AquaHarvest™ System

A system for generating liquid water from air

"Water from Air, Anywhere."

Technology

The AquaHarvest™ System is an innovative water generation technology that produces liquid water directly from air. It uses an air current generator and a specially designed flow body with a constricted section that cools incoming air to near its dew point. As the air exits the outlet, water naturally condenses, providing a continuous source of clean, drinkable water. Unlike conventional dehumidifiers, AquaHarvest™ achieves condensation efficiently using passive thermodynamic principles and can be adapted for off-grid or solar-powered applications, making it suitable for arid and remote environments.

Market need

Access to clean, drinkable water remains a vital global challenge, especially in dry and remote areas with limited infrastructure. Traditional water sources are becoming less reliable because of climate change, population growth, and pollution. While Atmospheric Water Generators (AWGs) present a potential solution by extracting moisture from the air, most current systems are energy-intensive, costly to operate, and depend on grid electricity. These issues limit their scalability and sustainability, particularly in off-grid or resource-limited settings. There is increasing demand for affordable, energy-efficient, and scalable water production systems that can supply fresh water in various environments, including rural communities, disaster relief zones, and agricultural areas.

Features

- Uses aerodynamic principles to efficiently cool air by compressing and expanding it through a specially designed Venturi system.
- Reduces dependency on grid electricity or significant mechanical components like compressors.
- Achieves dew point cooling more effectively, allowing higher water yield per unit of air processed.
- Adaptable for small-scale or large-scale water production, suitable for household, agricultural, or community-level use.
- Can be integrated with renewable energy sources (e.g., solar or wind) for truly off-grid applications.

Benefits

- Lower energy consumption leads to significant savings in water production cost per litre.
- Enables water generation in off-grid, rural, or disaster-stricken areas without relying on external water sources.
- Offers a sustainable alternative to water transportation or groundwater extraction, minimising environmental impact.
- Simplified system architecture reduces mechanical wear and tear, as well as the need for frequent servicing.

Industry

Water Purification

Potential Applications

- Drinking water generation in off-grid and rural communities
- Emergency and disaster relief water systems
- Military, mining, and industrial field operations
- Sustainable water supply for agriculture and eco-lodges

Creator

Prof Lukas Snyman

Stage of development

Prototype

Intellectual property

Patent Protection

Desired relationship

Co-development, Investors