



The Doomsday Vault – humankind's backup storage

WITH X-GUARD AS ITS PROTECTOR

By 2050 the world's population is forecast to reach ten billion. At the same time, climate change is an increasing threat to global food production. Buried deep in the Arctic permafrost lies the ultimate insurance policy for the world's food supply. The Doomsday Seed Vault is the world's safest seed bank, built to withstand natural disasters and nuclear warfare.

Behind the futuristic entrance lies a construction designed to withstand everything from nuclear bombs to earth quakes. The Svalbard Global Seed Vault, or Doomsday Vault, came into use in 2008. It is a gigantic vault for one of humankind's most precious resources – biodiversity.

Svalbard – a backup hard drive

"Many global seed banks are under threat. Some lose seeds to natural disasters, some to war, others to corruption or lack of resources. This is where Svalbard comes in. It's an external hard drive, a backup for seed banks the world over," explains Åsmund Asdal, operations manager at NordGen, the company that runs the vault.

The seeds are stored in caverns blasted 100 metres down in the permafrost designed to withstand global warming. Even if the most alarming climate forecasts become reality, the permafrost is guaranteed to keep the seeds frozen for at least 200 years.

Biodiversity is under constant threat

The 1960s saw massive changes in agricultural practices across the world. The combination of hybrid seeds, chemical fertilisers and pesticides led to dramatic productivity increases but also destroyed a great deal

of biodiversity. The UN Food and Agriculture Organisation estimates that 75 per cent of the crops that were grown in the early 1900s have been lost. A century ago, India, for example, had over 100,000 varieties of rice. Today barely a few thousand remain, and this trend has been the same the world over.

In the short term, this is no cause for concern, but could be critical for future food supplies.

"We have climate change, overpopulation and famine. We need biodiversity to grow crops," says Roland von Bothmer, acting director at NordGen.

The Doomsday Vault safeguards our future

Seed banks are cropping up to counteract the depletion of biodiversity. But the system has proven to be vulnerable. National seed banks from Rwanda to Iraq have been destroyed by the ravages of war. The Doomsday Vault was born out of the realisation that our common future requires better protection.

"It's a great loss for humanity and food production when vital genetic material is lost," continues Åsmund Asdal.



CUSTOMER CASE



The tunnel down to the three caverns where the seeds are stored is roughly 100 metres long.



Seeds on their way to ICARDA international seedbank in Syria.

Facts, Domsday Vault

- The Domsday Vault is on Spetsbergen, the largest of the islands that make up Svalbard. The distance to the North Pole is roughly 1,300 kilometres.
- Stores seeds from 843,400 crop varieties, making it the world's most diverse seed bank. With the Vault's capacity for 4.5 million crop varieties, the collection has only just begun.
- Managed through a tripartite agreement between the Norwegian Ministry of Agriculture, the gene bank NordGen, funded by the Nordic Council of Ministers, and the Global Crop Diversity Trust.

- The vault is designed to divert the impact from nuclear bomb explosions. An automated system manages the electronics and ventilation, and measures the carbon dioxide levels. The valve is unstaffed and only opens when seeds are deposited or withdrawn.
- Four locked steel doors have to be opened in order to reach the seeds. No one person has the keys to all the doors. An X-Guard partition wall has been mounted in front of the seeds.

Read more about the Domsday Vault at <http://bit.ly/1Vd34rx>

So far only one withdrawal has been made from the Domsday Vault. The seed bank in Aleppo was long a major distributor of seeds adapted to the dry climate of the region but it was destroyed in 2012 by the war in Syria. But last year came an unexpected request. Scientists from Aleppo had reunited outside the country and wished to continue their work.

"They'd sent their backup material to Svalbard when the valve opened. When they set up operations in Morocco and Lebanon we sent 40,000 seed samples to enable them to carry on their work. This is prime example of why we are needed," concludes Roland von Bothmer.

Writer of the article:

Ivar Andersen

Credit: Norwegian Ministry of Agriculture and Food

Photographer: Matthias Heyde

X-Guard equipped with an X-Lock protects the Domsday Vault's current collection of around 840,000 seed varieties.

