جمعية التحريج في لبنان
LEBANON REFORESTATION INITIATIVE

“Using GIS to guide decision making processes in reforestation”

Lebanon Reforestation Initiative
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August 27, 2019

ESCWA Beirut

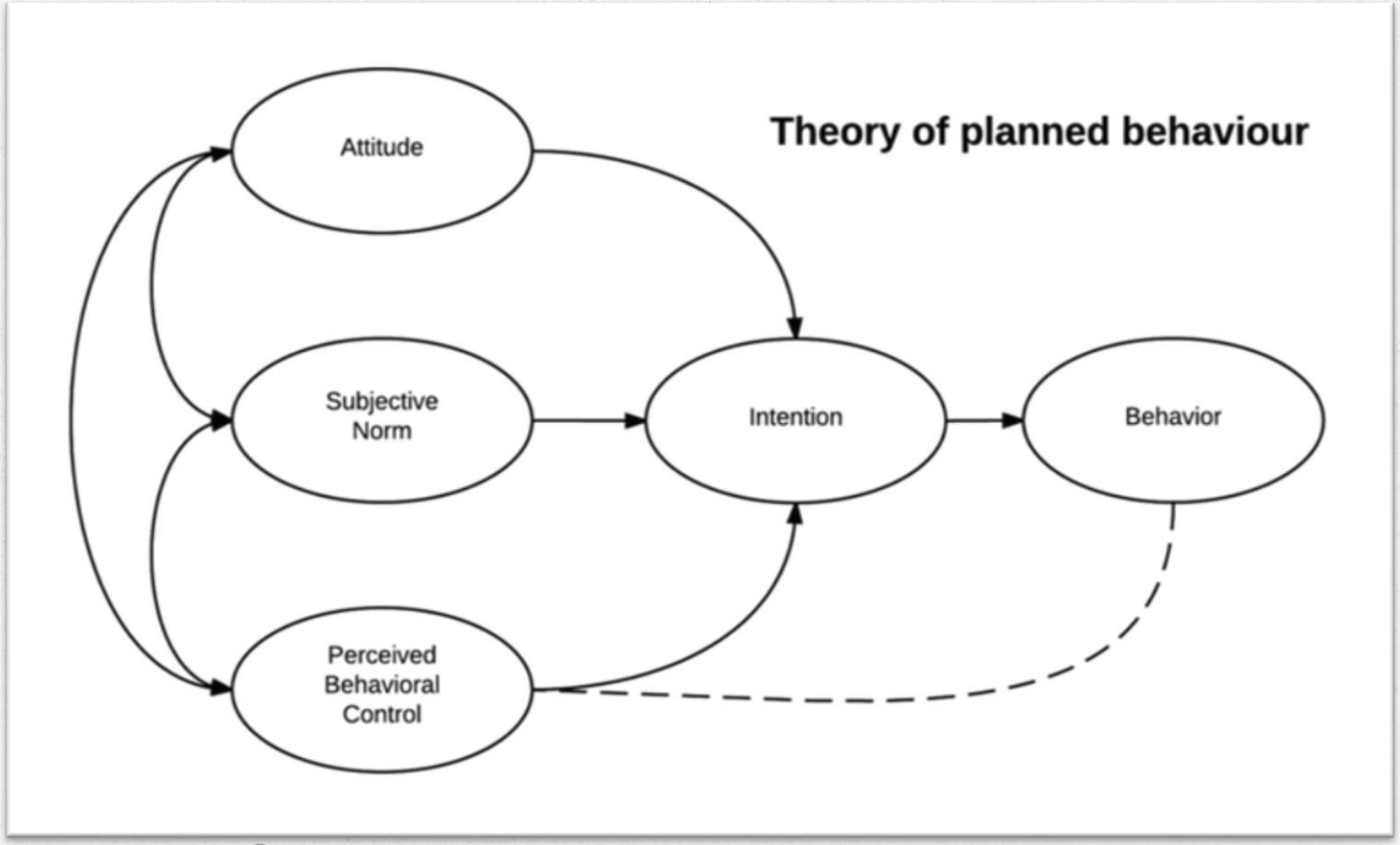
Introduction
Lebanon Reforestation Initiative

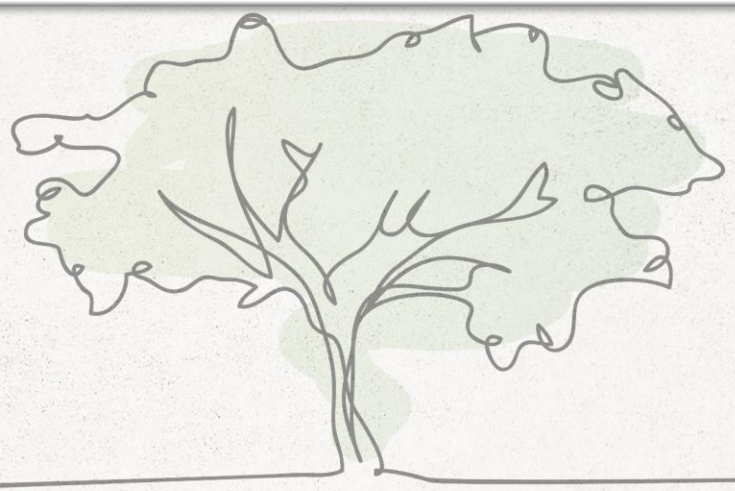
- Founded in 2014 to address Long-term sustainable land restoration and forest management across Lebanon

- LRI aims to conserve and expand Lebanon's forests through a community-based approach and public-private partnerships. In addition, LRI also aims to empower communities to advocate to better manage their forest resources.

Introduction
Lebanon Reforestation Initiative

- Objectives of the NGO
  - **Improve the management and conservations of forests across Lebanon**
  - **Contribute to the LDN national targets through Afforestation/Reforestation; Quarry restoration; land use planning; Education and Awareness and Stabilization of degraded lands.**





THE DAILY STAR
LEBANON

Print

Lack of data slows progress in Lebanon: U.N. report

Around 50 Lebanese and foreign volunteers participated in a campaign to clean the beach in the Fanar area of Tyre Sunday in conjunction with the United Nations' World Environment Day. The UNDP 2011 report made special reference to the relationship between the environment and human progress.

Nov. 04, 2011 | 01:36 AM

Olivia Alabaster | The Daily Star

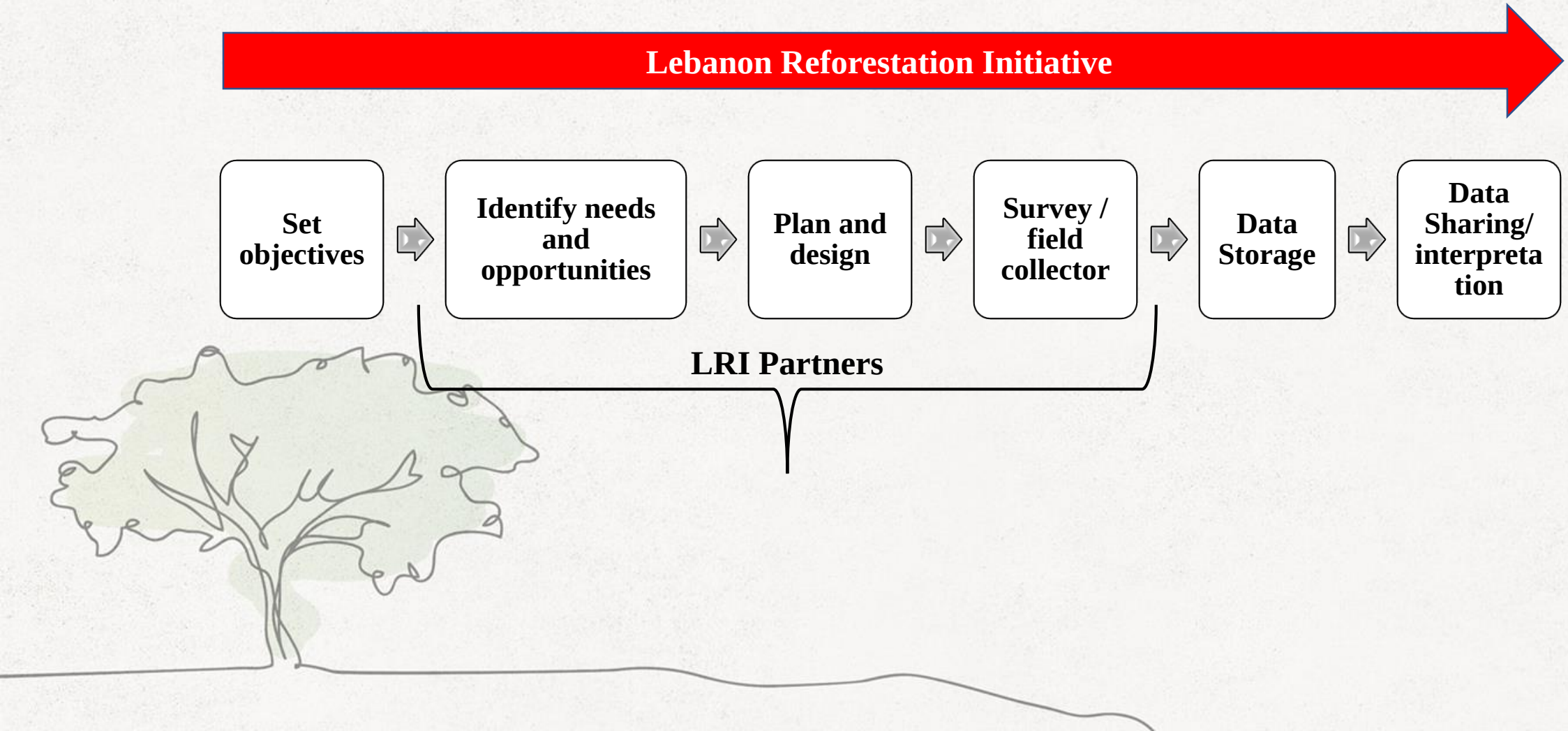
BEIRUT: While Lebanon is considered to have high human development rates compared to other countries in the region, the lack of data presents many obstacles to growth, delegates heard at the launch of the Human Development Report 2011 in Beirut Thursday.

The annual U.N. Development Program report, this year entitled, "Sustainability and Equity: A Better Future for All," ranked Lebanon 71 out of 187 countries, one place higher than its last appearance in the HDR in 2009. Lebanon was not included in last year's report due to a lack of statistics, and this dearth was again cited as a major obstacle to national progress.

The U.N. measures human development on three basic dimensions: a long and healthy life, access to knowledge and a decent standard of living.

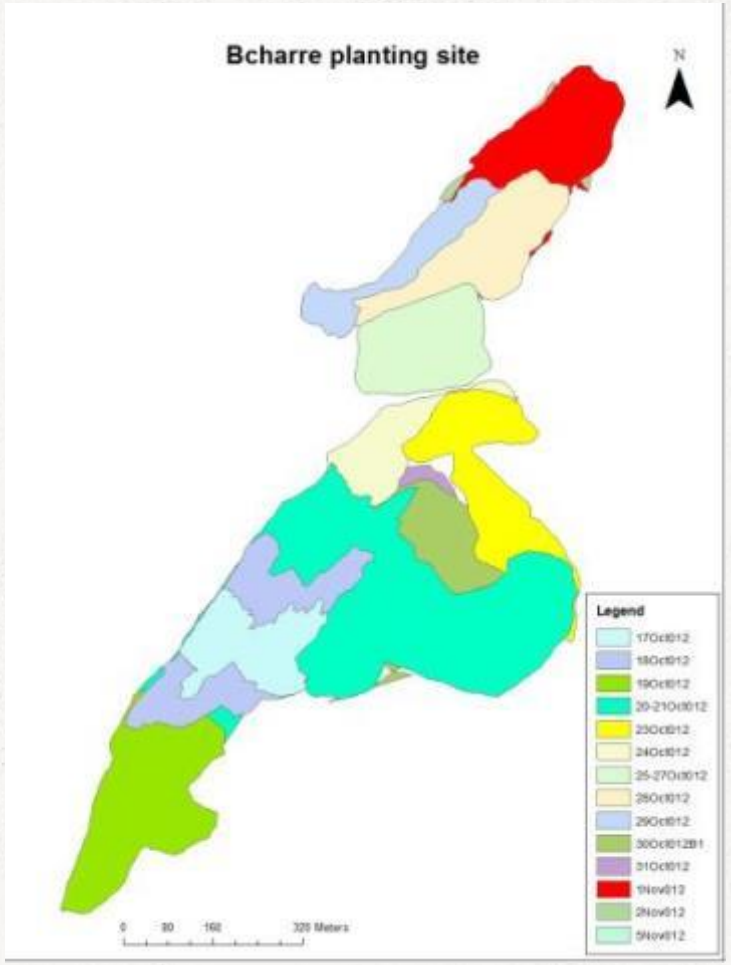
This year's report makes special reference to the relationship between the

LRI strategy for data collection and management

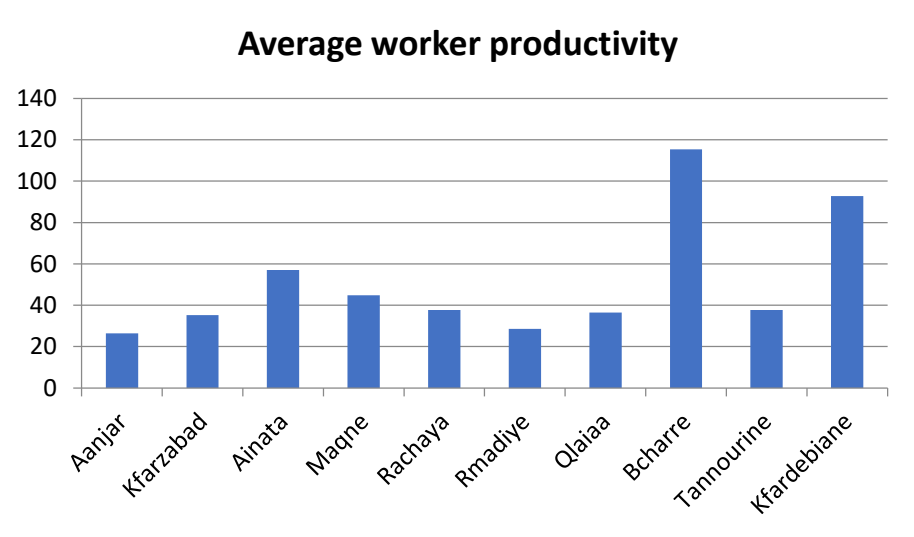


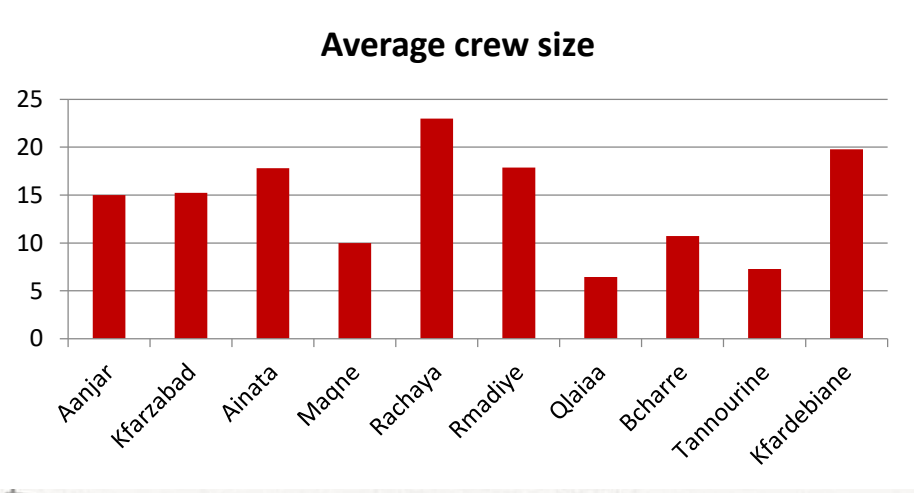
1. Daily Planting Inspection steps

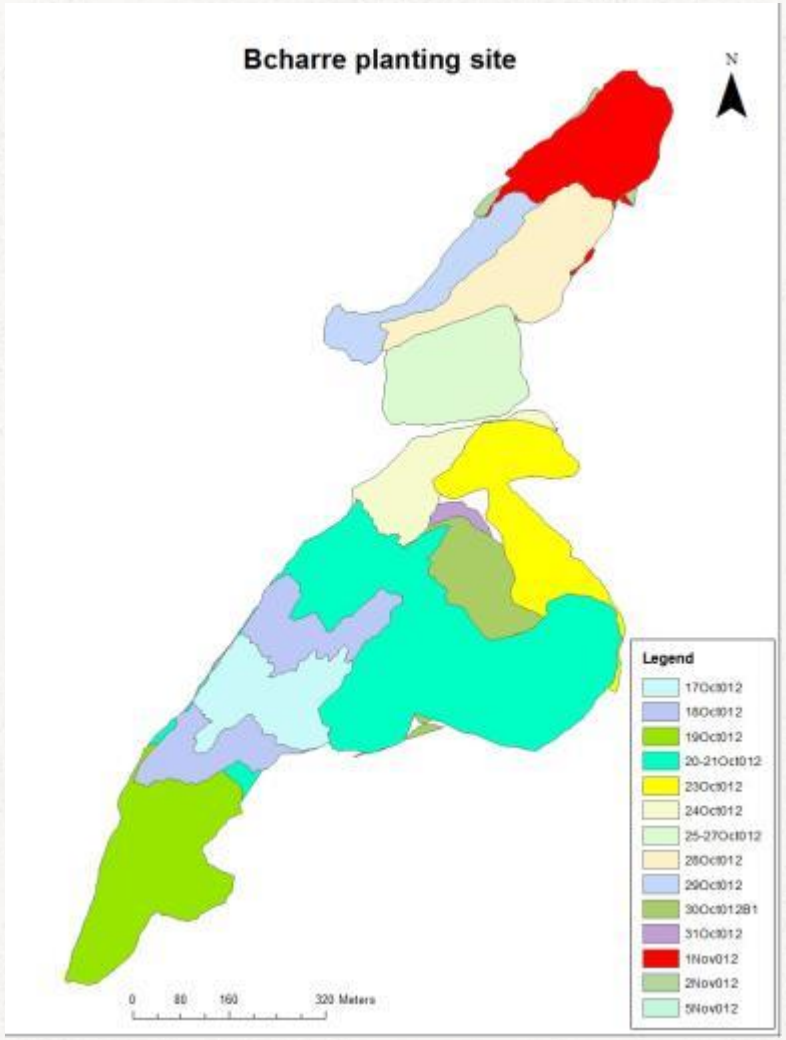
- Daily area planted is delineated at the end of each planting day



2. Inspection of planting quality

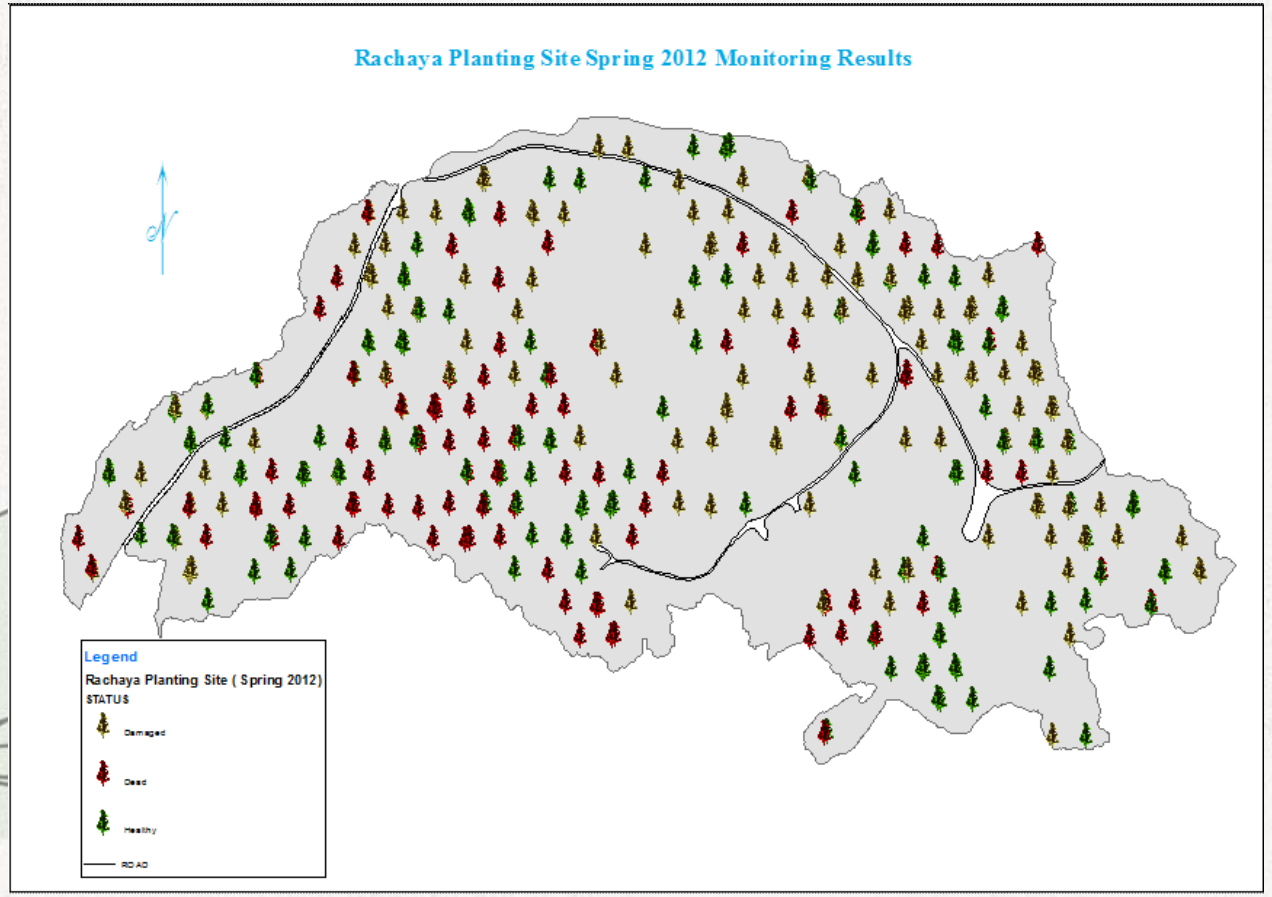


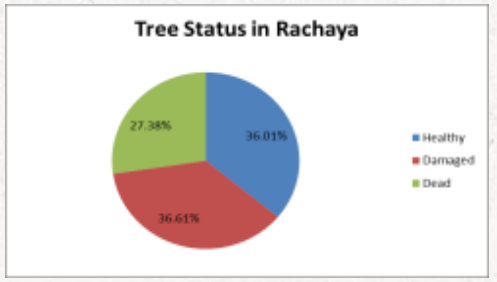


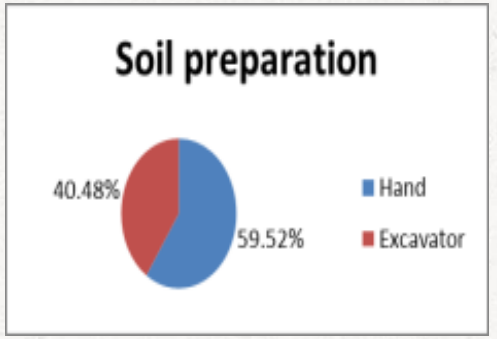


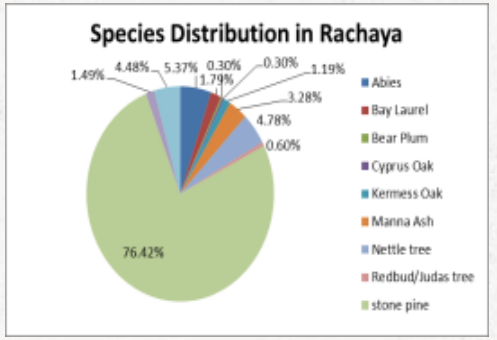
3. MONITORING survivability RESULTS

- **Baseline monitoring for the seedlings status at Rachaya planting site**

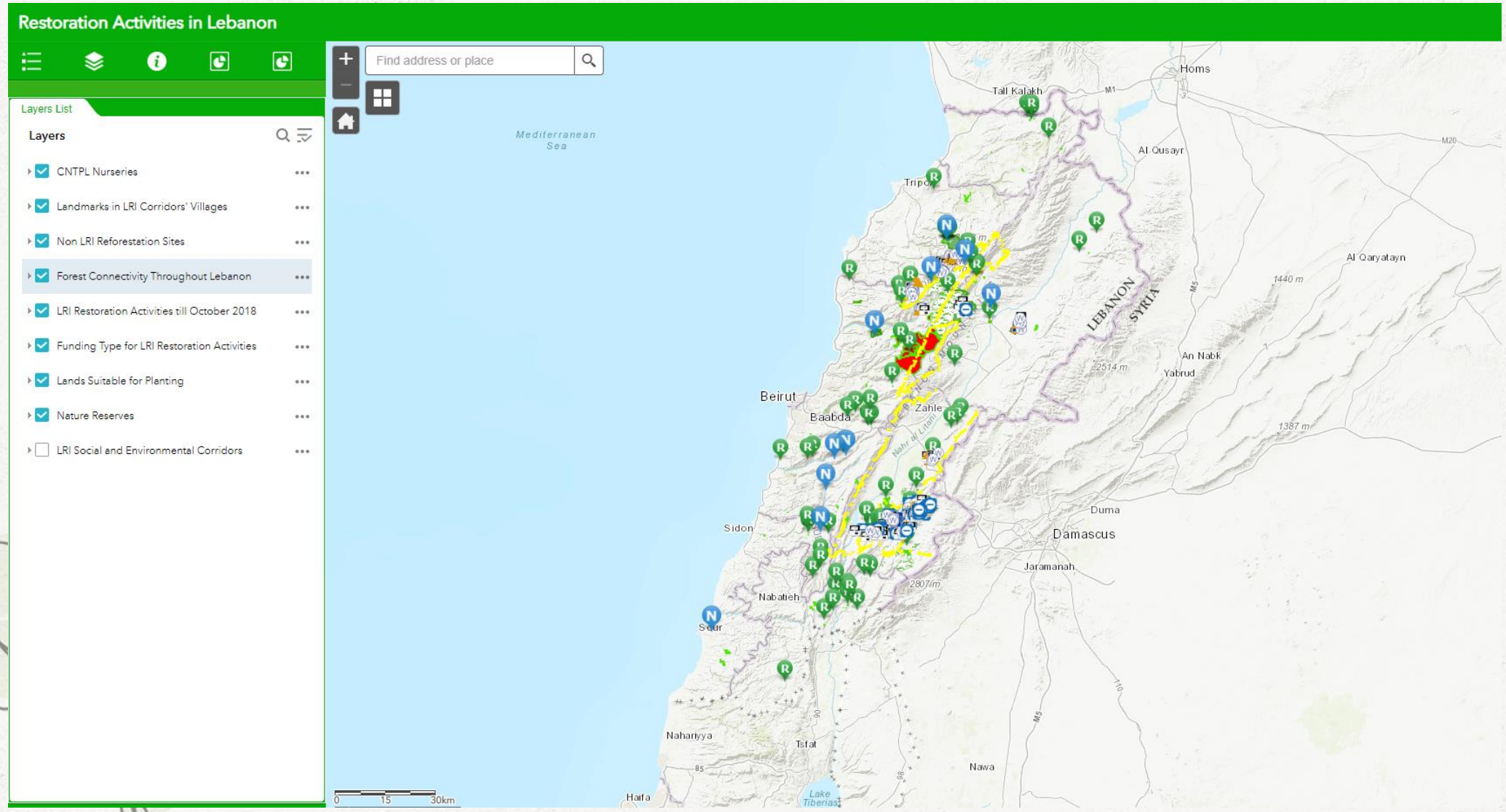




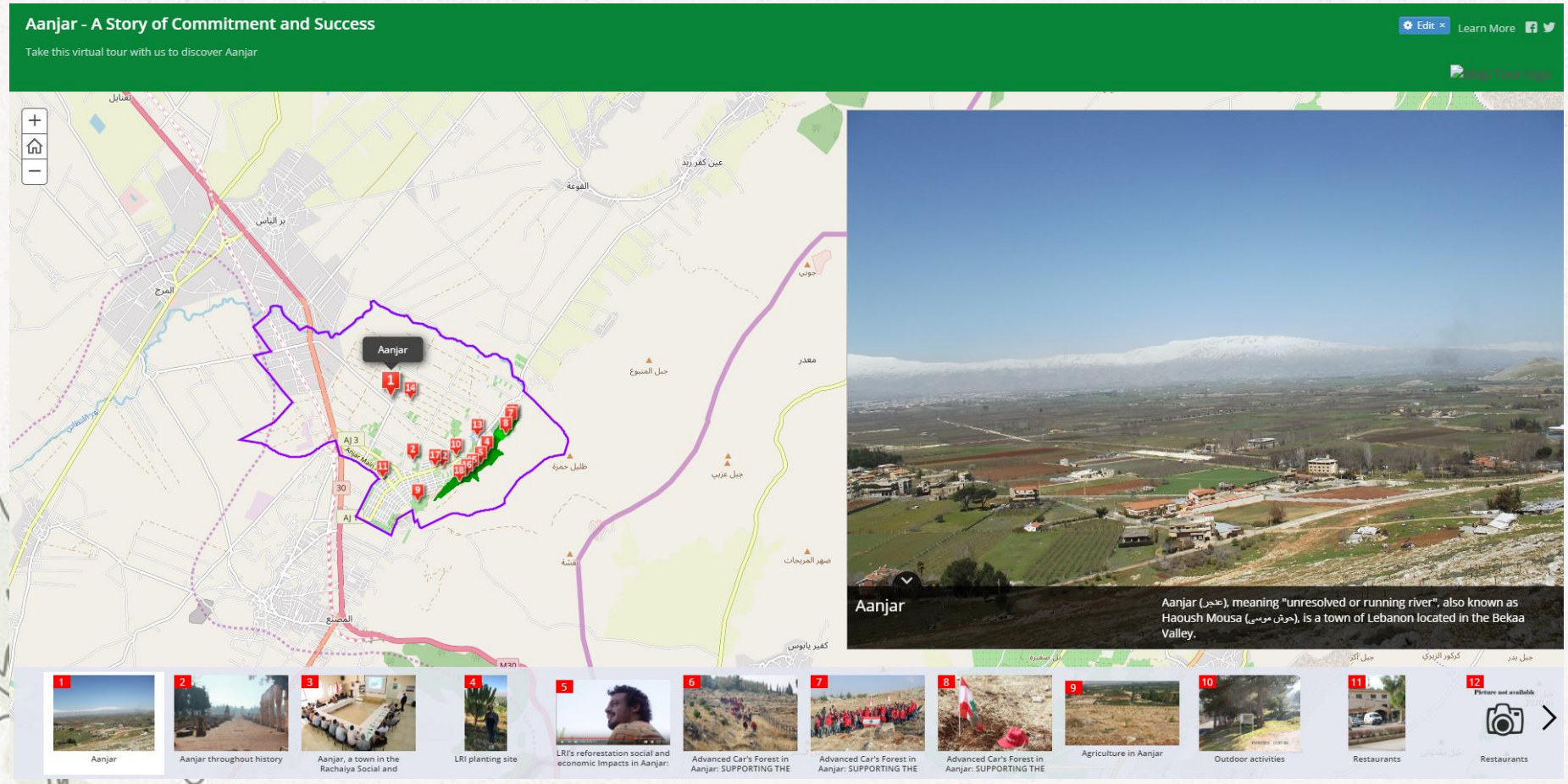




4. Web mapping platform



5. Story maps


Aanjar - A Story of Commitment and Success
Take this virtual tour with us to discover Aanjar
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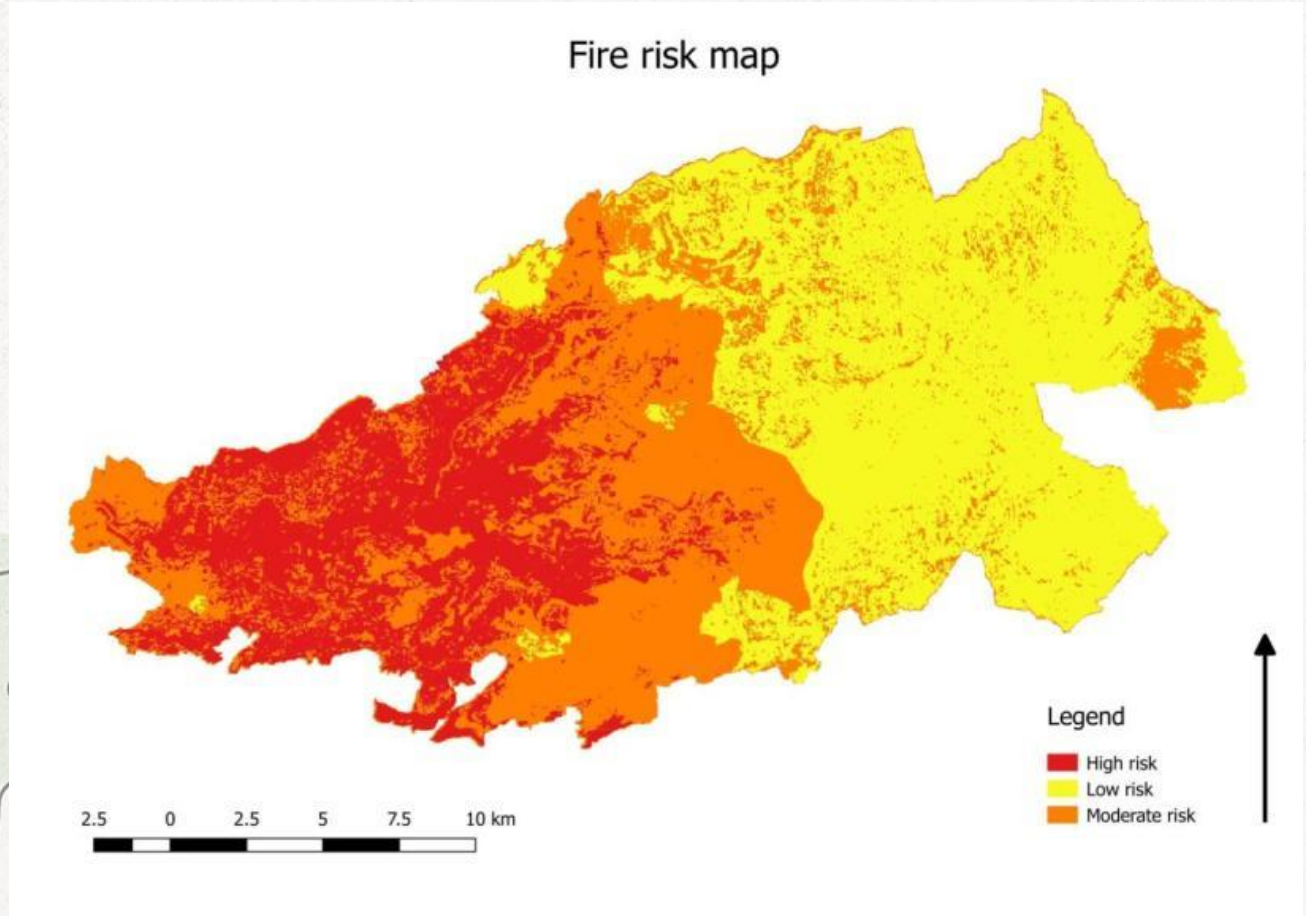
Learn More
Aanjar
Aanjar (عنجر), meaning "unresolved or running river", also known as Haoush Mousa (حوش موسى), is a town of Lebanon located in the Bekaa Valley.
Aanjar throughout history
Aanjar, a town in the Rachaiya Social and
LRI planting site
LRI's reforestation social and economic impacts in Aanjar:
Advanced Car's Forest in Aanjar: SUPPORTING THE
Advanced Car's Forest in Aanjar: SUPPORTING THE
Advanced Car's Forest in Aanjar: SUPPORTING THE
Agriculture in Aanjar
Outdoor activities
Restaurants
Restaurants

6. Fire risk maps



5. Drone aerial photo

Data Collection Timeline

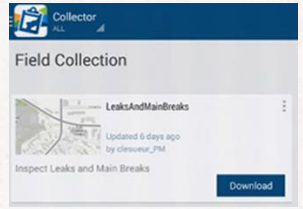
2000-2005

2005

2010

2013

2015



Data ARCHITECTURE

1. PDA

2. Content management system:
ArcGISonline

3. Applications
Collector for ArcGIS

Comparative table between paper based data collection and ArcGIS collector

Paper based	Electronic
2 days process (Data entry)	1 day (Sync)
Time consuming and costly	Reduced labor
Marked spatial location to be integrated	Accurate spatial location
Need to be cleaned to be analyzed	Directly fed for analysis
Need to be reviewed	Minimize human error

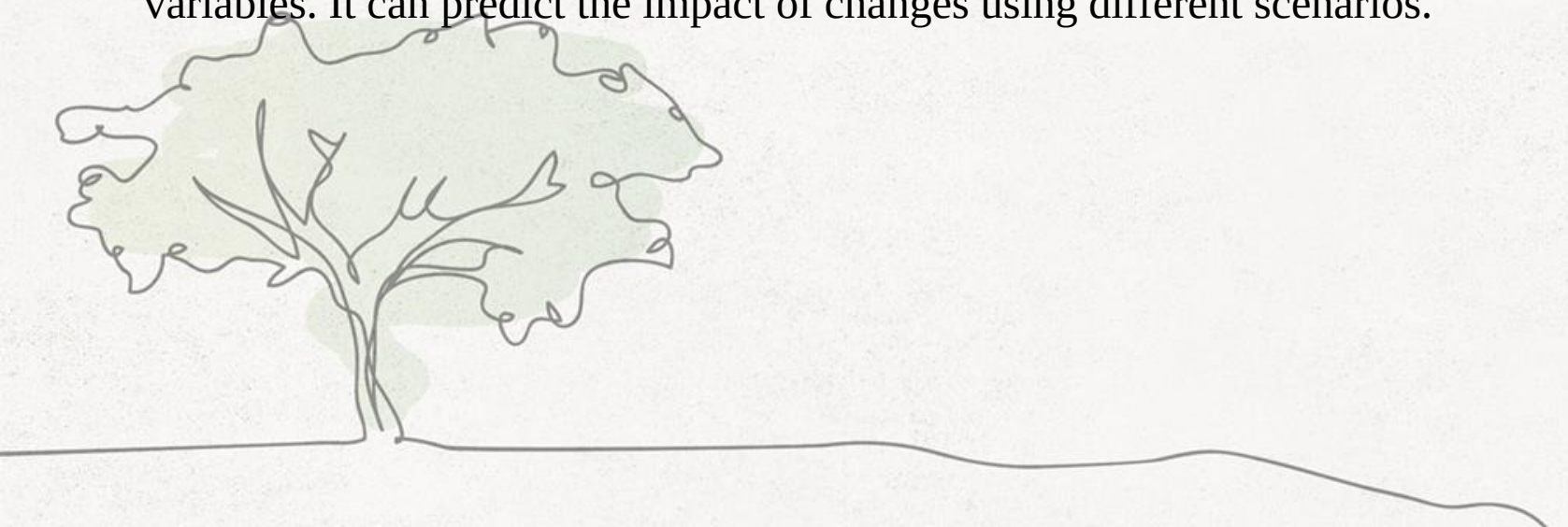
Advantages

Fast : Information stored and managed can be retrieved almost instantly	**Economic: o**ver time it reduced the costs of managing data by a significant margin.
Efficient : Summary documents and related reports can be automatically and quickly generated.	**Easily sharable**:

M&S (Modeling and Simulation) is defined as a discipline for developing a level of understanding of the interaction of different parts of a system with the system as a whole. M&S develops a mapping scheme that allows the re-production of the final output map using relevant and updated data.

M&S is explained by:

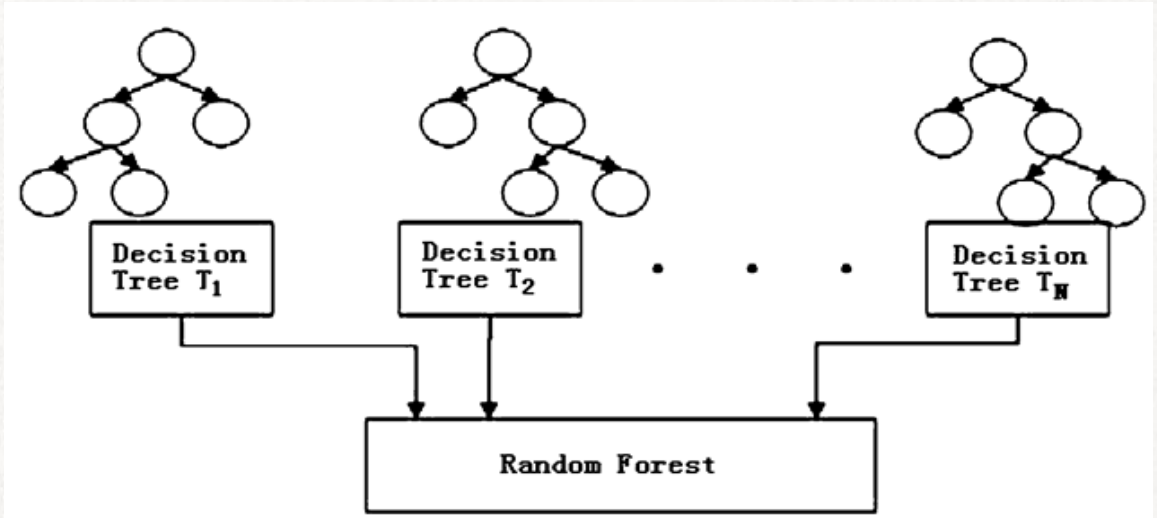
- Modeling is the static representation of a real system used to promote understanding of the real situation. A model enables an easy and accurate **updating** of results. The implementation of the model over time helps track Rangeland map changes in alignment with environmental and social modifications. The map which serves as a communication tool will be replicable and easy to compare over time and space.
- Simulation is the manipulation of the model in a way to **predict** the response of a system to a change in one or more variables. It can predict the impact of changes using different scenarios.



Random Forest model

- Data mining technique for ecological data procession and investigation

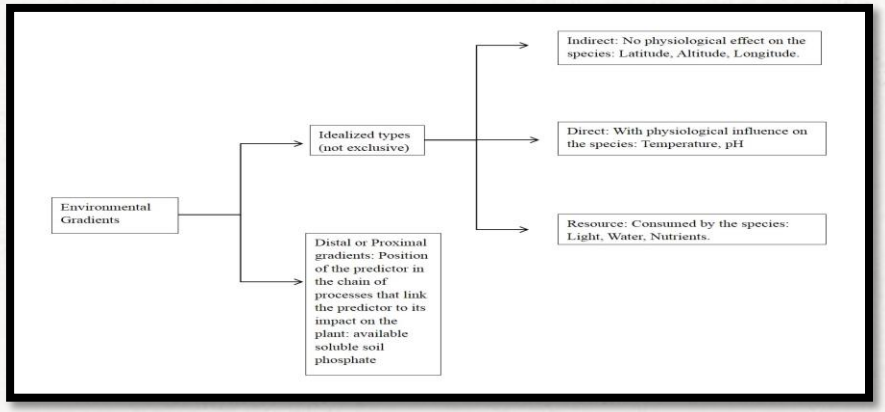
- Based on a forest of decision trees



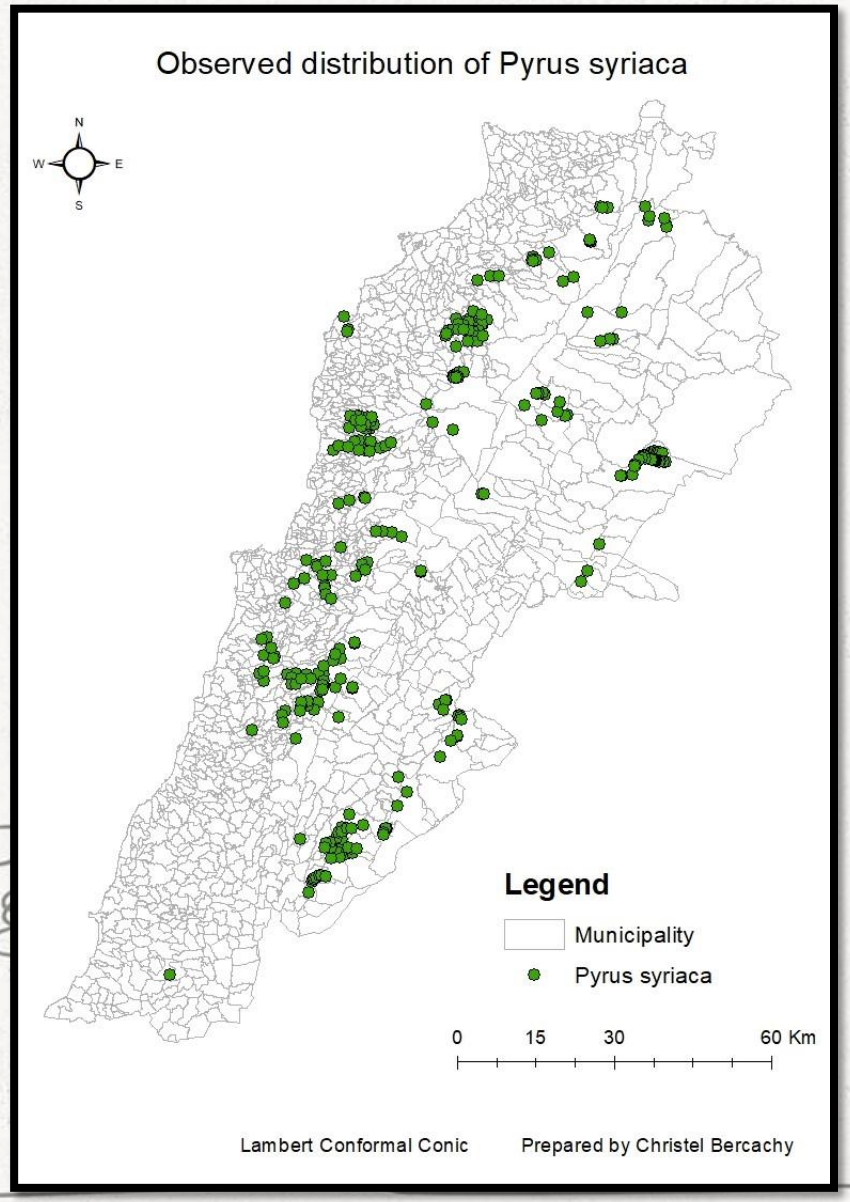
Maxent

- Species Distribution Model also known as Ecological Niche Modelling

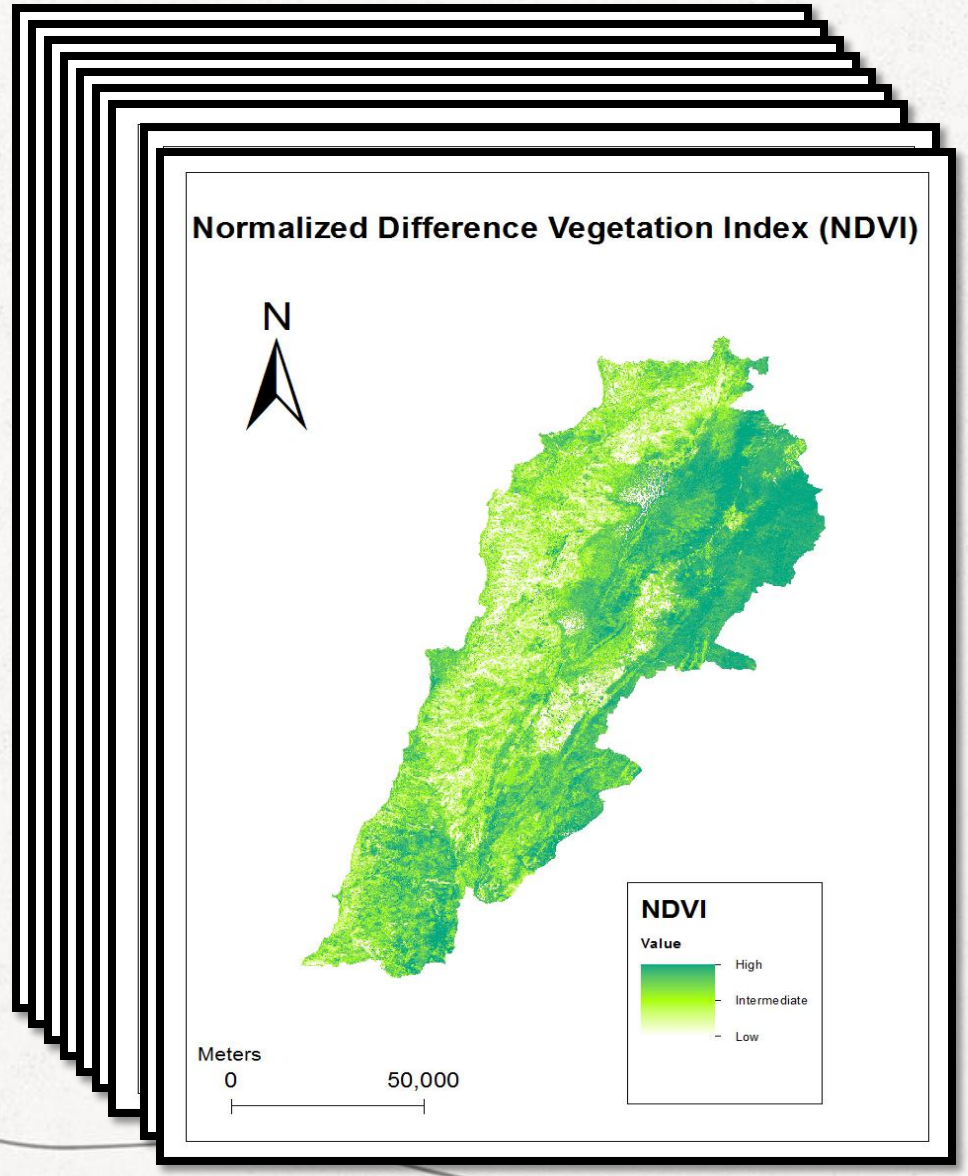
- MaxEnt is also known as Multinomial logistic regression and for further explanation it is a discriminative model that assigns a class to an observation by computing a probability



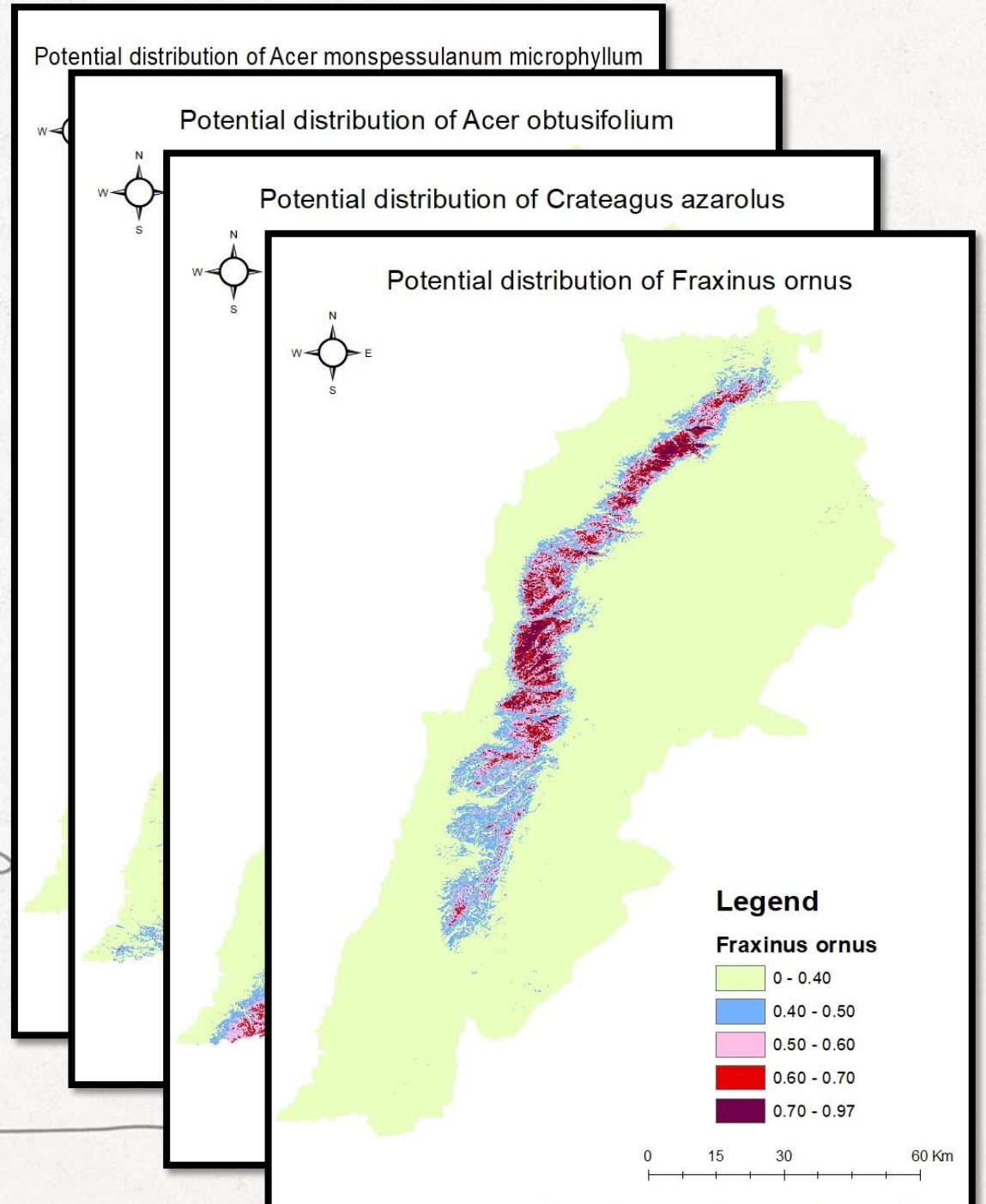
Presence points



Parameters



Prediction maps of potential distribution of 27 species used in reforestation



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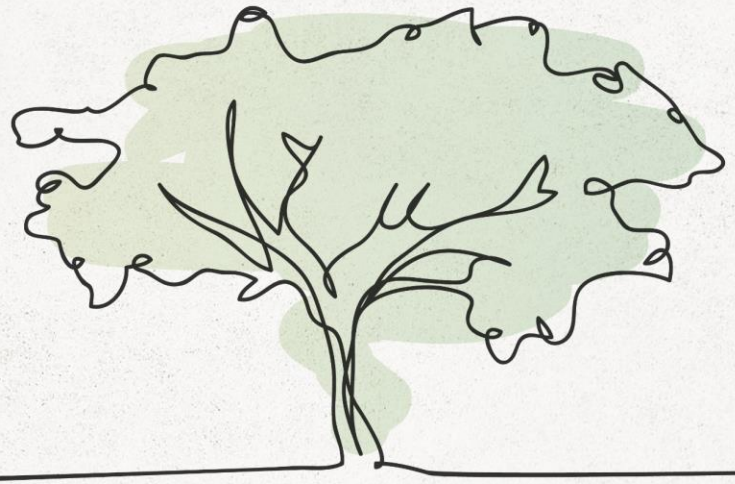
THANK *YOU*