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PopTech Interview: On a mission with Pieter Hoff and his Groasis waterboxx

Emily Spivack ([Bio](#) / [Posts](#)) | Thursday, June 16, 2011 UTC

When [Pieter Hoff](#) spoke at PopTech in 2010, he introduced us to the [Groasis Waterboxx](#), a box that helps trees grow - without groundwater or electricity - in challenging environments by capturing the humidity in the air, storing it, and using the condensation it collects to stimulate the tree's growth. Since that time, the Groasis was named the [2010 Best Innovation of the Year by Popular Science](#) and thousands of waterboxxes have been planted around the globe. We were curious to hear what Hoff has been up to since he was on the PopTech stage and learn more about how this straight-forward tool can bring an end to malnutrition, reduce erosion and fight climate change.



PopTech: Why is the Groasis waterboxx important at this moment in time?

Pieter Hoff: When you look into the history of the last 2,000 years, mankind has actually cut down about five billion acres of trees. Then we put sheep and goats on the land that have eaten the last plants on it and we have left those areas to erode. But those areas that had been forests could become forests again.

Let's find the once-green areas and re-plant them with trees producing food. In doing so, you can actually solve many problems at one time. You fight erosion. You can help fight against climate change. You produce food. You create jobs. All in a sustainable way.



A Groasis waterboxx in action

If people have access to it and know how to use it, all those issues can all be addressed by planting trees with the Groasis waterboxx.

Yes. Because we have cut down so many trees, the climate has become more extreme. But frequently when you look at the figures, there is sufficient water. The problem is that water is falling in a very short period.

What the waterboxx actually solves is that you can plant trees, help them to get over the first two or three years when it's very difficult, and once the roots are deep enough, the tree is able to survive on its own. So you can make areas that seemed to be lost protected again.

What happens if people use the waterboxx and forget to remove it? I noticed that there is a biodegradable version that you are working on. Is that one solution?

There will never be a cheaper method than reusable. It's like when you use a cup to drink tea, and you reuse it three days every day. It's always cheaper than when you have a disposable cup.

But sometimes, because of labor issues or because it's very difficult to enter into an area, it's better to use the biodegradable one. Actually we started a few weeks ago with a program of 16,000 biodegradable boxes in Spain so we are doing it on a bigger scale already.



Volunteer planting day on March 19, 2011 in a difficult-to-reach area in Catalonia, Spain

How long does a waterbox typically stay around the tree before it can be removed?

What I found is that six or seven months are enough. I promote that you leave it a year. And then after one year you remove it and you put some mulch, hay or stones around it so that you keep your humidity around the tree intact. And then you reuse the box for the next one.

How are you focusing your efforts right now?

I am focusing on governments and investor funds. For a government it is possible to reforest former fertile areas with trees producing products like food or medicines or goods.

And for investors, the interesting part is that they can buy that land very cheap because now it's not productive. And as soon as you plant it with trees producing interesting goods, then the value of the land also grows, which means that for an investor there is a lot of interesting capital growth on a short term.

Are you finding at this point when you bring this product to governments or investors that people are generally receptive?

In 2010 when I was meeting with people, I had a trial, but on a very small scale. So last year, people were careful. Not skeptical, but careful. They wanted to see it. But now that I have done over 30,000 boxes, people are very positive and really embrace it. Most of the governments worldwide who face food problems are going to use this technology.

What are some of the trials you've undertaken since you spoke at PopTech this past fall? What results have you seen?

We have trials now in the Middle East, which is one of the most extreme places on the earth. Results are very good. They're in an open area so everybody can visit them. I've always tried to do trials in places that are open so people can see with their own eyes.

I'm also working on a very challenging trial in Kenya. It is with vegetables. I cannot say yet whether it is going to be a success or not because we just started, but it looks very promising, which means you really can use the waterboxx with vegetables also. It also means you can actually solve short-term hunger problems, because you just give farmers 5 or 10 boxes and within 3 or 4 months they create their own food. I don't know yet whether it's going to work because the water that's required is higher for vegetables than for trees.

And you're working on something in Mount Kilimanjaro, correct?

Yes, we plan to restore the mountains in Mount Kilimanjaro. Since 1976 about 30,000 acres have been lost. I found several stakeholders who are interested in reforestation that area. We don't have enough funds yet, but the will is there to do it. And I think that within a few years time, we will start to really reforest it.

With a project like that, where is the funding coming from?

Initially I was giving the boxes away because nobody knew what they could do. They had to see it with their own eyes. Since this past October, I don't give them away anymore. Now there's so much belief in it that I sell them to governments, the European community, or to companies that really believe we have to do things in a different way - and who want to do it sustainably.

You can be sustainable and it's about eight times cheaper than irrigation.

Really?

Yes. And that's also why I don't have to convince people any more - because of the money.

Right, because of the cost savings. You've been focusing a lot of your work on nut trees. Why those specific types of trees?

The problem with grains – like wheat and corn - is that they need a lot of water to grow. So you start up using irrigation and short term you can have a good crop, but in 50 years time all our fresh water basins could be gone - like what we're already facing in California.

The efficiency of grains is a lot lower than trees. And they also don't have a good effect on climate, because it's only three months green and for nine months it's like a dead area. It would be much more interesting to plant all those areas with nut trees, or let's say, fruit trees. That's a better word. But, you have to prove that.

I came to the conclusion that my next challenge is to find an entity that wants to support me in that and plant hundreds of acres of fruit and nut trees in 50 countries so that people understand that those trees can help us solve the food problem.

It works in tandem - improving the environment and thereby bringing nutrition and food to people who need it.

That's correct. The thing about solving the food problem with trees, as a side aspect - you solve a part of the erosion problems and part of the climate problem based on a money making business model.

It's a self-sustaining social enterprise.

Yes, true.

In terms of the technology that is used, do you find that people generally understand the concept behind the Groasis?

People do understand how it works. It is important, though, to make sure that people understand that nut trees

can grow in rocky soil and that they are drought-tolerant.

How do you make sure that message is conveyed?

The only thing you do is copy what happens in nature. In nature, the bird or the cow puts its excrement with some seeds on top of the soil, and after six or seven months, its excrement is eaten up by microbes and bacteria. By then the seed has already germinated and its root is so deep, it doesn't need the protection of that excrement anymore. That's actually what we copy.

Are individuals purchasing Groasis waterboxxes and using them on a smaller scale? How much do they cost right now?

Yes, a lot of individuals buy them. On average, I sell average about 50 water boxes daily to individuals. At the moment, people pay \$20 plus the transport costs. But that's going to be lower as soon as the distribution chain is more efficient.

In order for the Waterboxx to really have widespread impact, it needs to be incredibly inexpensive for people all over the world.

The next step for us is to get into chains like Wal-Mart and Home Depot because then you can really sell it efficiently.

What about getting the Groasis to individuals and small businesses in developing countries?

One thing I hope to develop -- and that is, of course a matter of time; that's not tomorrow -- is a microfinance possibility for water boxes, and for that I need the World Bank. If they develop a microfinance possibility for small businesses in the developing world then they can buy, for instance, 10 boxes and pay \$10 per year. Then suddenly, it is very cheap to distribute them widely.

In addition to watching his PopTech presentation, have a look at this video we made of Hoff explaining the Groasis Waterboxx:

Images: PopTech and [Groasis waterboxx](#)

This interview has been edited and condensed.

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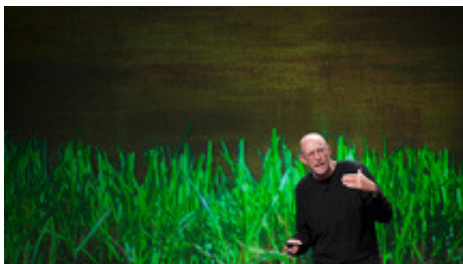
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My teenage sons just finished a project that uses dew and fog collection for irrigation. I will pass on your project to them to add to their list of people around the world that are thinking creatively about atmospheric water.

Thanks!

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