

Water Battery Enables Tree Growth in Dry Regions

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In 2003, Dutch businessman Pieter Hoff formed AquaPro, a firm which launched the "[Groasis Waterboxx](#)," a device designed to enable trees and crops to grow in the driest parts of the earth. According to *The New York Times' Green Inc* blog, the waterboxx, a kind of tree "water battery," is about the size of a car tire and made from polypropylene. An opening at the center of the box provides a space for a plant or tree to germinate and grow. The ultimate motivation for the device: worldwide reforestation, even in the most difficult and driest terrains. Planting trees can help create jobs, combat erosion, and mitigate the effects of climate change in developing countries.

With water scarce in many of the driest areas of the world, tapping groundwater to irrigate young trees can create major consequences for communities who rely on small amounts of water. Hoff told *Green Inc* using groundwater to grow crops and trees doesn't make sense. "Not only are traditional irrigation techniques inefficient because most of the water is lost to evaporation, [...] but water can be easily captured from the atmosphere to grow just about anything."

The box captures both rainwater and condensation. Water is then collected in a space under the cover, preventing evaporation. The system is designed to help younger vulnerable seedlings get started in harsh growing environments. The box can then be picked up and applied elsewhere. "A wick inside taps into the ground beneath the box and drips a small amount of water to the plant's root system each day. Once the plant or tree has taken root on its own, reaching a water source sometimes several meters below, the box can then be removed and used again to start another plant or tree."

AquaPro says their device enables farmers to plant trees or bushes in eroded areas, deserts, or other places where irrigation is impossible. "In moderate climates the Groasis waterboxx causes 15 to 30% faster growth and thus more biomass."

Hoff tested the device in the Sahara desert in Morocco for three years. Trees planted during the summer survived, demonstrating average growth of more than 90 percent in their first year. AquaPro says "tests have shown that the trees, after the Groasis waterboxx is removed, continue to survive." Just 10 percent of a small test group planted without the boxes lived on. *Green Inc.* adds that more trials are planned for 25 sites in eight countries.

The boxes are designed to be environmentally and economically sustainable. Under development are new prototypes that will decompose over time, releasing nutrients into the soil. To create a sustainable business model, Hoff plans to offer a "nonexclusive, free license" to anyone who wants to build and distribute the device, asking for a royalty in return. To ensure his target audience —

the world's poorest, can afford the box, he wants to keep costs at a minimum and make the devices available through microfinance plans. Hoff told *Green Inc*: "My ideal is that the device is available to everybody, everywhere and my focus is to create a business model that enables the world's poor to buy the box."