical cleaning process) saving O&M Costs
- Cross Air flow using Fine Bubble Diffusers reducing MBR Blower Capacity

PROCESS FLOW SCHEME OF MBR STP



UASB +ASP Technology for Sewage Treatment

The UASB Process is a high rate anaerobic system for municipal and industrial wastewater treatment. The UASB process is described, wherein the organic matter is digested, adsorbed, absorbed and metabolized into bacterial cell mass and biogas. It is a combination of physical and biological processes.

Design and Process Flow Scheme

- Sewage Pumping from Sewerage System and Equalization Tank
- Mechanical Screenings and Grit Removal with Flow Meter at Head works
- Primary Treatment by UASB Reactors with Sludge Removal System
- Secondary Treatment by Aeration Tanks with Final Bubble Diffusers and Air Blowers.
- Secondary Settling Tanks with Mechanical Clarifiers
- Pumping Station with Pumps for Recirculation and Wasting of Aerobic Sludge
- Submersible Pumps for Anaerobic (UASB) Sludge Pumping
- Sludge Drying Beds
- Chlorine Contact Tanks and Cl₂ Gas based Disinfection System
- Treated Sewage Effluent Pumping Station with Pumps
- Plant Operations and Control by SCADA System and Electrical Control Panels



Primary Biological Treatment by UASB



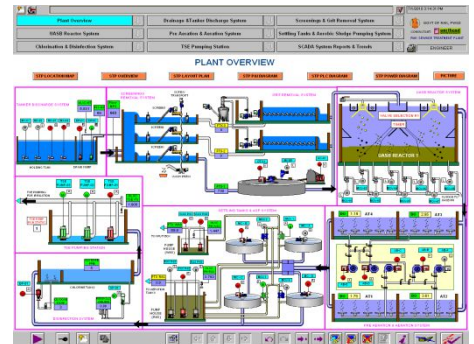
Secondary Biological Treatment by ASP



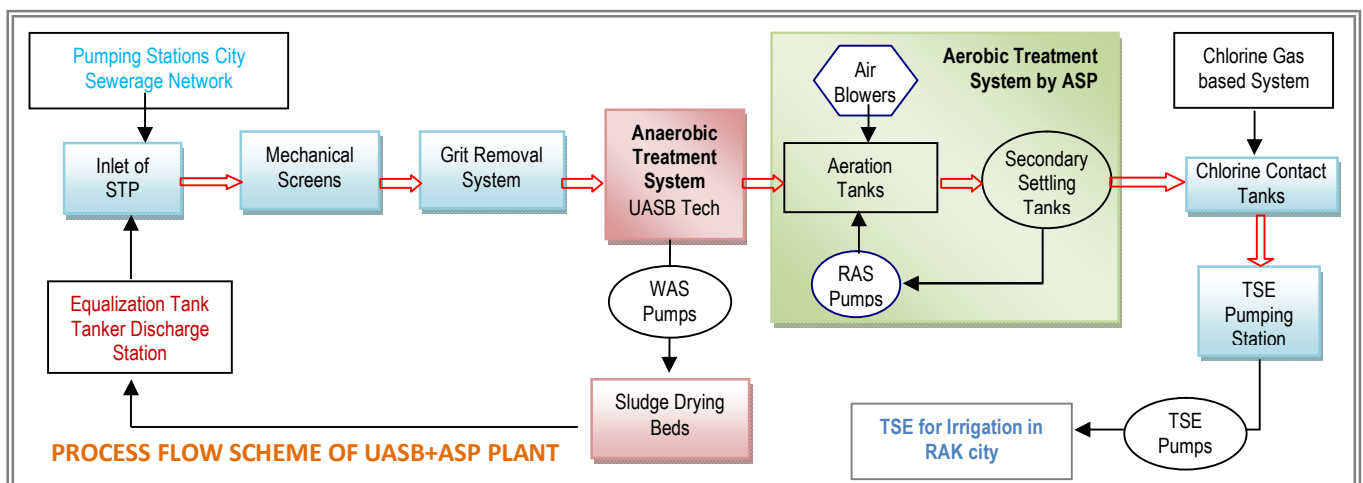
Grit Removal System



Settling Tanks with TSE



SCADA System for STP Control & Monitoring



Reverse Osmosis Plant

Earthcad Environment FZ LLC RO Plants are capable of giving excellent quality potable water at a very economical price. The main purpose of this Multistage System is to substantially reduce the quantity of Reject Water and consequently its disposal costs

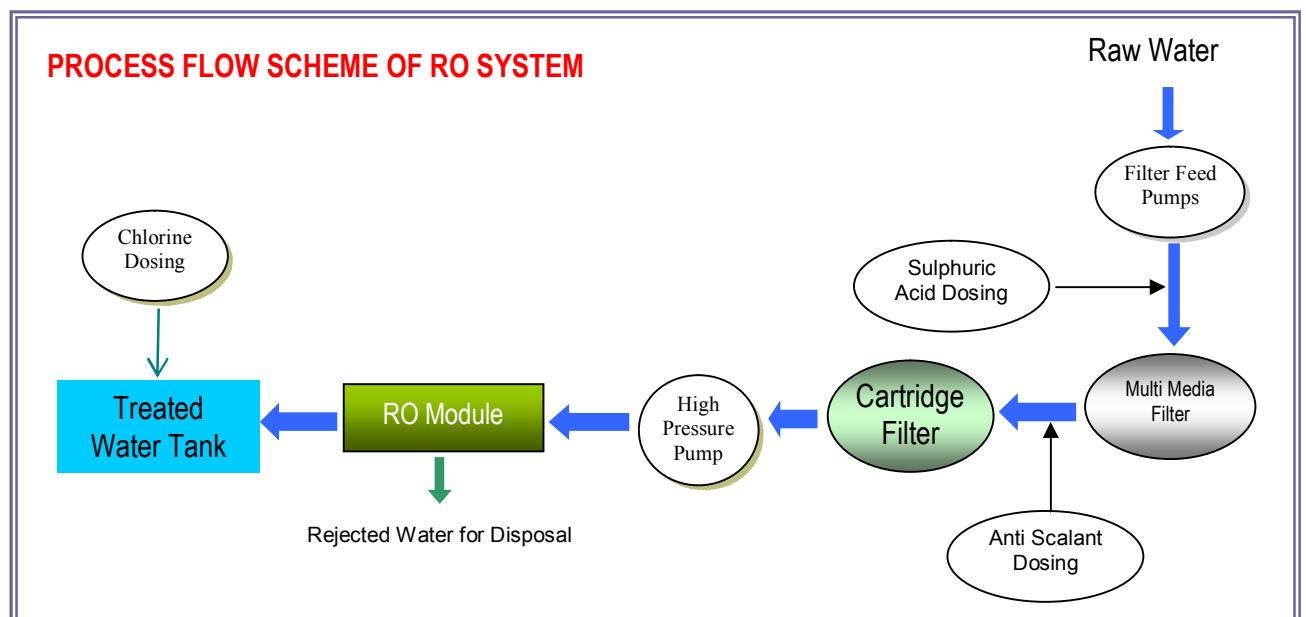
Reverse Osmosis is a dissolved solids separation mechanism that removes many types of large molecules and soluble ions from solutions by applying pressure to the solution when it is on one side of a selective membrane. The result is that the solute is retained on the pressurized side.

Design and Process Flow Scheme of RO Plants

- RO Product Tank
- Pre Chlorination Dosing System
- Filter Feed Pump
- Backwash Pump
- pH correction System
- Multi Media Filter
- Cartridge Filter
- High Pressure Pump
- RO Membrane Modules
- Chemical Cleaning system
- Instrumentation including Flow Meter, ph Meter, TDS Meter, ORP Meter etc
- Electrical Control Panel with HMI
- Product Water Tank
- Skid Mounted or 20/40 Feet container



Multi Media Filter in RO Plant



ULTRA FILTRATION (UF) Systems

Earthcad Environment FZ LLC Ultra Filtration (UF) Plants are designed keeping in mind the increasing need to recycle and reuse water for various purposes so that there can be a saving in cost. UF is a pressure driven membrane separation procedure that removes suspended or particulate matter from water. They block suspended particulates that are bigger in size while water and solutes with a lower molecular weight are allowed to flow through the membrane.

Process Flow Scheme

- Feed Water Tank
- Feed water pumps with VFD
- Pre-filtration using Strainer
- Ultra Filtration Membrane Modules
- Air Compressor for UF Module
- CIP Pump and Tank Heater with Temperature Switch
- Chemical Dosing Systems for CIP
- Backwash Pump
- Chemical Dosing Systems for Backwash
- Ph Dosing System
- Instrumentation for Turbidity, Pressure, Flow, ORP, pH
- Electrical Control Panel with HMI
- Product Water Tank
- Skid Mounted or 20/40 Feet container

UF Plant Requirement

- Turbidity < 50 Max. 250 NTU
- TSS < 50 Max. < 100 mg/L
- TOC < 10 Max. < 35 mg/L
- COD Max. < 50 mg/L
- pH 6-9
- Temperature 25°C (max. 40°C)



UF Module inside a 40 feet container in Duqm, Oman



UF System Feed Pumps

International Projects References in Wastewater Treatment

Over the years, we have developed core competence and capabilities in the fields of Water and Wastewater Treatment by getting involved in diverse projects. The cornerstone of our philosophy has been the formulation and execution of projects within the framework of an Integrated and Holistic approach.

Project References in Wastewater Treatment

- 40,000 m3 per day STP for Municipal Wastewater Treatment Based on UASB + Activated Sludge Process Technology at Ras Al Khaimah, UAE
- 49,000 m3 per day STP for Municipal Wastewater Treatment Based on UASB + SAF Technology at Ajman, UAE
- 4 Sewage Pumping Stations and 10 Lift Stations for Municipal Sewerage network of RAK CITY, UAE.
- 3000 m3 per day Tanker Discharge Station for Tankered Wastewater and Pumping Station for RAK City.
- Upgradation of 1500 m3/day Effluent Treatment Plant with Anafit R2S Anaerobic Reactor and Decafit Decalcification Reactor at Union Paper Mills Al Quoz, Dubai in JV with SH & E Group, Stuttgart, Germany.
- 100 m3 per day MBR ETP at Alain National Juice Factory, Alain, UAE for IFFCO Group in JV with Microdyn Nadir Germany.
- 200 m3 per day MBR ETP at Delmon Products Ltd, Yanbu, Saudi Arabia for IFFCO Group for Edible Oil Refinery in JV with Microdyn Nadir Germany.
- 250 m3 per day MBR STP for Strabag Austria for their Camp in Duqm, Oman in JV with Microdyn Nadir, Germany.
- 200 m3 per day MBBR-IFAS STP for Gulf Petroleum Service for Residential Area in Misfat Al Hamra, Oman .
- 250 m3 per day MBBR-IFAS STP for Gulf Petroleum Service for Camp in Baraka, Oman.
- 316 m3 per day MBBR-IFAS STP + Microfiltration Plant at Duqb Beach Hotel in Duqm, Oman
- 150 m3 per day STP based on Extended Aeration System Technology at Halaniyat Island, Oman
- 500 m3 per day MBR STP for University of Buraimi , Oman in JV with Bahwan Engineering Oman and Microdyn Nadir Germany.
- 1500 m3 per day ETP with ANFIT R2S Rector for Union Paper Mills , DUBAI



RAK UASB + ASP STP



Duqm Beach Hotel MBBR –IFAS STP



Al Ain Juice RO Plant

Operations and Maintenance of Sewage Treatment Plants

Over the years Earthcad Environment FZ LLC has been successful in implementing the most economical yet state of the art Operations and Maintenance regimes for Sewage Treatment Plants and Pumping Stations all over the region.

Technical Services for Operation & Maintenance

- Testing and Analysis of Wastewater Parameters in Plant Laboratory
- Operations & Maintenance of STP Units & Equipments
- Performance Monitoring and Data Reporting
- Process Commissioning Support Services
- Operation and Control through Automation and SCADA Systems
- Maintenance of Health and Safety Standards on site
- Emergency support services all around the clock
- Improvement in process performance



Cleaning Operations at RAK STP



Testing and Analysis of Wastewater Parameters in Plant Laboratory



Daily Operational Activity at RAK Main Pumping Station

Operation & Maintenance Activities

- Sewage Treatment Plants including MBR, MBBR, UASB
- Industrial Effluent Treatment Plants
- Sewage Pumping Station
- Odour Control Treatment Systems

Project References

- 40,000 m³/day UASB + ASP RAK STP from Aug 2006 to Sep 2012
- 3000 m³/day Tanker Station Facility from Aug 2006 to Sep 2012
- 250 m³/day MBR STP in Duqm, Oman from July 2012 to July 2013
- 100 m³/day MBR ETP in Al Ain from April 2013 to March 2014
- 49,000 m³/day Ajman STP from Nov 2008 to Oct 2009
- 300 m³/day SBR STP at Khat, RAK from Oct 2006 to March 2010
- Main Pumping Station + Pumping Stations (3 nos) + Lift Stations (6 Nos) of RAK Sewerage System from Mar 2010 to Sep 2012
- 200 m³/day MBR ETP in Yanbu, KSA from April 2013 to Sep 2013

Indian Project References of Wastewater Treatment & Management

Consultancy Services provided by Iram Earthcad Environment Pvt Ltd for Sewage Treatment Plant projects in India included Inventory and Surveys, Preliminary Design, Process and Hydraulic Design, Detailed Structural and Electro-Mechanical Design, Detailed Engineering drawings, Tender Documents, Detailed Project Reports, Construction Management Advise, Project Monitoring and Quality Control, Commissioning Support, Process Start up and Training of O&M staff.

Project References in Wastewater Treatment

- 200,000 m3/d WWTP at Kanpur, Uttar Pradesh
- 152,000 m3/d WWTP at Ludhiana, Punjab
- 111,000 m3/d WWTP at Ludhiana, Punjab
- 60,000 m3/d WWTP at Ujjain, Madhya Pradesh
- 50,000 m3/d WWTP at Faridabad, Haryana
- 45,000 m3/d WWTP at Faridabad, Haryana
- 40,000 m3/d WWTP at Karnal, Haryana
- 36,000 m3/d WWTP, Kanpur, Uttar Pradesh
- 36,000 m3/d WWTP at Ludhiana, Punjab
- 35,000 m3/d WWTP at Panipat, Haryana
- 30,000 m3/d WWTP at Gurgaon, Haryana
- 30,000 m3/d WWTP at Sonipat, Haryana
- 30,000 m3/d WWTP at Rajahmundry, Andhra Pradesh
- 25,000 m3/d WWTP at Yamunanagar, Haryana
- 23,000 m3/d WWTP at Srinagar, J&K
- 22,000 m3/d WWTP at Nashik, Maharashtra
- 20,000 m3/d WWTP at Faridabad, Haryana
- 18,000 m3/d WWTP at Srinagar, J&K
- 14,000 m3/d WWTP at Mirzapur, Uttar Pradesh
- 14,000 m3/d WWTP at Ramagundam, Andhra Pradesh
- 10,000 m3/d WWTP at Panipat, Haryana (India)
- 10,000 m3/d WWTP at Yamunanagar, Haryana
- 8,000 m3/d WWTP at Chapra, Bihar (India)
- 5,000 m3/d WWTP at Kanpur, Uttar Pradesh
- 5,000 m3/d WWTP at Bhadrachalam, Andhra Pradesh

Design and Engineering for Effluent Treatment Plant for Mysore Paper Mill, Karnataka, India under Indo Dutch Technical Services Support

Clean Technology under Indo Dutch Collaboration for Paper and Pulp Institute, Shahrampur, India

Performance Data:

Results achieved at the 5 MLD UASB Treatment Plant for domestic sewage, Kanpur, are presented below. The UASB treated effluent is further polished in a Final Polishing Unit with 1-day retention time to meet river discharge standards setup by Govt of India. The plant has been in operation since December 1988.

Parameter	Concentration in mg/l		Removal Efficiency UASB+FPU
	Influent	Effluent	
COD	552	<80	86%
BOD	220	<19	92%
TSS	322	<20	94%

