



B&T Solutions-HUB 4 Water Processing Tech. GmbH

Solution to Water Challenges – EcoWater Treatment Plant

Contact:

Tony Wadhawan,
Geschäftsführer, Managing Director

Hunsrueck Strasse 15, 65520 Bad Camberg, Germany
Tel: +49 172 210 6574; Email: TW@Solutions-HUB.org; URL: www.solutions-hub.org
Skype: TonyWadhawan

SInX



B&T Solutions-HUB Innovation Exchange

PRIVATE and CONFIDENTIAL

Content

- Water Challenges and the Solution
- Industry Specific Solutions
- Technology and Process Introduction
- Contact

Water Challenges (1/2)

- Globally, 1 in 8 people lack access to safe water
- Water is available in abundance, but it is just not always located where it is needed
- Demand for water is continuously increasing with the Population, Economic growth and a industrial boom in various regions
- Groundwater Depletion, due to excessive ground water pumping (while natural recharge of groundwater from rain is 1/10th of groundwater exploitation)

Water Challenges (2/2)

- Deterioration of Ground Water Quality (Industrial pollutants, Salinity and brackish) due to intrusion of industrial waste and sea water into ground water sources
- Of the total waste water getting generated, only about 30% of the water is being treated and reused
- Current technologies deployed have their own challenges

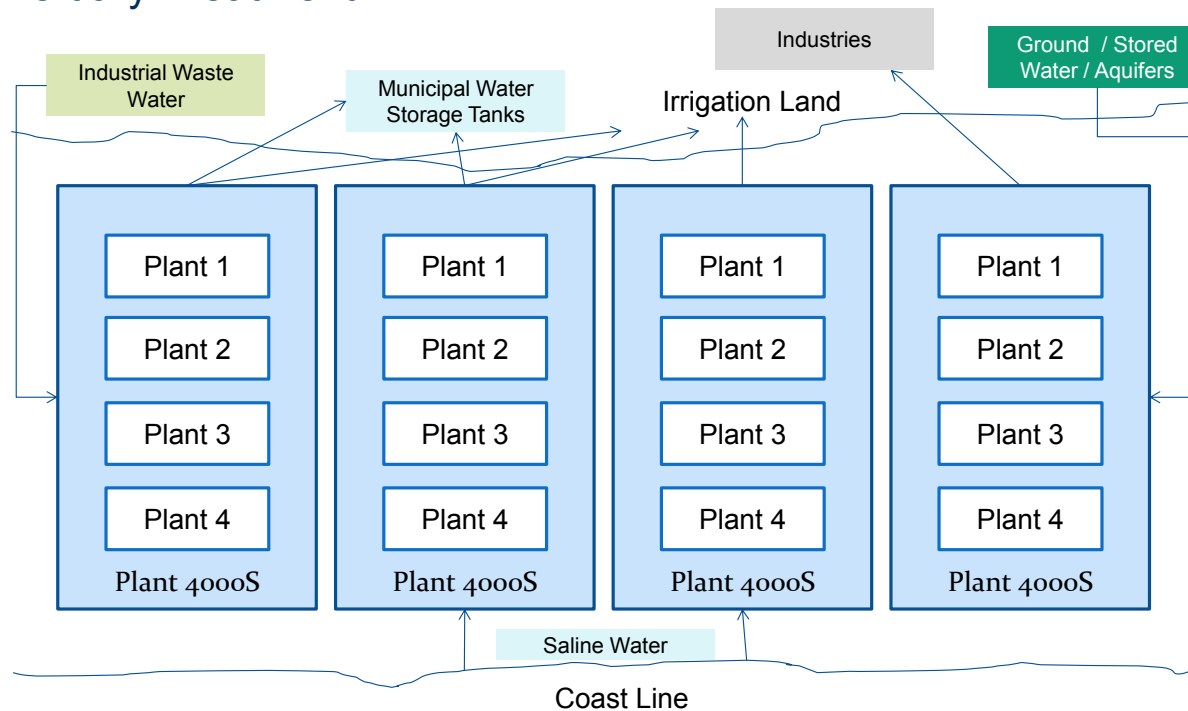
The Solution

- With the increasing demand – supply gap and the challenges with the current technologies being deployed for water treatment, the World today needs Water Processing Technology which:
 - Is Clean, non-polluting and does not impact the environment and marine life
 - Does not use chemicals in water treatment
 - Is efficient in treating any kind of waste water to make it reusable
 - Meets the norms of clean water certifications for use in domestic, agriculture, industry
 - Meets the demand of potable water for Agriculture and Domestic use
 - Consumes less amount of energy
 - Is Cost effective
 - Has less maintenance cost
 - Is Portable, and can be installed easily

And the solution which gives a “YES” to all the above is
“Eco Water Treatment Plant”

EcoWater Treatment Plant

- The **EcoWater Treatment Plant** treats and purifies water, in 3 Steps:
 - Step 1: Electrochemical Treatment of water
 - Step2: Filtration, with the use of special filters
 - Step 3: Tertiary Treatment



Key Features of EcoWater

- *No Chemicals* are used in any stage of purification
- *All forms of water* – Salt Water (from the ocean / sea), Ground water, River / Stream Water, Well Water, Industrial contaminated water, Municipal Waste Water
- *Very low power consumption* – 6kW (or less) for 1000 Litres (estimate, depends on the quality of the input water feed)
- *The carbon-footprint* is small and the process can be driven by renewable energy sources (eg. Solar panels).
- *High water treatment efficiency* ~ 95%(depends on the input water feed)
- *Portable and mobile* Water Processing Plant Units
- 1 Unit EcoWater Treatment Plant 1000S generates 1000 Litres/ Hr
- 1 Unit EcoWater Treatment Plant 4000S generates 4000 Liters/ Hr
- Plant is delivered in multiple of units, with each unit being specified maximum @around 4000 litres per hour, the maximum depends on the number of "Units" or cells that are switched in parallel

Test Results

EcoWater Treatment Plant - Water Field Tests Results - August 2012

Type of Water	Testing Stage	PH	EC	TDS	Cl	SO4	Hardness	Alkanlinity	Na+	K+	Ca+	Mg+	Free Cl
Ground Water	Input	6.97	10.60	8,960.00	3,528.00	514.00	4,880.00	316.00	512.00	5.40	350.00	748.00	0
	Output	8.54	0.39	304.00	252.00	-	152.00	120.00	14.00	3.20	13.60	3.85	995 / 3.82
Sea Water	Input	8.23	42.60	37,164.00	18,198.00	1,822.00	6,500.00	136.00	3,522.00	352.00	341.00	1,373.00	0
	Output	8.03	5.00	2,530.00	1,412.00	304.00	720.00	230.00	70.00	126.00	148.30	85.10	8153 / 70
Biofileter Output Water	Input	7.40	3.00	1,400.00	202.00	-	434.00	406.00	316.00	39.00	120.00	32.60	0
	Output	9.50	0.50	288.00	504.00	-	174.00	740.00	256.00	-	26.50	26.30	0
TC Eff. Water	Input	11.70	37.00	30,760.00	13,160.00	3,920.00	2,250.00	1,476.00	2,952.00	14.40	8,856.00	97.20	0
	Output	9.00	1.44	1,800.00	907.00	-	600.00	200.00	49.00	-	1,403.00	60.80	2481 / 71

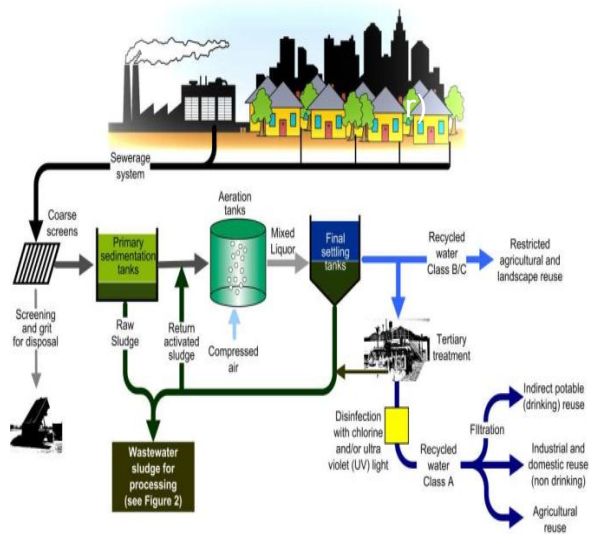
Industry Specific Solutions

Municipal Waste Water Treatment

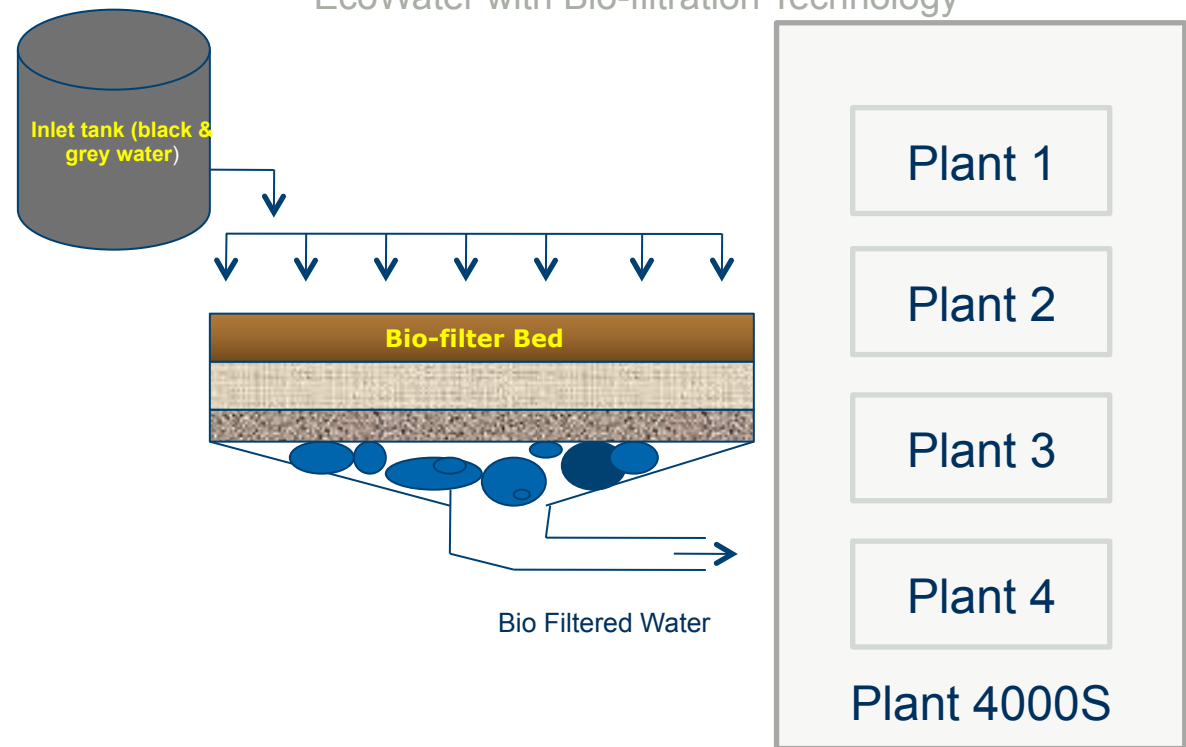
- Challenges:
 - Large amount of Municipal waste water gets generated every day across cities, countries, continents
 - With urbanization and development, water is becoming scarce but Globally only about 30% of waste water is re-used after treatment
 - Disposal of Sludge and other waste components from the Municipal Waste water
 - Centralized Waste treatment plants lead to additional costs for waste water collection and treated water re-distribution
 - Meet the regulatory / policy requirements of characteristics

Municipal Waste Water Treatment Solution

Conventional STP
(Activated Sludge Process)



EcoWater with Bio-filtration Technology



Municipal Waste Water Treatment Solution

- Bio-filter Technology is a synthesis process, which harnesses the energy, carbon and other elements of the waste and converts them to precious “Bio-nutritional” products like energy rich humus & bio-fertilizer and nutrient rich water.
- It involves removal of organic matter by adsorption & filtration followed by biological degradation and oxy-gen supply by natural aeration to the treatment system with a natural way of recycling nutrients and removal of toxins.
- After filtration through this process, the water is treated through the EcoWater plant to generate potable water

Municipal Waste Water Treatment Solution

- Advantages of using the Bio Filter EcoWater Process Solution are:
 - Simple and easy operation
 - Low operating and maintenance costs
 - Low energy requirement
 - No sludge Formation
 - No pre-treatment required for solids separation
 - Commissioned close to point of Waste water generation (decentralized plants)
 - Long Plant Life resulting into:
 - Superior Treated Water Quality.
 - All contaminants (dissolved and suspended) are converted into a valuable by-products
 - Treated water is nutrient rich and significant savings on artificial fertilizers
 - Aerobic & Hygienic process hence no odour.

Industrial Waste Water Treatment

- Challenges:
 - Waste Water discharge compliance issues with local pollution norms
 - Disposal of Sludge and other waste components from the Industrial Waste water
 - Removal of toxic chemicals from the water
 - Meet the regulatory / policy requirements of reuse of water back into the industry

Industrial Waste Water Treatment Solution

- EcoWater treatment plant effectively recycles the Industrial Waste Water and prepares it for discharge into the channels OR reuse by the Industry

- All inorganic and organic wastes are removed from the waste water in the form of solid and gas

- Plant is specifically designed for Chemicals, Pharmaceuticals, Dyes, Food & Beverages and Automobile industry



Oil Water Mixture Separation

- Challenges:
 - In majority of Oil exploration operations, the waste that gets generated is a mixture of Oil and Water

 - This typically needs to be disposed of as waste as water removal from oil is currently a technology challenge

Oil Water Mixture Separation Solution

- EcoWater plant has been specially designed to meet this requirement of the Oil industry

- By using “cells” of the plant in parallel large quantities of the waste water can be treated to separate out Oil and Water

- More than 90% of oil can be extracted by this industry specific plant solution



Sea / Brackish Waste Treatment

- Challenges:
 - Adverse impact on marine life due to discharge of Brine (waste from desalination plants) into deep sea water
 - Energy Intensive technology
 - High capital cost of Construction and cost of Maintenance
 - High cost of Distribution of treated water for consumption by residents / industries / agriculture as plant is not close to demand points

Sea / Brackish Water Treatment Solution

- EcoWater can be efficiently deployed for desalination. The saline water is treated to generate usable water.
- EcoWater converts the saline water into potable water and the waste is removed in the form of solids and chlorine gas and hence does not impact marine life
- Consumes very less energy
- This solution is specifically for regions with large coast lines as the plant is “portable”, whereby the cost of distribution of water is significantly lower





TECHNOLOGY INTRODUCTION



Technology Solution

- EcoWater Treatment Plant functions in 3 Steps :
 - I – Water Oxidation
 - II – Filtration
 - III – Tertiary Treatment



Technology Solution – Step I

- I – Water Oxidation
 - Water to be treated is circulated in the DIHA TRONIC element
 - The duration of this step is dependent on COD (Chemical Oxygen Demand)
 - The DIHA TRONIC Element breaksup the organic and Inorganic substances



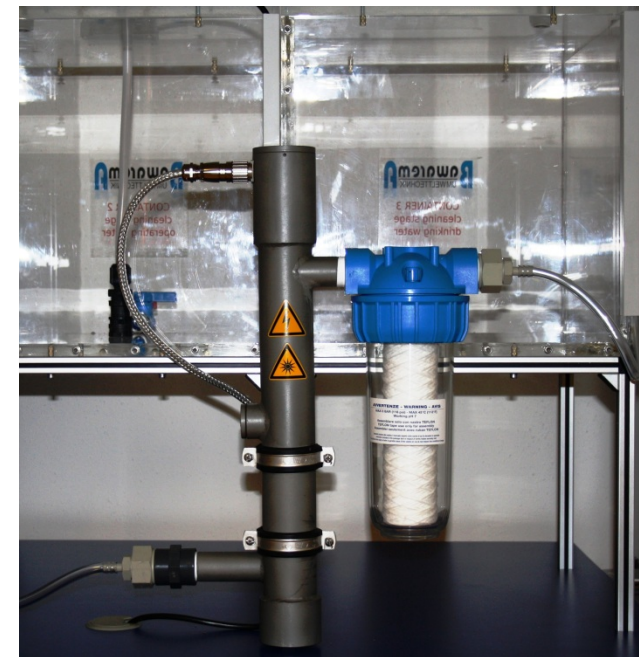
Technology Solution – Step II

- II – Filtration
 - The output of the DIHA Tronic Element is filtrated in 4 stages. The filters used do not require any chemical additives

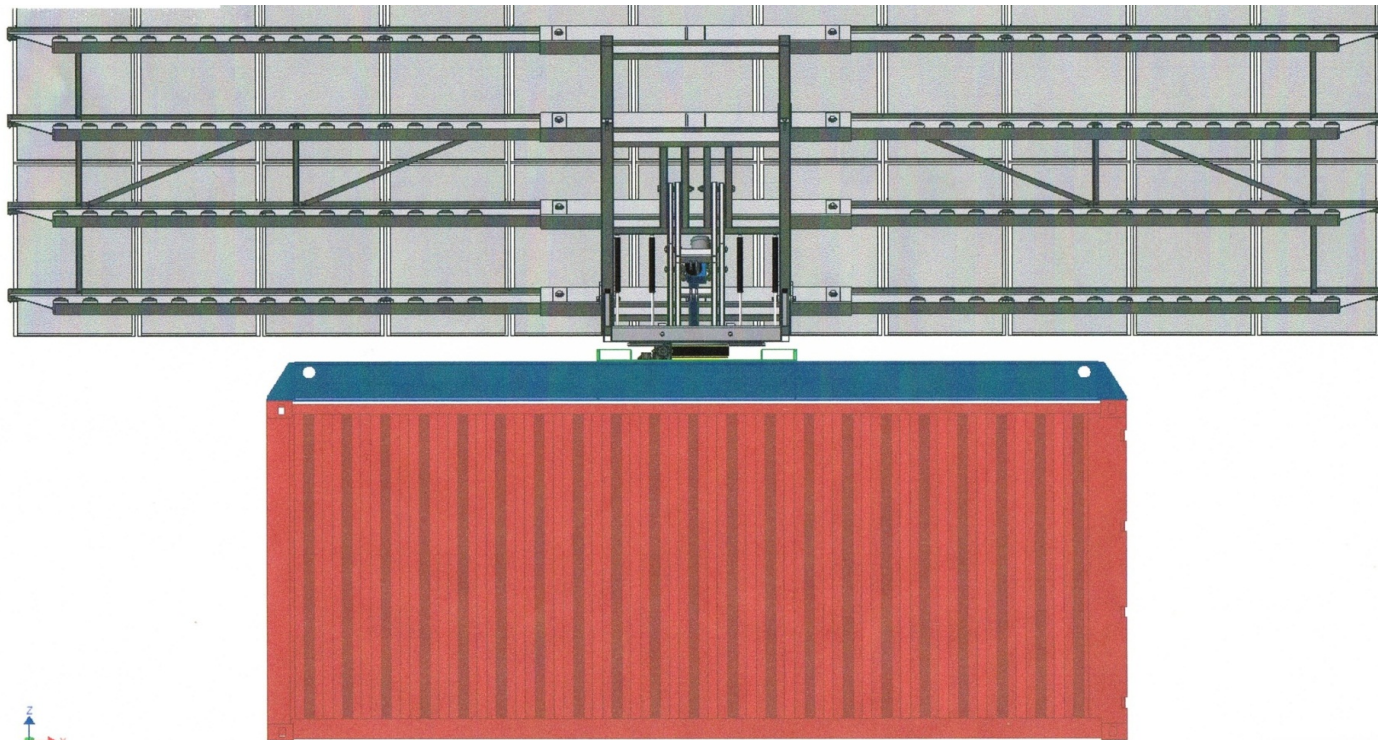


Technology Solution – Step III

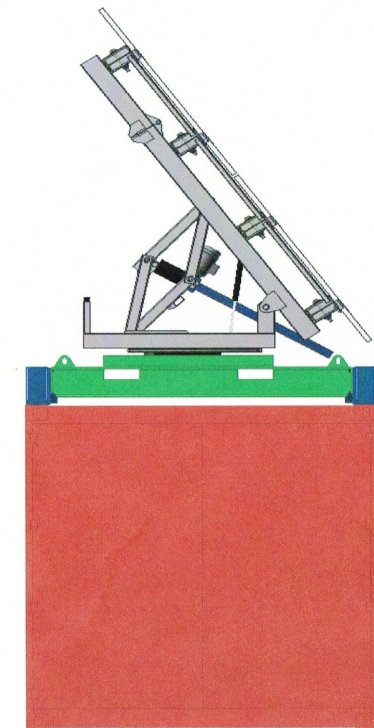
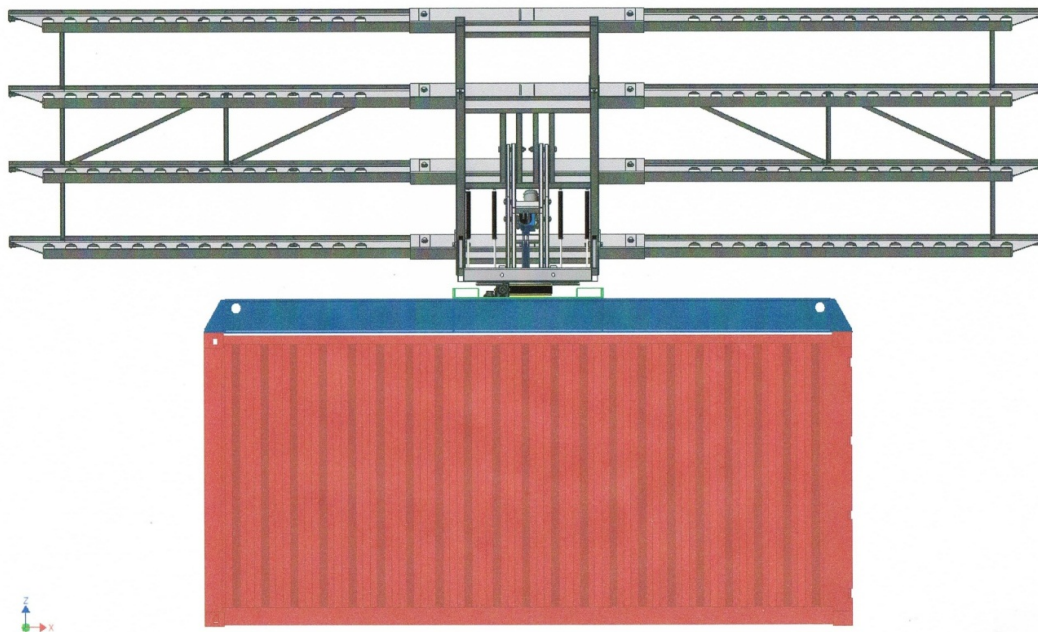
- III – Tertiary Treatment
 - In this stage particle filtering techniques are deployed and and / or additional UV exposure and is generally necessary when the output of the process needs to meet “Drinking Water” quality



Product Schematic – Solar Option (1/2)



Product Schematic – Solar Option (2/2)



Contact

Tony Wadhawan

Managing Director

(Geschäftsführende Gesellschafter)

B&T Solutions-HUB 4 Water Processing Technologies GmbH

Tel.: +49 172 210 6574 (Germany)

Tel.: +971 50 34 17264 (UAE)

Tel.: +91 98 718 43 904 (India)

Email: TW@solutions-hub.org

URL: www.solutions-hub.org

COMPANY PROPOSITION

This technology is unique and very suitable for coastal regions, for villages, for fields and equally important, for the Industry that uses very valuable local water and discharges unusable and at times toxic liquid that is dangerous for both life and the environment into the canals / Rivers and into the ground and into the sea.

The “Systems Solution” available today, immediately addresses the requirements in Africa, India, China, Middle East and South / South East Asia, maintaining at the same time the ecological balance in the individual regions. The packaged units of 1000 Liters per Hour and 4000 Liters per hour are housed in a 20 foot container and can be moved into place (i.e. : Commissioned) at short notice.

Expression of “Executive, Strategic and Commercial Interest in a Partnership / Collaboration” should be directed to **Tony Wadhawan**. This interest can be for Deployment, for Technology, for Manufacturing, for Financial (Commercial) partnership or for partnership that is Specific to project/s and could be in the form of: Joint Ventures / Partnership/s / License Agreements Franchisee Agreements, not limited to one Country / Region.