

Opportunities in remote sensing for Rural Development



The case for an Open LULC **Map + Model + Ground truth** dataset



WELL (Water, Environment, Land & Livelihoods) Labs - IFMR

We co-create research and innovation for social impact in the areas of land and water sustainability.



WHAT WE DO



- **Collect questions** asked by NGOs & Philanthropies/CSR in rural water management
- **Develop solutions (use cases)** that address these problems
- **Engage** with NGOs & Philanthropies/CSR in interpreting and using these solutions.

OUR APPROACH



- **Solutions** = Remote Sensing based Datasets + APIs for modeling at scale
- **Open Source**
- **Collaborations**



OUR PARTNERS



IITD



**Tarun Bharat Sangh
(TBS)**



**Foundation for Ecological
Security (FES)**



Arghyam



QUESTIONS

In rural water management

DIAGNOSIS



- How do I assess **village level Water Security** and identify villages most in need, before beginning work?
 - What is the current Net Water Availability?
 - What is the current Water Productivity?

PLANNING



- **Where do I site** my watershed management structures?
- **How many structures** do I need to build to achieve water security in this village?
- **How many farms** should adopt drip irrigation for the village to reach water security

EVALUATION

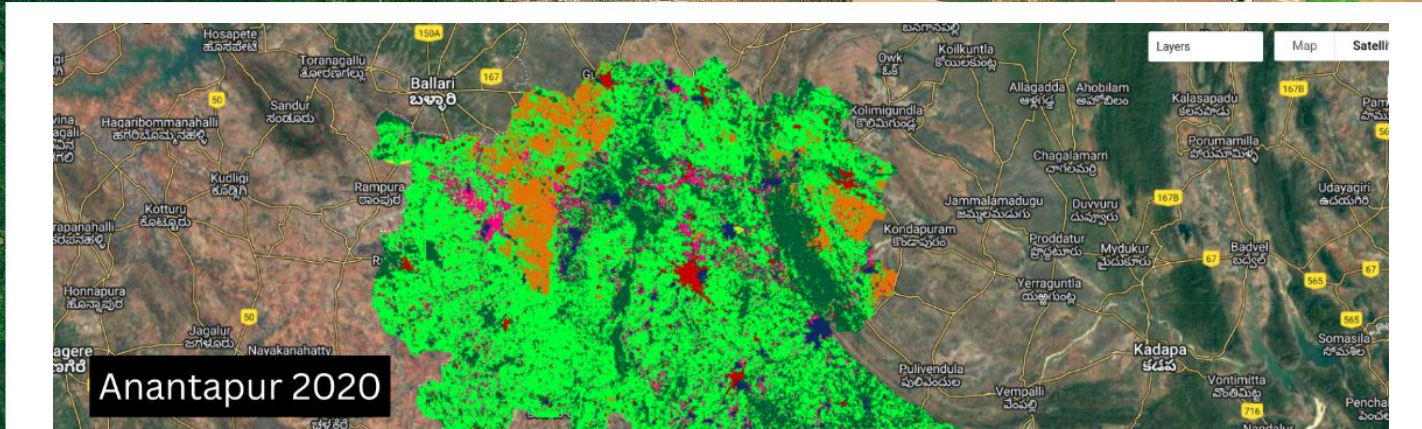


- How much is the **change in water availability** due to recharge from the newly constructed structures?
- What is the **reduction in water demand** due to water saving practices?
- What is the **impact of structures** that I have built on the surrounding agriculture, after 1,3,5,10 years?

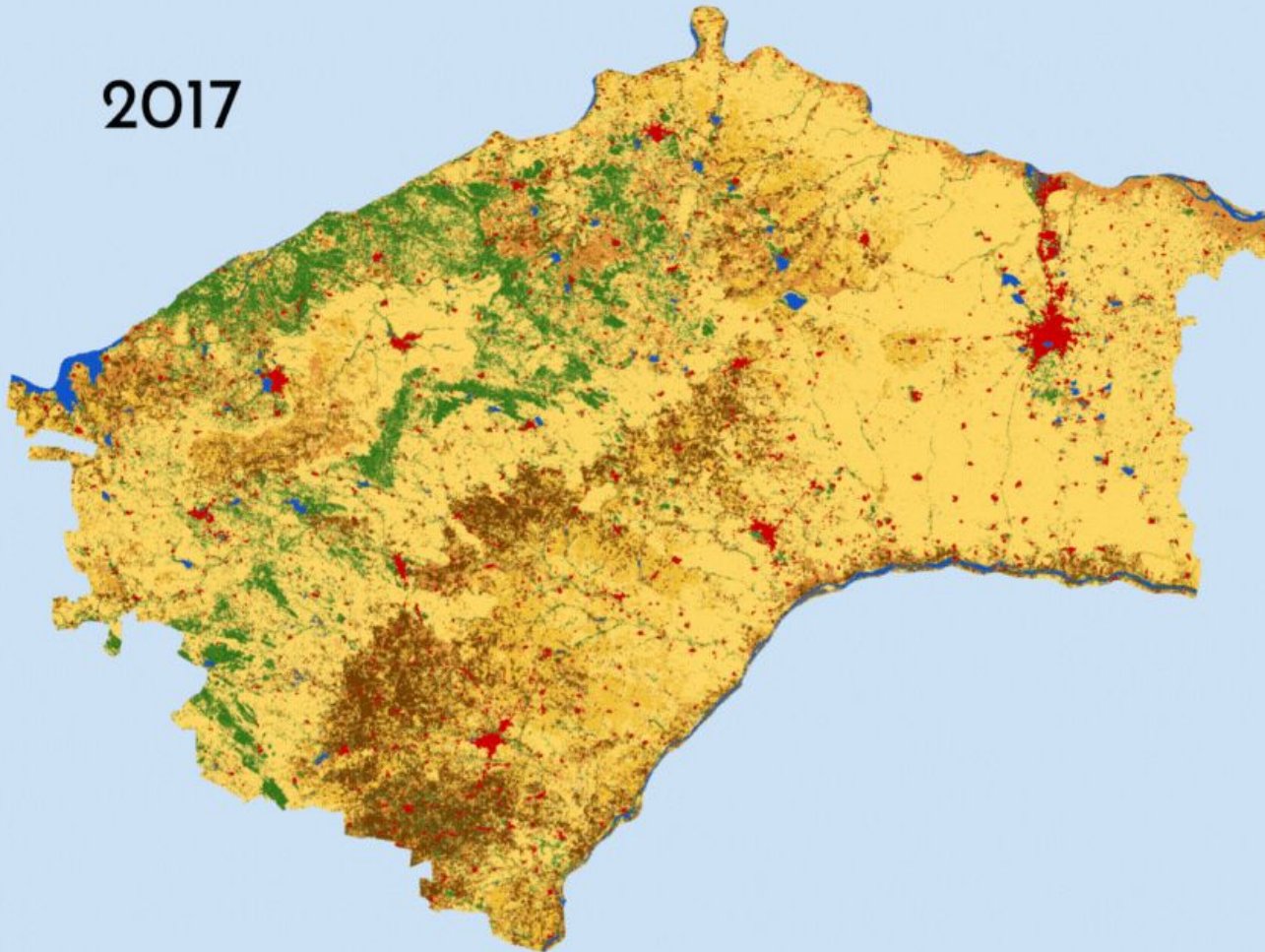


SOLUTIONS

IndiaSAT Land Use Land Cover Classification



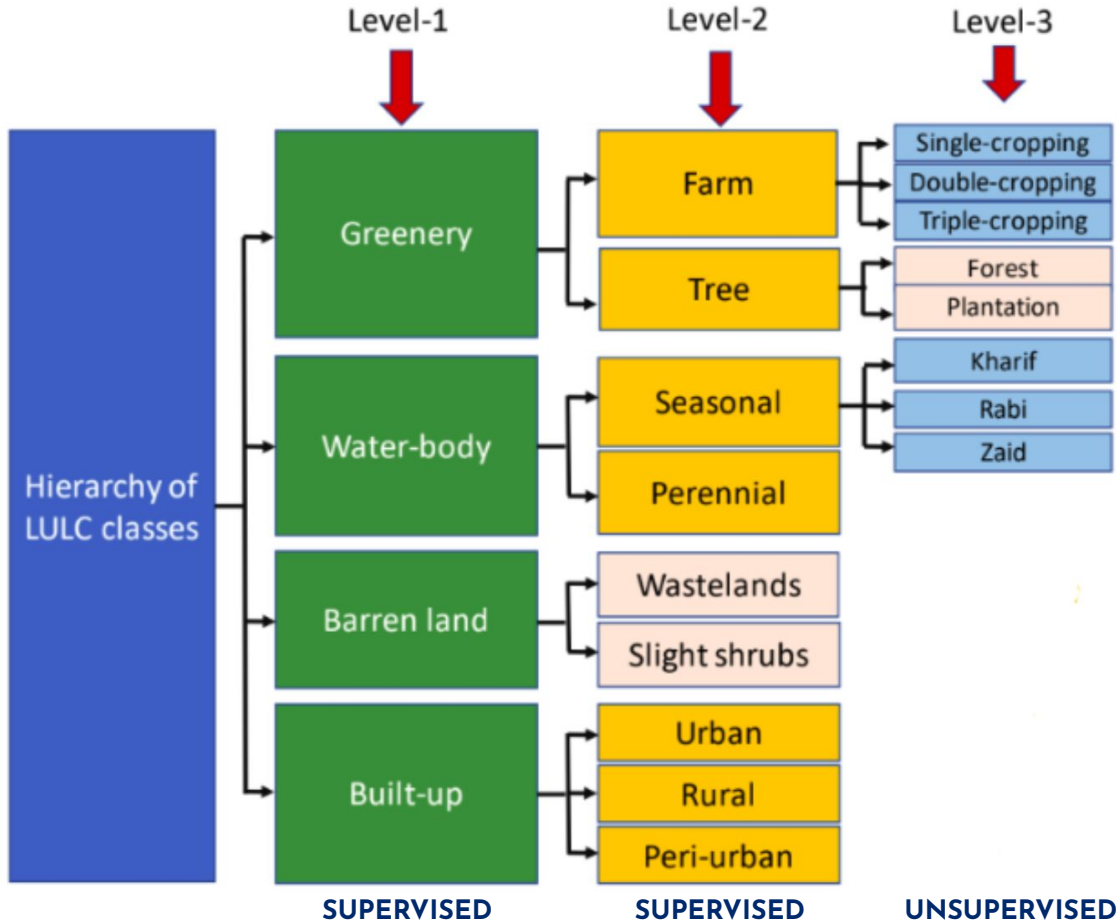
2017



Maps

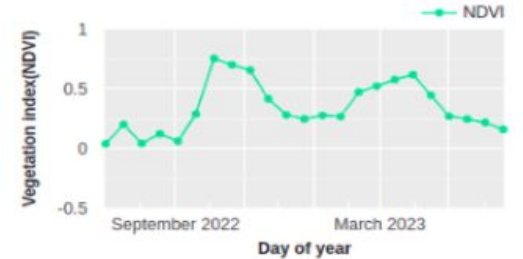
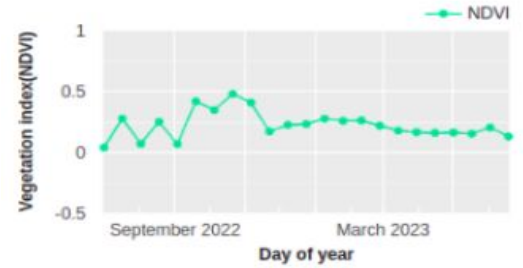
Land Use Land Cover (LULC)

-  Water bodies
-  Built-up
-  Trees
-  Barren land
-  Single *kharif* crop
-  Single *non-kharif* crop
-  Double crop
-  Triple crop



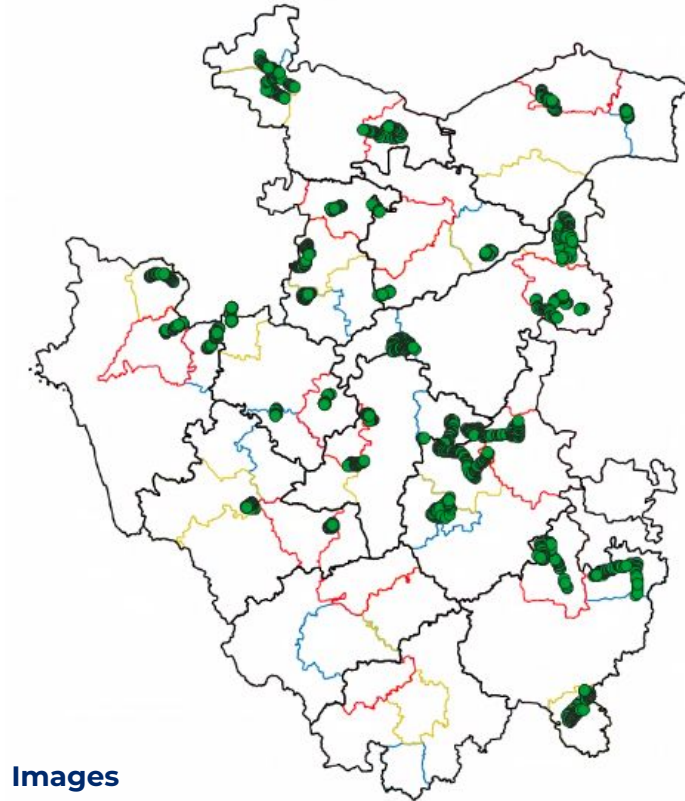
Models

Land Use Land Cover (LULC)



Ground truth Dataset + Process

Land Use Land Cover (LULC)



Images

Geopoints
(3000+)

HOW WE CAN PARTNER

We are use case driven

MODEL



- You can use our open source model and tweak it for your use case

GROUNDTRUTH DATASET



- Validate your existing product
- Partner with us for new ground truth data collection

MAPS



- We can produce historical LULC maps on request for any new district, on the request of any partner organization.

Help us build the next

Open Street Land Use Map



Check out our LULC map +
model + dataset at

<https://core-stack.org/lulc/>


To collaborate with us email
us at

✉ craig.dsouza@ifmr.ac.in

You can also find us at

 <https://welllabs.org>

 [@WELLLabs_org](https://twitter.com/WELLLabs_org)

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THANK YOU!

Presentation: <https://bit.ly/3QIpN6j>