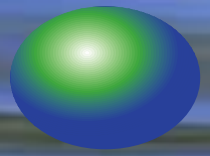
Promise of Commons



FES

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Degradation of Commons contribute to poverty, conflict, corruption and limited economic growth.

Insecure tenure for local communities and centralised governance

350 million people

Secure
Land Rights

+

Resource
Management Plans

+

Access to
Resources

=

Ecological
Health

+

Resilient
Livelihoods

Directly support communities

Partner with other NGOs

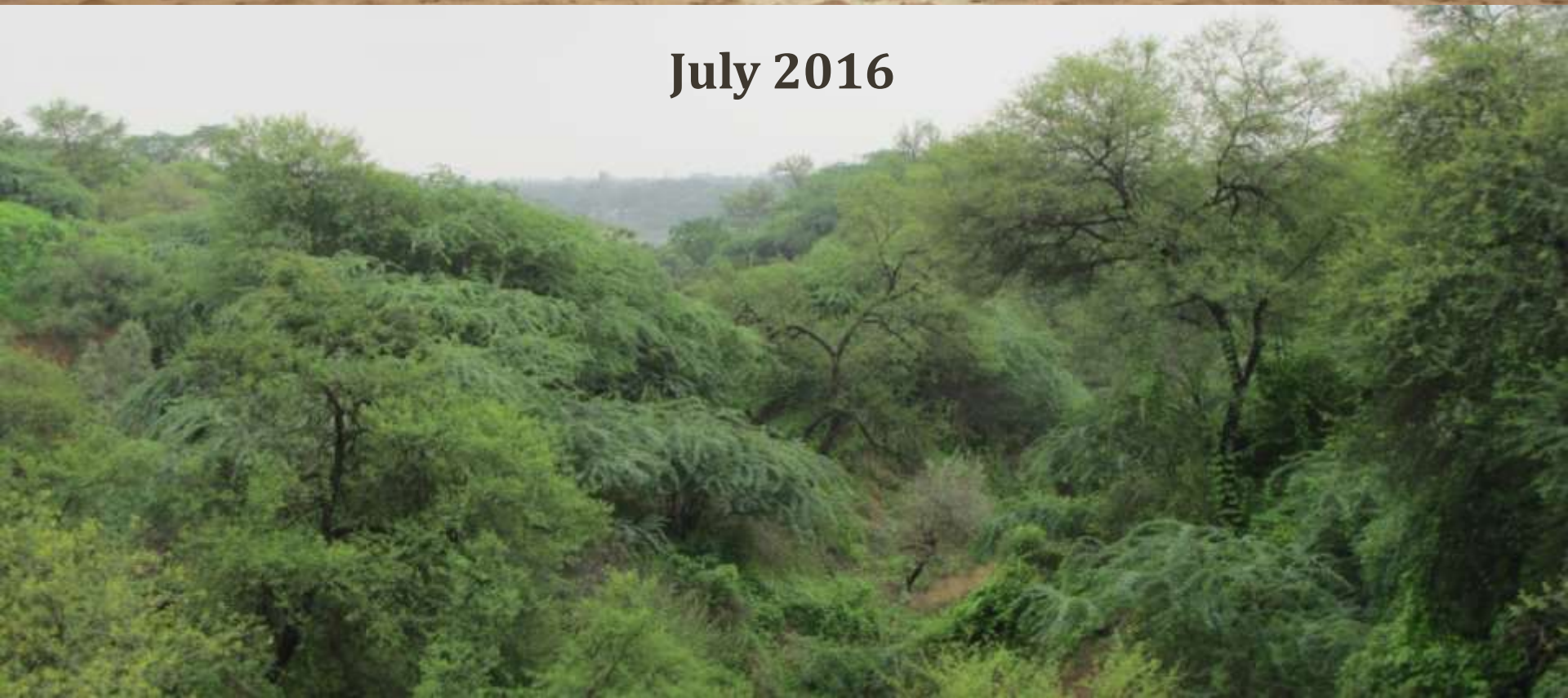
Hone Capacities

Harness Information Technology

Influence Government Action

July 1986

July 2016




September 2001
October 2016

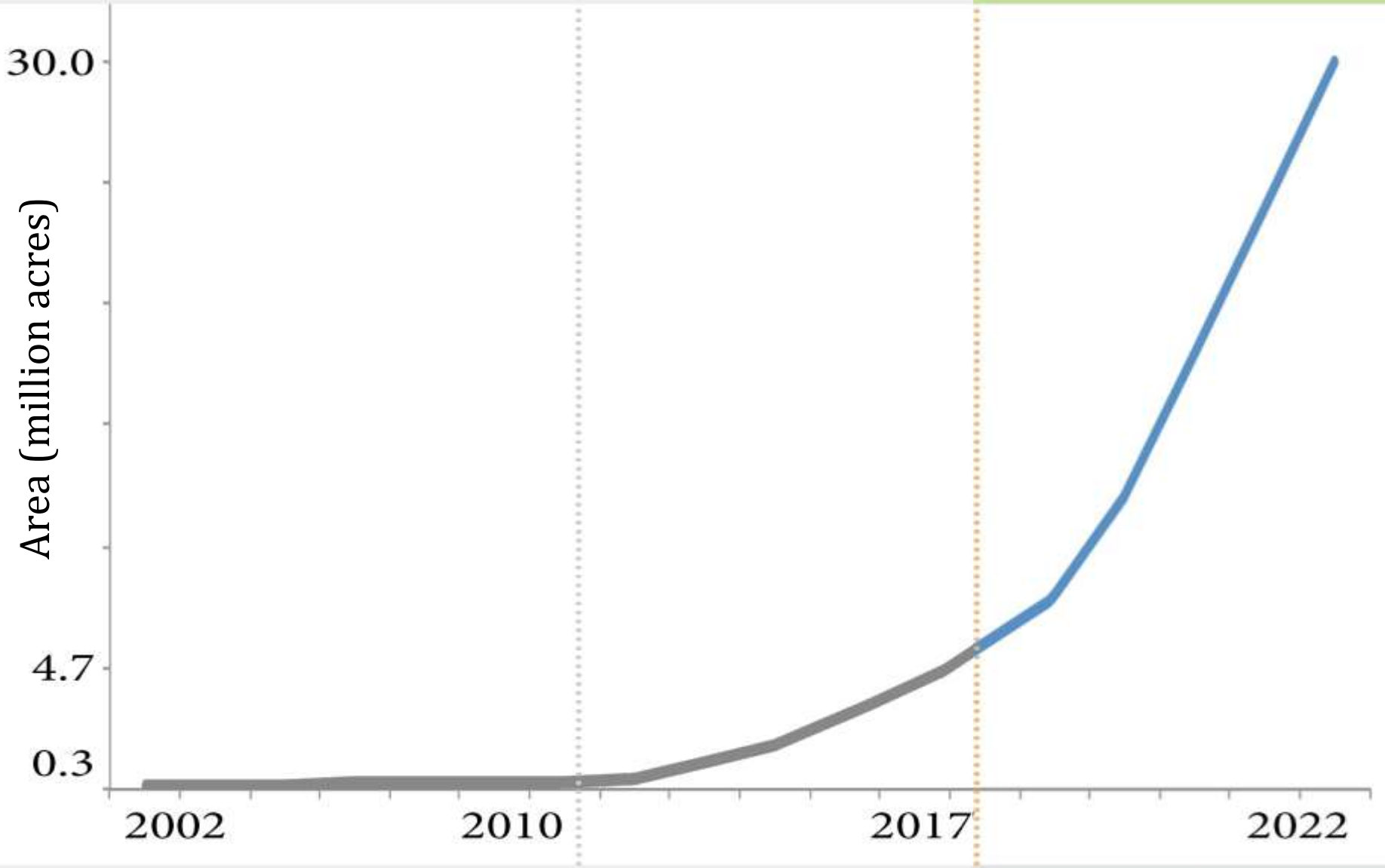
August 2004

October 2017

5.9 million acres

9 million people

Evolving | Replicating | Influencing



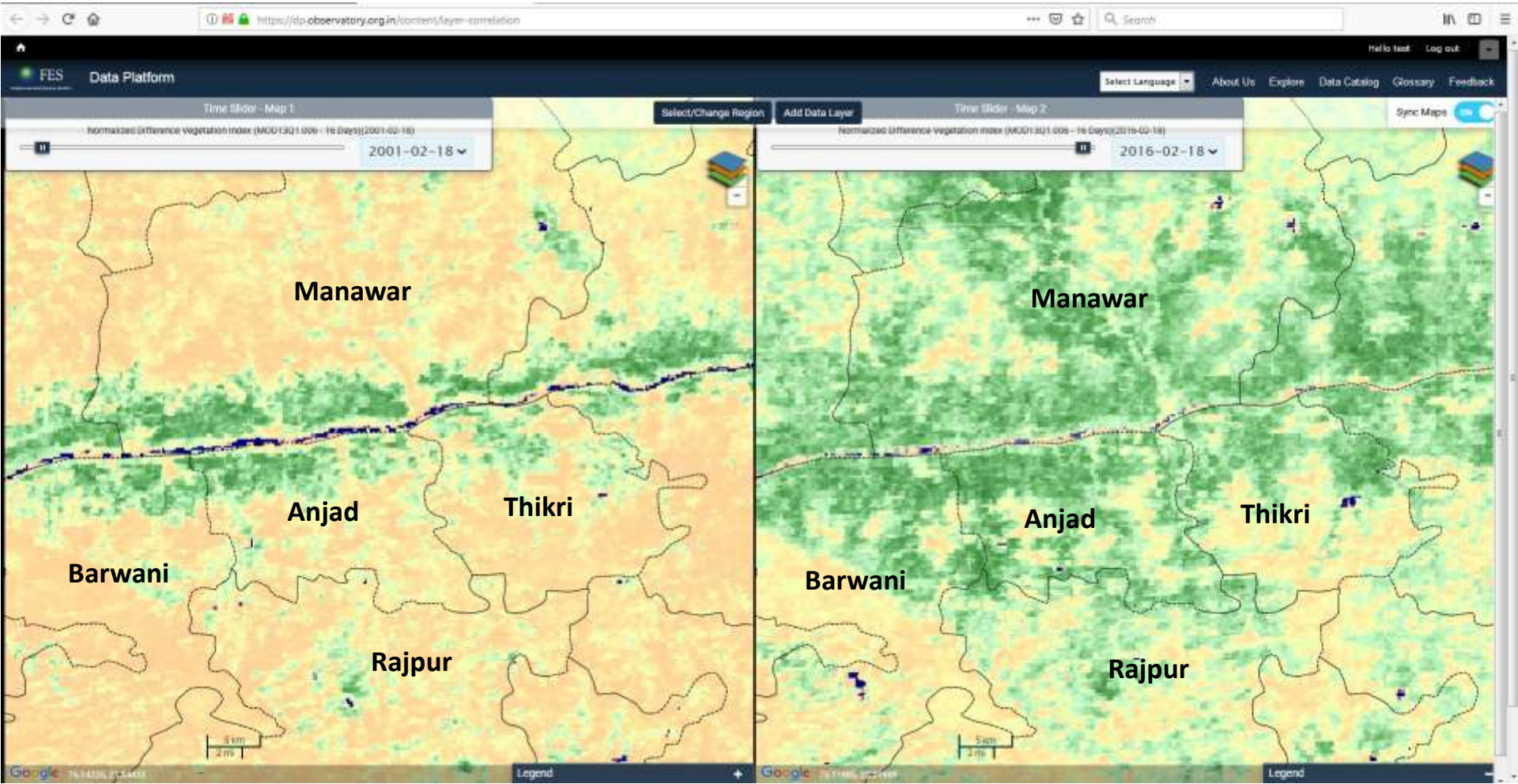
Direct | **With partners** | **8X Partners**
5 Governments

Data Platform - Features

- Comparison across time

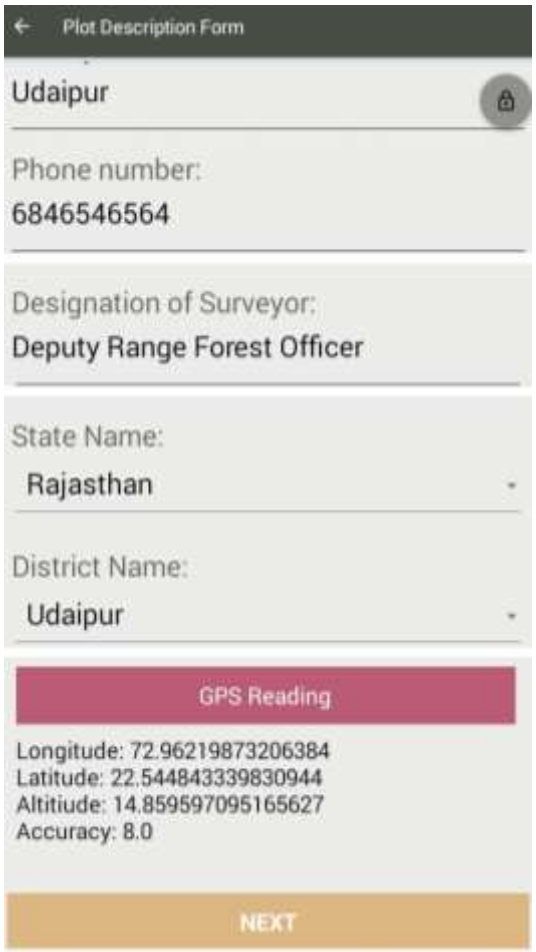
Rabi crop area during **Feb. 2001**
in Barwani & Dhar districts, M.P

Rabi crop area during **Feb. 2016**
in Barwani & Dhar districts, M.P



Forest Data Kit

- Offline
- Intuitive
- Checks and bounds



AVIS-IBIS >> BIRD-ID

FES
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BILL SHAPE | HEAD PATTERNS | EYE PATTERNS | TAIL SHAPE | WING

HEAD PATTERNS

- Plain
- Spotted
- Crested or Plumed
- Malar or Malar Stripe
- Streaked
- Banded
- Capped
- Unique Patterns

Clear all parameters

- BILL SHAPE: Cone Bill
- HEAD PATTERNS: Plain

Composite Landscape Assessment & Restoration Tool (CLART)

Rationale

- Annually over $1 billion (USD) spent for soil & water conservation through MGNREGA
- Under MGNREGA the village communities are entrusted to evolve plans and budget each year and are approved by the gram panchayats for inclusion in the shelf of activities
- In the absence of any technical expertise and location specific information, the plans are made based on intuitive knowledge and need without considering scientific back ground
- Lack of Engineers at Block level to visit in each location for preparing estimate and engineering design and verify the site suitability

Objective

Decision support tool which provides ***location specific*** information in a ***user friendly*** *manner* to ***enable village communities*** to *plan* and *develop estimates* of the soil and water conservation interventions ***without help of Engineers and Internet at field***

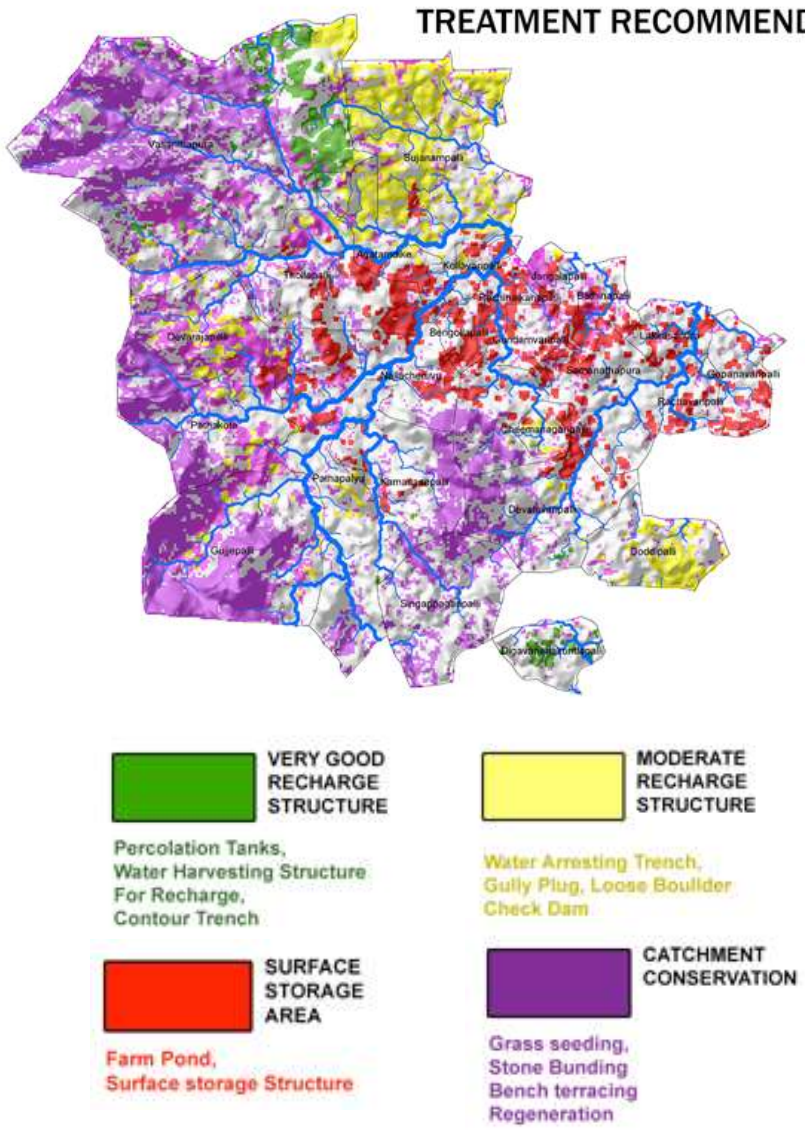
Features

Android Features:

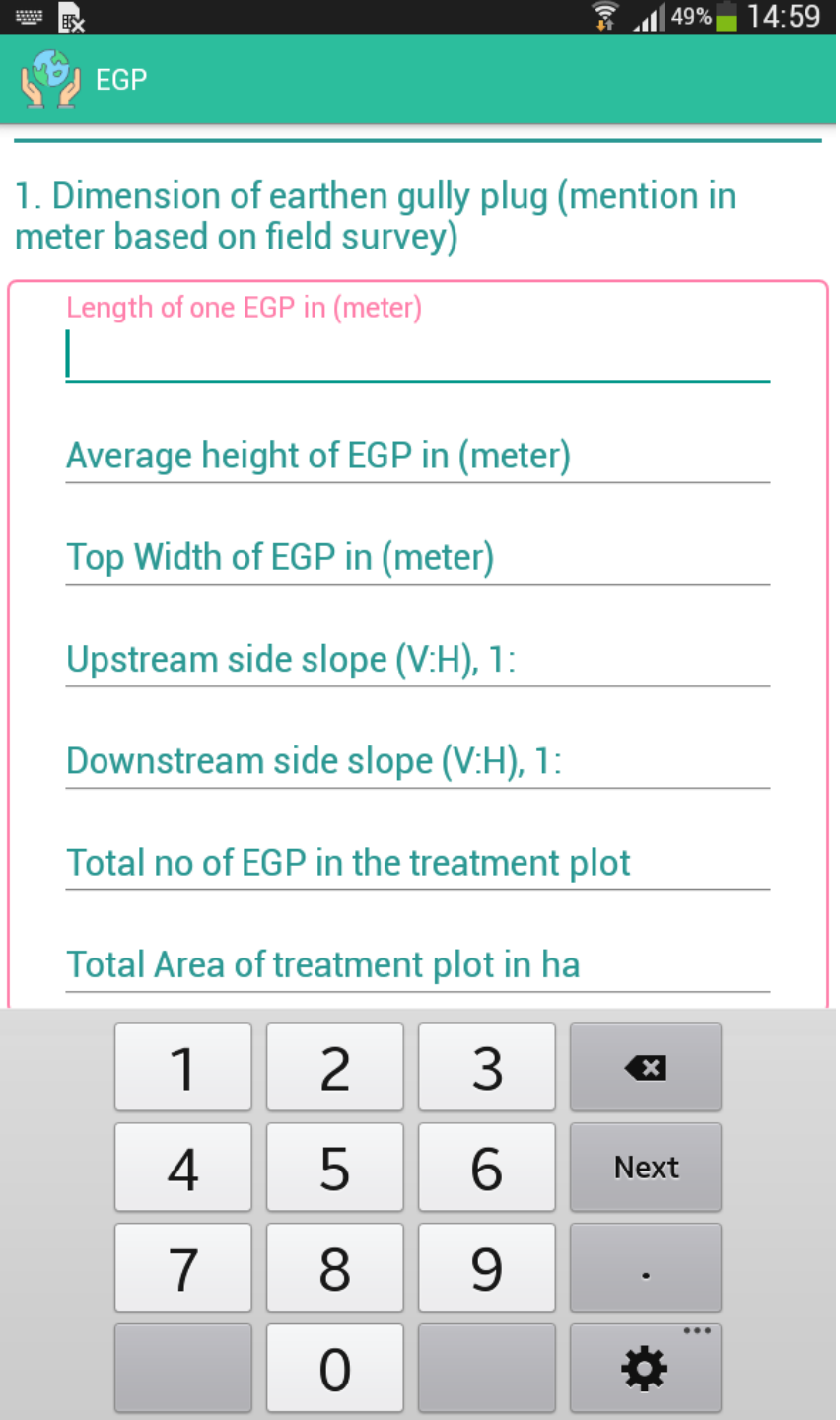
1. User friendly Map based Mobile Interface
2. Offline Tool
3. Onscreen index of colours
4. Google earth image on backdrop
5. Compass
6. Offline Field Data entry
7. Creating Design & estimate offline

Web Features:

1. Online sync with Server
2. Web platform for hosting, visualize and download entered and usage tracking data



Mobile Map User Interface at field



Lack of Engineers at Block level to visit in each location for preparing estimate and engineering design

Impact and Future

Initiated in 2014 and is continuously being updated

- **Tool is available for 15 States** (Raj, AP, Kar, MP, Odisha, Assam, WB, Bihar, Jharkhand, Chhattisgarh, Kerala, Punjab, Tamilnadu, Punjab, Hariyana)

- Being used across **FES project locations** (72 Blocks in 9 States)

- Tool is used by 32 partner NGOs for planning of SWC

- MoU has been executed and being used by:
  - Agriculture Dept and Panchayati Raj Dept of **Govt of Odisha**
  - Panchayati Raj Department of **Govt of Chhatisgarh**
  - MGNREGA Dept of **Govt of Andhra Pradesh**
  - **NIRDPR** for 50000 GPs under Mission Antyodaya
  - Andhra Pradesh Drought Mitigation Program
  - **Govt of Maharastra**

- **Development to support steep terrain**

India Observatory

India Observatory (IO) aims to demystify and present comprehensive information on India's social, ecological and economic parameters on a spatial and temporal platform to inform decision-making on nature conservation, natural resource management and enhancement of rural livelihoods

- As an action-oriented initiative, we collaborate with other organizations and,
  - bring together technology, data, analytics and tools,
  - Improve granularity and contextualize to local conditions
  - take them to supplement decision making at local levels

- We promote interdisciplinary understanding and aid in development of benchmark products

Guiding Principles

Approach

- Community focused
- Demystify information
- Collaboration

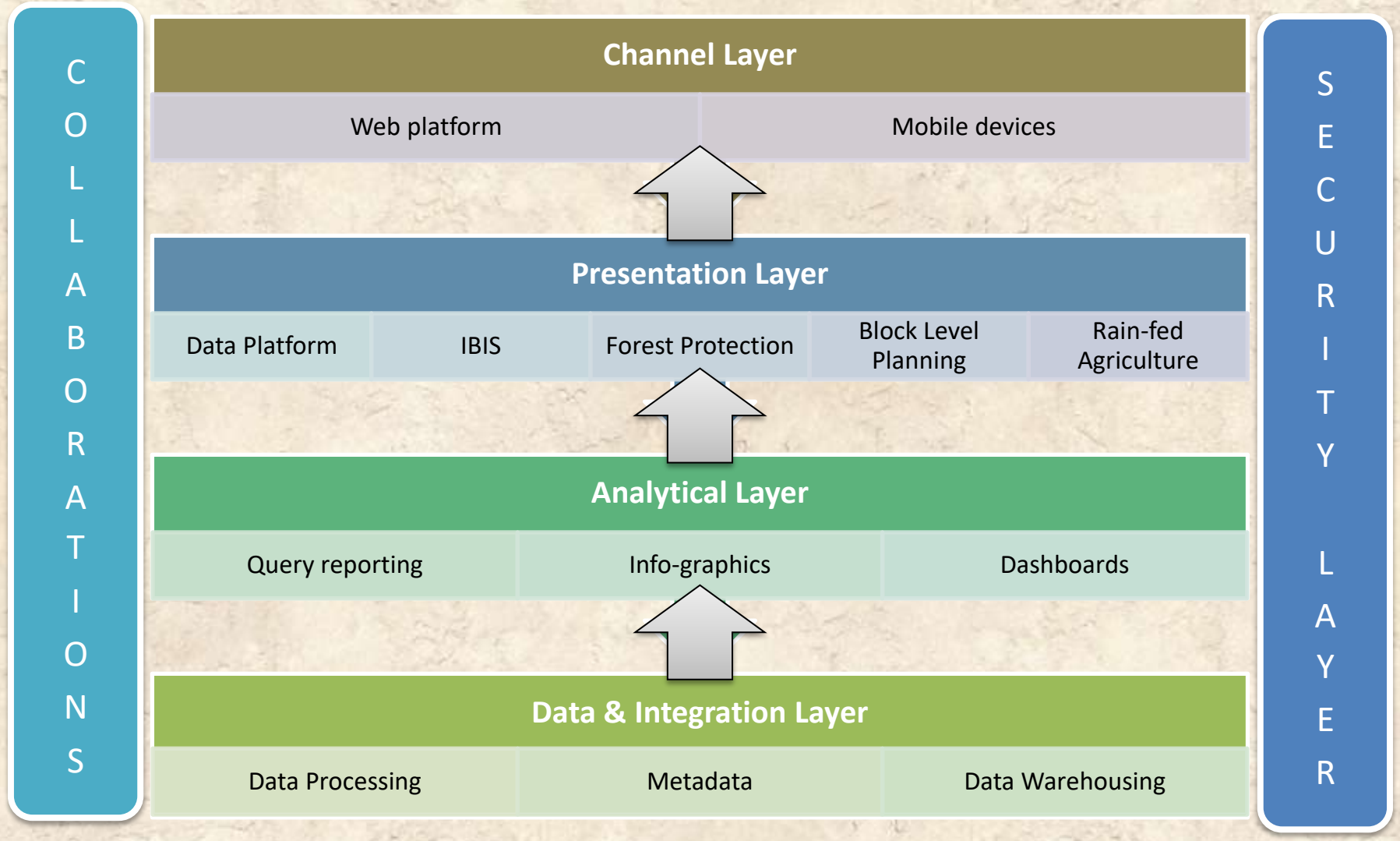
Data

- Free Prior and Informed Consent (FPIC)
- Open data
- Unbiased

Technology

- Open source
- Software Development Life Cycle (SDLC)
- Technology & platform Convergence

Architecture of IO



India Observatory Database

India Database

Spatial data:

Administrative Divisions (state, district, tehsil, village),1991,2001 & 2011

Digital chart of the world

- River basins, Bio-geographic regions
- ASTER, SRTM & Gtopo30 (Digital Elevation)
- Agro-eco regions
- Protected areas (IUCN 2012)
- Forest cover (1990-2011)
- Wasteland (1995, 2005 & 2010)
- CGWB Watershed Atlas

Non-spatial data:

- Census data 1991 & 2001 (around 300+ attributes)
- Time series data for Project States (1951-2007)
- Market potential Areas (2001 & 2008)
- Groundwater data (2004)
- Forest cover from 1990 – 2011

Big Spatial Data

Remote Sensing:

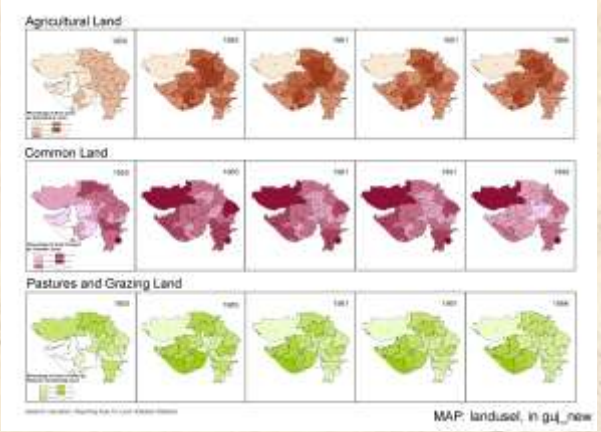
- Vegetation Indices NDVI/EVI From 2000 onwards
  - Leaf Area Index
  - Gross Primary Productivity
  - Thermal Anomalies & Fire
  - Land Cover Type Yearly
  - Vegetation Continuous Fields
  - GRACE TELLUS Landmass Dataset
  - Climatology Data (CRU TS 3.20, 1901 to 2011, Monthly Average of Temperature(Min,Max,Mean), PET, WET Days etc.

Other Datasets

- Other Census like Agriculture, Livestock, Irrigation etc.
- Harmonized World Soil Database
- Global Aridity and PET Database
- Bio-geographic & Agro-ecological regions
- Expert Range Maps

IBIS

- Approximate 30,000 Taxa of Birds, Mammals, Reptiles, Amphibians, Spiders and Angiosperm Flora
- Diverse Database
  - Bibliography
  - Books
  - Images and Multimedia
  - Museum Collection
  - Sighting Database
- GIS Based distribution and sighting maps



Suite of Tools and Decision Support Systems

Parameters	Tools	Planning	Implementation	Monitoring	Evaluation
Water	Composite Landscape Assessment and Restoration Tool (CLART)	✓	✓		
	Design Estimate Tool	✓	✓		
	Crop Water Budgeting (CWB)	✓			
	Experimental Game (EG)	✓			
	Water Table data collection Tool	✓	✓	✓	
Common Land & Forest Restoration	Normalized Difference Vegetation Index (NDVI) analysis Tool	✓		✓	
	Species Distribution Model (SDM)	✓	✓	✓	
	Integrated Forest Management Toolbox (IFMT)	✓	✓	✓	✓
Livelihoods & Entitlement	GIS Enabled Entitlement Tracking (GEET)	✓	✓	✓	✓
Data Support	Primary data collection tool (Household surveys, MIS etc.)	✓	✓	✓	✓
	Data platform (Socio economic, ecological and environmental data from different sources)	✓	✓	✓	✓

Collaboration

- Washington University, St.Louis – India Observatory Backbone Architecture
- NIRDPR – Supporting Gram Panchayat Development Plan (GPDP)
- Wild Life Institute of India (WII) – Algorithm support
- WRI – IFMT toolbox (India); LandMark (WRI - International)
- IFPRI & Arizona State University – Crop Water Budgeting, Experimental Games
- UNDP – Development of GEET
- ISB – Development analytics
- Geospatial Media & Communication – Outreach and partner identification

IO Future Plans

- **Improve Local Use**: Pool and design tools for local application- mapping, planning, implementation and monitoring- through demystified presentation, low-end devices and offline mode.
- **Partnership with Government Institutions** for hosting tools on their platform for wider use.
- **Large scale application**: Integrate tools in mainstream government programs for wider and effective implementation.
- **Widen civic engagement**: Sharing the repository of information/data analytics and tools for donors, researchers, practitioners and students.
- **Benchmark products:** Developing state and national level products for ecological governance.


Thank you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Thank you