



## **The Innovation**

The planting of trees has undergone numerous innovations. The importation of non-native species, the selective breeding of hybrid trees, the genetic modification of drought resistant and fast growing varieties have all resulted in tree planting schemes that convert our appetite for wood pulp into a farming system whereby forest land is treated like farm land: a soil to plant, grow and harvest. Modern tree farms succeed in harvesting large volumes of wood for pulping only 7 years after planting. Las Gaviotas (see Case 6) pioneered the regeneration of forest based on the symbiotic relation between native trees and mycorrhizal fungi that lead to the successful survival of 92 percent of the seedlings in harsh summer conditions. While many of these efforts are showing new ways forward, the greatest challenge is to plant trees where the desert has taken over.

Pieter Hoff inherited a lily and tulip export business in the Netherlands that was started by his grandfather in 1923. Pieter had always been fascinated by how trees could grow on rocks. All around the world one can observe 50 meter trees standing stable and looking healthy on rocks without any form of support, while a commercial plantation a few miles away would rely on irrigation and fertilizers to survive. He realized that when we plant trees, we either dig a hole or we cut a wedge in the soil, we destroy the capillary water transport system of the soil. Worse, when we plant a tree, it already has developed secondary roots which are incapable of penetrating hard, dry, rock-like soil. Nature approaches this differently, without using brute force it simply places seeds on top of the soil, often carried there and covered by excrement of birds. This keeps the capillary water drainage intact, plus supplies the tree with the right mix of nutrients to get started under harsh conditions.

Pieter went on to design a bucket with two holes. It could not be kept more simple. One hole catches rainwater, produces and captures condensation water inside the box, and the other hole in the center is to sow a seed or to plant a seedling. Once a little bit of water is trapped in the box, it keeps the temperature low creating a cool micro-climate. A wick drips in 50 centiliters (cc) of water each day, not enough to grow properly and not enough to die. This challenges the plant to develop taproots and find water itself. After testing the process for three years in the Sahara Desert, Pieter decided to sell his family business and went on to create the company AquaPro which promotes the Groasis Waterboxx. His planting system is based on a box that can be reused ten times permitting the planting of 10 trees. It is called the Waterboxx. Pieter went on to win the Popular Science magazine's innovation award in 2010.

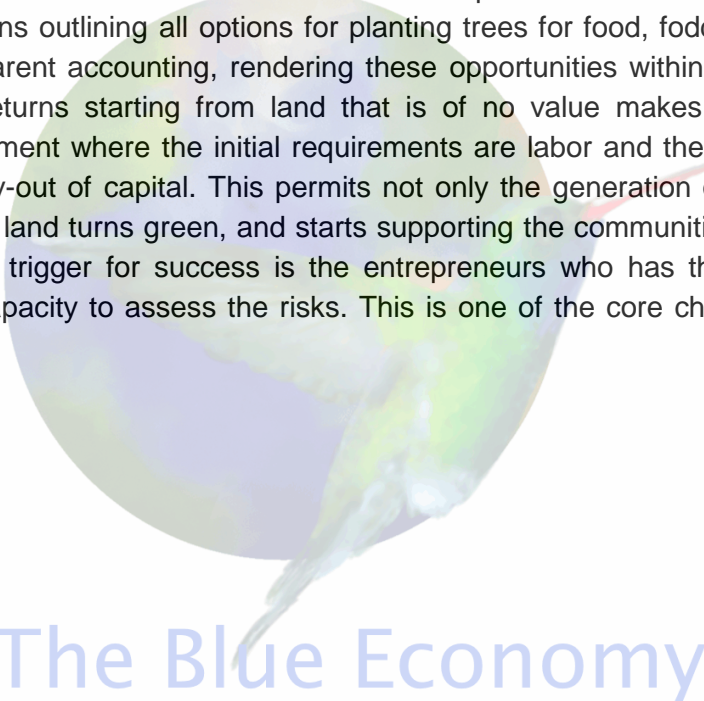
## **The First Cash Flow**

The approach to planting is limited to break the hard soil, creating a small hole of 10 centimeter deep, plants the seed and put the waterboxx on top of it. If one year later the roots are deep enough, then one simply lifts the box and reuses it elsewhere. The popular interest in his invention and the simplicity of its application permitted Pieter to start a Netherlands-based online internet sales company (AquaPro), from where one can order

containers of waterboxxes. This open source approach, which requires no previous expertise or training, has now been proven in 30 projects located in France, Spain, Morocco, USA (California), Kenya, Mongolia and Oman. The average survival rate of the newly planted trees with the waterboxx is 88 percent in climatological conditions that would normally see only 10 percent success. This provides solid references to network with partners in large scale operations.

**The Opportunity**

Pieter approaches the tree planting, the fight against erosion and the reversal of desertification not only as a service to society and the environment, he sees this as an opportunity to stimulate entrepreneurship providing a transparent business model based on a proven concept. He offers would-be businessmen a simple mathematical model with a series of basic assumptions outlining all options for planting trees for food, fodder, pulp or biofuel. The use of transparent accounting, rendering these opportunities within reach of everyone with reasonable returns starting from land that is of no value makes this a competitive proposal for investment where the initial requirements are labor and the desire to succeed, instead of large lay-out of capital. This permits not only the generation of a stable income, when the deserted land turns green, and starts supporting the communities then it builds up social capital. The trigger for success is the entrepreneurs who has the skills to make it happen and the capacity to assess the risks. This is one of the core characteristics of The Blue Economy.



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The Blue Economy

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