Telangana Today

Trees From Sky: Telangana to use Drone and AI driven Forest Restoration

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In a most novel and advanced initiative for enhancement of tree cover in the state of Telangana, the forest department has embarked on Drone and Artificial Intelligence (AI) driven forest restoration. The geotagged "Drone Swarms" will drop one lakh "seed balls" per day making it the fastest way sowing seeds for forest regeneration.

Seed balls, also known as "earth balls" consist of a variety of different seeds rolled within a ball of clay, during sowing by throwing, in harsh habitats. Seed bombing is the practice of introducing vegetation to land by throwing or dropping seed balls.

The initiative is an extension of the Telangana State's comprehensive greening program "Telangana Ku Haritha Haaram" initiated in 2015 making Telangana Green, was made possible by the unwavering support from the Chief Minister K Chandrasekhar Rao who has ensured fullest commitment from all wings of the state government with a continuous flow of funds even under the most challenging conditions.

The Department of Environment and Forest and the Emerging Technologies, Department of ITE&C has decided to use drones for seeding and selected Marut Dronetech for collaborative development. Marut Dronetech and T-Works teams with technical mentoring from the Research and Innovation Circle of Hyderabad (RICH) has successfully designed, fabricated and tested the country's first aerial seeding drone.

These drones can play a major role in increasing the tree cover and help the Government of Telangana to increase the area under forest and become the first state to achieve the national target of covering 33% of geographical area.

The Drones' Solution Drones and AI are used to survey and map the terrain to identify places needing reforestation. Drones help determine trees to be grown based on various parameters like soil, climate, indigenous seed varieties, historical growth data using AI. Seedballs are created by local

communities dependent on the forest area which will be dropped by the Drones there by making seed sowing faster and more reliable s in difficult terrains.

The path followed by the drones are geotagged, facilitating periodic drone monitoring of sown area to collect tree statistics. Drones help taking corrective steps for healthy tree growth. The entire process cuts down on manpower, time, danger to the tree-planters and results in a ten-fold reduction in the cost for forest landscape reforestation.

Faster and Efficient

Drones accomplish afforestation tasks much sooner- when compared to humans. They can reach difficult to access terrains like hilly regions. Moderate forest areas can be accessed and replanted with ease. Moreover, seeds can be sown at the right time just before the monsoon season begins. Effective Coating of seeds with healthy growth catalysts like soil, cow dung, cow urine, compost etc, increases the success of seed germination.

Area specific multiple tree varieties can be grown; putting an end to monoculture plantations. They help in periodic monitoring of trees even after sowing and to take effective, scientific and corrective measures. The department believes that drone programme also creates awareness and community ownership through public seed ball making exercises and campaigns.

The data hub of forest characteristics created by this exercise can be used for effective maintenance of forests, learn more about species, choosing area specific trees, civil society monitoring and proving the country's progress in UN Framework Convention on Climate Change (UNFCCC).

Drones Make reforestation scalable

Founded by a team of Indian Institute of Technology Guwahati alumni, Marut Drones was mentored by T-Works and RICH, and was recently selected for Facebook's, India Innovation Accelerator Programme. In its first year itself, Marut Drones has received the NIDHI-PRAYAS Grant and the emerging technology award at the Annual Nasscom Technology conference.

Marut Drones is on a mission to "Make Reforestation Scalable", through 'Drone Swarms' that can plant up to 1,00,000 trees a day.

Through this, Marut Drones along with Telangana government wants to set an example through restoring forests quickly, sustainably and collaboratively at required scale to make our dream of a better future, a reality. Landscape restoration is the deliberate integration and enhancement of tree cover within different land uses. It comprises a range of interventions including natural regeneration,mixed plantations, and different agroforestry practices. When implemented at scale,landscape restoration can conserve biodiversity, sequester carbon, enhance rural livelihoods and spur rural economy.

India Global Leader

India has brought 9.8 million hectares of degraded land under restoration since 2011. Today, the country is emerging as a global leader in landscape restoration. Some of the bold commitments include, restoring 21 million hectares of deforested and degraded land under the Bonn Challenge and; sequestering an additional 2.5 to 3 billion tons of CO2 equivalent by 2030 – through increased forest and tree cover.

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