



AYALA WATER & ECOLOGY

A Nature-Based Technology for the provision of clean water

The Natural Biological System™

by

Ayala Water & Ecology



AYALA WATER & ECOLOGY

About Ayala - Who are we?

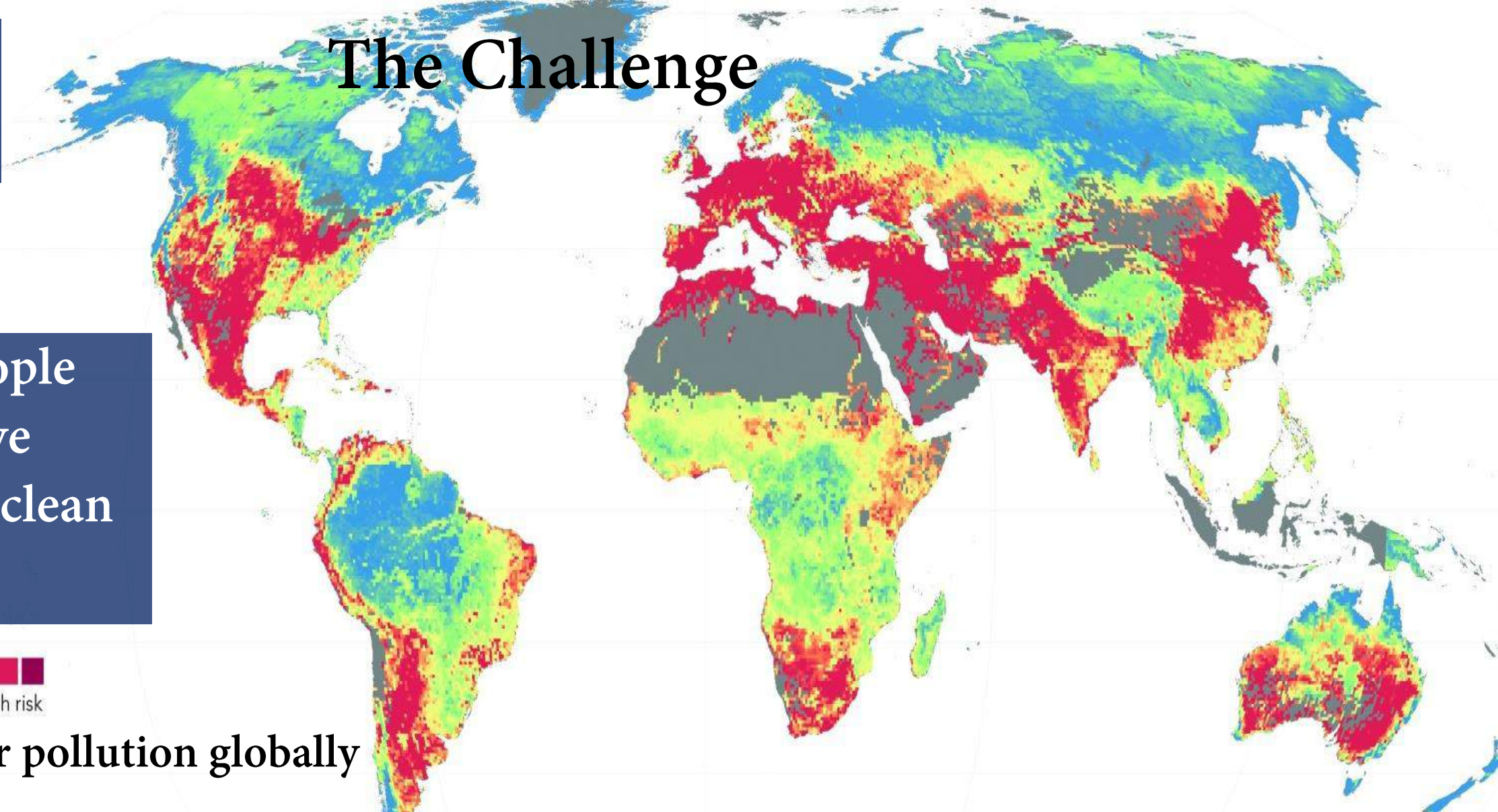
- ☞ Sustainability experts - 30 years experience
- ☞ Nature & thermodynamic-based technology
- ☞ Unique cutting-edge environmental solutions
- ☞ International Active experience
- ☞ Headquarters in Israel, subsidiary in India

The Challenge

1 in 3 people
don't have
access to clean
water



Fresh water pollution globally



80-95% of wastewater is dumped untreated – deterioration of water sources is rising
Worse in poor, rural & remote areas - Conventional treatments are not feasible



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The NEED

There is a need for a radical, “out of the box”, solution.

A cutting-edge game changer

A "Land-Mark" in nurturing the environment

Breaking the water-energy nexus

That can be easily implemented anywhere were it is needed.

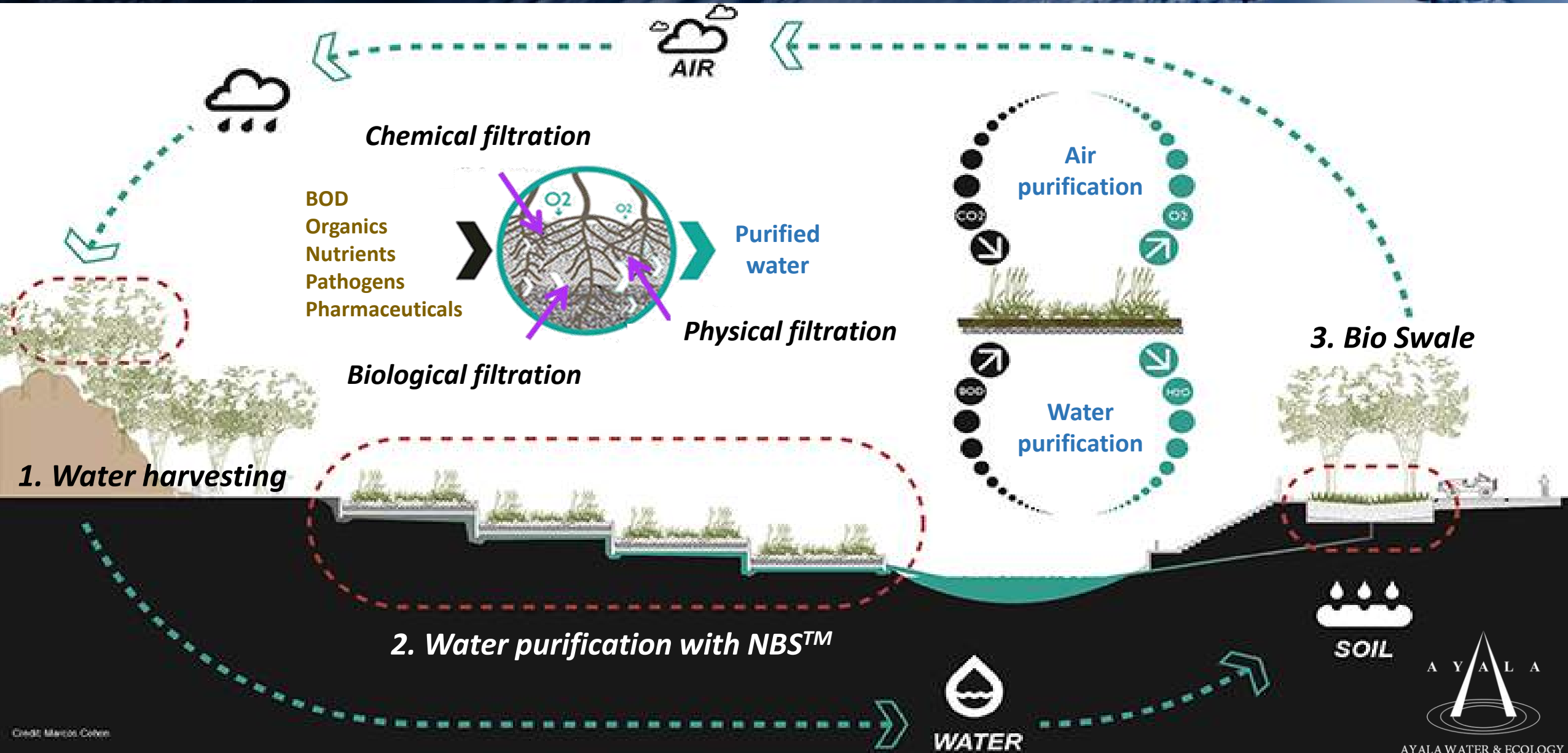


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The Natural Biological System™ (NBS™)

Our technology is a hybrid system based on thermodynamics, using a combination of biotic, abiotic components and hydraulic layouts, to holistically and simultaneously purify contaminated water, soil and air, breaking the water-energy nexus

Natural Biological System (NBS™)





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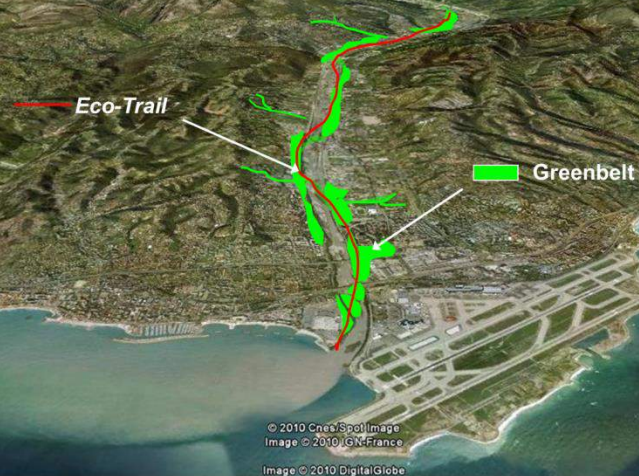
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Holistic Watershed Management And Eco Trail

Plain Du Var - Nice, France. (combined ECO-TRAIL and GREENBELT)

The Eco-Trail:

A continuous trail from the sea to the Alps through the Plaine du Var.



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Flood reduction

Control of storm water run-off

Rehabilitation of the natural landscape

Pre-treatment of water – avoiding contamination of water sources

Aquifer replenishment

Beach regeneration



Holistic Watershed Management

Musi River Watershed, Hyderabad

Treating raw sewage

Protecting the river

Rejuvenating lakes

Providing clean water for
irrigation for the Hyderabad Golf

Course (2 million liters/d)



Blue- Green Periurban Infrastructure

River Rehabilitation- Yarkon River

Periurban integration of NBS™

River rehabilitation

High -quality treatment

Urban landscaping

Return of biodiversity



Blue-Green Urban Infrastructure

Treatment neighborhood grey water, Ganei Tikvah, Israel

Grey water treatment and recycling

High quality water for irrigation

Aquifer replenishment

Natural “Active landscape”

Social space garden and ornamental
fishpond



Blue-Green Urban Infrastructure

Ampa Business Complex Grey Water Recycling, Tel Aviv, Israel

Grey water treatment and recycling

High quality water for irrigation

Free flow lotus and fish pond

Active Landscape

Relief from urban heat-sink



Selected Case Studies – Leachate

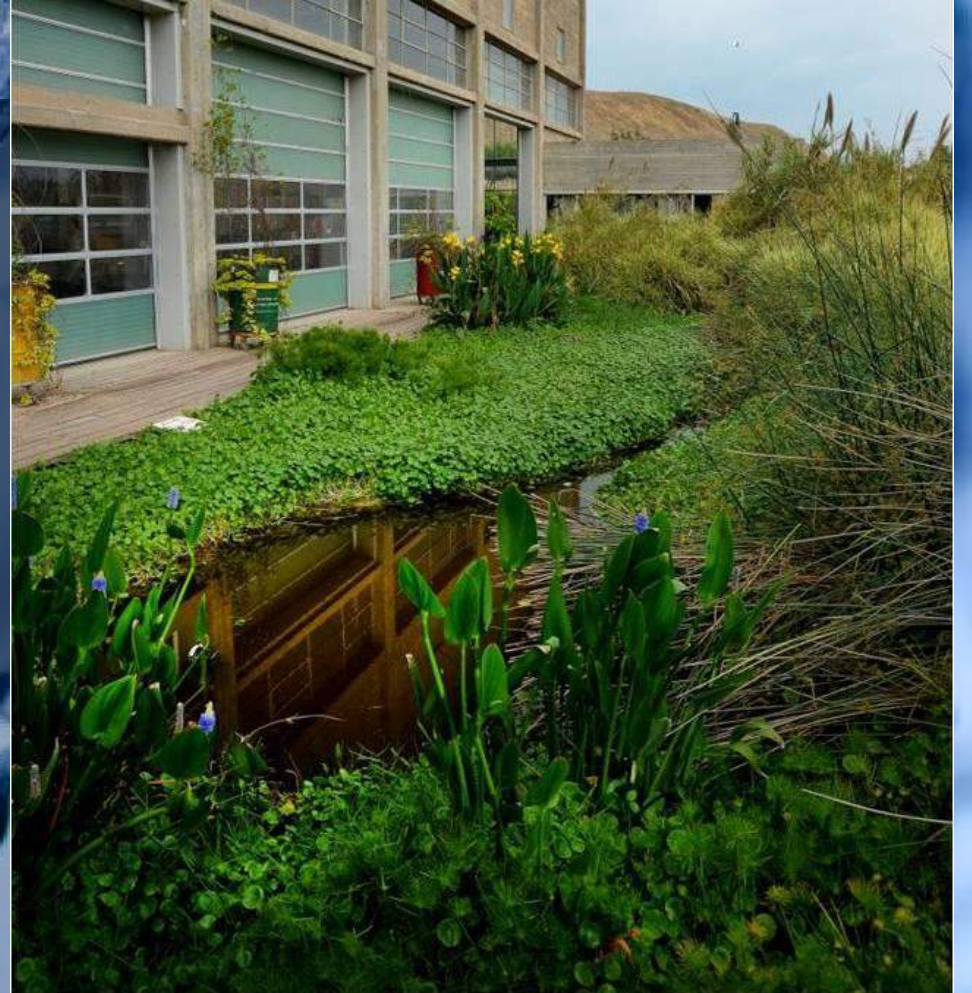
Treatment of Landfill Leachate – Hiriya, Israel

Treatment of health threatening contaminants

Protection of aquifer and nearby rivers

Protection of soil

Providing high quality water for irrigation



Selected Case Studies – Cosmetics

Industrial Sewage and Sludge Treatment- L'Oreal Cosmetics Plant, Israel

Onsite treatment of highly
contaminated and difficult to treat
water

Sludge treatment

Providing high quality water for reuse



Selected Case Studies – Hydrocarbons

Treatment of Power Plant Sewage, Ramat Hovav, Israel

Onsite treatment of wastewater containing Hydrocarbons, oils and heavy metals.

Providing high quality water for irrigation and aquifer replenishment

Reducing the cost and environmental risk of transport of sewage to treatment plant



Selected Case Studies – Textiles

Sustainable Textiles Treatment Nikunj Fabrics Ltd, Vapi, India

Onsite treatment of highly contaminated wastewater including heavy metals.

Provision of high quality water to inland irrigation standards

Protection of inland water bodies

Reuse of water into the production line with minor polishing

Low cost - in-house contracting teams



Selected Case Studies – Rural Solutions

Agricultural Settlement, Kibbutz Neot Smadar, Israel

Holistic treatment and reuse of wastewater streams including a fish farm (high ammonia), dairy farm and domestic sewage.

Providing high quality water for reuse, irrigation and ecological lake used as irrigation reservoir, organic fish farm and bird park.



BREAKING THE WATER-ENERGY NEXUS

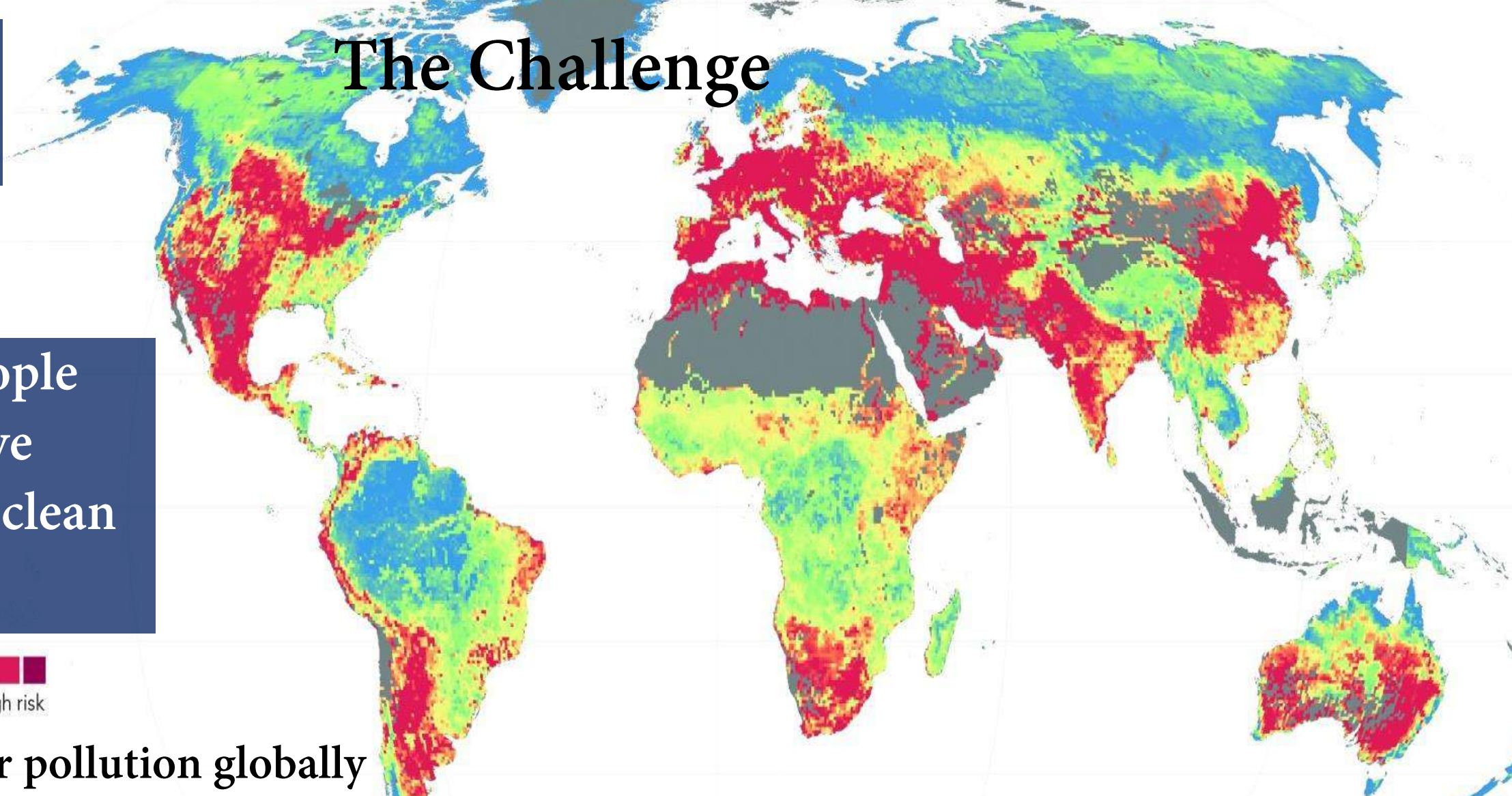
SUSTAINABLE METHODOLOGY TO PROVIDE CLEAN WATER





The Challenge

1 in 3 people
don't have
access to clean
water



Fresh water pollution globally

Worse in poor, rural & remote areas - Conventional treatments are not feasible
There is a need for cost effective, onsite, portable, ready to install, packaged,
sustainable solution

180° 120°W 60°W 0° 60°E 120°E 180°



SOLUTION - The PM-NBS™

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Sustainable



Modular



Portable



This project has received funding from the European Union's Horizon 2020 research and innovation program

Advantages of the PM-NBS™

- 🌀 Modular – Portable - Scalable – Flexible
- 🌀 Nature-Based
- 🌀 No Energy – No Maintenance
- 🌀 FAST to install – EFFECTIVE from day one
- 🌀 Long Lasting – 3 TIMES Longer Lifespan
- 🌀 Up to 50% LOWER CAPEX – up to 95 % LOWER OPEX
- 🌀 “ACTIVE LANDSCAPE” - Carbon sink





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Advantages of the PM-NBS™



Zero Energy



No sludge removal



No forced aeration



No Grid dependence



No skilled maintenance



No civil works dependence



No chemical additives



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Providing sustainable & steady water security and clean fresh water availability where needed

Capacity 10-40 m³/d
According to inlet quality and
desired output quality



Ayala-Eco - small systems

Ready to install

Small footprint

High quality output

Fully sustainable

Modular- scalable

Includes separation, treatment and
irrigation compartments

For single household to small
communities/industries





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AYALA ECO 1

For 1-3 persons/ to 4-7 persons

1-2 m³ of black water/day

1-4 m³ of grey water/day





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AYALA ECO 2/3 systems

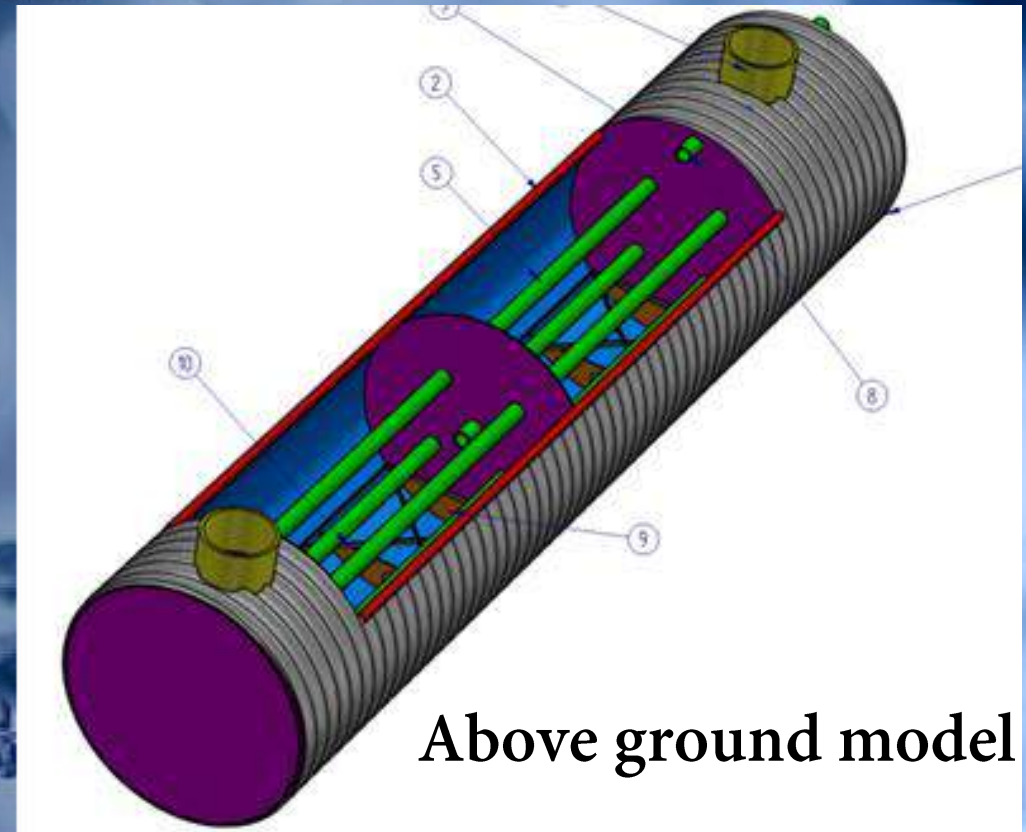
For medium to large households and small businesses

HyperFast® proprietary internal hydraulic installation

Treats 2-7 m³ of black water/day - Includes septic tank if required



In ground model



Above ground model

AYALA ECO 4 system

Suitable for cluster of houses or small communities

Length up to 12 m x Width 2.16 m (approx.)

Reinforced Paladex[®] frame allows implementation with minimal support

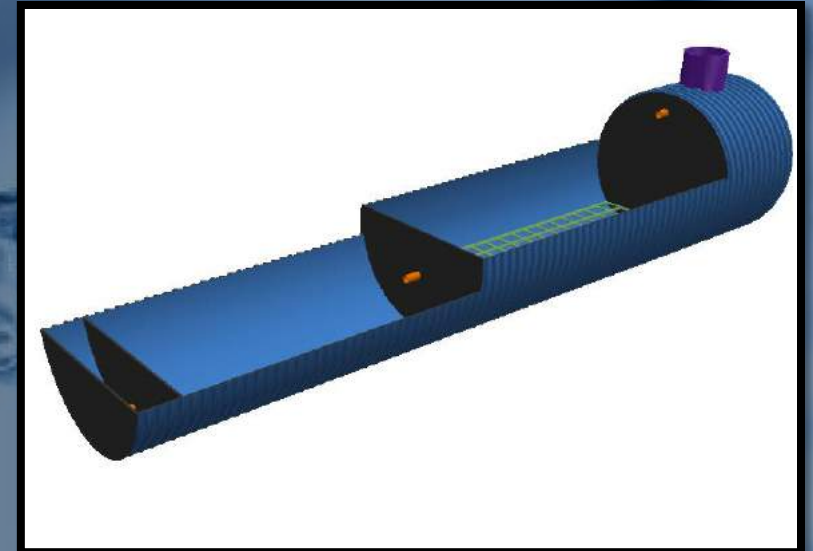
Hydraulic flexibility (sanitary/industrial)

Supplied with/without septic tank as required

Treatment capacity 6-12 m³/d

Built-in powerful gravitational hydraulics

Highly efficient, stable, long lasting



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Nature, to be commanded...
must be obeyed

-Sir Francis Bacon

Thank you!

