Sustainable Communities

Coast of Ecuador

S U A

Bringing true sustainability
to communities
The Garden of Villages

Prepared for Justin Last, Industry RE in the Caribbean

06/01/2013

WHY?

- Exceptionally vulnerable to external fluctuations due to fragile ecosystems and high dependency on mainland logistics and supplies
- Therefore, the global prognosis for climate change, mineral resources, energy, water, and food security is of great concern
- First to suffer will be islands as they lack resilience
- First to be helped should be island communities
- BE Sustainable views problems as opportunities!

WHAT?

- We address how to supply basic human needs at the local level wherever possible, including:

  - Energy
  - Water
  - Food Security
  - Waste
  - Shelter
  - Education
  - Health
  - Employment

- We close systemic loops by doing better, much, much better, at utilising what we have - where we are

- We connect and match problems with solutions via technology, social enterprise, intelligent funding solutions and innovative 'systems thinking' business models to promote local economic prosperity

HOW?

- Matching locally available resources (including waste streams) to local needs, bringing the two together in creative and innovative ways using cutting edge technologies and business models to generate local employment and economic growth
- BE Sustainable undertakes:
  - Scoping: studying the local situation
  - Analysis: idea harvesting
  - Enterprise startup: turning ideas into action
  - Access to funding: enabling action to grow
  - Technology: access to innovative technologies
  - Integrated Design: closing loops and connecting resources
- BE Sustainable ensures local ownership and knowledge transfer through establishment of social enterprises

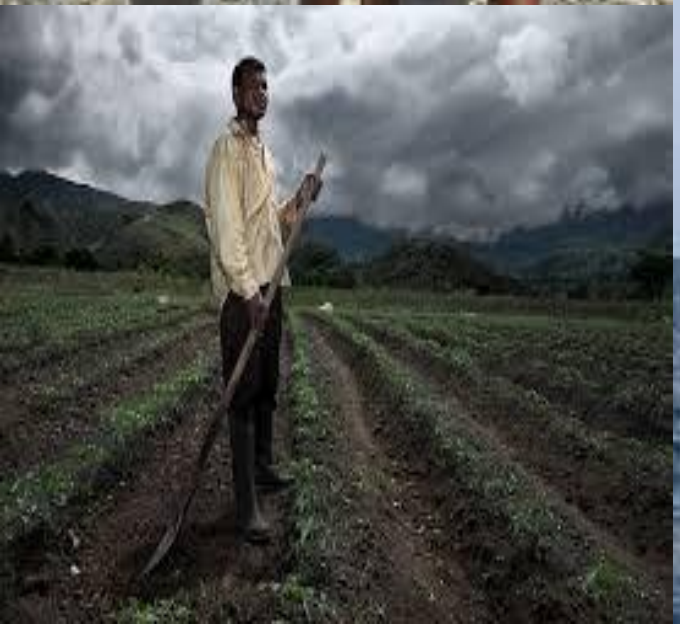
WHO

- Inspired by: Prof. Gunter Pauli, The Blue Economy and the Club of Rome
- Founders: Dr Martin Blake, a global sustainability expert specialising in island sustainability and Mr. Phil Risby, a renowned business leader, innovator and entrepreneur
- Advisory Board: Liz Hosken, founder Gaia Foundation, May East, Exec Director, CIFAL, United Nations, Polly Higgins, initiator of the international law of Ecocide
- Advisors and Consultants: Extensive team of world leading advisors and consultants

THE BLUE ECONOMY

- Putting the principles of the Blue Economy into practice by matching local problems to local needs
- Enabling innovative technologies into real world business opportunities
- Facilitating intelligent funding to local enterprises creating secure well paid local employment, local economic growth, sustainable solutions, greater independence and enhanced resilience

PROJECT EXAMPLES



Beachfront Property, hills and low / Virgin Real State Land

The property is located in Sua, to one side of the via Esmeraldas - Muisne, House Hotel

It has 542 hectares, of which 162 hectares are glued to a private beach (the beach is 6 kms from the front virgin)

The rest of the property, approximately 80 acres are low and 300 acres of hills with great views (from some points you can see Atacames, Tonsupa, Sua and Same). If the day is clear, you can see boats departing from the port of Esmeraldas

Potential to develop 4 or 5 independent private beach

FISHING WITHOUT NETS

THE SOLUTION:

❖Fishing catamaran capable of generating its own energy based on both solar and wind. His catamaran has 4 rigid sails that can turn 260 degrees, equipped with 4 sets of solar panels.

❖The boat has 2 underwater generators, which generate additional hydropower from currents. The novel concept obtained an international patent in 2010 for this multimodal hybrid ship that can sail at 13 knots with 50 tons of processed fish on board and be a net producer of energy for on board processing.

❖The catamaran makes circles and releases air bubbles out of a large vertically immerged ring that confines the fish and make them rise upwards, except the larger ones that can escape, so that procreation still continues.

❖This new fishing boat keeps the fish alive and asleep at low temperature, due to the cooling capacity of the circulating water in the dual-function water- and photovoltaic cells at night (reaching as low temperatures as 6°C or 43°F).

❖ A technique is being developed that allows female fish with eggs to be identified and returned to the ocean.

❖ After the fishing, but still on the ship, the fish fillets are made, the heads crushed for the extraction of omega 3, some fish smoked, and the bones processed.

❖ If only 2/3th of the waters are fished, sufficient fish remains to ensure sustainable fishing, forever.

REFORESTATION

The BE solution:

- Plant bamboo to encourage water retention and become a net water producer rather than consumer
- Use bamboo tops for local paper industry creating new jobs and avoiding the monoculture of non-indigenous eucalyptus planting and harvesting and provide local employment and additional revenue streams
- Use bamboo stems to reinforce concrete for social housing projects providing better living conditions and local industry
- Combine tailings with local calcium carbonate to produce better building materials and new local industries

Zero Municipal Waste

Municipal waste is a global problem. Conventional approaches of burying or burning are not sustainable. By integrating a number of technologies it is possible to achieve zero waste, increase local enterprises and reduce reliance on imports

- Enzymotic treatment of organic fraction producing liquid fuel and waste separation in one step
- Separation of plastics from metals and reprocess plastics or plastics to oil
- Split organic fraction as may be required to process into compost
- Metals recovery
- Combined facilities to enable best use of integrated processes

TRANSPORTATION

Bamboo Treecycle. There is an increasing awareness of the environment and green issues in China, as can be witnessed by many excellent government and private led initiatives. The humble tricycle has never been considered an attractive or prestigious enough medium for outdoor. Yet an attractive modern-looking tricycle, that is built to the highest technical standards, is sure to revolutionize the image of the tricycle in the public eye.

MGT Engineering

Waste to Food

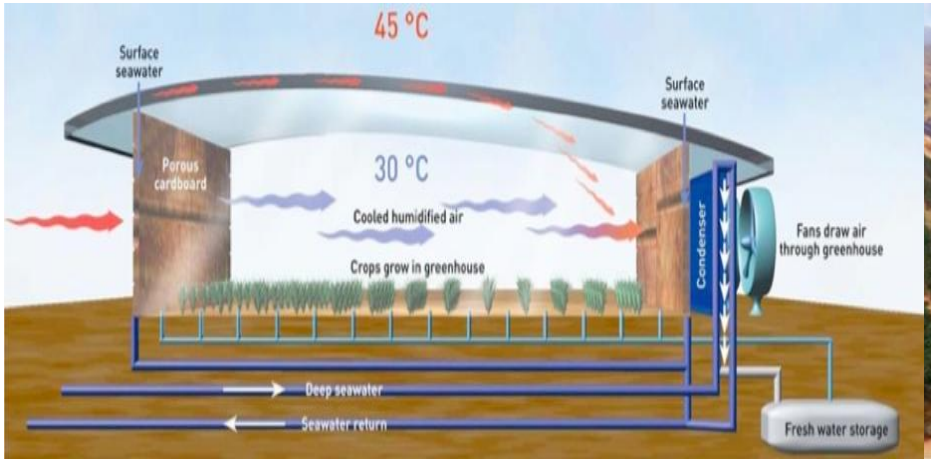
Business in a box models – turning free wastes streams into profit streams

- Coffee grounds wastes to Shitake mushrooms

Coastal and Agriculture

Free water, cheaper food and increased land value

- Eliminates the need for reverse osmosis, saves energy, produces high quality food, creates jobs, increases local food security and increases the value of marginal coastline



Other project areas

Free water, cheaper food and increased land value

- Sustainable forestry project in Colombia – Las Gaviotas
- Low cost social housing
- Large European brewery
- Sustainable island (Canaries)
- Sewage and MSW project (Vietnam)

TECHNOLOGY EXAMPLES

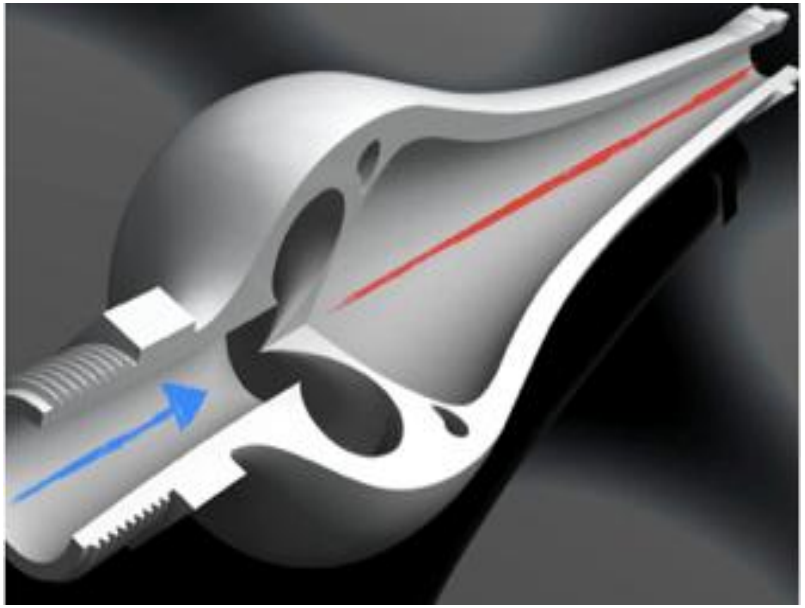
Waste to Fuel

Converting mixed waste to liquid fuel

- Simple bio-chemical process mimics digestion
- Modular, small or large scale are all economically viable
- cost effective, payback in around 12 months
- Input – mixed wastes
- Outputs, clean metals, plastics and a valuable fuel - Butanol

Water Treatment

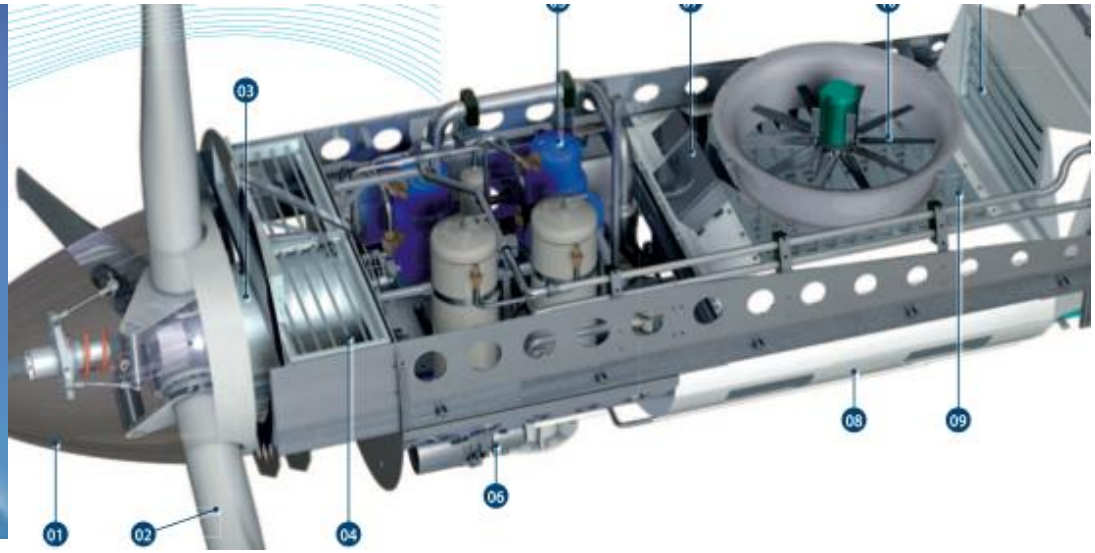
Simple, natural, no moving parts, water treatment to remove particulates and contaminants from water



Wind to Water and Energy

Direct long life simple conversion of wind to electricity and water

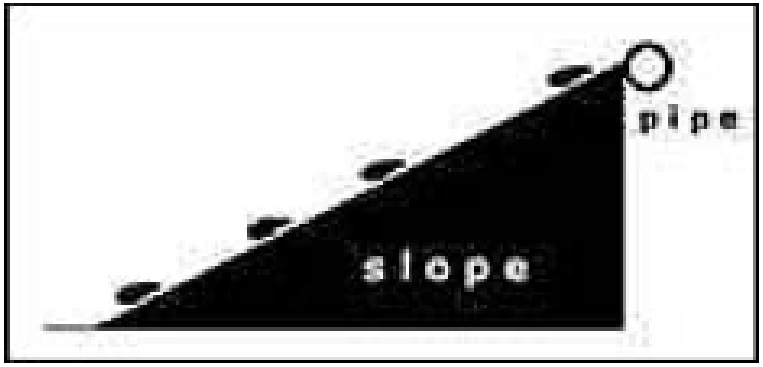
- Simple 30KW energy and 1200 liters of pure drinking water per day



Sewage and Organic Waste Treatment

A very simple system for manure management in animal housing where wild populations of black soldier fly colonize the fresh manure that has dropped to a lower level

- Simple A simple ramp and PVC pipe system directs pre-pupae to self-harvest for resource recovery
- No extra facility or energy are required. This system can work for a few animals or a large farm
- Approximately 58 tons of pre-pupae could be self-collected from the manure of 100,000 hens in 5 months



Waste to Compost

Organic waste to high purity compost

- Simple natural self powering process to convert organic wastes and biomass to high fertility compost plus energy

Sustainable Tourism


1
Team
Dream
Nation

Sustainability

Dr Martin Blake

Martin is a visionary strategist in the sustainable development movement and an award winning Top 100 Global Sustainability Leader

May East

May is a sustainability educator and designer heading two international organisations: Gaia Education and CIFAL Scotland - UNITAR Associated Training Center for Northern Europe

Phil Risby

Phil works closely with Gunter Pauli and is a passionate advocate of Blue Economy Sustainability. Phil's drive is to transform ideas and aspirations to practical and financially viable reality.

BE Design

Nigel Grier

Integrated design & Total Water Cycle Management

Nigel has over 15 years extensive design and construction experience in the tropics most notably in Northern Australia on the Great Barrier Reef and more recently Indonesia & Singapore working in the mining, energy & water resources, property, government & NGO sectors.

Nigel has developed a holistic & multidisciplinary design process that explores the whole range of ways that design can contribute to a more sustainable society.

Corporate Social Responsibility

Dr Martin Blake

Martin has more than 30 years experience in sustainability and is the innovator of the holistic 6 Pillars Approach to Corporate Social Responsibility (CSR). He has deployed one of the most successful energy conservation programmes in the world. Martin's specialist expertise is in developing strategic plans and influencing high profile stakeholders with both governments and non-government organisations, as well as within the postal, construction, healthcare, oil and gas and charity sectors

Russell Workman

Russell also has specialist experience in triple bottom line, environment and sustainability issues, environmental employee engagement strategy, emissions auditing, carbon assessment, and how to save money and raise revenue by incorporating environmental strategy. Russell has been a guest of World Business Council for Sustainable Development, attending the United Nations Framework Convention on Climate Change, and an initial contributor to the Australian Banking Associations Climate Change Action Group.

Energy

Steven Fawkes

Steve is an experienced professional with recognised expertise in energy issues, technical, managerial and financial experience, proven skills in start-up and large companies, and cross-cultural experience. Steve advises the UK government on energy efficiency

Miriam Maes

, Miriam has been appointed Advisor to the new Energy Efficiency Deployment Office in the Department for Energy and Climate Change (DECC) and was actively involved with the Department on Energy Efficiency and Decentralised Energy policy matters until March 2012

David Strong

David has been MD of BRE Environment responsible for delivering the UK governments Energy Efficiency Best Practice Programme (BREEAM).

He has considerable expertise with the integration of renewable energy systems

Waste

Phillip Mossup

Phillip is an expert in recycling, energy and carbon management and renewable energy He has over 4500 sites under management in the UK. Phillip was voted 2009 Young Entrepreneur of the Year, Best Environmental Business and UK's Fastest Growing Businesses.

Colin Crooks

Colin Crooks has a successful track-record as an award winning social entrepreneur. He has founded and successfully grown several social enterprises dedicated to creating employment through waste reuse, re-manufacture and recycling. Colin has created thousands of new jobs.

Water

Phil Risby

Phil has been involved in water and water quality both at implementation level with Harza Engineering in Chicago and with extensive research in water vortices and natural purification systems. He works closely with Gunter Pauli on many projects especially those with water.

Curt Hallberg

Curt is founder and owner of Watreco a cleantech company specialising in water systems. With an innovative and sustainable approach under the principle "from Nature to Industry", the company develops and sells energy efficient products and systems for water treatment on a global market.

Social Enterprise

Colin Crooks

Colin Crooks has a successful track-record as an award winning social entrepreneur.

Colin founded Papercycle, 3Re, Renew North East, Cybercycle, and GreenWorks, all highly successful social enterprises.

GreenWorks created nearly 1,000 jobs and has received the prestigious Queen's Award for Enterprise (Sustainable Development).

Russell Workman

Russell is an innovative leader, with proven ability in Corporate Relationships, Corporate Social Responsibility, Not for Profit Management, Foundation Management, Social Enterprise, Creative Development, Strategy, Innovative Solutions and Problem Solving

Agriculture and Food

Michael Knagenhjelm

Michael is a member of the advisory board at Pro Natura International a company that focuses on biodiversity, climate related projects and participatory community development in developing countries.

Pro Natura has patented a machine that turns bio waste into biochar. Widespread deployment of biochar production facilities throughout the world could represent a major contribution to the sequestration of CO_2 and improve agricultural production. This is increasingly seen as a major contributor to the mitigation of the climate crisis and as a means of reducing the destruction of virgin forests.

Michael is a board member of the Norwegian Climate Network.

Housing and Shelter

David Strong

David is an internationally recognized expert in sustainable building design and refurbishment, specialist in whole system thinking and building physics. His expertise includes exploiting and optimizing use of natural systems for heating, cooling, ventilating and illuminating buildings. Prof Strong has a wealth of knowledge associated with the low/zero carbon buildings, his expertise associated with the integration of renewable energy systems in the built environment, combined heat & power, district heating and energy efficient design of refrigeration plant for commercial applications.

David was MD of BRE Environment responsible for delivering the UK governments Energy Efficiency Best Practice Programme (BREEAM) and is a Visiting Professor at Oxford Brookes University Faculty of Technology, Design & Environment (Low Carbon Building Group).

Education

May East

May is a sustainability educator and designer heading two international organizations: Gaia Education and CIFAL Scotland - UNITAR Associated Training Center for Northern Europe.

She has been leading a generation of sustainability educators and practitioners in the delivery of ESD trainings in 31 countries in the most different stages of development and in both urban and rural contexts.

May is based at the UN Habitat Best Practice designated Findhorn Ecovillage, delivers Transition Training since 2008 in both Europe and Global South, has a UNITAR diploma on Climate Change Diplomacy and is currently advising a series of projects seeking to scale up low-carbon investment in Brazil.

Economic and commercial Development

Colin Crooks

Colin has a successful track-record as an award winning social entrepreneur founding many successful social enterprises and creating over 1,000 jobs. He has received the prestigious Queen's Award for Enterprise (Sustainable Development).

David Strong

David has extensive experience the development of commercial system in the areas of renewable energy, combined heat & power, district heating and energy efficient design of refrigeration plant.

CONTACT DETAILS

Contact:
Carlos Izurieta C. : izurieta@besustainable.sg

THANK YOU!