



## Eden deploys drone technology to help plant one tree at a time

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Image: DroneDeploy

Helping people to help the environment is the core mission at Eden Reforestation Projects, a non-profit that began its work in Ethiopia in 2004, according to the organisation's director of forest monitoring and evaluation Ezra Neale.

"A lot of trees are being cut down without any alternatives and local communities are turning towards the land ... [and] it creates this endless poverty cycle for the environment and communities; it's all interlinked," he said.

"But there's this amazing ability to transform it through planting trees by directly employing and training people to plant trees, totally transforming their lives through a steady income ... reinvesting in their community."

These days the Los Angeles-based organisation has expanded operations to eight different countries -- Madagascar, Mozambique, Nepal, Haiti, Indonesia, Kenya, and Central America -- and has planted more than 330 million trees. This year alone, the company aims to plant over 120 million trees.

Planting trees in remote communities and rugged terrain, however, is not an easy feat. To overcome this, Eden has deployed drones to assist with mapping, monitoring, and verifying its reforestation project.

"We use drones to map out and assess baseline condition, so before a project starts, and fly the drones over time to look at the change of the forest as the plants grow. As trees become established, we'll monitor it over time using drone technology," Neale said.

However, when the drones were originally deployed, Neale described them as "very cumbersome, difficult to use ... and you had to have your own program that you wrote and required to be in techie world to manage all of the data that was coming in the drone and process it".



These days the drones are used in conjunction with software developed by DroneDeploy, a software tool that allows for easier monitoring.

"DroneDeploy is an incredible piece of software and has allowed us to take all those challenges that made drones less accessible -- and it's only available to a very small population of the techie mapping community -- and made it available to anybody," he said

The wide deployment of DroneDeploy across Eden's operations followed three months of initial testing in Madagascar. During that period, Eden was able to map approximately 1,011 hectares in a single day in one of the most remote locations in Madagascar.

"We map out a polygon or a reforestation site -- it's kind of the fundamental unit that we do monitoring on -- and DroneDeploy has an easy app where you can just upload that polygon from a KML file from Google Earth, and then you program very easily the flight plan ahead of time, plan out where the drone is going to fly, how many batteries it's going to take, how much time it's going to take, and looking at different elevations," Neale said.

"It's simple tweaks that any of team members can do ahead of time, and then they go to the field -- getting there is one of the hardest things because you're on very bad roads or travelling by boat -- but once they're at the site and they have the whole thing in place, they can literally turn it on and the drone immediately starts flying along that predefined flight plan to take individual images."

Neale said going forward, Eden plans to develop drone training programs so that more drones can be deployed in the countries by the local communities in which it operates.

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