
BAMBOO
FOR LIFE
PRESERVE NATURE, IT WORTH IT

BAMBOO FOR LIFE
FILM

Click on play to see a presentation
or on the following link: https://www.youtube.com/watch?v=QuGDiQj7XO8

BAMBOO FOR LIFE AT THE HEART
GLOBAL PROBLEMS

Our planet is suffering :

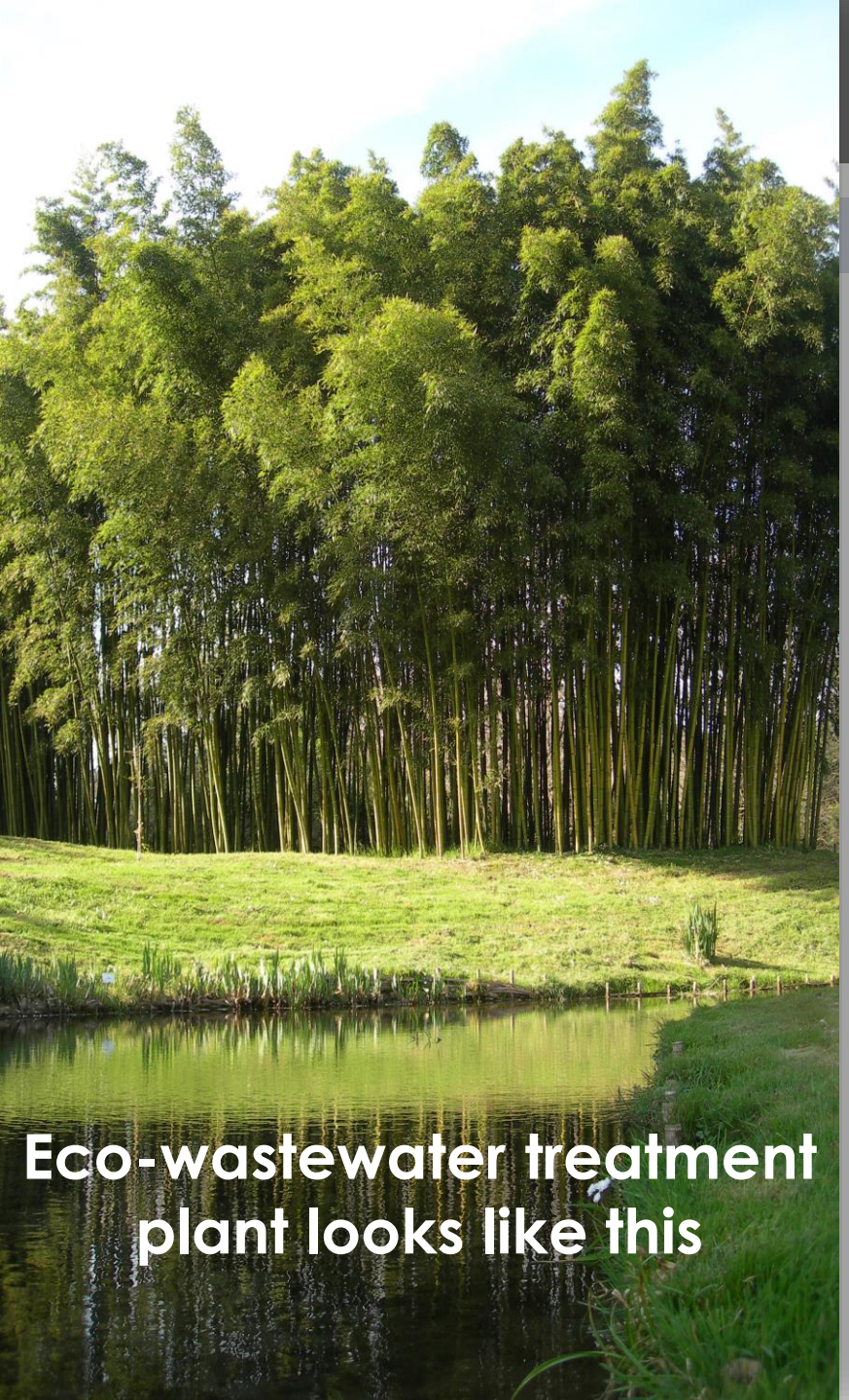
- Pollution (air, soils, water)
- Rising temperatures
- Lack of sanitation and drinkable water
- Rarification of fossil energies
- Massive deforestation

Bamboo For Life proposes one solution:

Creation of wastewater treatment plants using Bambou-Assainissement®

Economical, ecological, global and sustainable solution

BAMBOO FOR LIFE



BAMBOO FOR LIFE ANSWERS

Bambou-Assainissement® ONLY TECHNOLOGY IN THE WORLD able to

- **Treat wastewater** and **provide sanitation** to everyone everyware
- Reduce fossil energy needs by producing huge quantity of **renewable biomass**
- **Decresae carbon footprint** by sequestering carbon through bambou
- **Refresh the area locally** by two combined effects : canopy and adiabatic
- **Depollute the soils**
- **Preserve the natural water ressource** by eliminating pollution inputs
- **Recharge the water table on treated water**
- **Fight against soil erosion :** root stabilization thanks to the dense rhizome of bamboos
- Allow **productive reforestation**
- Create favorable **habitat** to the **development of biodiversity**
- **Improve quality of life** (reduce water and air diseases, vegetalize urban environment…)
- Make sustainable development become a **lever for growth of the economy**

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WHY BAMBOO AND NOT OTHER PLANTS?

Willow, poplar, eucalyptus, reed could be used…

But ONLY Bamboo cumulates exceptional features :

- Treat wastewater in any season in any country
- Air cooling area (Up to 20°C)
- Sequestrate high quantity of CO^2 (Up to 60 T/ha/year)
- Generate O^2 (Up to 30% more than other trees)
- Produce biomass (Up to 100 T/ha/year)
- Exceptional growth (Up to 1 m/day)
- Dense root sytem
- Superior resistance to steel

In one word, BAMBOO is a TREASURE

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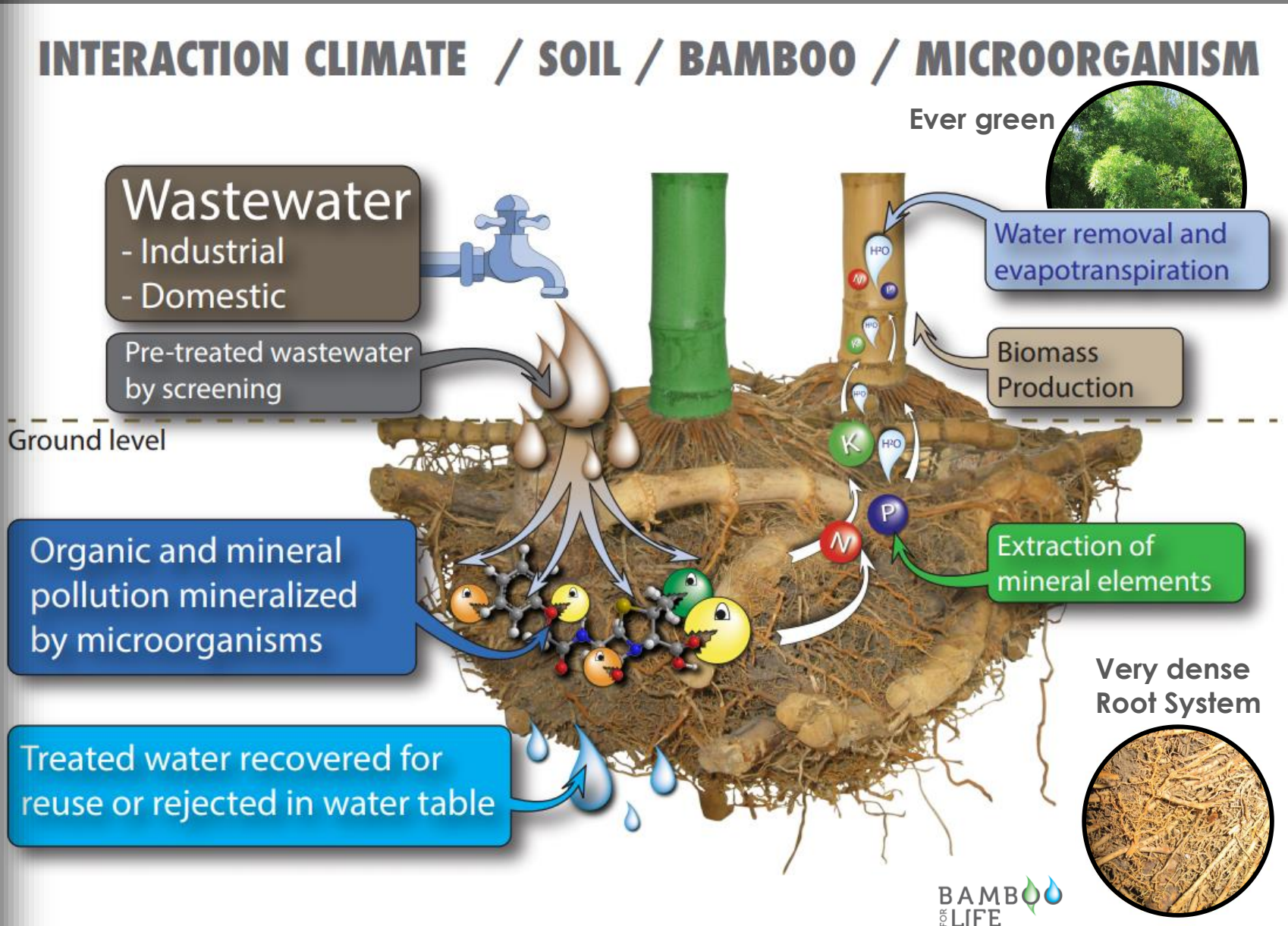
BAMBOU-ASSAINISSEMENT®: HOW DOES IT WORKS

After beeing pretreated by screening, the wastewater is uniformly distributed over the root system.

Molecular chains are degraded by microorganisms (bacteria) and thus transformed into mineral elements.
These elements (nitrogen, phosphorus, potassium) are then removed by the plant as they are its main nutrients.

Bamboo also intakes water that it will evapotranspire through its foliage and thus reject a perfectly pure water in the atmosphere.

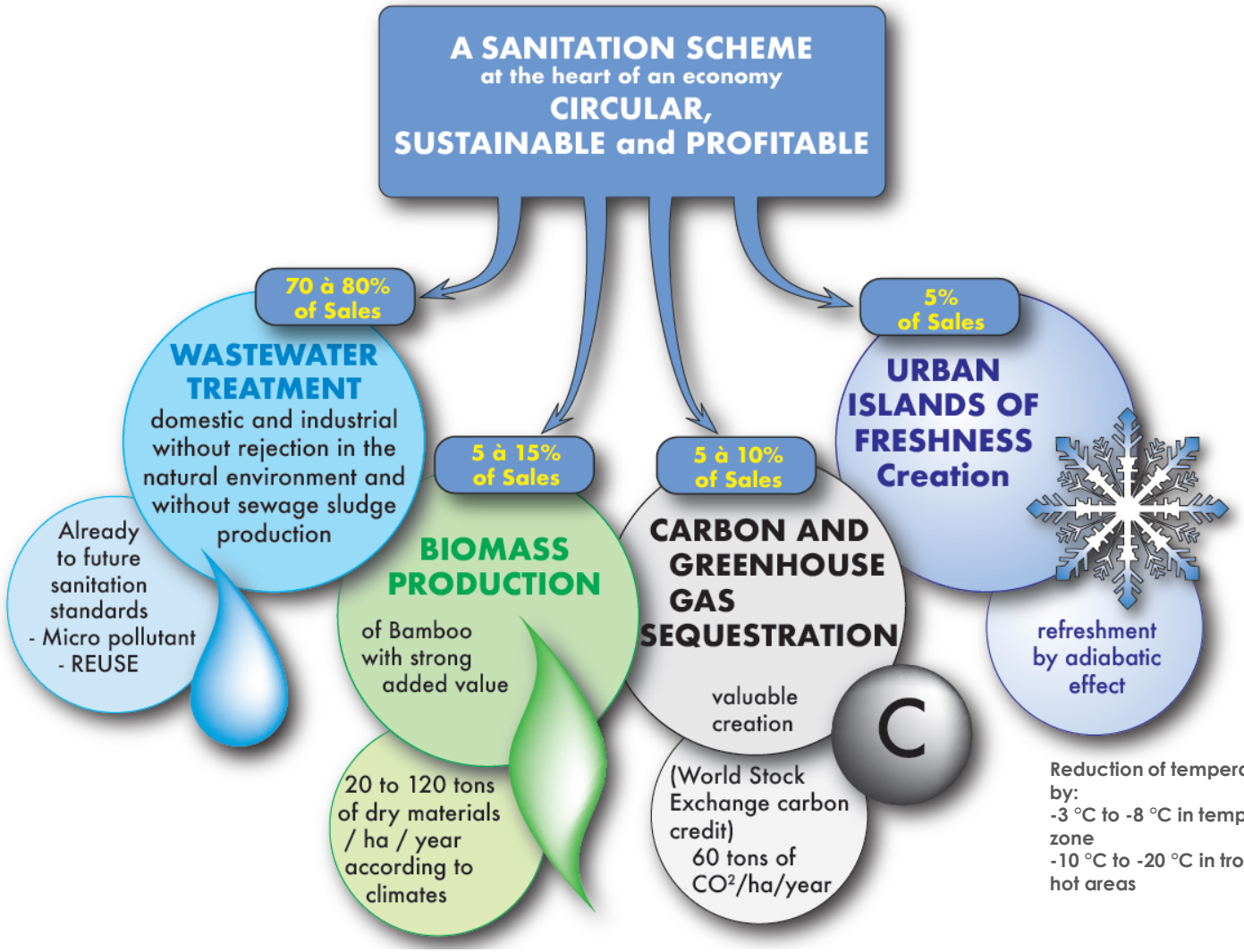
The treated water that has not been removed by the plant will recharge the water table.



THE GLOBAL OFFER

The ambitions of Bamboo For Life

- Positioning in 4 markets (Core Business Sanitation)
- Become a key player in the environment sector due to the very wide range of controlled functionalities
- Deploy its solution worldwide thanks to its advantages:
- Know-how bringing international opportunities
- Strong duplicability of the solution: the technology easily adapts to local resources and constraints.
- Regardless of the country of installation, the labor and materials are local



PROMISES OF THE OFFER

SANITATION

- Purification result above standards
- Zero rejection in the natural environment
- Zero sewage sludge
- Reduction of toxic gases due to the degradation of wastewater in the open air
- Decrease in infant mortality linked to water-related diseases
- Protection of water resources by elimination of input pollutants
- Groundwater recharge by recharging with treated water

BIOMASS

- Abundant and valuable bamboo biomass production
- Up to 100 t per ha / year
- Eternally renewable biomass
- Biodiversity development
- Reforestation
- Vegetation of urban areas
- Stop soil erosion: Dense rhizomes

CO2 SEQUESTRATION

- Carbon trap
- Up to 60 t CO2 / ha / year sequestered
- Pollution reduction
- GHG reduction
- Reduction of diseases linked to poor air quality

REFRESH

- Average drop in outside temperatures
- Between -8 °C and -20 °C in tropical zones
- Between -2 °C and -8 °C in temperate zone
- Feeling of well-being
- Improved quality of life

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OFFER 1 : ECO-WASTEWATER TREATMENT

- 1 patent : Bambou-Assainissement ®
- Validate by French Government (Agence de l'Eau)
- Totally vegetal
- Low energy needed
- No sewage sludge -> No additional costs
- Zero polution rejection
- Soil remediation
- Suitable for any climate including tropical
- Revegetation of forest
- Use local materials
- Employ local staff
- Training academy -> transfer know-how, awareness

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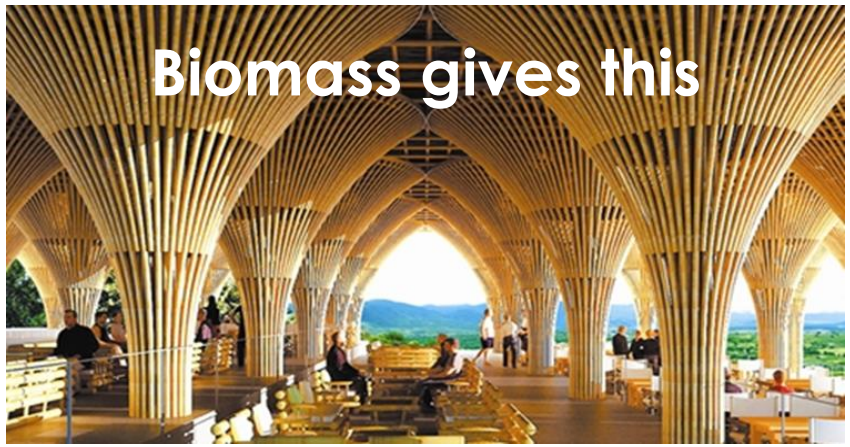
OFFER 2 : PRODUCTION & VALORISATION OF BIOMASS

Biomass production in large quantities

- Indefinitely renewable
- Biomass production up to 100 Tons/ha/year
- Exceptionnal growth up to 1m a day
- More resistant than steel
- Higher CalorificValue (HCV) : 5 400 Kcal/ Kg
- A lot of potential exploitation: bioenergy, wood industry, textile industry, Bamboo charcoal



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OFFER 3 : CARBON SEQUESTRATION

New concept
From Polluter pays To Polluter acts

Bamboo absorb up to 60 tons of CO^2 /ha/year

The prices of carbon sequestration are exponential in a carbon-free economy

Prices set by the right to pollute market

	2017	04/2018	2020	2030
(€/T)	4	13	25	38 à 50

Source: World Bank

« The evolution of the price of a ton of carbon will increase from **44 euros** at the end of 2018 to **86 euros** in 2022 »

Source: Climate plan of Paris

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OFFER 4 : BIOCLIMATIC COOLING IN OPEN AREA

2 combined effects

Canopy effect

- Total shading of the soiL
- Reduction of solar radiations impact

Adiabatlc effect

- Water evaporation
- Consumption of heat at the moment of the passage of water from the liquid state to the gaseous state

RESULT : Reducing temperature up to -20°C

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WASTEWATER TREATMENT PLANT: COMPARISON OF TECHNOLOGIES

BAMBOO FOR LIFE		CLASSIC STATION
ANY	SEWAGE SLUDGE	IMPORTANT
ANY	ODOUR	YES
ANY	NOISE	IMPORTANT
VERY WEAK	ENERGY CONSUMPTION	IMPORTANT
POSITIVE	VISUAL IMPACT	NEGATIVE
YES up to 100 t/ha/an	BIOMASS	ANY
YES up to 60 t/ha/an	CARBON SEQUESTRATION	ANY
YES up to -20 °C	REFRESHMENT AREA	ANY
GOOD ADAPTABILITY	ADAPTATION / OVERLOAD	DYSFUNCTION

COMPETITIVE ADVANTAGES OF BAMBOU-ASSAINISSEMENT® TECHNOLOGY

Societal

- Contributing to the UN Sustainable Development Goal (SDG 6) for **access to water and sanitation**
- **Positively impact** quality of life, economy and health
- Helping the underprivileged because we live on **one and the same planet**
- Building the **city of the future** with a **productive Green-Architecture** in urban and peri-urban areas

Environmental

- Totally **vegetal** plant
- **Zero rejection** in the natural environment
- **Preserve** and **recharge** water table
- Soil **remediation**
- Fight against **soil erosion**
- **Low** use of **fossil fuels**
- Adaptable to **any climate** including tropical

Citizen

- **Eco-citizen awareness** through the proximity of the sites and the educational visits
- **Polluter actor** replaces polluter pays
- **Reuse** treated wastewater (toilet flushing, green spaces ...)

Economical

- **Income 1** : Operation of the **wastewater treatment plant**
- **Income 2** : Sale of **carbon sequestration**
- **Income 3** : Production and valorization of **biomass**
- **Income 4** : **Bioclimatic cooling**

Financial

- Strong **profitability**
- **Investment cost -30%** VS classical plants
- **Exploitation cost -30%** VS classical plants (no sewage sludge costs)
- **Local sourcing** : human and material

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THE SUSTAINABLE AND RESILIENT CITY

Bamboo For Life offers a new vision of the city of the future using **Bambou-Assainissement®**

- **Parcellisation** of wastewater treatment plants inside the eco-city
- **Wastewater treatment** at **eco-neighborhood** level
- **Vegetal** treatment plant on the **gardens** of the buildings
- **Reuse** of Treated Wastewater for flushing, irrigation (green spaces, golf courses, etc.) or for industrial use
- **Bouquet of freshness** thanks to bioclimatic cooling
- Establishment of **productive landscapes**
- **More breathable atmosphere** thanks to carbon sequestration
- Installation of a **biodiversity**

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ECONOMIC MODEL

SANITATION

- Ownership + Operation of the station
- Operation of the station
- Turnkey station sale
- Licensing

BIOMASS

- Sale of biomass produced
- Soil stabilization mission

CO2 SEQUESTRATION

- Sale of carbon credits on the market for pollution rights
- Mitigation of greenhouse gas emissions

REFRESH

BIOCLIMATIC REFRESHMENT

- Area cooling service

UNITES DE VENTE

- Price per sanitized m3
- Royalties on turnover

- Price per ton of biomass produced

- Price per ton of CO2 sequestered
- Price per ton of greenhouse gases not emitted into the atmosphere

- Price per lowered degree bracket (° C)

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TARGET MARKETS

WASTEWATER SANITATION

- Farmers / Viticulturalists: Treatment of effluents from activities
- Food Industry: treatment of effluents generated by activities
- Inter-municipal authorities (NOTRe law) treatment of users' wastewater

BAMBOO BIOMASS

Bamboo / 1st material

- Professionals who use biomass as a raw material or substitute product (public works, plastic sector, biogas, biofuels, etc.)
- Industrialists looking for new sources of energy

Bamboo / reforestation

- States victims of massive deforestation and considering mixed programs coupling reforestation, sanitation and production of value

Bamboo / Biodiversity

- Governments and communities wishing to implement biodiversity in the city and urban forests

CO^2 SEQUESTRATION

- Industrialists looking for pollution rights and carbon credits
- Governments and communities wishing to reduce pollution in the resilient city

BIOCLIMATIC REFRESHMENT

- Communities wishing to find solutions to the problem of global warming

The size of the clients varies: From a few hundred inhabitant equivalent to several hundred thousand inhabitant equivalent

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REFERENCES

Bambou-Assainissement® has proven itself:

50 Wastewater treatment plant - 100 000 m² of bamboo - 40 000 inhabitant equivalent

REFERENCES BY GEOGRAPHICAL AREA AND SECTOR OF ACTIVITY

Municipalities in mainland France

- Community of municipalities in the country Of Santon (17)
- Bascons (40)
- Vezins (49)
- Buros (64)
- Sillé-le-Guillaume (72)

Agro-Food Industries France

- Danone (74)
- Nestlé Waters France (30)
- Rio Tinto Alcan (13)
- Fruival (26)
- Fromagerie Cacard (13)
- Usine Délifruits (26)
- Imprimerie Pocheco (59)
- Agnel SAS (84)

Wineries France

- Château de Sulauze (13)
- Domaine des Remizières (26)
- Union des jeunes viticulteurs récoltants (UJVR) (26)
- Prieuré de Montezargues (30)
- Vignobles Rousseau (33)
- La Croix Belle (34)
- Champagne Larmandier-Bernier (51)
- Château Rio Tord (83)
- Domaine de Triennes (83)
- La Lauzade (83)
- Domaine de la Renjarde (84)
- La Verrière (84)
- Château de Reignac (33)
- Château Lancyre (34)

Hospital France

- La Renaissance Sanitaire, Villiers Saint Denis (02)

Campsites / Hotels / isolated infrastructures

- Camping à la ferme Miramas (13)
- Moulin de Mme Riotton (84)
- Domaine de Grand Cabasse (13)
- Domaine de Livières (30)
- Château les Carasses (34)

Towns Reunion Island (Indian Ocean)

- Saint-Leu (97)
- Saint Philippe (97)

Agro-Food Industries Reunion Island

- Compagnie laitière des Mascareignes CILAM (97)

Reunion Island agricultural school

- Agricultural and horticultural technical high school CPPR of Saint-Joseph (97)

Mexico

- Airbus Helicopter factory, inaugurated by President François Hollande

Guinea

- Kofi Annan University, 11 500 students

Philippines

- Urdatena University City, 12 000 students
- Enzo Tech Calatagan University, 300 students

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A PROPERTY ASSET HELD AND FUTURE R&D PROGRAMS

ACQUIRED

The success of a treatment station exploiting Bambou-Assainissement® technology requires experience and know-how kept secret by its President-Founder

Here is a non-exhaustive list of parameters for optimal treatment efficiency:

- The location climate
- Potential evapotranspiration values
- Rainfall
- The nature of the soil (hydro-pedological structure, useful reserve, permeability)
- The water load of the effluents to be treated
- Concentrations of effluents in elements
- The choice of bamboo species to use from 1200 species
- Rejection standards
- The need or not for zero discharge to the surface natural environment
- Whether or not to reuse treated water
- Landscape integration
- Available areas
- The peak flow of effluent production
- Effluent storage capacity, buffering
- The nature of the pollutants (composition, density, quantity ...)
- The nature of the site where the installation is to be located
- The types of bacteria to activate for an optimized result (bacteria-plant consortium)
- Etc.

Taking these parameters into account represents our know-how

TO COME UP

In addition to the perfect mastery of the Bambou-Assainissement® technology, we are implementing an innovation strategy

Objective: Become a leader in the phytoremediation sector

This requires continuous R&D programs:

R&D PROGRAM 1: MANAGEMENT OF METHANIZATION DIGESTATES

R&D PROGRAM 2: DECONTAMINATION OF INDUSTRIAL WASTE

R&D PROGRAM 3: CHLORDECONE IN THE FRENCH WEST INDIES

Scientific partners
AMU University - M2P2 Laboratory, CIRAD, IRSTEA, CNRS, INRA, CEREGE, GERES, SEREG, ADEME, Chamber of Agriculture

Bamboo For Life will file a new patent during 2020

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BAMBOO FOR LIFE – FIGURES & IMPLANTATION

3 M€ R&D

3 PhD Theses

50 Installed treatment plants

- **Metropolitan France**: Communes, Food Industries, Wineries, Campsites
- **France Indian Ocean**: Municipalities, Agro-Food Industries, Agricultural Schools, Hospitals
- **Latin America:** Mexico (Airbus Helicopter factory inaugurated by French President François Hollande)
- **Africa:** Guinea (Kofi Annan University 12,000 students)
- **Asia:** Philippines (Urdatena City University 12,000 students / Enzo Tech Calatagan University 300 students)

BAMBOO FOR LIFE

We created OPEN

Yes, we can change the world with a vision of solidarity

Bamboo For Life is a paid solution

We don't forget those who cannot afford it

OPEN
Organisation Pour l'Eau et la Nature

Objective: Facilitate access to sanitation in developing countries

- Implant **wastewater treatment** plants
- Find **subsidizes**
- **Manage** files
- Transfer **knowledge**

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PRESERVE NATURE, IT WORTH IT

Contact

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TECHNOPÔLE DE L'ENVIRONNEMENT ARBOIS-MÉDITERRANÉE

AFRICALink
La communauté des entrepreneur(e)s, d'Afrique, de Méditerranée et d'Europe

Capenergies

OPEN
Organisation Pour l'Eau et la Nature

AQUA VALLEY
MEMBRE

La FRENCH TECH
AIX•MARSEILLE
RÉGION SUD

ENTREPRISE REMARQUABLE
Initiative France

MEMBRE
ÉCO entreprises