

Agri Stack

Digital Public Infrastructure for Agriculture

Rajeev Chawla,
Chief Knowledge Officer and Advisor,
Ministry of Agriculture and Farmers Welfare, Govt. of India
Dt. 03-09-2024

What questions would Agri Stack answer?

Farmer



Farmer ID
4352-758-123

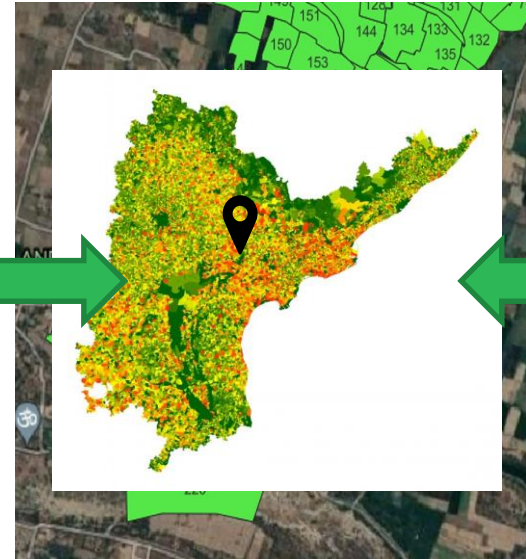
- ▶ Who is a Farmer?
- ▶ Is someone a Farmer?

Geo-Referenced Village Maps



Khasra No.
122/1/a-2

- ▶ What Plots does a Farmer own?
- ▶ Where are the plots?



Farm ID
MP1234567890

Crop Sown



CropCode
WH-123
National Name- Wheat
Local Name- गेहूँ

- ▶ What Crop has been sown?
- ▶ On a Plot?
- ▶ By A Farmer?



Agri \$tack

An ecosystem for facilitating the delivery of digital services to farmers
by *Government, Agri Techs, FPOs and other entities*
and consists of:



Farmer Registry – with Linkages to Land owned

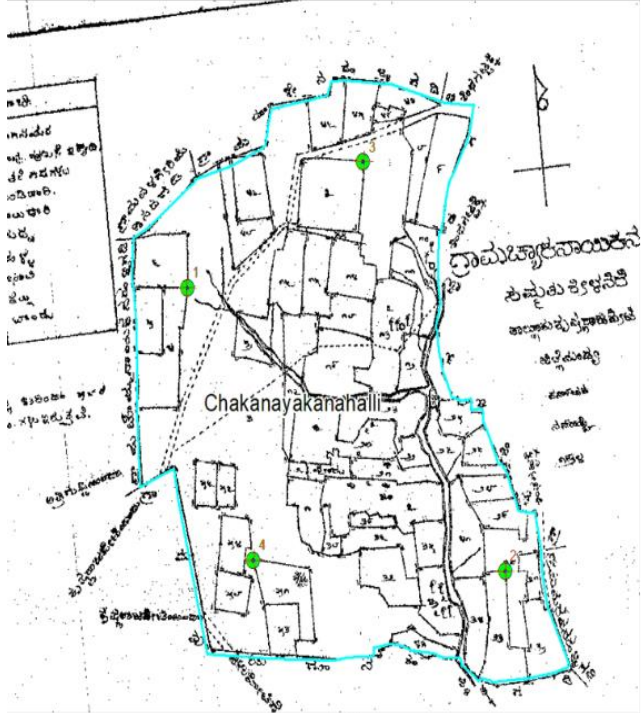
- ▶ Farmer Database is collection of all Farmer names from RoR database
 - ▶ All his lands to be contained in the database
 - ▶ Aadhaar of each farmer
 - ▶ Extent owned by farmer in each of the land id
- ▶ Dynamic updation after mutation

Farmer personal and Demographic details							Land Parcels owned			
Farmer Id	Aadhaar number	Farmer Name	Father Name	Farmer Type	Residential address	Farmer Photo	District/ Tehsil/ Village	Survey No.	Farm Id	Extent (in Hectares)
8756453457	XXXXXXXX7277	Radhesyam	Somanlal	Big	D: Jalna T: Kamptee V: Gumthi		Seoni / Sukhtara / Kamkasur	45	MH157001023006	0.7
9756453457	XXXXXXXX5564	Anita	S S Rajput	Small	D: Jalna T: Kamptee V: Chicholi		Sehore / Budni / Nandner	13/2	MH2435678691	0.25

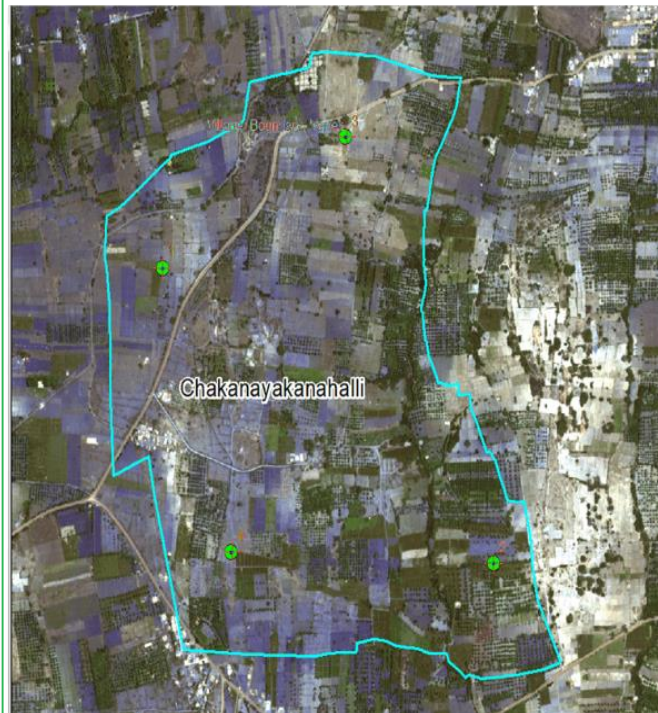
Non-land holding farmers will be addressed in the next Phase / Version 1.1 of Agri Stack

Geo-Referenced Village Maps

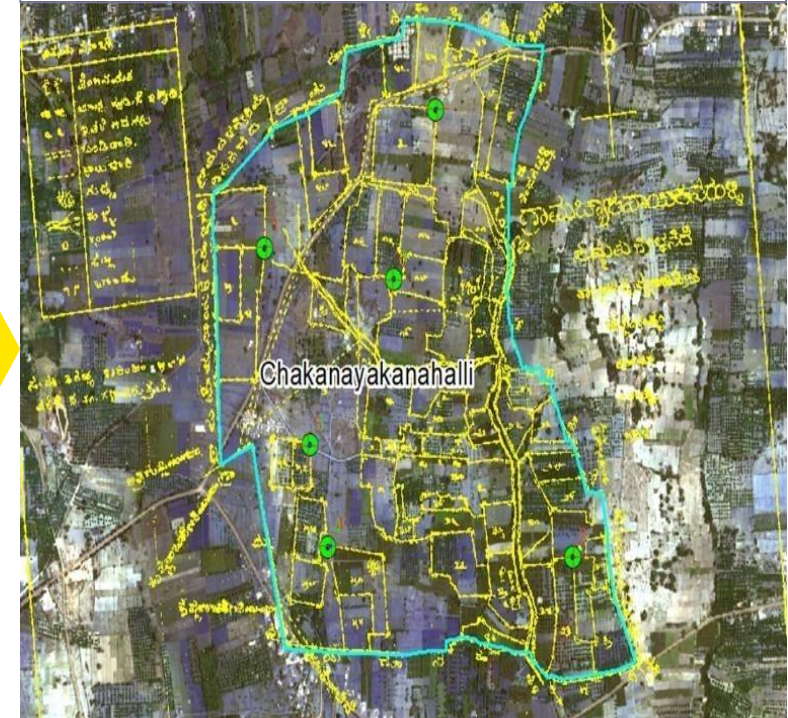
A Raster map of village which has parcel boundaries drawn and marking of important landmarks (green dots)



An Index map of village with village boundaries drawn and marking of important landmarks (green dots)



A Vector map of a village with Parcels marked on it with help of an overlaying process of Raster and Index maps on it



Inputs

Output

Digitalization and mapping of Village maps on to GIS using boundaries and GCPs

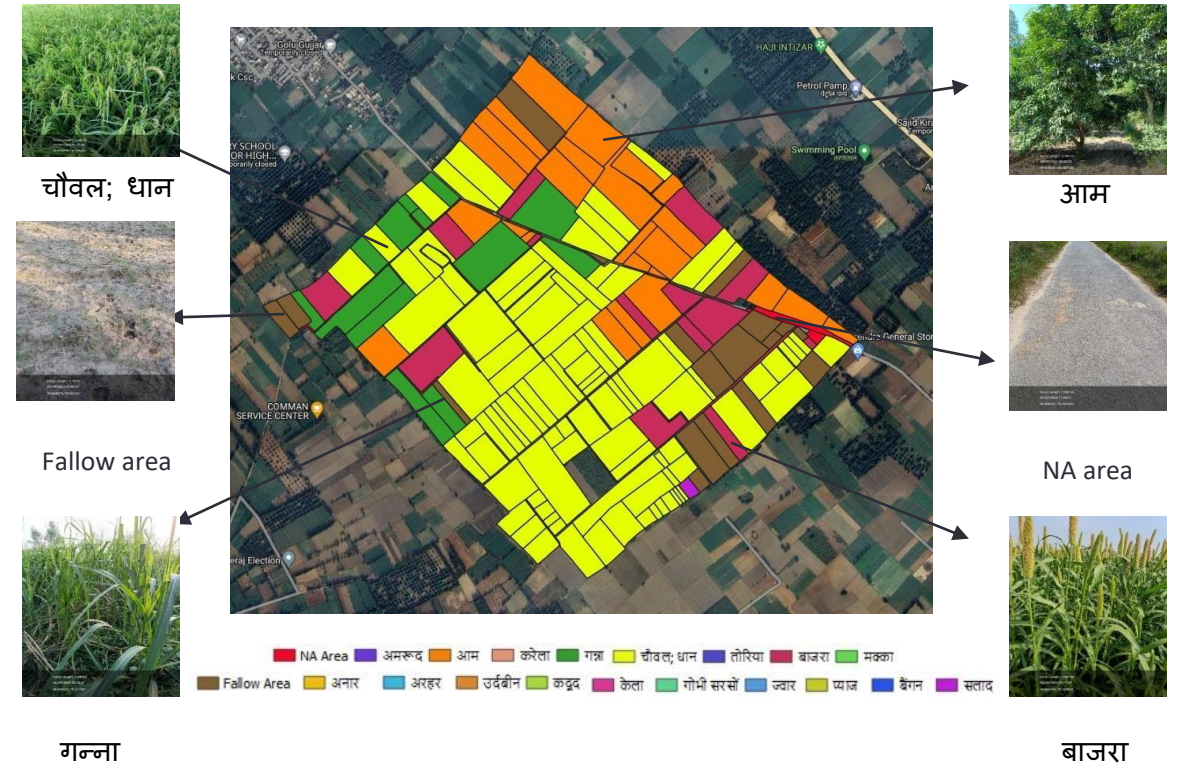
To create Geo-referenced Village Maps

Crop Sown Registry through Digital Crop Survey

'Plot-level crop-grown data' for every season

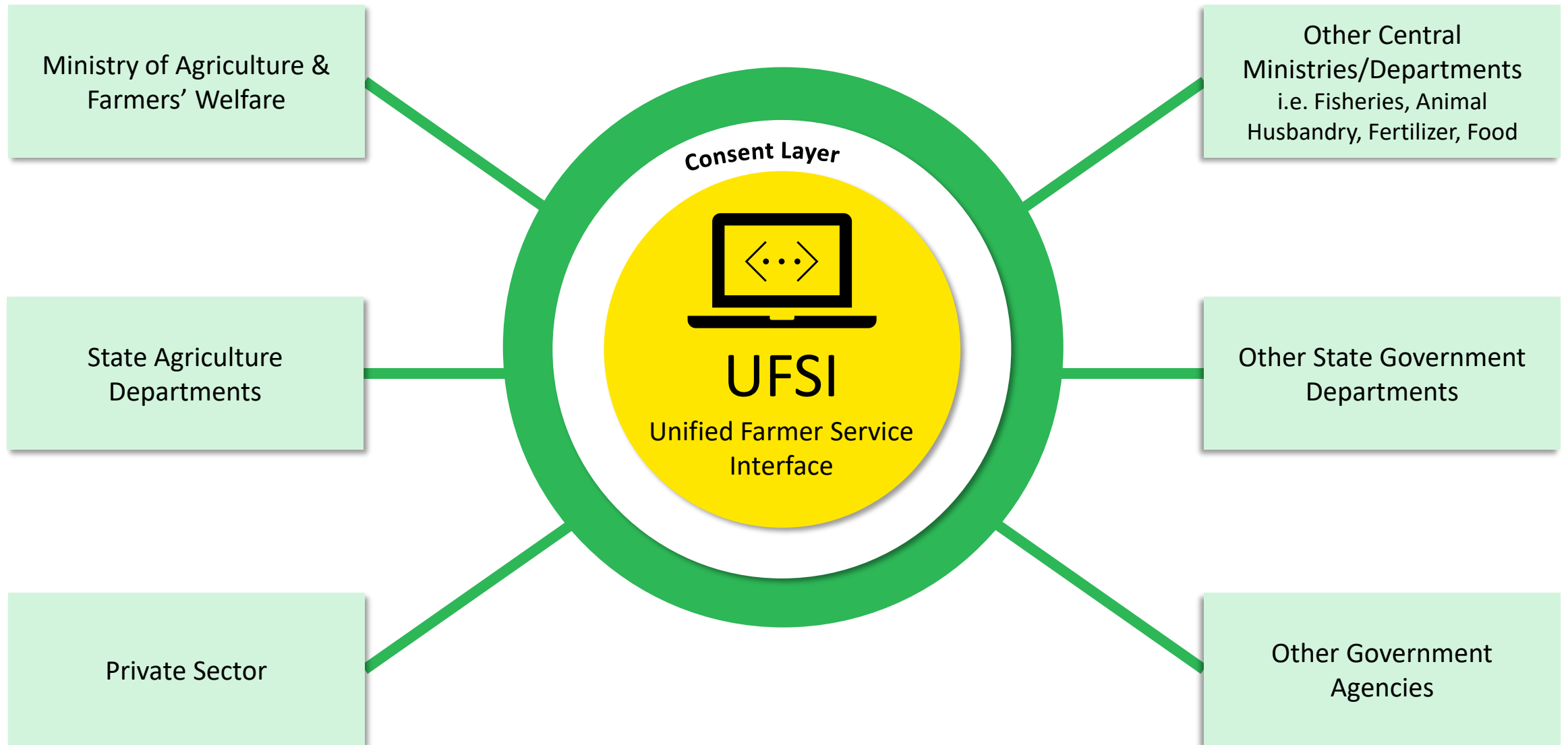
with Physical inspection and verification

and Proofs – 'Geotagged photographs'

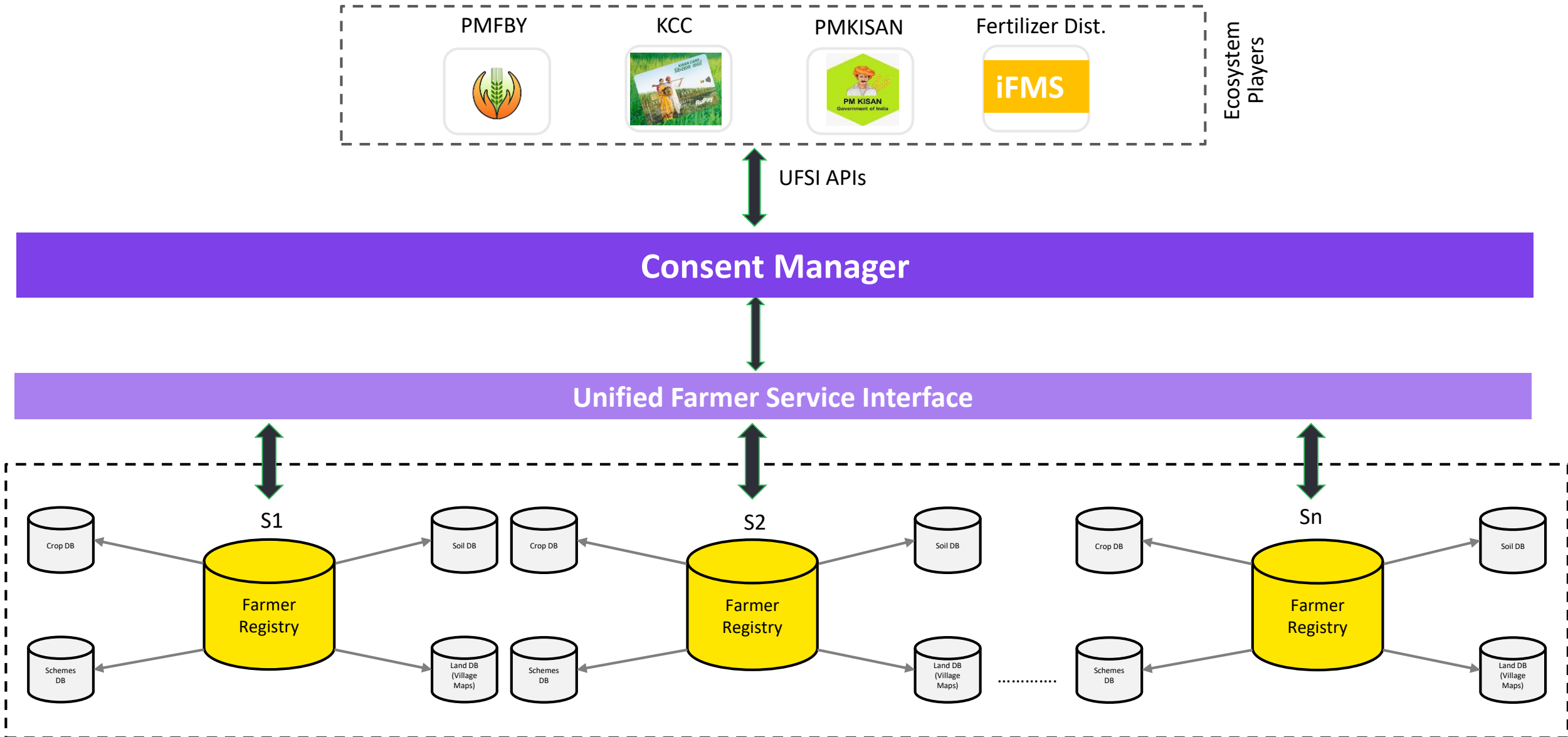


- ❑ Single Source of Truth for crops grown
- ❑ Data available for ecosystem as 'Crop Sown Registry' in Agri Stack
- ❑ Utilize for various purposes (Use Cases) – Schemes, Policy Decisions, Advisory etc.

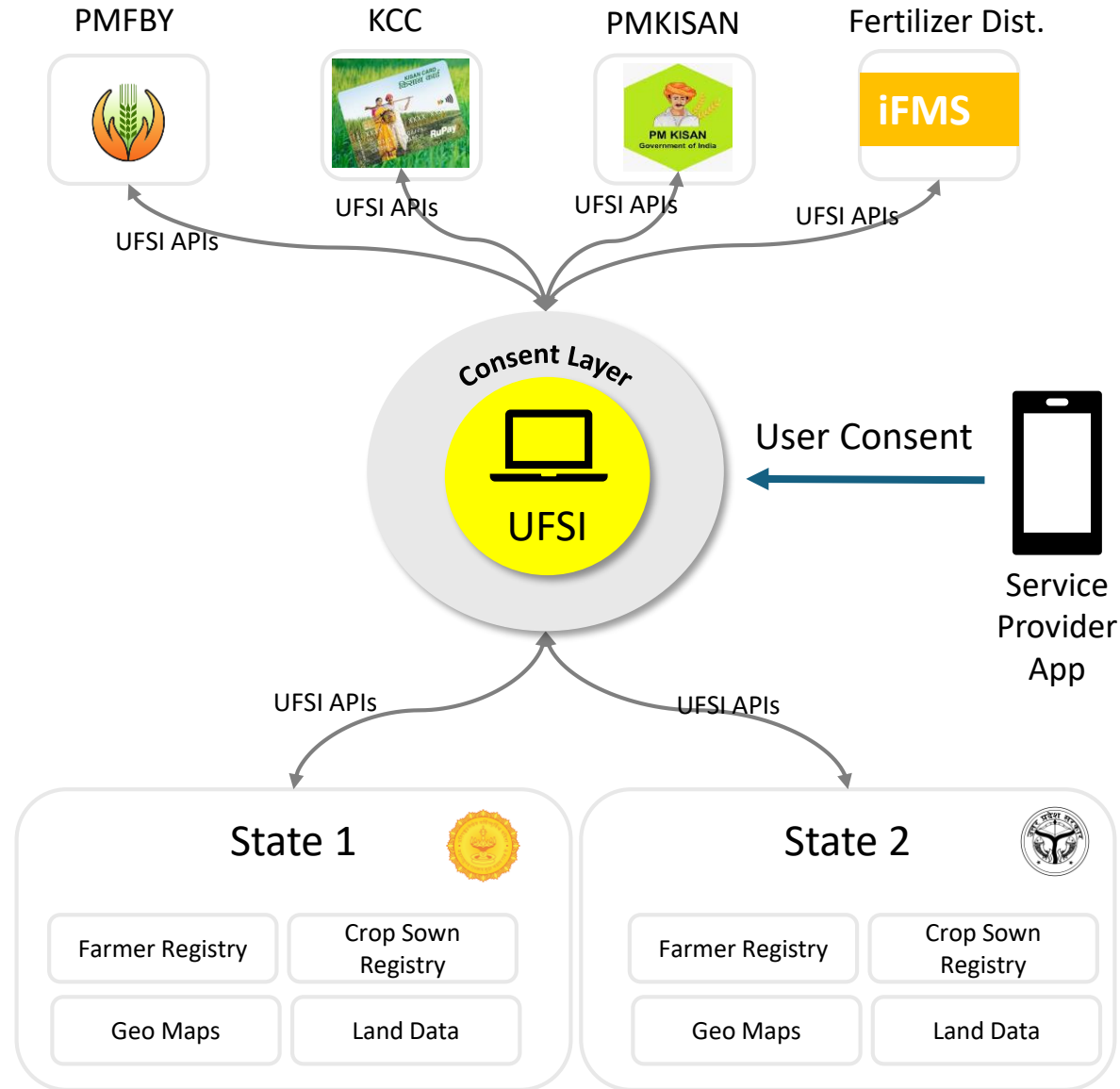
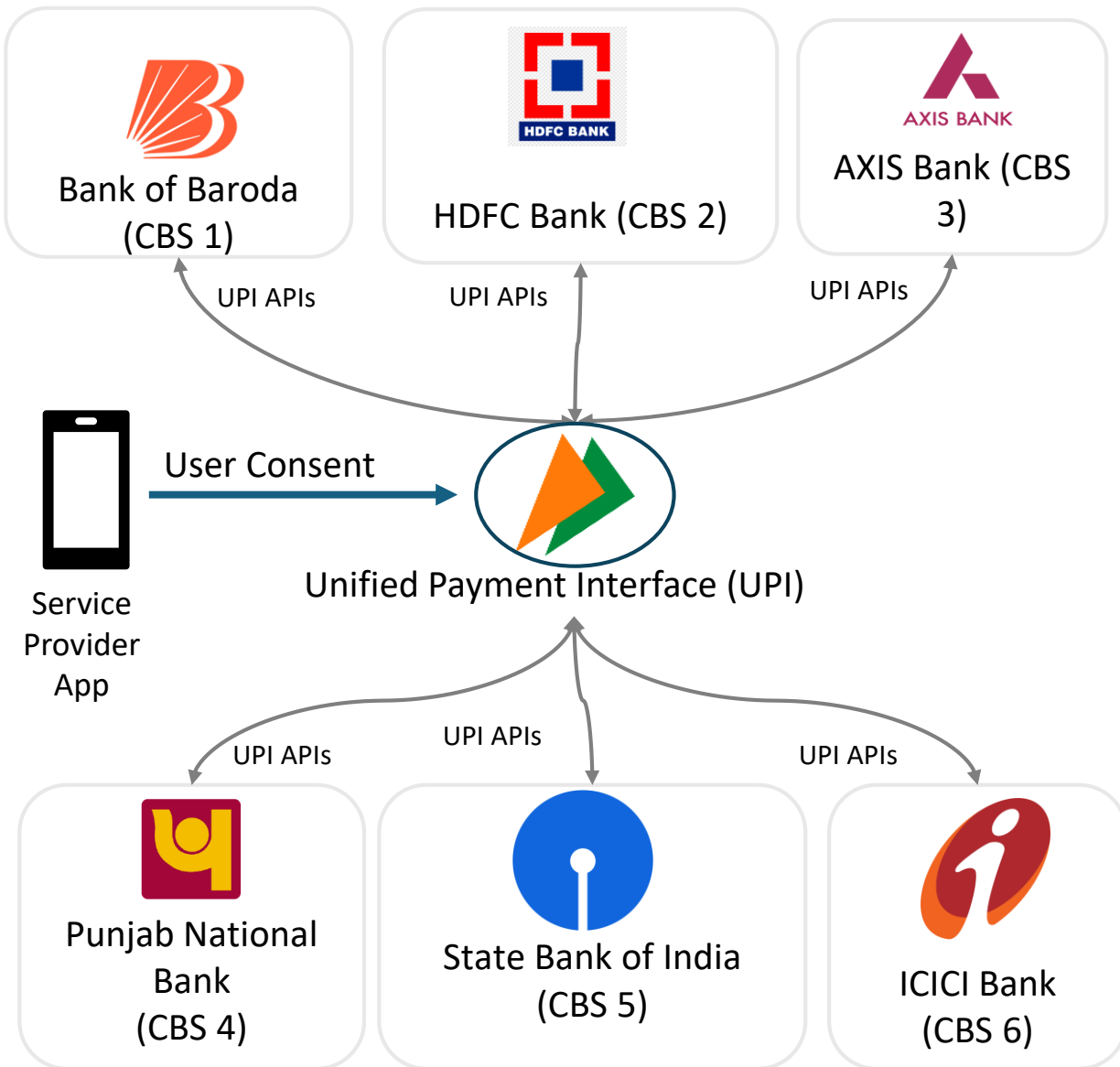
UFSI – Enabling a federated architecture



Federated Model of Agri Stack, Data and Control with States



UPI and UFSI analogy



Agri Stack Advantage to Farmers

- Easier access to multiple government schemes and **services through Farmer ID without any documents of identity, land and crops**
- Tailored farm & crop-specific advisory
- **Wider choice** of inputs, services, and markets
- Faster procurement of crops from genuine farmers (MSP and PSS); **without taking a single document**
- KCC loan as per the crop of the farmer and crops extent in a Digital manner



Agri Stack Advantage to Governments

- Enable the Government to take **data-based decisions** from national to farm level
- Stop exploitation of Govt. schemes by unscrupulous people (e.g., PM Kisan – **Non-landholding farmers**, PMFBY – **Fake insurances**)
- Savings in subsidies
- Identify eligible farmers who are not getting benefits
- Ensure **equitable distribution** of benefits
- Speed up benefits delivery process (e.g., MSP)
- Support **disaster response measures** (e.g., Identify farmers affected by rain, drought)



Agri Stack Advantage to Governments

- Provide aggregated data to Government for **better scheme planning, budgeting** and implementation
- Identify farmers growing water intensive crops in water starved areas
- **Identify areas for intervention** requirements (e.g., Identify farmers growing crops without drip irrigation facilities)
- Provide data to Agri-Techs to develop **innovative solutions** and services



Agri Stack Advantage to Private Players

- ▶ **Accurate farmer data** for better decision-making, enhancing business strategies.
- ▶ Lower last-mile service costs through optimized data utilization.
- ▶ **Easy integration** with Central and State systems, facilitating smoother operations with Govt. initiatives
- ▶ Ability to tailor and personalise services to farmers' specific needs
- ▶ Improved risk management by **leveraging data-driven insights**.
- ▶ **Efficient resource allocation**, maximizing productivity and profitability.
- ▶ Enhanced market intelligence, providing a **competitive edge**.
- ▶ Streamlined supply chain management, reducing delays and costs.



Sample Use-Case: Contactless Straight-Through Processing of Kisan (Farmer) Credit Card

(KCC – A Central Government Scheme)

[Only 15 Minutes for Disbursement + Green Initiative]



Farmer Himself applies in CSC



Aadhar Based Digital Verification and eKYC within seconds



Standard Digital Form

Autofill using
Agri Stack

Digital Land Ownership Verification, Crop pattern verification, GPS Farm Co-ordinates

API Integrations



Digital Approval or Rejection



Digital Agreement by Farmer and Manager's eSign



DBT disbursements into Farmers Bank Account



UPI based purchase of seeds, fertilizers and pesticides



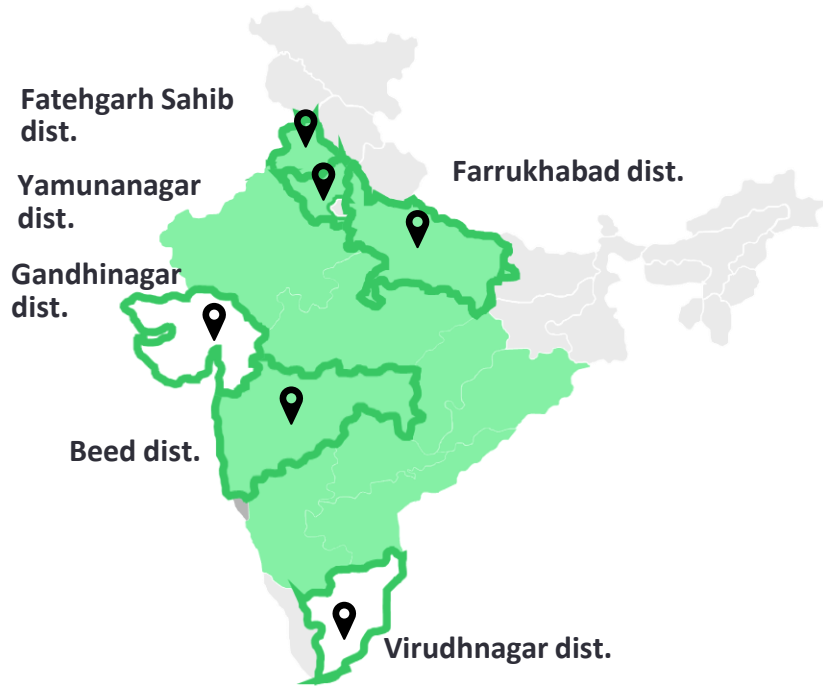
Digital Crop verification (actually grown vs what farmer has declared) from Agri Stack



Digital Processing of Subsidy and MIS data sent to Agri Ministry for Interest subvention

Status of Core Registries

Farmer Registry



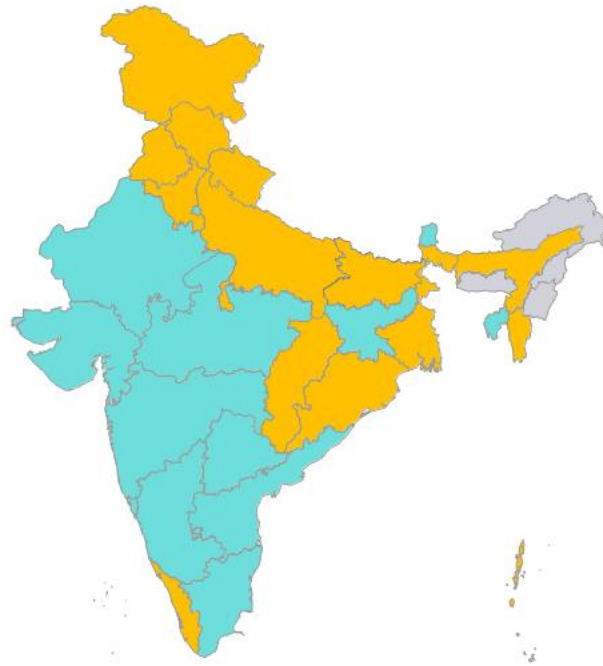
📍 Farmer Registry PoC

6

Farmer Registry in progress

11

Geo-Referenced Village Maps



Partially Completed (14)

NA

Completed (15)

Digital Crop Survey



DCS States
Kharif 2024

20

Thank You