

“He that plants trees, loves
others besides himself”

- Thomas Fuller

Seneca Park Zoo Project

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Our Understanding of the Project

- To provide a clear measurement on how to track tree-planting programs.
- To change the way people “see” trees via technology.
- To find the optimal combination that maximizes the tree survival rates.
- To improve the people’s awareness of ecosystems and encourage more donors to participate in this project.

Connecting Donors to Data

Consolidation of Data:

Organize and consolidate the data by impact variables



Provide Useful Analysis:

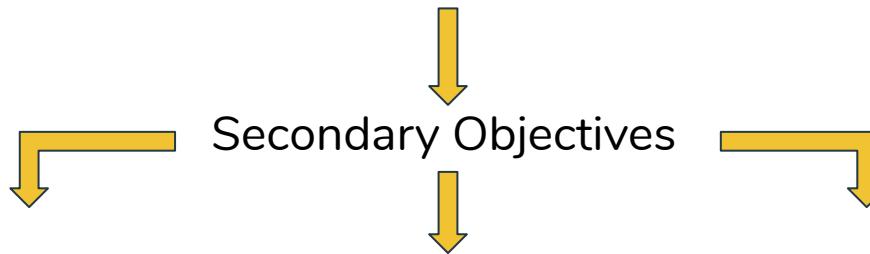
Analyze and summarize the data to generate useful insights for current status and future operation

Engage Donors!

What are We Targeting to Achieve?

Main Objective

Show the Impact of Charitable Donations to the Zoo
through Insightful Visualizations, Facts and Analytics

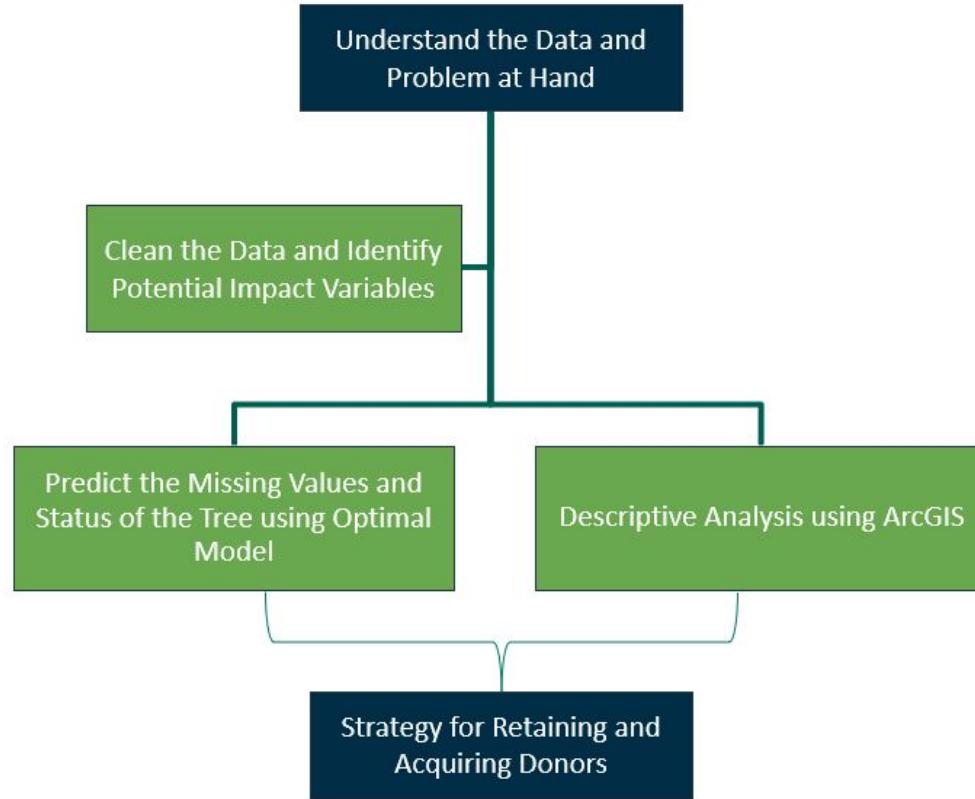


Predict Tree Survival Rate Using Impact Variables

Create a Visual Aid to Generate Awareness for Seneca Park

Analyze the Impact of Donations and Formulate a Forecast

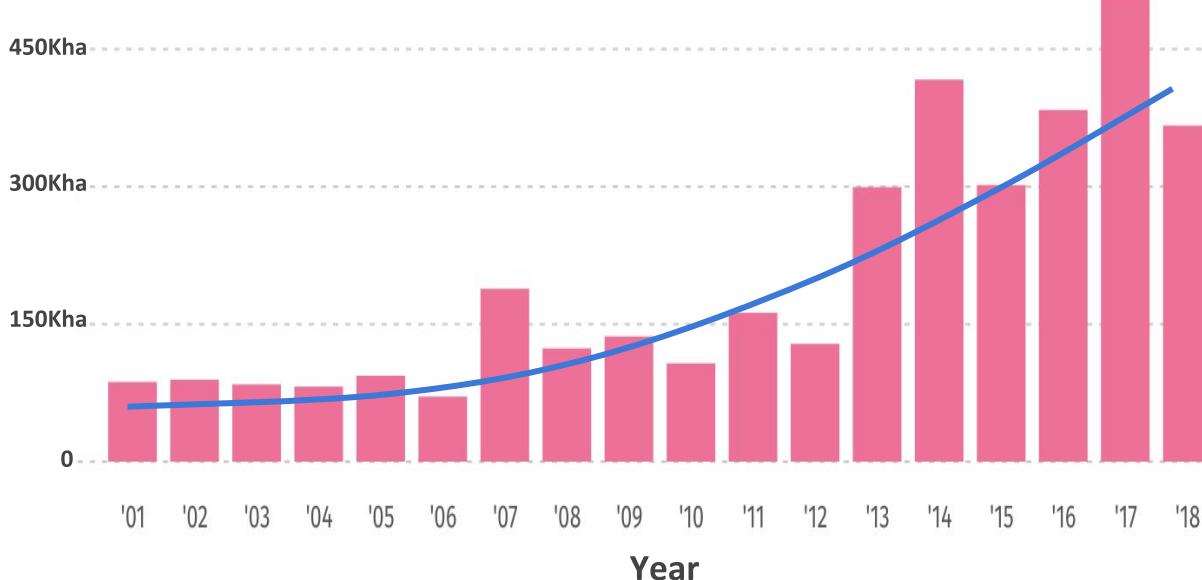
Roadmap to Engaging Donors



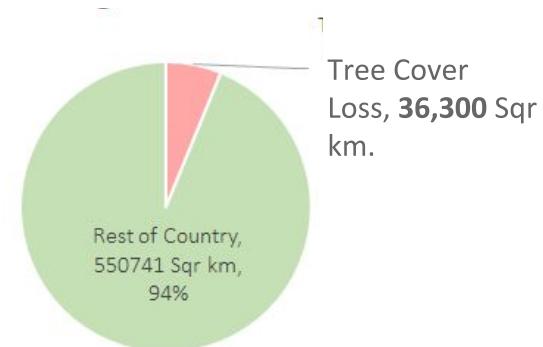
Why Should Donors Care? Madagascar Needs Help!

Tree Cover Is Declining Sharply

From 2001 to 2018, Madagascar lost equivalent to **21% decrease** in tree cover since 2000.

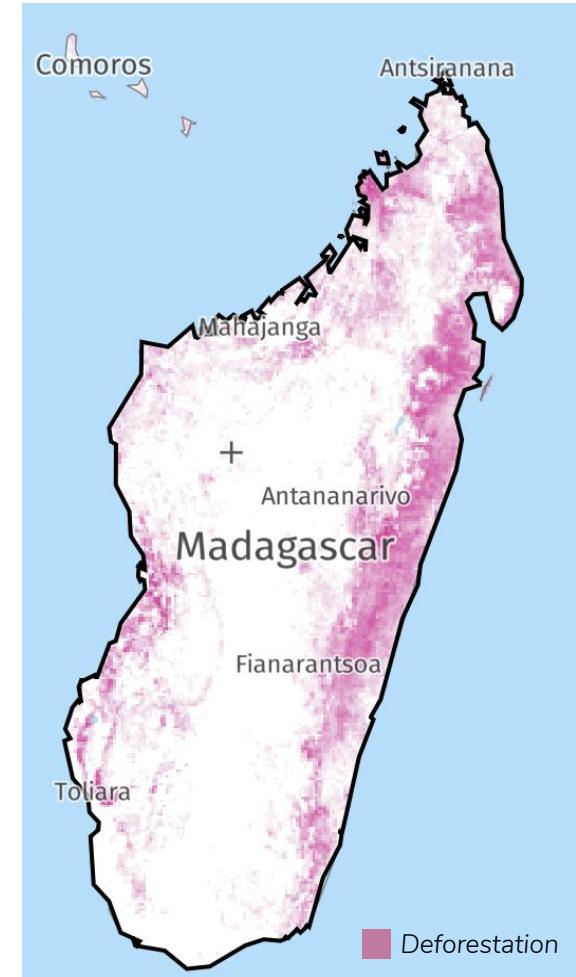
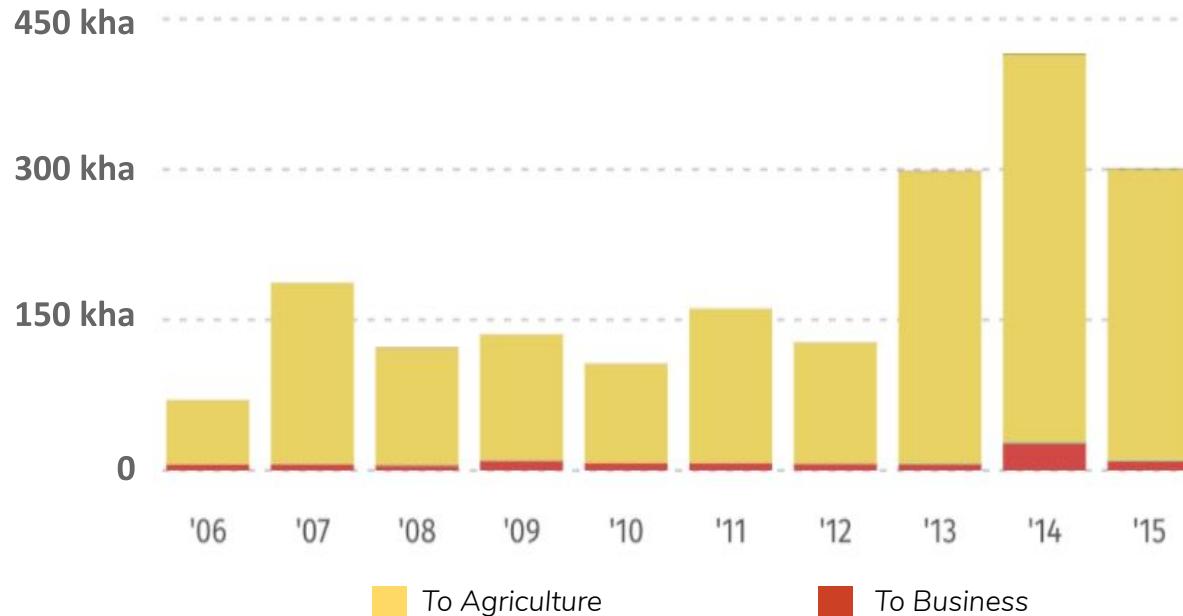


Tree Loss Has Already Reached **6%** of Madagascar's Total Area



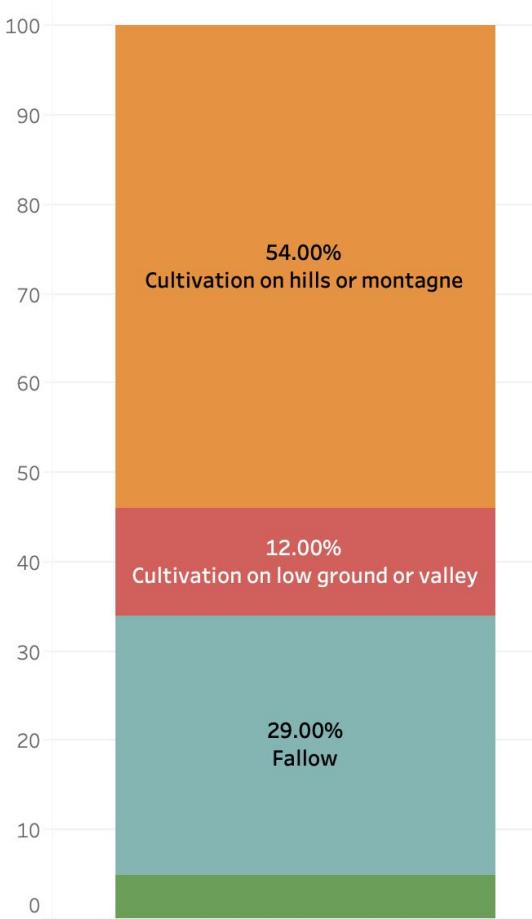
Deforestation Has Become a Severe Issue

In Madagascar from 2006 to 2015, 4.2% of tree cover loss occurred in areas where the dominant drivers of loss resulted in **deforestation**.



Deforestation has Multiplied by **4** Times in the Last Decade!





Post Deforestation Land Use

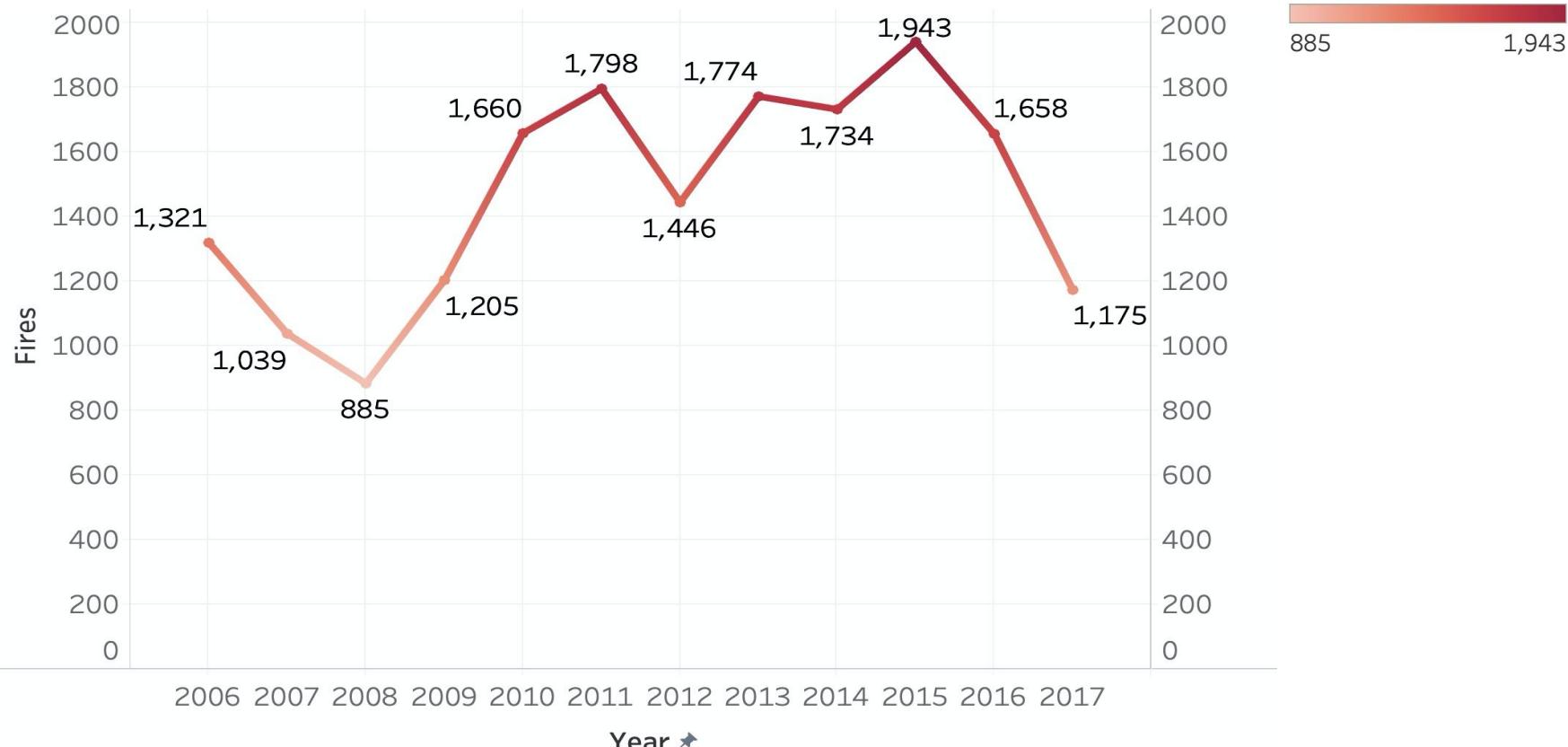


Traditional Agriculture
Fire Fallow Cultivation

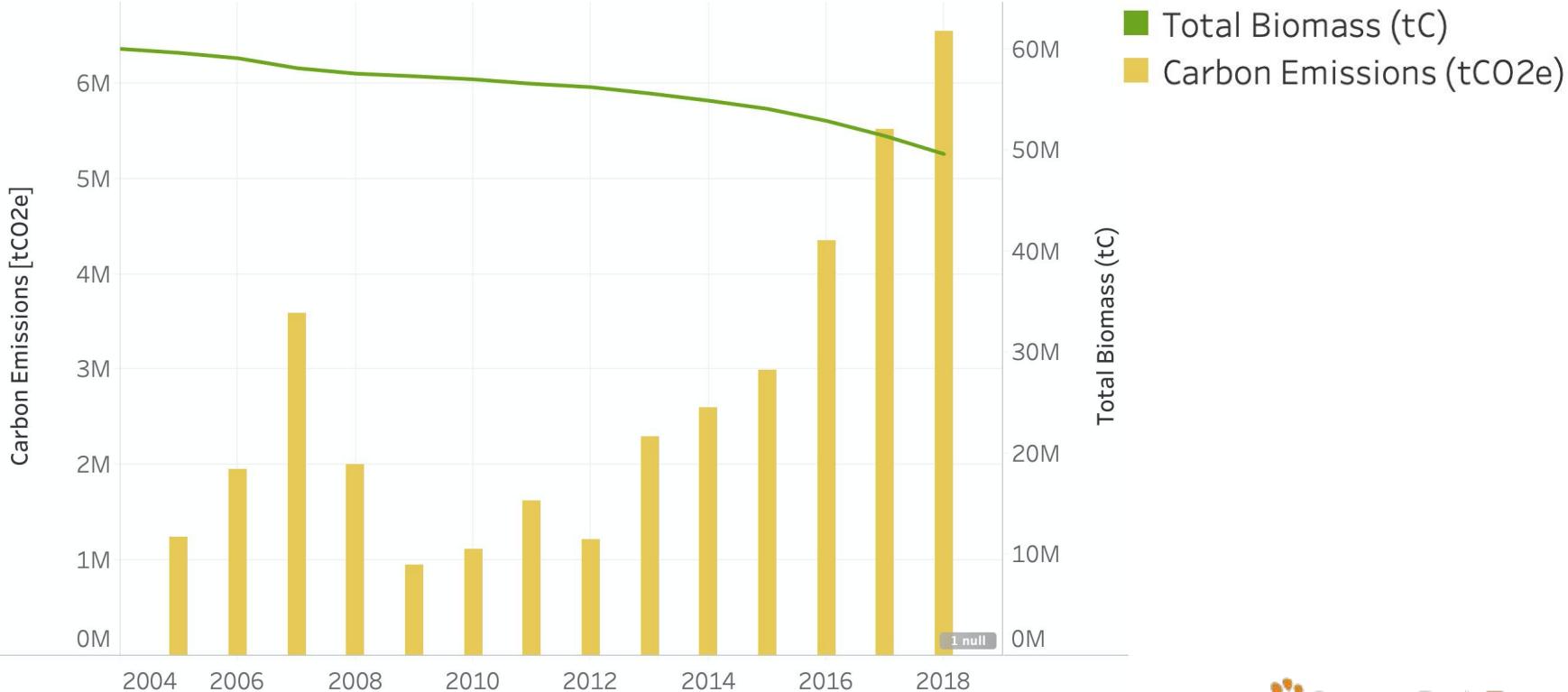


Traditional Housing
Southern Borneo Style

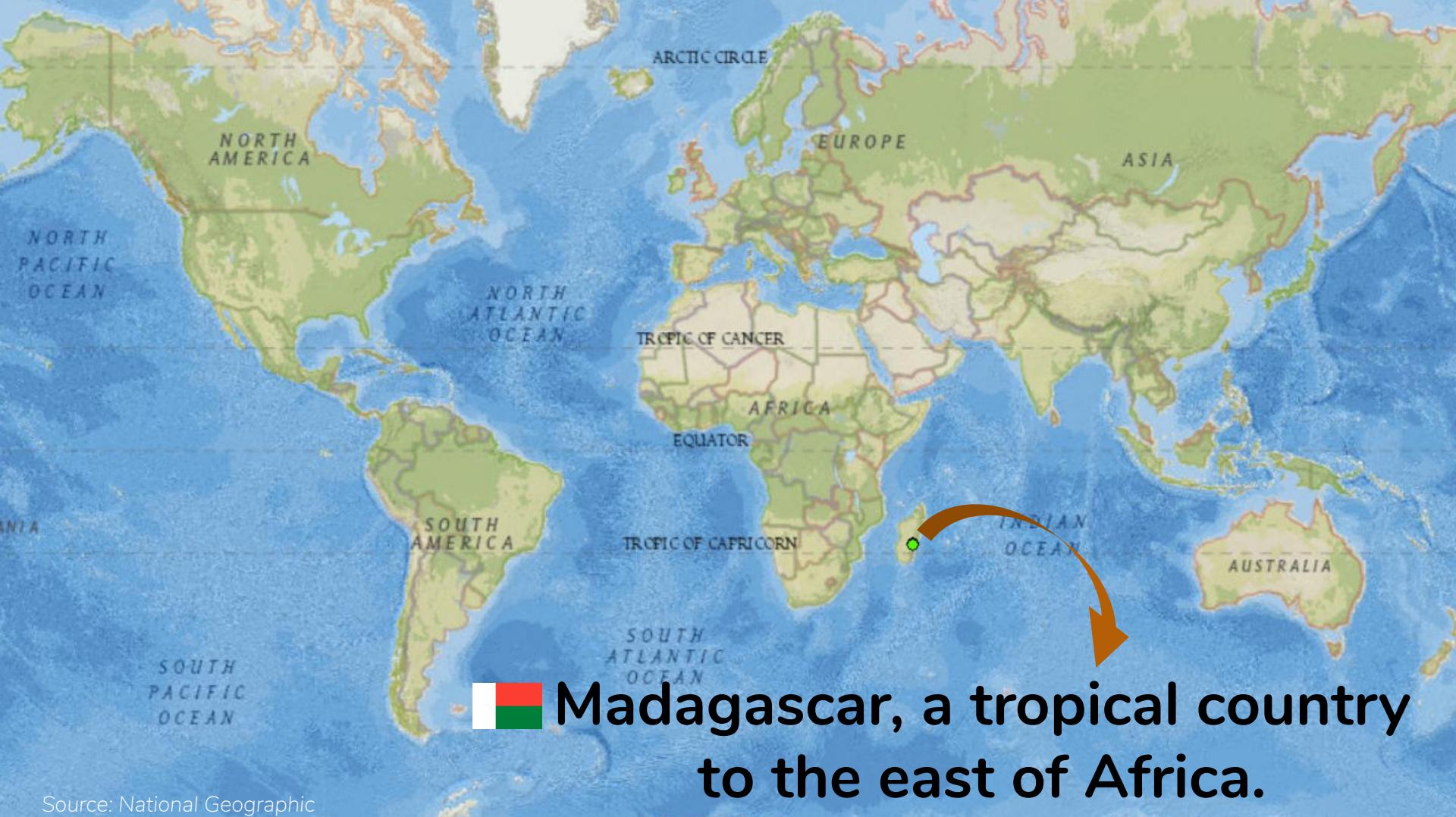
Fire Has Destroyed **17,638** Hectares of Forestation in the Last Decade



Biomass has Reduced by **20%**!



Plantation Sites of Seneca Park Zoo



**Madagascar, a tropical country
to the east of Africa.**

Plantation Sites in Madagascar

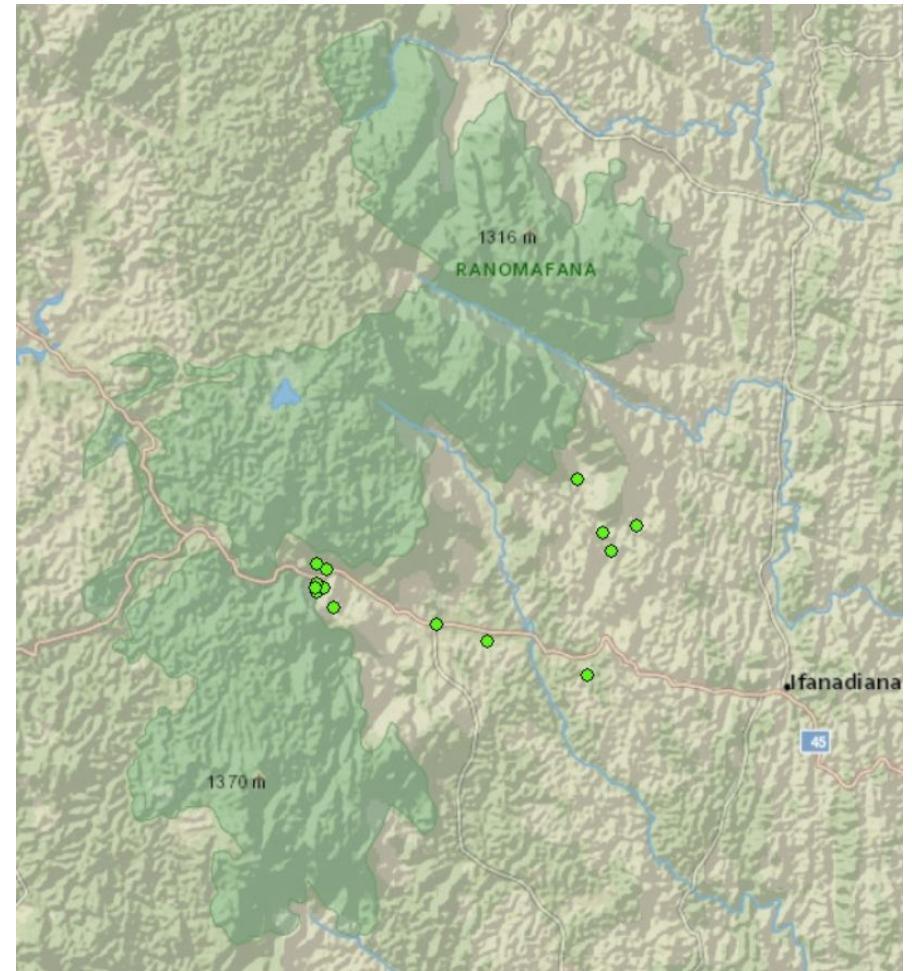
- Southeast of Madagascar
- Local Weather Condition
 - More precipitation
 - Less wind

→ Ideal for Tree Growth



A Closer Look at Sites

- Valley and River
 - Protection from wind
 - Guarantee of water
- Preferred Location for Tree Planting



A Closer Look at Sites

- Existing Vegetation:
Evergreen Humid Forest
 - Apanga
 - Goavy kely
 - Dingana
 - Lantana camara
 - Harongana

→ Donors' Effort Ongoing!



Evaluating Our Reforestation Efforts

Model Assumption

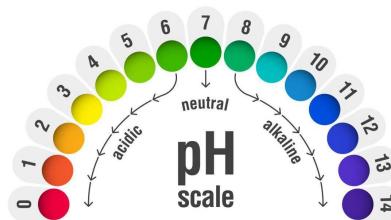
Dependent Variable

- Status of Tree (Alive/Dead)



Independent Variables

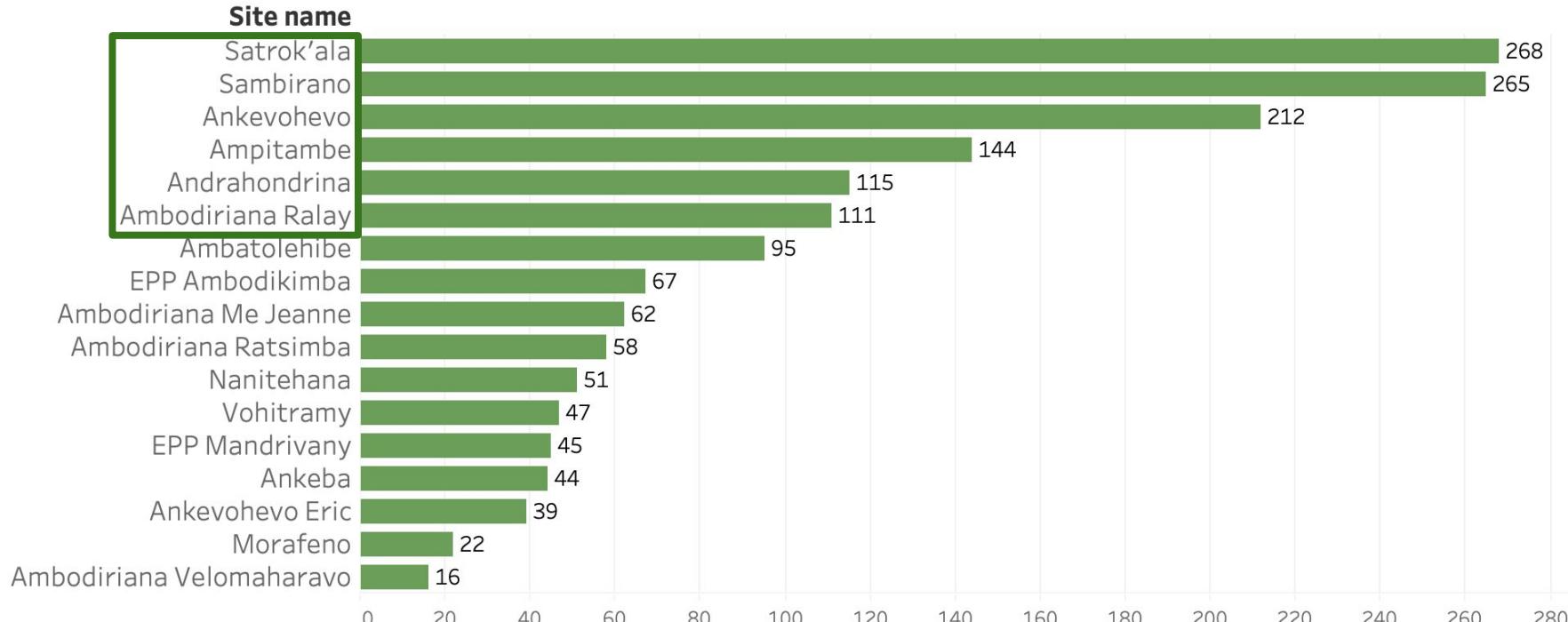
- PH, Moisture, Latitude, Longitude & Elevation



Recommended Models to Predict Tree Survival Status

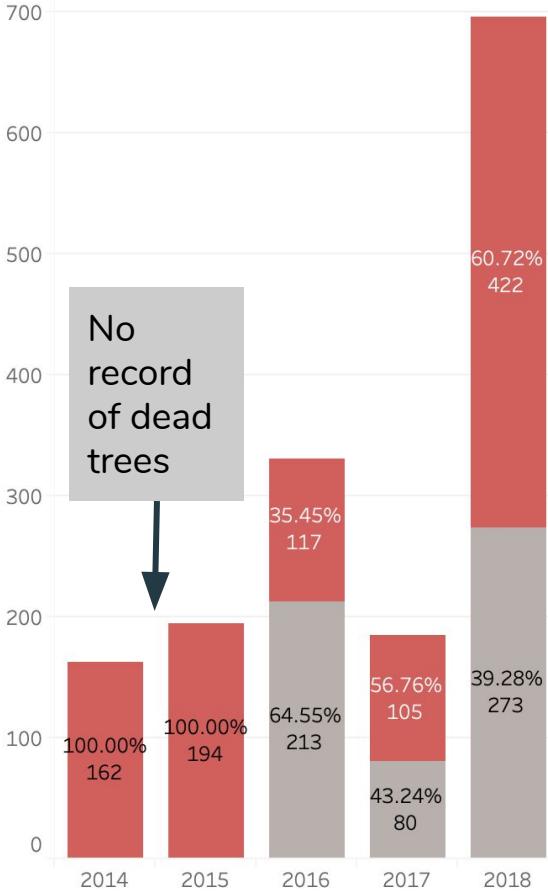
Model	Accuracy	Recommended
Logistic Regression	73%	
K-nearest Neighbors	73%	
Support Vector Machine	73%	
Naive Bayes	66%	
Decision Tree	74%	

Satrok'ala has Most Number of Alive Trees



Year of planting

Status
Alive
Dead



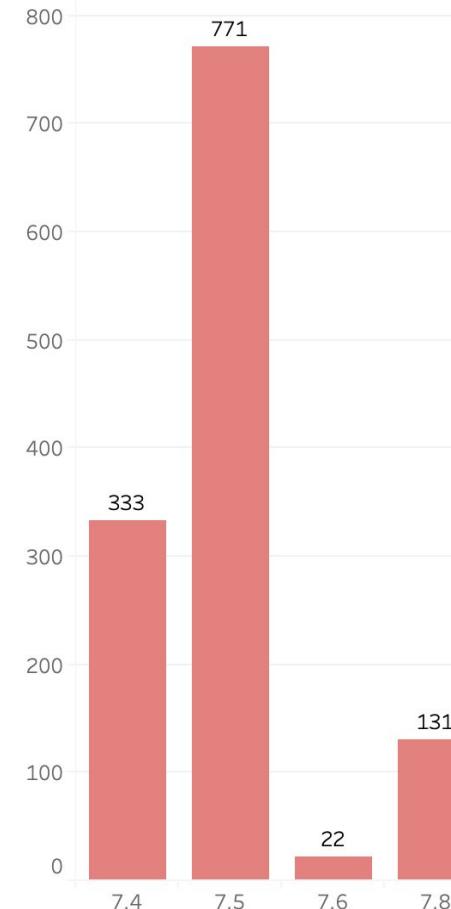
Trees planted in 2017 and 2018 have higher alive rate.

Most alive trees are planted in 2018.

Predicted missing PH values for alive trees is 7.51.

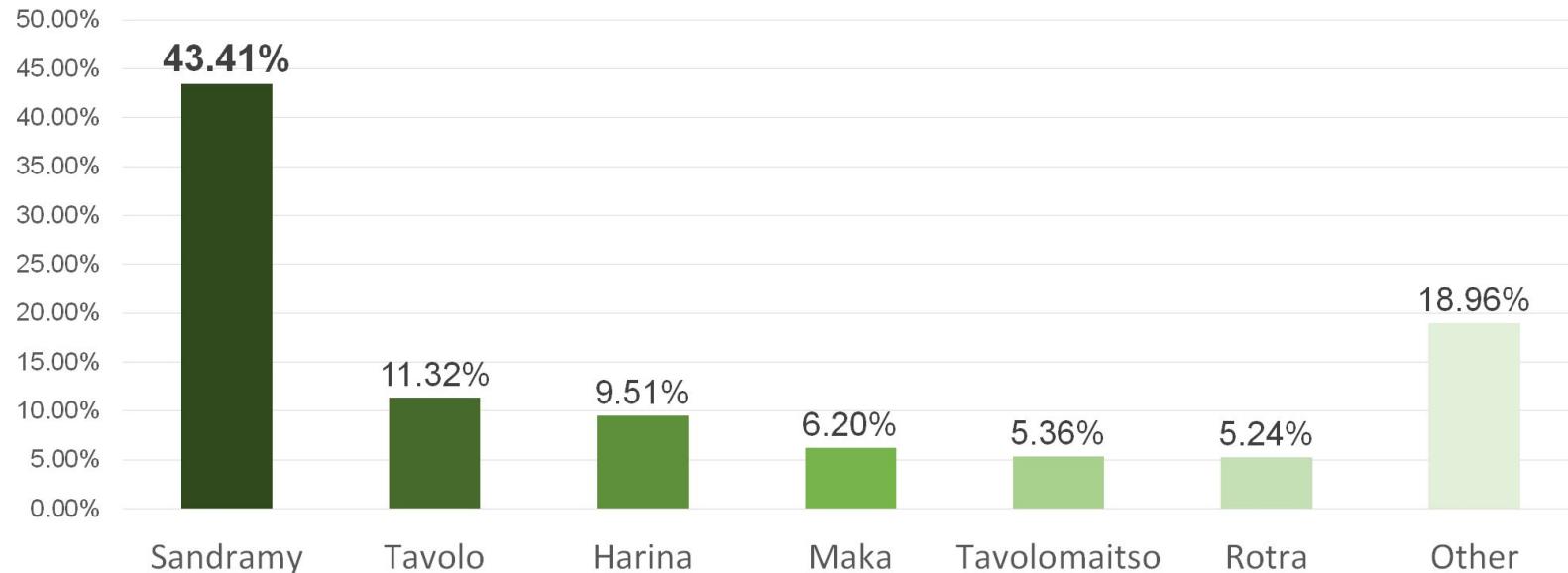
Therefore, we can conclude that PH=7.5 is the best acid-base environment for survival of trees.

PH



Tree Species That are Most Likely To Survive

Percentage of Top 6 Alive Trees



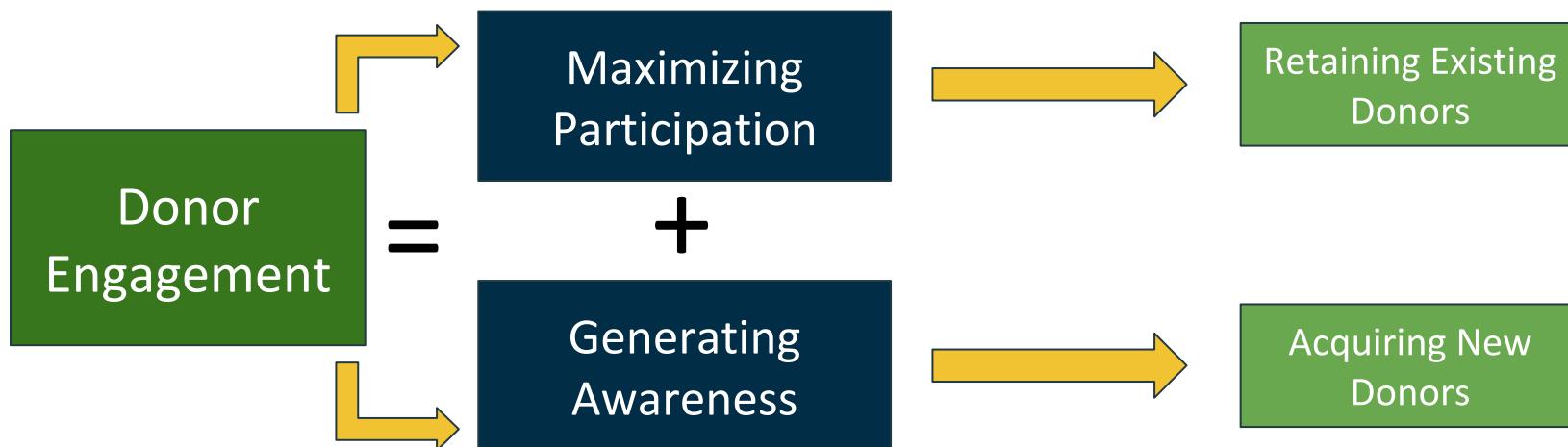
Analysis of our Reforestation Effort

SWOT ANALYSIS

Internal Analysis	STRENGTH	WEAKNESS
	<ul style="list-style-type: none">• Innovative use of Technology• Experience and Specialization	<ul style="list-style-type: none">• Difficult to Maximize Donor Involvement• Lack of Donor Data
External Analysis	OPPORTUNITIES	THREATS
	<ul style="list-style-type: none">• Collection of More Data May Help in Finding Causation• Can be Applied in other Countries	<ul style="list-style-type: none">• Donation Rate may Fall• Weather / Unforeseen Calamities

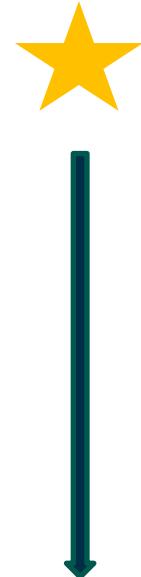
How can we Engage Donors?

The Formula for Engaging Donors



Ideas to Engage Donors

Marketing Strategy	Description	Purpose	Target Market
Leveraging our Technology	Generate Awareness about our Ecosystem Tracking Technology	Create Awareness	Existing and New Donors
Donor Portal	An Interactive Mobile Application or Website to Give Real Time Updates	Easy to use platform	Existing Donors
Virtual Tour	Online Tour of the Plantation Sites	Experiential marketing	New Donors
Social Media	Establish a Strong Social Media Presence. Ex: Instagram, Facebook, etc.	Consistent Interaction	Existing and New Donors
Traditional Mass Media	A Newspaper Advertisement or a short Television Commercial	Generating Mass Awareness	Existing and New Donors



★ Communicating the Success of Donor Contribution



Remember the Power of Word of Mouth!!



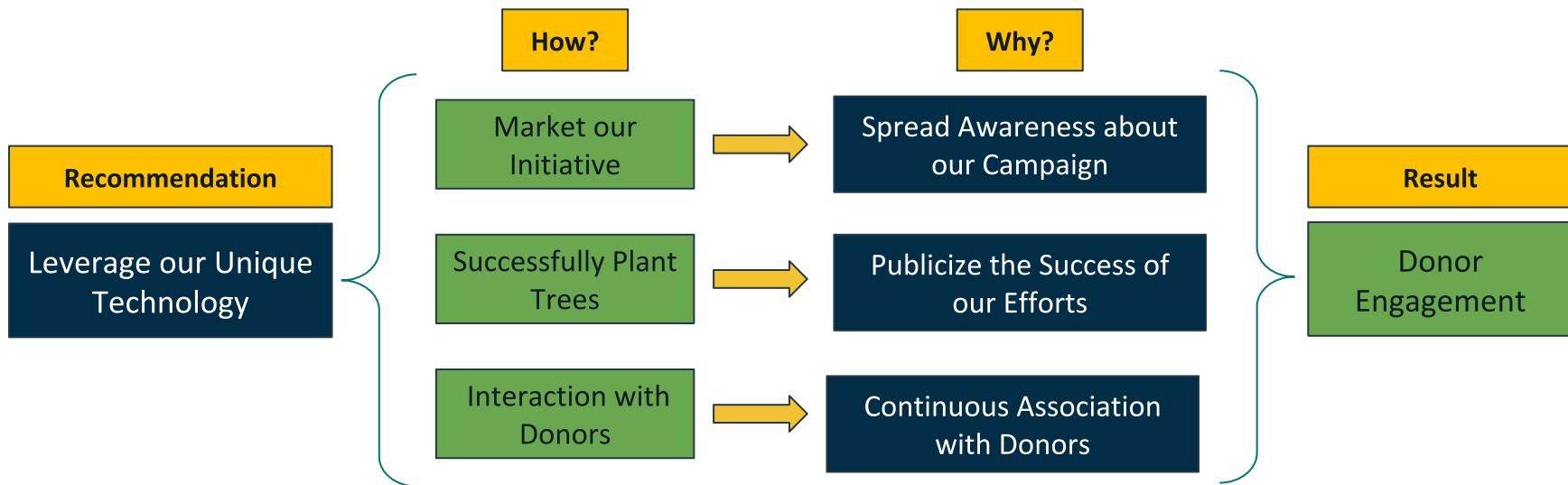
Madagascar Progress Report

Together we Can Save our Planet One Tree at a Time!

- Planted 2000+ Trees with 77% Success Rate
- 700+ Thriving Sandramy Trees
- 86% of Trees Equipped with State-of-the-Art Live Tracking
- Satrik'ala has the highest survival rate.
- Prediction of Optimum Conditions for Tree Growth



Our Final Recommendation





THANK YOU! ANY QUESTIONS?

