



**SENSOTERRA**



**senet**

Connecting the IoT Revolution

# LoRa Technology: Improving Nature Restoration and Eliminating Agriculture Water Waste Around the Globe

SENSOTERRA'S LOW-COST, WIRELESS SOLUTION PROVIDES EFFICIENT USE OF WATER RESOURCES



## FINDING THE CORRECT BALANCE TO GROW TREES IN REMOTE AREAS

Only 3% of the world's water is accessible freshwater. Of that, 70% of the freshwater consumed is used in the agricultural industry – the largest consumer of water globally. Monitoring soil moisture levels helps farmers to make effective and smart irrigation decisions. Too much water in the soil leads to waterlogged areas and a potential for plant illness or death, while too little water will harm crop growth.

Jurriaan Ruys is the founder of Land Life Company, a nature restoration company with a mission to reforest the world's 2 billion hectares of degraded land. The organization develops new technologies to restore habitat in parts of the world where nature cannot come back unaided and has leveraged Semtech's LoRa devices and wireless radio frequency technology (LoRa Technology) in their Internet of Things (IoT) solutions for commercial farms. The company currently has teams on three continents and reforestation projects in over 25 countries.

"We help find the Goldilocks zone.

By setting moisture parameters, users can make sure soil is not too wet, or not too dry, and define the correct amount of irrigation to get the best yield."

—Jessica Nuboer, International Marketing, Sensoterra

Land Life utilizes drones and satellite imagery to analyze the land during the planning stage. Its innovative Cocoon production process plants trees more efficiently and at a larger scale.

To ensure the Cocoon provides just the amount of water needed for trees to survive, the company needed a sophisticated moisture sensor system with the ability to provide data in remote areas of the world. Ruys searched the existing market and could not find a suitable, practical solution: wireless, remote, easy to deploy and scalable. He and his team decided to build a solution and Sensoterra was born.

"More and more we're seeing city planners concerned for their water use, as it directly impacts their local communities."

—Bas van der Velden, Commercial Director, Sensoterra

## SCALE AND OPERATION VISIBILITY

Sensoterra is a low-cost, wireless and remote system that offers farmers real-time insight into the soil moisture condition of their crops. Soil is not homogenous – it holds moisture differently in various areas. With low-cost, plug and play probes



## DNA of IoT Use Case

### IoT Challenge

- The ability to capture moisture sensor data in remote areas
- Reduce water usage with smart irrigation timing
- Integrate sensor data with irrigation systems

### LoRa Technology Used

- Semtech's LoRa Technology achieves unrivaled range and scale
- LoRaWAN network provided by Senet can be deployed in remote areas
- Easy to install sensor probes

### Business Value

- Customers reduce up to 30% water usage
- Cities reached an estimated reduction in labor costs and recouped system expenses from water savings within three months
- California almond orchard prevents damaged crop from over irrigation

## HOW IT WORKS: SENSOTERRA



*The step-by-step process of Sensoterra's LoRa-enabled solution.*

that can be deployed across a large field in more areas, the data becomes more valuable and results in smarter irrigation decisions.

The company utilizes Semtech LoRa-enabled sensors in its probes and a LoRaWAN™ infrastructure provided by Senet, a leading provider of LoRaWAN services platforms that enable IoT connectivity. Sensoterra primarily focused on the North America and European agriculture markets and has deployed over 4,000 sensors and achieved over 720,000 data points since the product launch in 2016. Sensoterra's solutions are now being deployed in Australia, South America and other parts of the world.

**"We are capable of getting the range we need. Users can obtain and access moisture readings from anywhere in the world."**

—Jessica Nuboer, International Marketing, Sensoterra

Ease of installation is a key feature of Sensoterra's soil moisture system. LoRa-enabled multi-depth probe sensors can be installed in a matter of minutes and data is viewable online within an hour after installation. A free app is available for download and can operate on a laptop, tablet or mobile phone. Users have the ability to manage their installations through an easy to use dashboard and an open API is available for data integration.



**"By operating our solution on Senet's LoRaWAN-based network, we are able to achieve our cost and performance thresholds."**

—Jurriaan Ruys, CEO of Sensoterra

### **SENSOTERRA CUSTOMERS REDUCE UP TO 30% WATER USAGE**

Being able to capture soil moisture data remotely was certainly critical for Land Life Company, but Sensoterra soon discovered there was a need for this type of system in

agriculture, horticulture and landscaping. For instance, an Idaho potato grower uses Sensoterra's system to manage pivot irrigation. The farmer reduced 30% of his water consumption by decreasing irrigation rounds based upon soil moisture metrics.

Recent drought conditions across north America and Europe, has led to an uptick in city governments looking to monitor water consumption.

There's a case for these cities. During summer months with low rainfall, costs for irrigation in public parks, golf-courses and other green areas, skyrockets. However over irrigation is still a concern, with dwindling freshwater resources seen in metropolitan areas across the world. By introducing the Sensoterra solution, cities can reach an estimated reduction in labor costs and recouped system expenses from water savings within three months.

Learn more about Senet's LoRaWAN connectivity platforms, visit [www.senetco.com](http://www.senetco.com)

Need a real-time water monitoring solution:  
[www.sensoterra.com](http://www.sensoterra.com)

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LoRa Technology platform**

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Semtech's LoRa devices and wireless radio frequency technology is a widely adopted long-range, low-power solution for IoT that gives telecom companies, IoT application makers and system integrators the feature set necessary to deploy interoperable IoT networks, gateways, sensors, module products, and IoT services worldwide. IoT networks based on the LoRaWAN™ specification have been deployed in over 100 countries and Semtech is a founding member of the LoRa Alliance™, the fastest growing IoT Alliance for LPWAN applications.



Semtech Corporation is a leading supplier of high performance analog, mixed-signal semiconductors and advanced algorithms for high-end consumer, enterprise computing, communications, and industrial equipment. Semtech, publicly traded since 1967, is listed on the Global Select Market under the symbol SMTC and has more than 32 sales and application support offices in 14 countries as well as representatives and distribution support locations in more than 30 countries. Semtech is dedicated to providing proprietary platforms, differentiated by innovation, size, efficiency, performance, and reach.



The LoRa Alliance is an open, nonprofit association that has become one of the largest and fastest-growing alliances in the technology sector since its inception in 2015. Its members closely collaborate and share experiences to promote the LoRaWAN protocol as the leading open global standard for secure, carrier-grade IoT LPWAN connectivity. With the technical flexibility to address a broad range of IoT applications, both static and mobile, and a certification program to guarantee interoperability, the LoRaWAN protocol has already been deployed by major mobile network operators globally and connectivity is available in over 100 countries, with continuing expansion ongoing.