Welcome to the webinar

The webinar will last around 1h

The slides will be available on the Sen4Stat website in the coming 48 hours (https://www.esa-sen4stat.org/)

Presenters:

Sophie Bontemps from *UCLouvain*

Sarfaraz Bhutto from CRS-Sindh, Pakistan

Members of the consortium available to answer your questions

Webinar outline

- Sen4Stat overview
- User’s perspectives: the case of CRS-Sindh, Pakistan
- Sen4Stat yield component
- News and what’s next
- Questions and answers

Webinar outline

- **Sen4Stat overview**
- User’s perspectives: the case of CRS-Sindh, Pakistan
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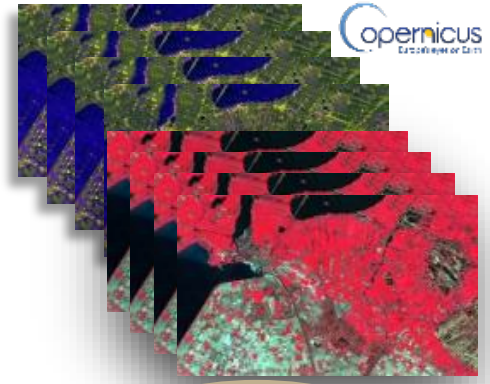
Sen4Stat: coupling EO data and statistical surveys for improved statistics

Sentinel-1 and -2

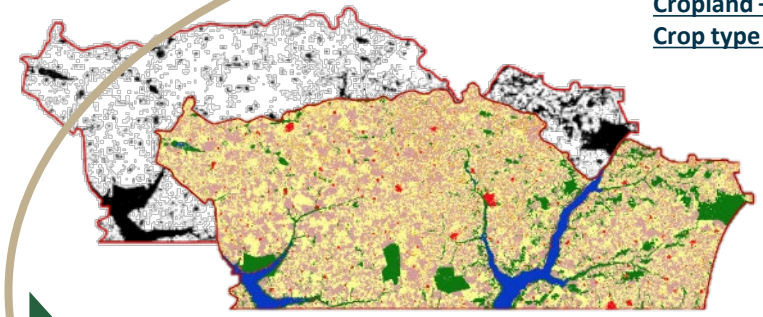


Agri. surveys

EO cloud

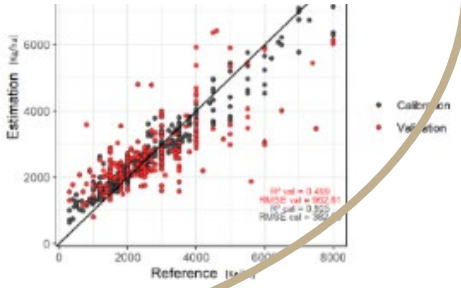
Sen4stat

EO products

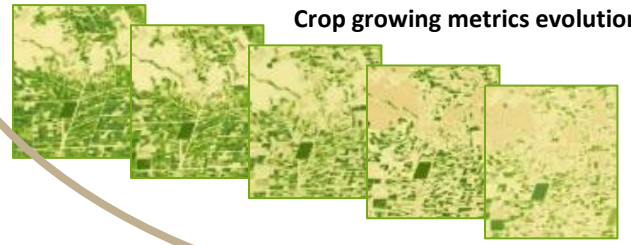


SENEGAL – NIORO DU RIP
Cropland – non cropland map
Crop type map
OA: 88,2 %
F-Score Groundnut : 95,2%
F-Score Mil : 83,8 %
F-Score Maize : 54,8%

SPAIN – CASTILLA Y LEON
Soft wheat yield estimation



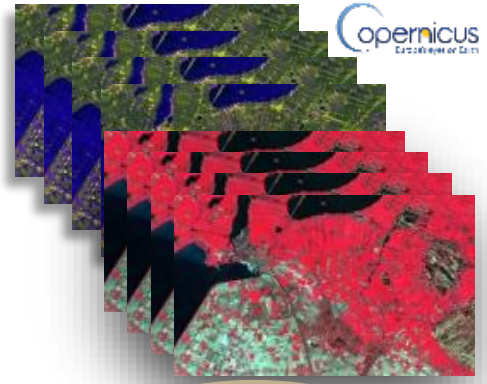
SENEGAL
Crop growing metrics evolution



IMPROVED STATISTICS

Sen4Stat: coupling EO data and statistical surveys for improved statistics

Sentinel-1 and -2



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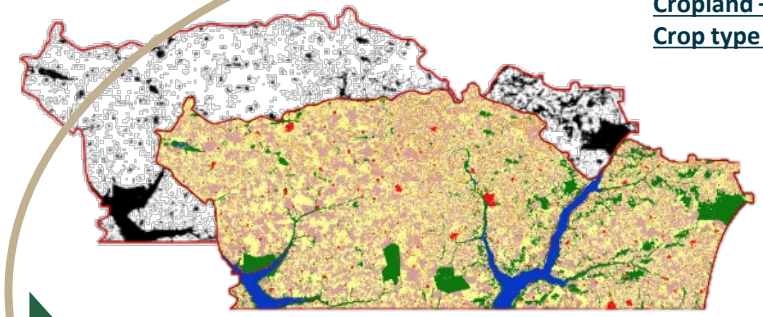

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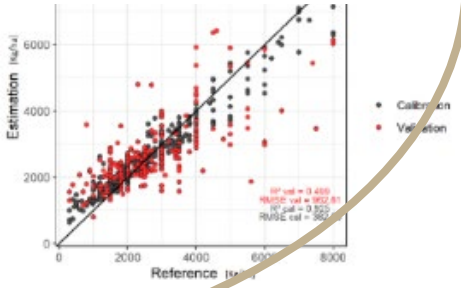

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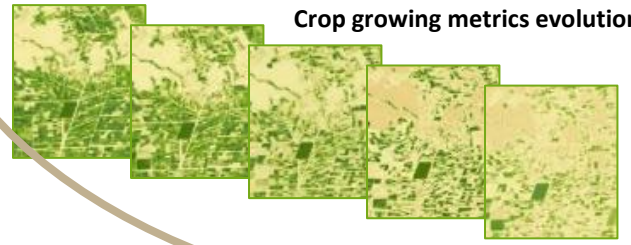


COST EFFICIENCY

STAT. GRANULARITY

STAT. TIMELINESS

SAMPLING DESIGN

SURVEY & DATA QA

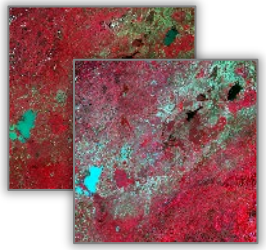
DOWNSTREAM APPLICATIONS

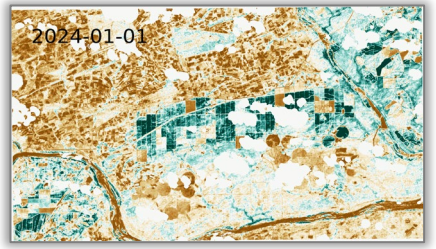
Sen4Stat implementation for 6 countries and Sen4Stat feasibility for 12 countries

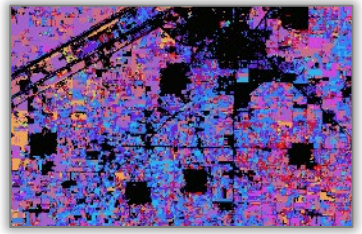
Sen4Stat: an ESA open-source **SAR and optical** toolbox for **operational** crop type mapping and monitoring at **national scale**

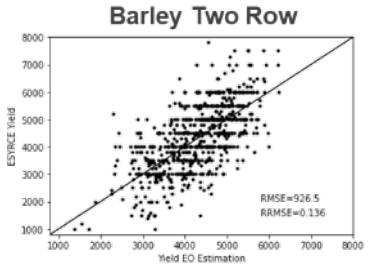
- Processing Sentinel-1, Sentinel-2 and Landsat-8&9 time series according to the state-of-the-art including advanced SAR products (coherence, gamma naught,…)
- Delivering automatically or on request **5 types of products** (*processors*) in near real time along the satellite data acquisition or off-line :

1. **Optical 10m cloud free temporal synthesis and SAR temporal synthesis**
2. **time series of spectral indices** (NDVI, coherence,…) and **biophysical variables** (LAI, fCover, fAPAR)
3. **10m crop type maps** along the season based on in situ dataset and stratification
4. **a large set of crop growth conditions metrics** (including even meteorological data)
5. **crop yield estimation** at various aggregation levels (national, regional, …)

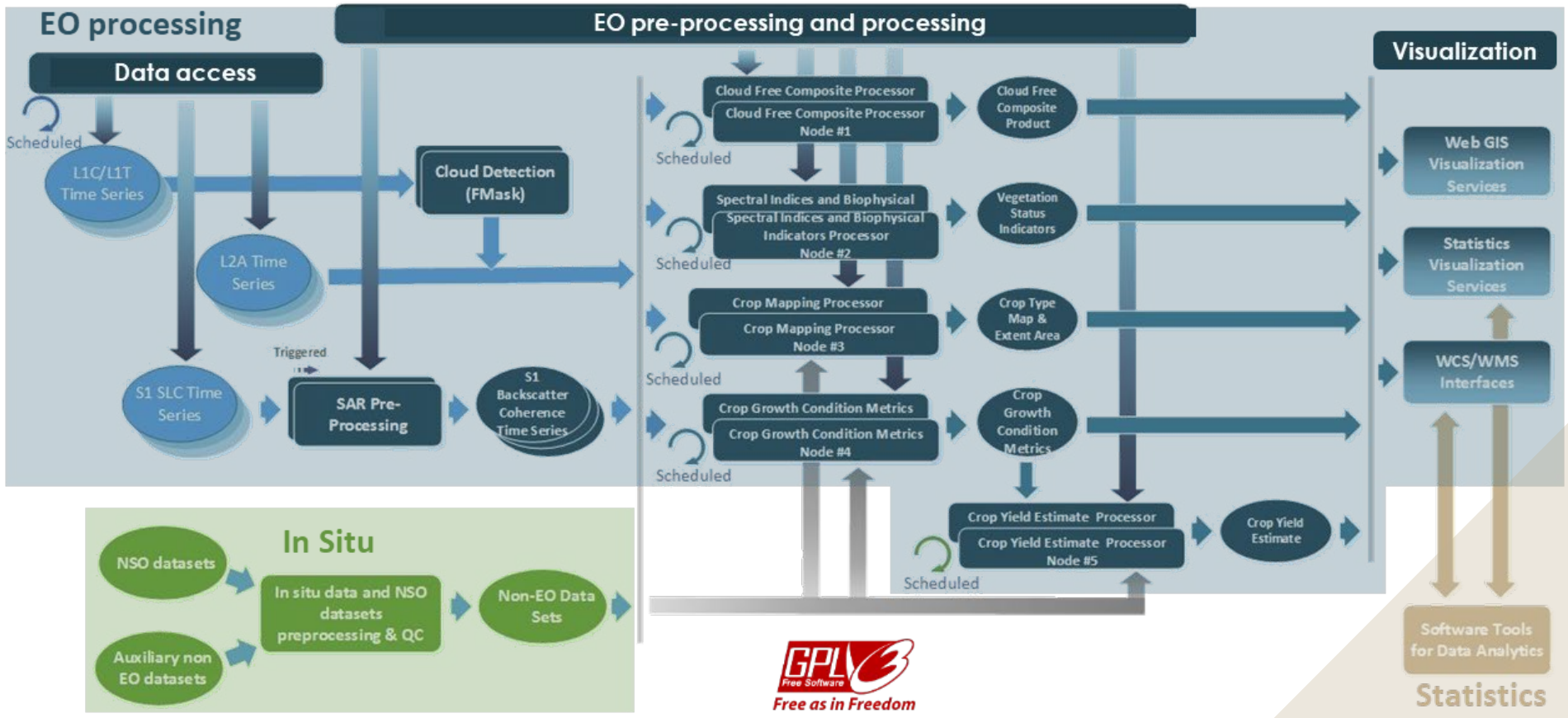








An open-source toolbox for operational crop monitoring for agriculatural statistics at national scale



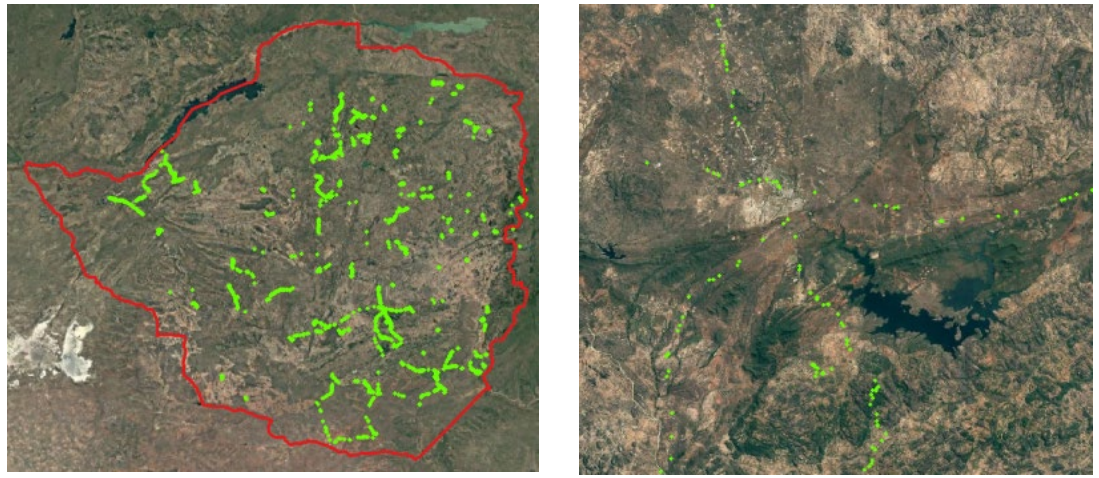
- Sentinel-1 & Sentinel-2
- For NRT & off-line production
- Running on the cloud or locally
- In situ data QA embedded
- Compatible with list and area frame surveys

In Situ data

- In-situ data needed for
  - **calibration**: learning dataset to train the algorithm or model
  - **validation**: estimate the products accuracy (with a confidence interval) using a statistically-sound sampling to be objective and independent
  - **statistics estimation**: statistical survey designed to estimate crop acreage
- Integrated data formatting and quality control

Statistical survey data for acreage estimation

Windshield survey (points taken along the road) data for mapping purposes



Graphical user interface to configurate the system, launch the production and monitor the processes

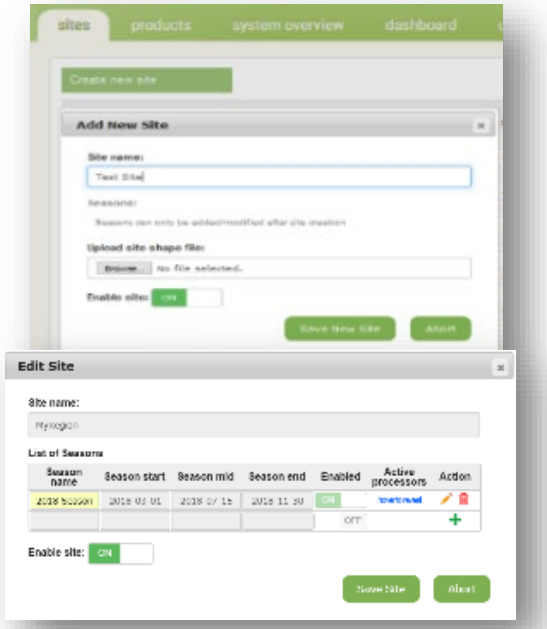
System configuration

Start of the season → **End of the season…**

Sen4Stat : parameters settings

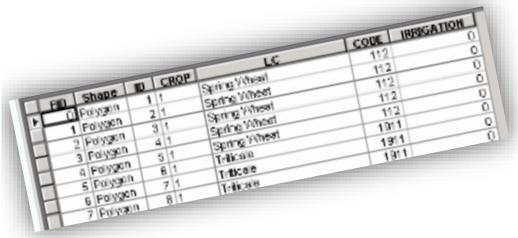
Area of Interest	Shapefile to be uploaded
Monitoring period	Start and end dates to be defined
S1 - S2 - L8&9	To be selected
Data sources	ESA&USGS – AWS – DIAS – local storage…

Mali stratification (PIRT)



Sen4Stat : field campaign

Sampling design	Stratification and sampling
Field visit	In situ data collection – early survey
	In situ data collection – mid-season survey
Data upload	Field data quality control and formating



Capacity building and local system installation are key for uptake

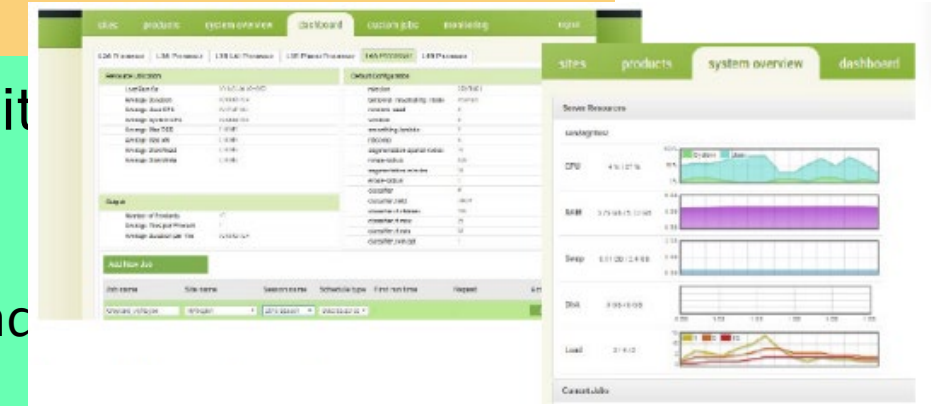
→ **Sen4Stat system locally installed and operational in 3 countries and in pilot or exploratory phase in 8 countries**

System operations running according to different modes: NRT with orchestrator (fully automated) or on request

Automated mode through the web graphical user interface (GUI)

a) based on the Orchestrator with by-default parameterization, automatic data download and processing until the end of the season, on-time delivery => **operational scenarios**

b) Processor execution on user request, with by-default parameterization



Manual mode: to run processor independently, wit
custom parameters

a) Through the GUI, with the *Custom job* approach

b) Through SNAP software Only processor of Level 3 and not the atmospheric correction (L2A).

c) In command line through a linux terminal

Under GNU-GPL License

Based on **Orfeo ToolBox** framework

Cluster-ready architecture for distributed processing

Integration of **SNAP** tools and processing chains

Operational system required : **Alma or Rocky LINUX**

PostgreSQL and **PostGIS** implementation

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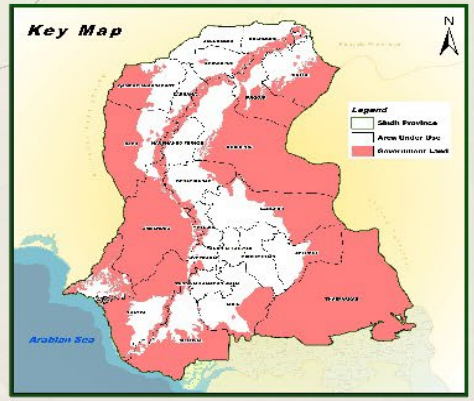
Crop Reporting Service
CRS-Sindh

Agriculture Supply & Prices Department,
Government of Sindh

Sarfaraz Ali Bhutto
Director CRS Sindh
04th Dec 2025

Pakistan map

LAND CLASSIFICATION OF SINDH



Category	Acres	Sq.Km	%
Area Under Use	12,870,196	52,084	37
Government Land	21,950,444	88,830	63
Area of Sindh	34,820,640	140,914	-

GIS Based Government Land	Area		% Of Total Area
	Acres	Sq.Km	
Area Under Use	12,870,196	52,084	37
Desert	7,376,597	29,852	21
Wildlife Sanctuary	5,777,805	23,382	17
Arid Land	3,329,942	13,476	10
Kacha Land & River Island	977,527	3,956	3
Hilly Area	1,299,416	5,259	4
Mangrove/Swamp	913,564	3,697	3
National Park	761,696	3,082	2
Riverine Forest Inside Kacha Land	600,000	2,428	2
Game Reserve	282,898	1,145	0.8
Irrigated Plantation	180,000	728	0.5
Indus River	166,631	674	0.5
Lake	129,227	523	0.4
Reserved Forest	54,049	219	0.2
Reservoir	48,205	195	0.1
Lagoon	36,386	147	0.1
Coastal Island	16,502	67	0.05
Total Area	34,820,640	140,914	

Overview of Crop Reporting Service

Crop Reporting Service (CRS) plays a vital role in the agriculture sector.

Each year, CRS conducts field surveys to generate crop estimates for both Kharif and Rabi crops.

CRS is to provide accurate and timely crop information to support decision making.

Monitor weather conditions and their impact on crops.

CRS maintain a database of crop-related data.

We provide reports to government agencies, policymakers, and the public.

The program primarily focused on a limited number of crops. Nevertheless, it has expanded to include additional crops as their significance in agriculture has grown.

Field staff members from each district conduct surveys and compile crop reports, Collected data is analyzed to generate crop area & production.

CRS: Backbone of Agricultural Statistics

- Crop Reporting Service (CRS) is the official agency for Kharif and Rabi crop statistics in Sindh.
- Functions include field surveys, yield estimations, crop condition reports.
- Data supports GDP estimation, planning, and food security measures.

CRS 2024–25 Transformation Journey

- Traditional crop area and yield estimation methods relying on field surveys are being replaced by real-time satellite imagery (Sentinel, Landsat) and drone-based data collection.
- Urgent need for accurate, timely, and spatially rich data.

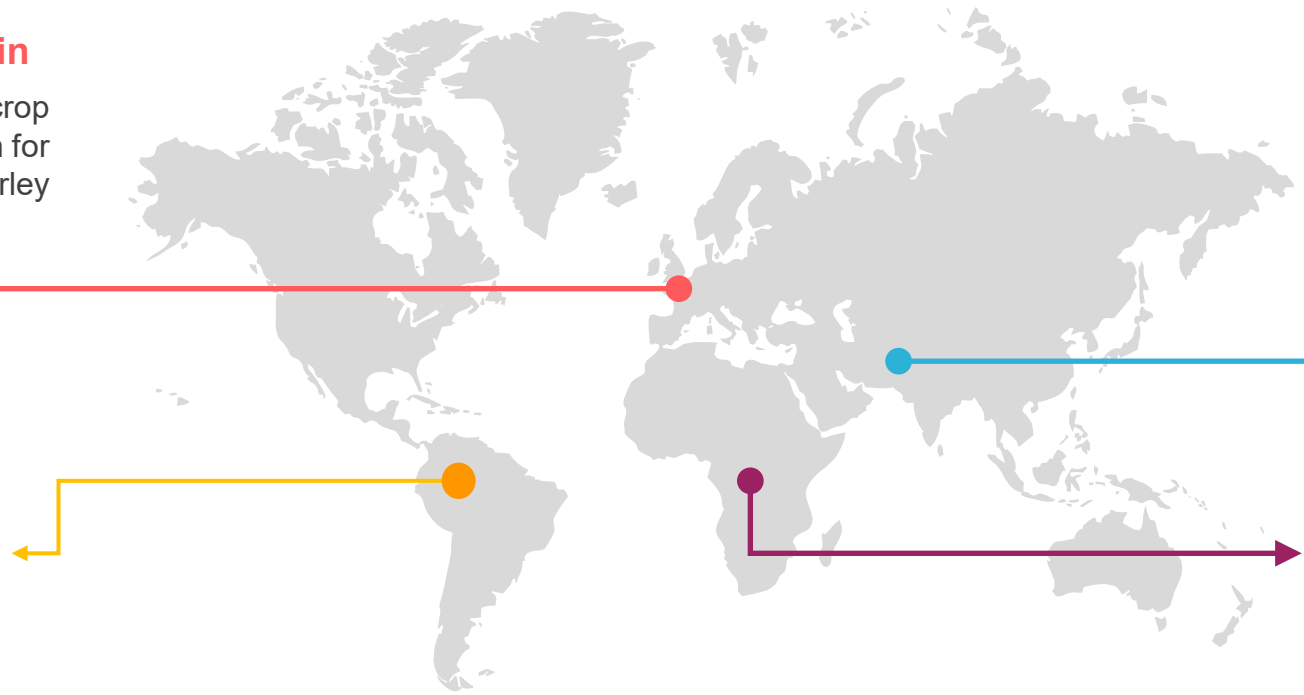
Why Change Was Needed

- Manual processes caused delays and inconsistencies.
- Artificial Intelligence and machine learning models are now used for crop classification, stress detection, and yield forecasting, reducing human error and improving accuracy.
- Lack of GIS tools and geo-referencing.

Digital Data Collection & Cloud Platforms

- AI-driven platforms (e.g., Google Earth Engine) enable automated data processing, visualization, and reporting, replacing time consuming manual tabulations and improving decision making speed.

Global Implementation of ESA's Sen4Stat Tool



Spain

Used Sen4Stat for crop area estimation for barley

Pakistan

Crop Reporting Service (CRS) Sindh piloted Sen4Stat for wheat Rice and other crops. Applied in both Rabi and Kharif seasons, combining remote sensing and CRS field data

Ecuador

Integrated Sen4Stat for agricultural monitoring. Combined Earth Observation with field data for crop statistics

Mali, Senegal and Tanzania

Successfully mapped croplands with high accuracy. Improved survey design by combining EO and statistical methods

Crop Statistics

Sen4Stat provides crop area and yield information to support national statistical offices, improving reliability of official agricultural statistics..

Remote Sensing

By analyzing radar (Sentinel-1) and optical (Sentinel-2) imagery, Sen4Stat monitors crop growth stages and maps agricultural areas at large scale..

Global Reach

The tool has been piloted successfully in Europe (Spain), Africa (Senegal, Tanzania, Mali), South America (Ecuador), and Asia (Pakistan)

Integration

The methodology links ground survey data with remote sensing analysis, ensuring accurate, scalable, and timely crop area estimation.

Comparison of Crop Area Estimation Methods

CRS Statistical Method		Remote Sensing Method
1st Estimate: Growers Opinion Survey is conducted before Rabi & Kharif cultivation to assess growers' views on expected increase/decrease in crop area and input availability.	Growers Opinion Survey (Rabi Kharif)	Satellite-based digital sensing
		Uses satellite imagery Sentinel-1, Radar Data and Sentinel 2 Optical Image.
2nd Estimate: Acreage Survey is conducted after cultivation in Rabi & Kharif, where Crop Reporters use maps and survey numbers to record crop areas in Girdawari.	Crop Acrage Survey (Rabi & Kharif)	Wall-to-wall coverage at regional scale
		Requires crops to reach maturity / full phenology for clear detection
Yield of major crops (Wheat, Cotton, Sugarcane & Rice) is assessed through random sampling three fields and six plots (15×20 ft) per sample Deh, following CRS Manual guidelines.	Crop Yield Estimation Survey (Rabi & Kharif)	Needs ground truthing to validate
		Estimates crop area using vegetation indices NDVI, EVI, EVI2

Belgian Experts from Université catholique de Louvain Visit Sindh Agriculture University Tandojam to Collaborate on Innovative Yield Estimation Methods on 14th March 2025

Meeting on 'Sen4Stat' geospatial Tool for Crop Acreage and Yield Estimation Presented by Mr. Pierre and Mr. Guillaume on 19th March 2025

A three-day comprehensive training session was held at the CRS Headquarters in Hyderabad starting on March 10, 2025. Crop reporters, Statistical Officers (SOs), and

Field Survey Roll-Out Plan

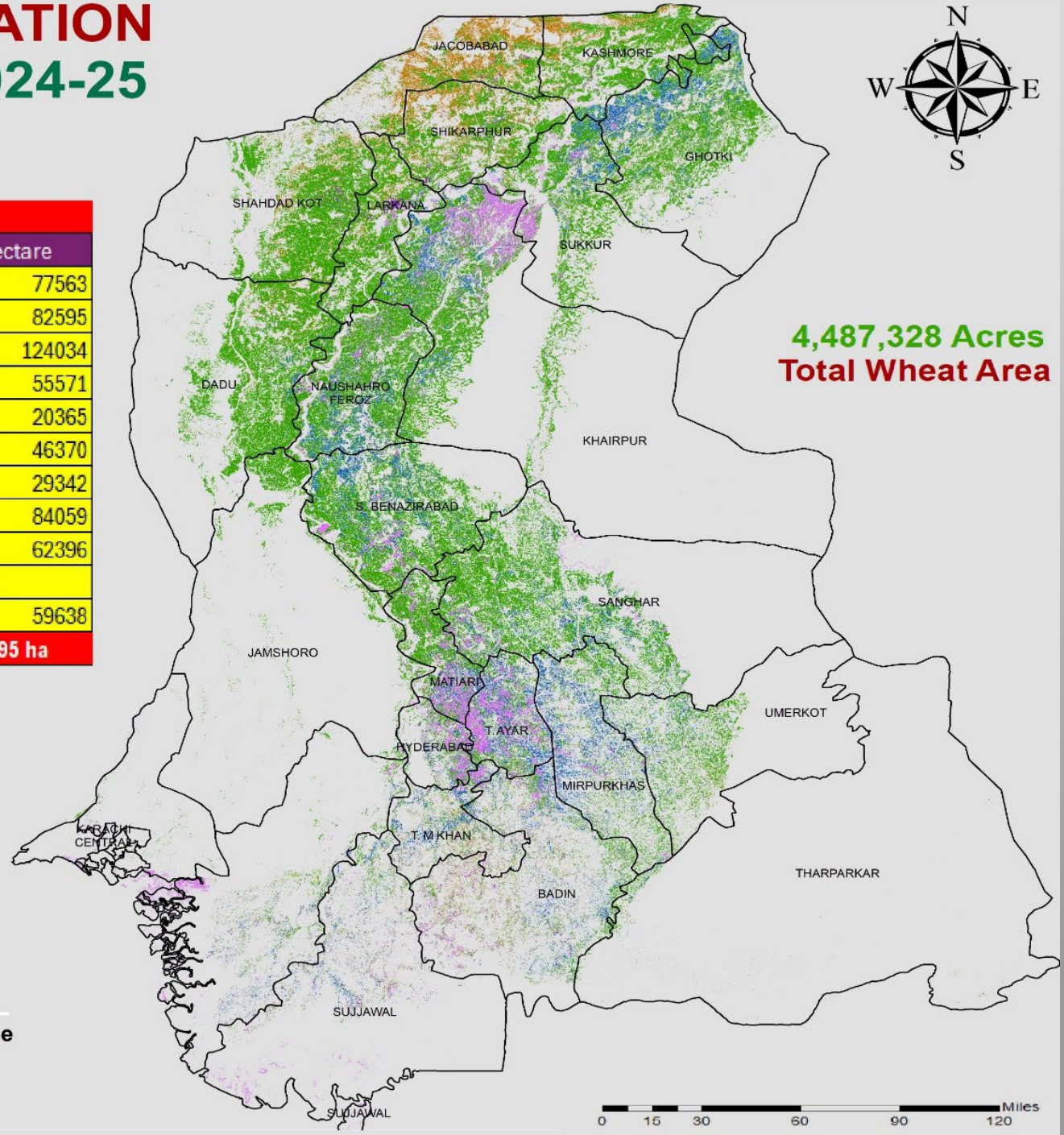
- The field survey was strategically initiated from Lower Sindh, as the wheat harvest in this region begins earlier compared to Upper Sindh

- The initial deployment covered districts such as Thatta, Sujawal, and Badin, ensuring timely collection of yield samples before harvesting activities commenced

- GIS team commenced field activities on March 15 from Lower Sindh, starting at Tandojam, where they conducted crop observations and collected field data alongside international experts Guillaume and Pierre from UCL Belgium

RABI CROP AREA ESTIMATION
2024-25

Wheat Crop Area Estimation 2024-25 District-Wise			
Districts	Area Hectare	Districts	Area Hectare
Khairpur	148355	Mirpurkhas	77563
Ghotki	115784	Umerkot	82595
Sukkur	81737	Dadu	124034
N.Feroz	102162	Jamshoro	55571
S.Benazirabad	129205	Hyderabad	20365
Jacobabad	41638	Tando Alhayar	46370
Kashmore	88199	T.M Khan	29342
Shikarpur	61175	Badin	84059
Larkana	70447	Thatta	62396
Q.Shadadkot	101132	Karachi	_
Sanghar	233927	Matiari	59638
Total			**1,815,695 ha**



4,487,328 Acres
Total Wheat Area

Legend

- Wheat
- Other Crops
- Sugarcane
- Oil Seed
- Othercrops
- Perennial crops
- Non Crops

CRS SINDH

Crop Reporting Service
Sindh

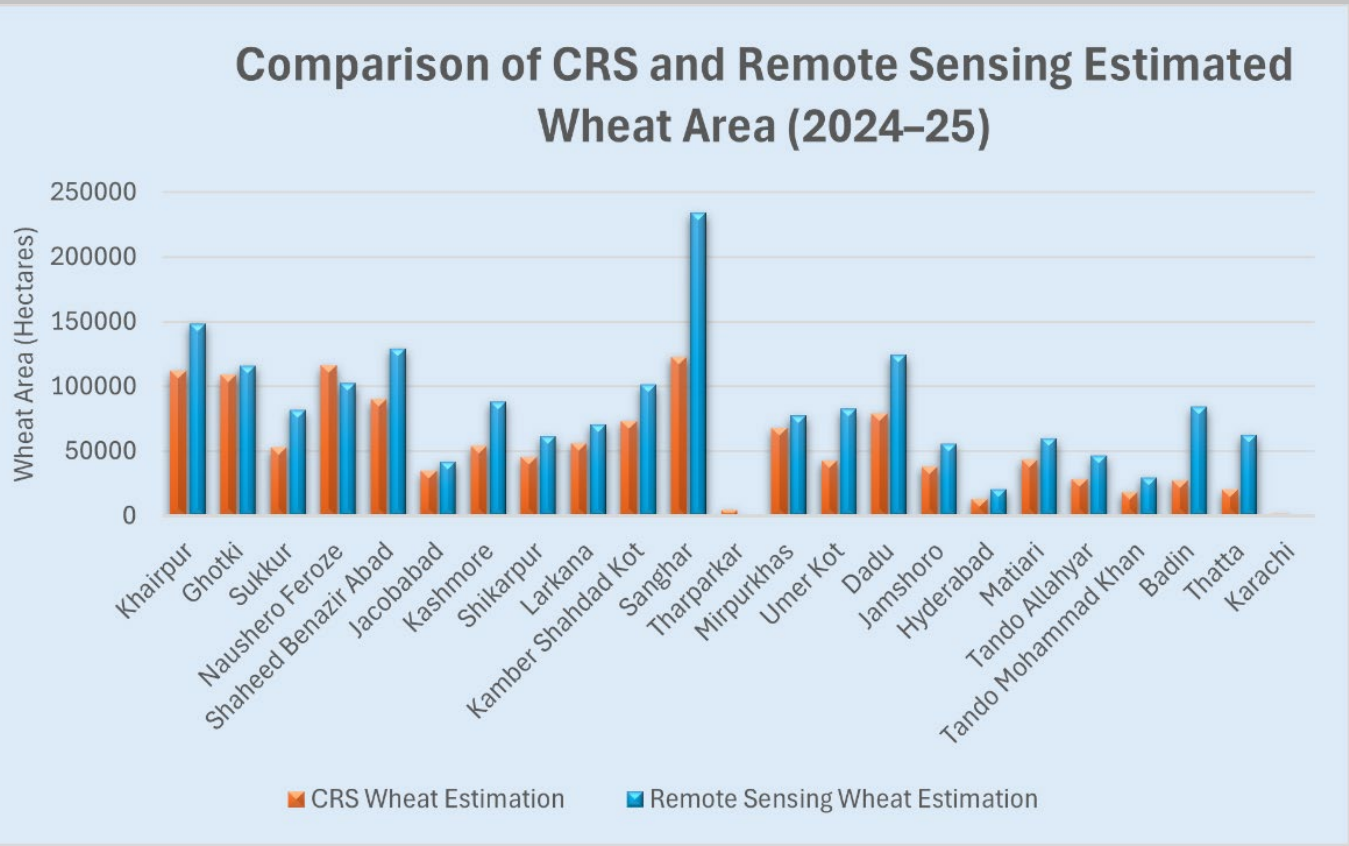
22-Sep-2025

Wheat Crop Area Estimates 2024-25

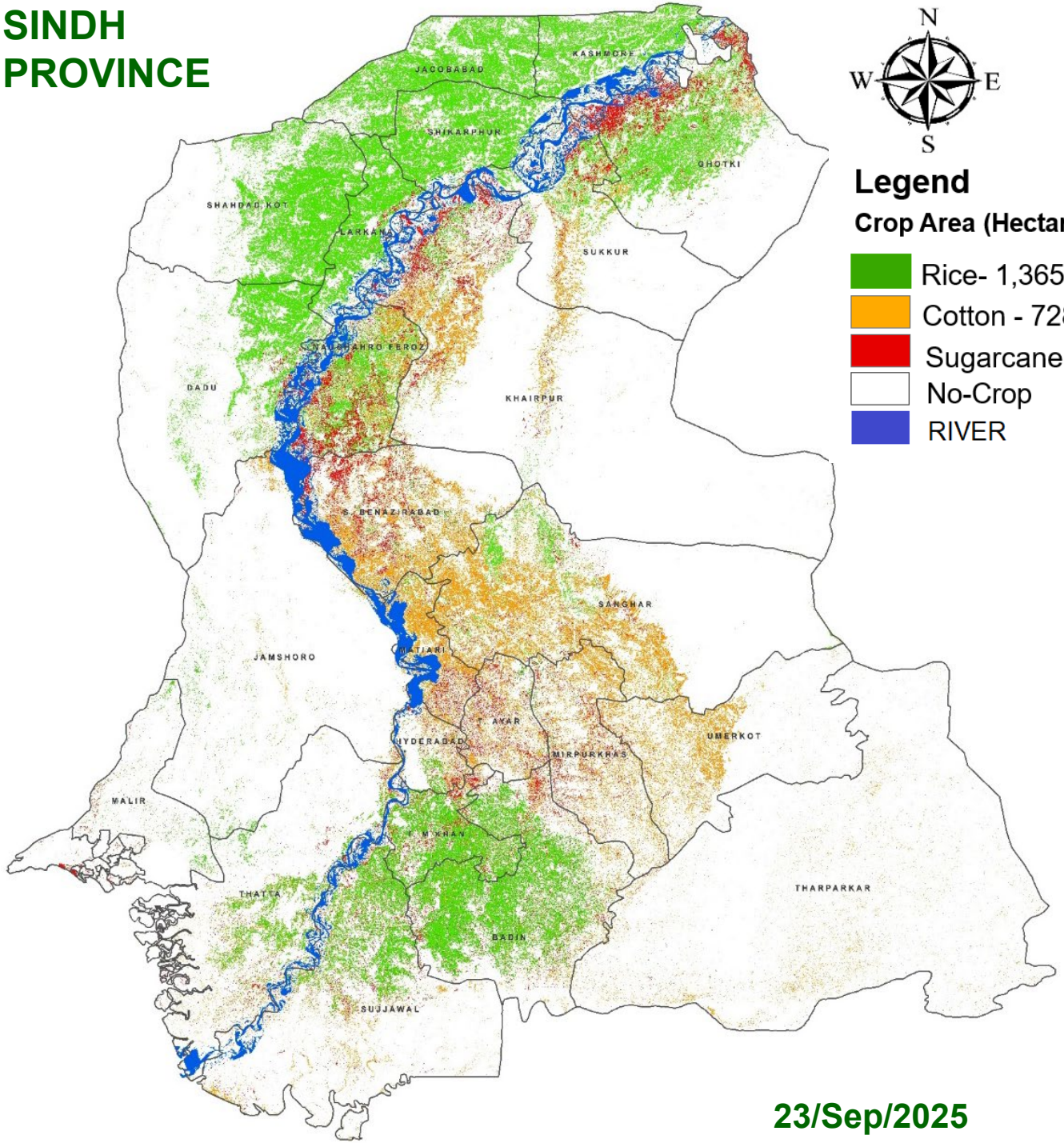
PROVINCE / DISTRICTS	Area in Hactares	
	CRS Wheat Estimates 2024-25	Remote Sesning Estimates 2024-25
SINDH	**1248973**	**1815695**
Khairpur	111966	148355
Ghotki	108792	115784
Sukkur	52566	81737
Naushero Feroze	116148	102162
Shaheed Benazir Abad	89866	129205
Jacobabad	34418	41638
Kashmore	53750	88199
Shikarpur	45550	61175
Larkana	56172	70447
Kamber Shahdad Kot	73122	101132
Sanghar	122667	233927
Tharparkar	4455	_
Mirpurkhas	67892	77563
Umer Kot	42669	82595
Dadu	79004	124034
Jamshoro	37968	55571
Hyderabad	12866	20365
Matiari	43450	59639
Tando Allahyar	28460	46370
Tando Mohammad Kha	18310	29342
Badin	27255	84059
Thatta	20218	62396
Karachi	1409	_

- CRS Wheat Estimates (2024–25) were generated using manual field-based data collection methods.

  Remote Sensing Wheat Estimates (2024–25) were derived from satellite imagery and geospatial analysis techniques.



SINDH PROVINCE



N
W E
S

Legend

Crop Area (Hectare)

- Rice- 1,365,682
- Cotton - 728,475
- Sugarcane - 356,816
- No-Crop
- RIVER

23/Sep/2025

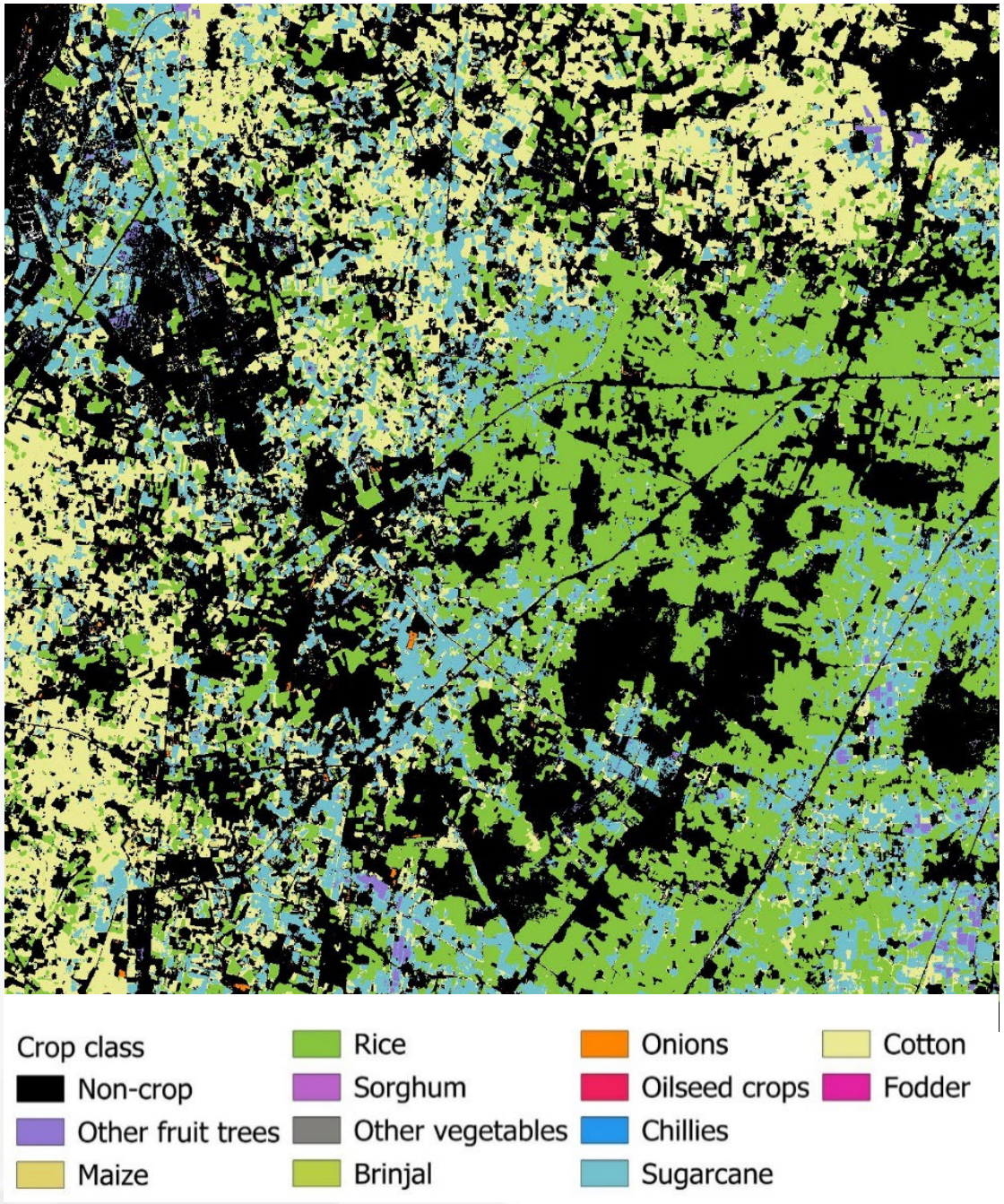
Kharif 2025

District-wise rice area (ha), Sindh

Districts	Rice Area (ha)	Districts	Rice Area (ha)
Badin	100,263	Sanghar	48779
Shahdadkot	104,145	T.M Khan	38912
Jacobabad	105036	Sukkur	66499
Shikarpur	87254	S.Benazirabad	27547
Ghotki	98960	Jamshoro	13160
Kashmore	110,752	Matiari	13350
Thatta	76880	Hyderabad	8661
Larkana	108433	Mirpurkhas	16332
Dadu	65663	T.Allayar	8812
N.Feroz	86735	Tharparker	2178
Sujjawal	77294	Umerkot	6679
Khairpur	93358	Karachi	-

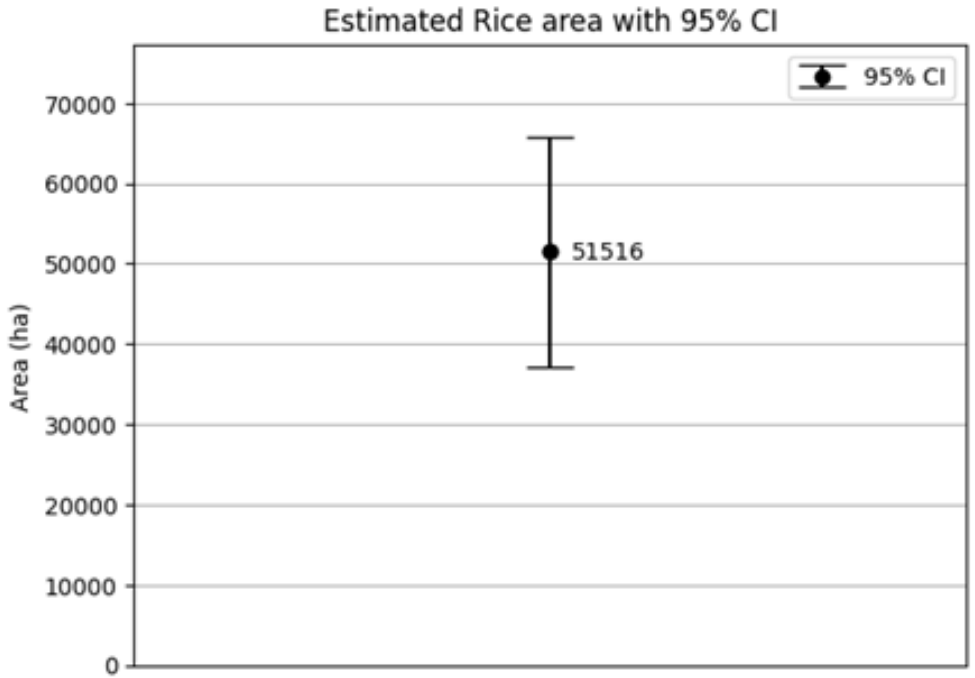
Rice Crop Area Estimates 2025

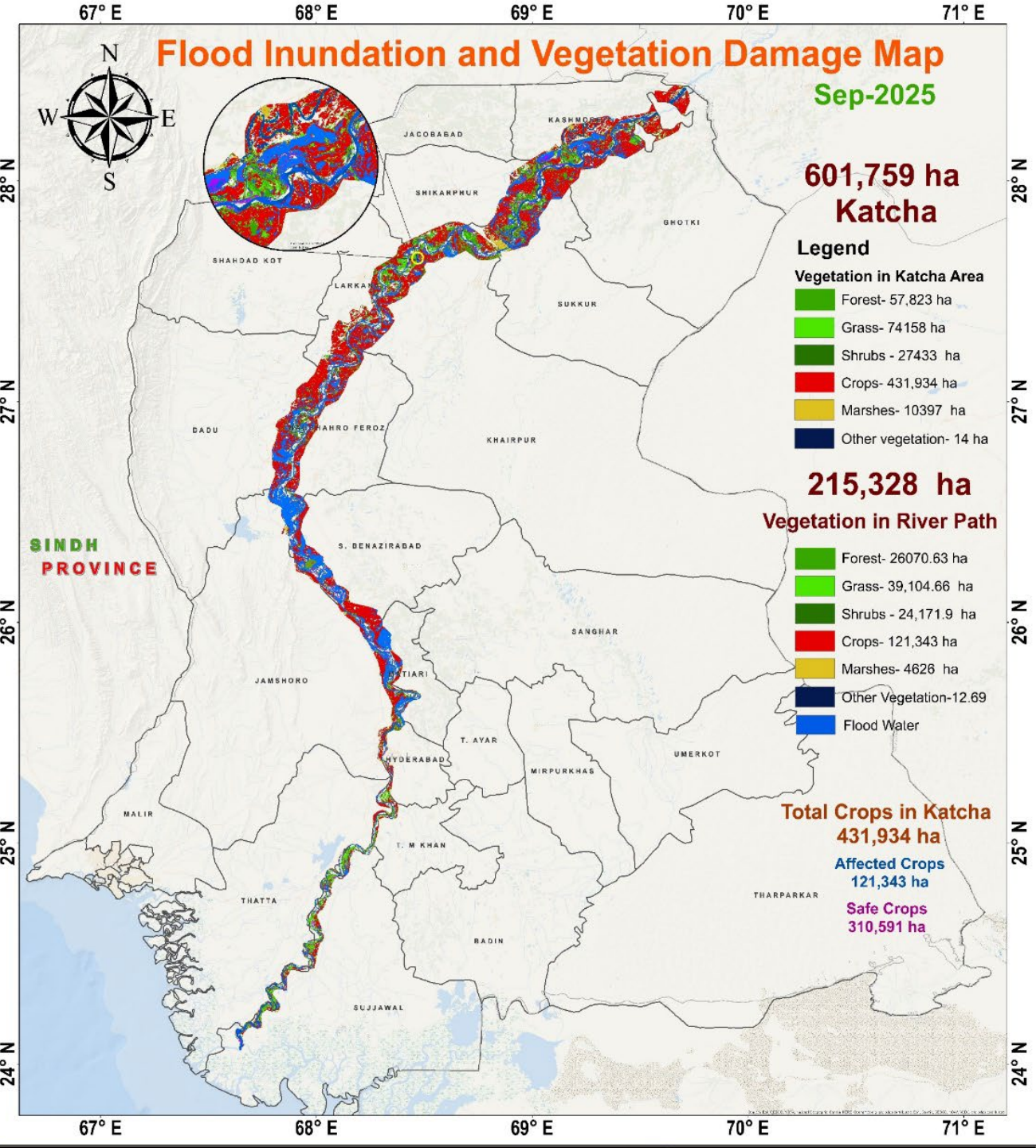
District	Remote Sensing	CRS Estimates
SINDH	**1365682**	**959773**
Kashmore	110752	84464
Larkana	108433	109638
Jacobabad	105036	115238
Kamber-Shahdadkot	104145	91500
Badin	100263	125000
Ghotki	98960	51150
Khairpur	93358	33080
Shikarpur	87254	117499
Naushahro Feroze	86735	30210
Sujjawal	77294	
Thatta	76880	83589
Sukkur	66499	1575
Dadu	65663	47927
Sanghar	48779	47312
Tando Muhammad Khan	38912	13400
Shaheed Benazirabad	27547	3902
Mirpurkhas	16332	_
Matiari	13350	2870
Jamshoro	13160	501
Tando Allahyar	8812	_
Hyderabad	8661	918
Umerkot	6679	_
Tharparkar	2178	_



The Crop Reporting Service (CRS) Sindh successfully implemented pilot projects in the districts of Khairpur, Naushahro Feroze, Matiari, and Sanghar during both Rabi and Kharif seasons in collaboration with an international delegation from the University Catholic de Louvain.

The Sen4Stat techniques were first adopted in Sindh Province based on these promising results, after which other provinces began to replicate and adopt the approach for their own crop reporting and monitoring systems





- The Katcha region along the Indus River in Sindh covers 601,759 ha of vegetation, including forests, grasslands, shrubs, marshes, and 431,934 ha of crops. Within this cropland, 121,343 ha were affected by floods, while 310,591 ha remain safe.

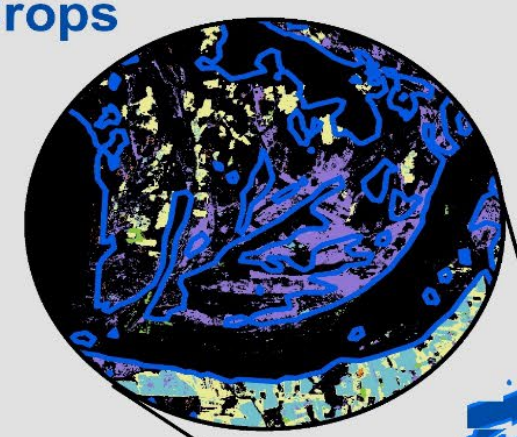
- About 215,328 ha of vegetation in the river path were submerged.

- Total Katcha Area: 601,759 ha.
- Crops in Katcha: 431,934 ha
- Safe Crops: 310,591 ha
- Affected Crops: 121,343 ha

Flood-Inundatd Crops
Sep-2025

Crop Reporting Service
Sindh

District



Affected Crop Area			
FID	District	Crops	Affected Area ha
0		Rice	107
1		Cotton	919
2	Khairpur	Sugarcane	417
3		Maize	20
4		Sorghum	12
	Total		1475

Legend

- Flood Water
- Rice
- Cotton
- Sugarcane
- Sorghum
- Maize
- Onions
- Builtup

N
W
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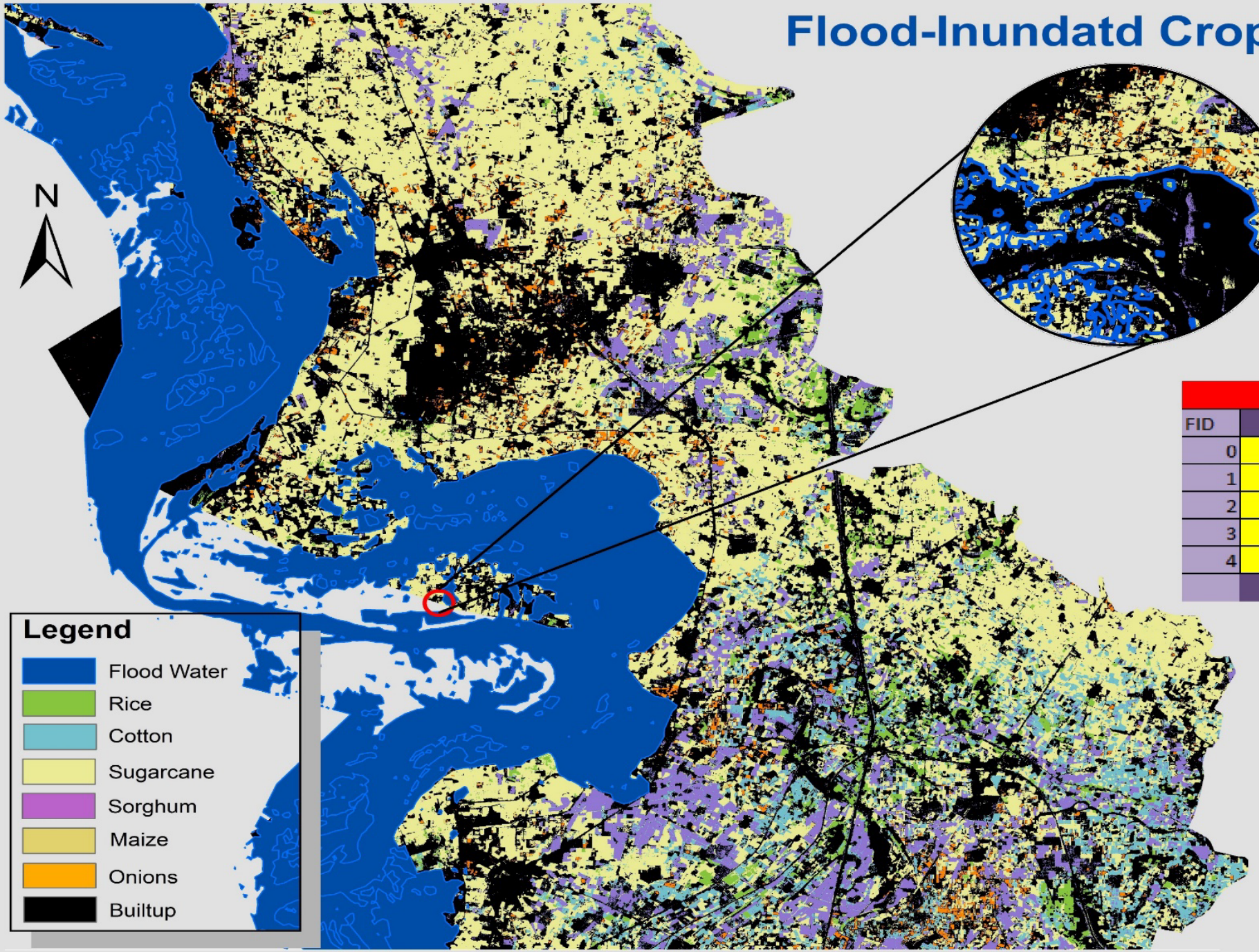
S

Flood-Inundatd Crops -Sep-2025



Affected Crop Area			
FID	District	Crops	Affected Area ha
0		Rice	132
1		Cotton	1351
2	Matiari	Sugarcane	48
3		Maize	60.5
4		Sorghum	0.65
	Total		1592.15

CRS SINDH

Crop Reporting Service
Sindh

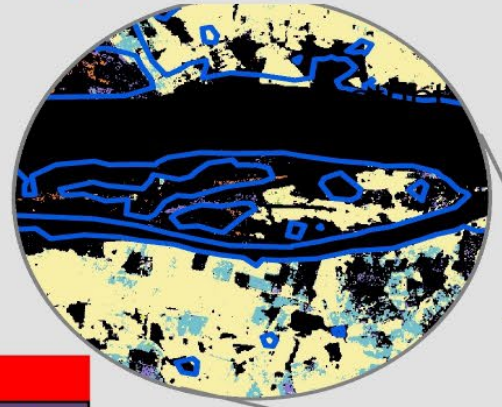
14/Sep/2025

Flood-Inundatd Crops -Sep-2025

District

Naushahro Feroz

Affected Crop Area			
FID	District	Crops	Affected Area ha
0		Rice	43.54
1		Cotton	1234.41
2	N.Feroz	Sugarcane	189.39
3		Maize	15.81
4		Onion	22.8
5		Sorghum	0.11
	Total		1506.06



Legend

- Flood Water
- Rice
- Cotton
- Sugarcane
- Sorghum
- Maize
- Onions
- Builtup

CRS SINDH

Crop Reporting Service Sindh

14/Sep/2025

Key Challenges in CRS Digitalization

A large portion of CRS staff are overage and face difficulty in adapting to digital systems. Induction of young professionals is urgently needed to accelerate the digital transformation.

CRS lacks adequate office infrastructure.

This slows down operations and reduces the efficiency of reporting and monitoring.

Many CRS offices suffer from no or unreliable electricity supply.

This severely hampers daily operations and the use of digital equipment.

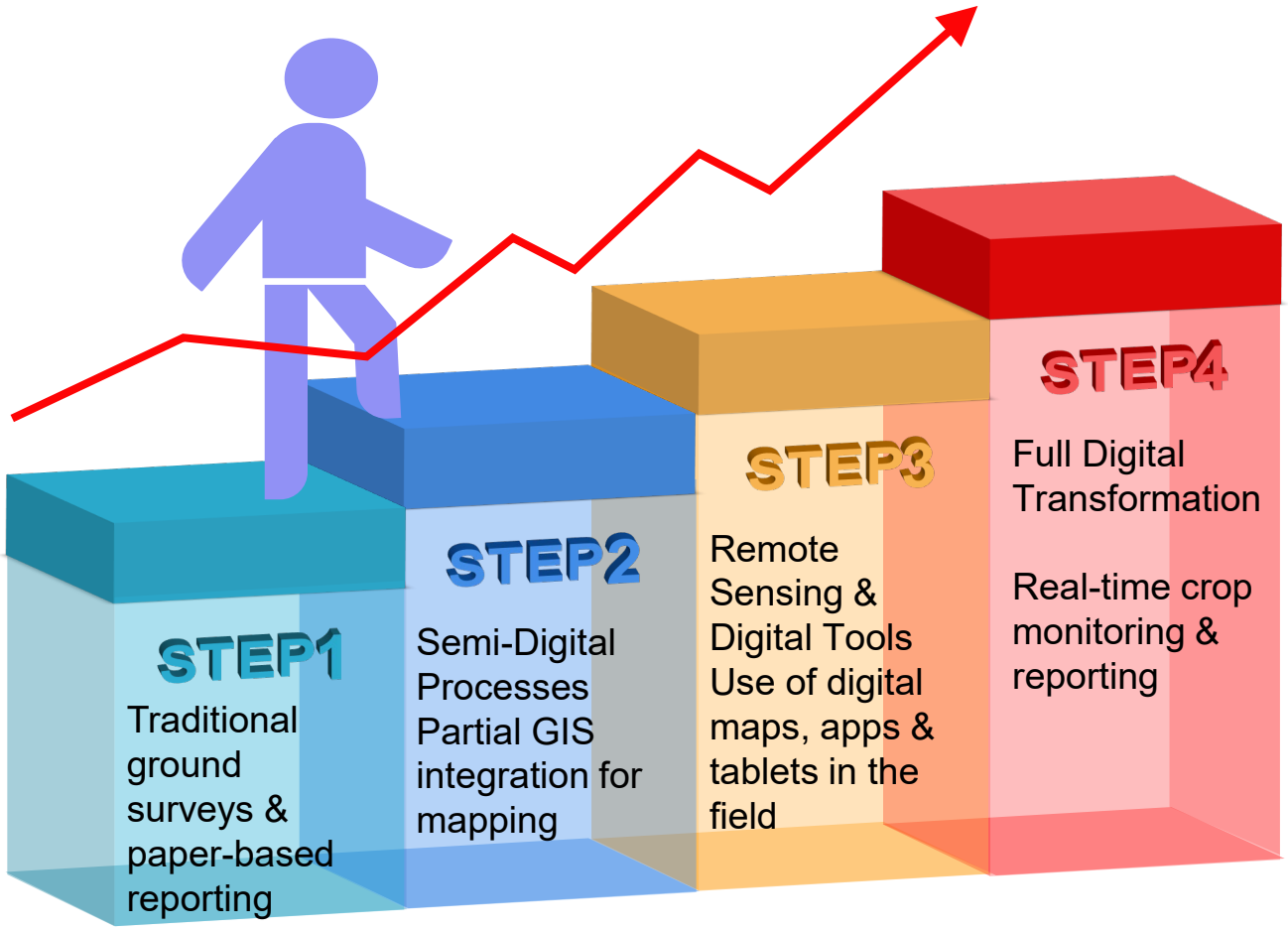
CRS is transitioning towards digital systems, which requires time.

Field staff need proper training and capacity building to ensure smooth digital adoption.

Future of CRS:

- CRS Sindh is shifting from traditional manual data collection to advanced remote sensing–based techniques
- This transition requires capacity building of field staff to handle digital tools and satellite data effectively.
- For the upcoming Rabi season, CRS Sindh will integrate: Sentinel-1 radar data (for all-weather crop monitoring)
  Sentinel-2 optical data (for detailed crop identification and health assessment)
- CRS Sindh aims to set a benchmark for digital agriculture reporting, paving the way for other provinces to follow.

Steps Towards Digital Transformation



Thank You

- Presented by:
  Sarfaraz Ali Bhutto

Webinar outline

- Sen4Stat overview
- User’s perspectives: the case of CRS-Sindh, Pakistan
- **Sen4Stat yield component**
- News and what’s next
- Questions and answers

Production and yield estimation

Crop Type mapping

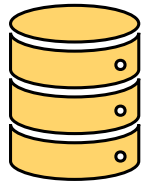
Agricultural production = yield * area

1. Yield Sample Collection

- Sampling Design
- Collection/Measurement Methods

2. Estimation models

- Aggregation
- Process based modelling
- Regression modelling



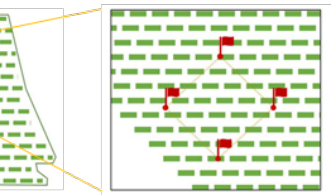
Yield sample collection methods

Yield value (measurement or estimate) with precise **georeferencing coordinates**

- *at field level*: area and location of the field (at harvest time or from farmer)
- *at farm level*: areas and location of the fields associated to the yield value
- *at subplot level*: subplot area and location in the field with precise georeferenced data

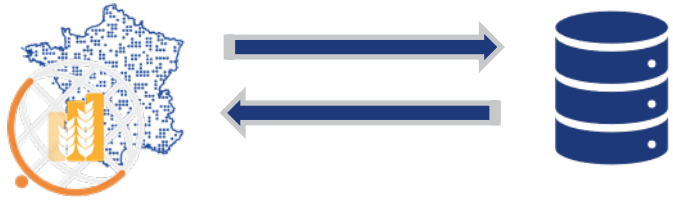
Possible yield data sources

- Crop Cutting
- Plant Counting
- Field Production Weighting
- Transport Production Counting (bags/containers)
- Expert Observation
- Farmer Declaration



Yield Estimates at Sub-National Level

With field data



Parcel - In-Situ Data

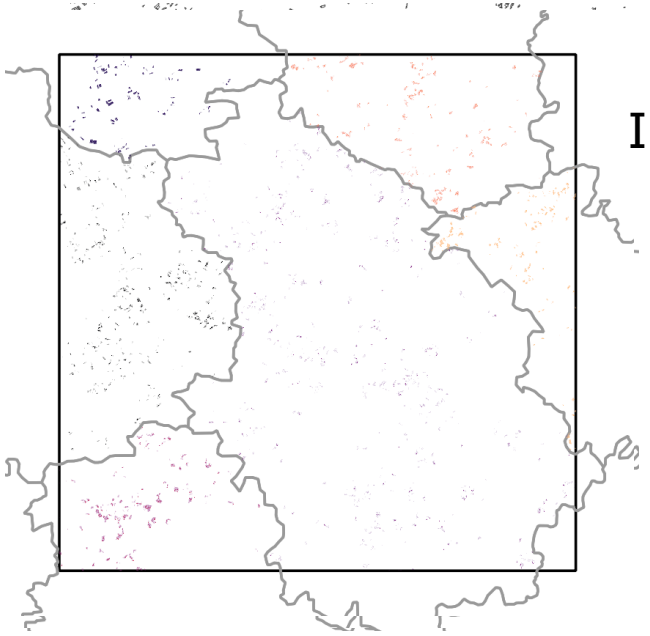
- Feature extraction per parcel

- Estimation at parcel level aggregated to statistical unit (SU)

Without field data

Statistical Unit (SU) - Historical Data

- Feature Extraction per Elementary Unit

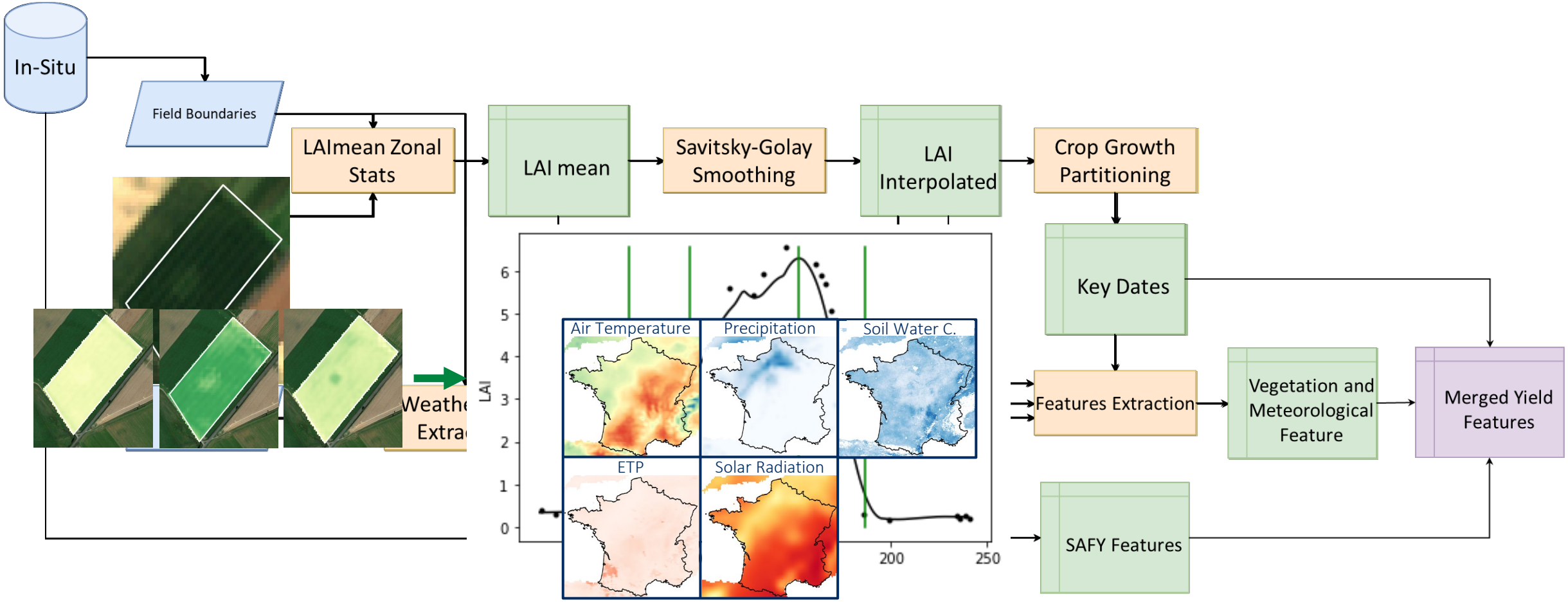


Intersection:

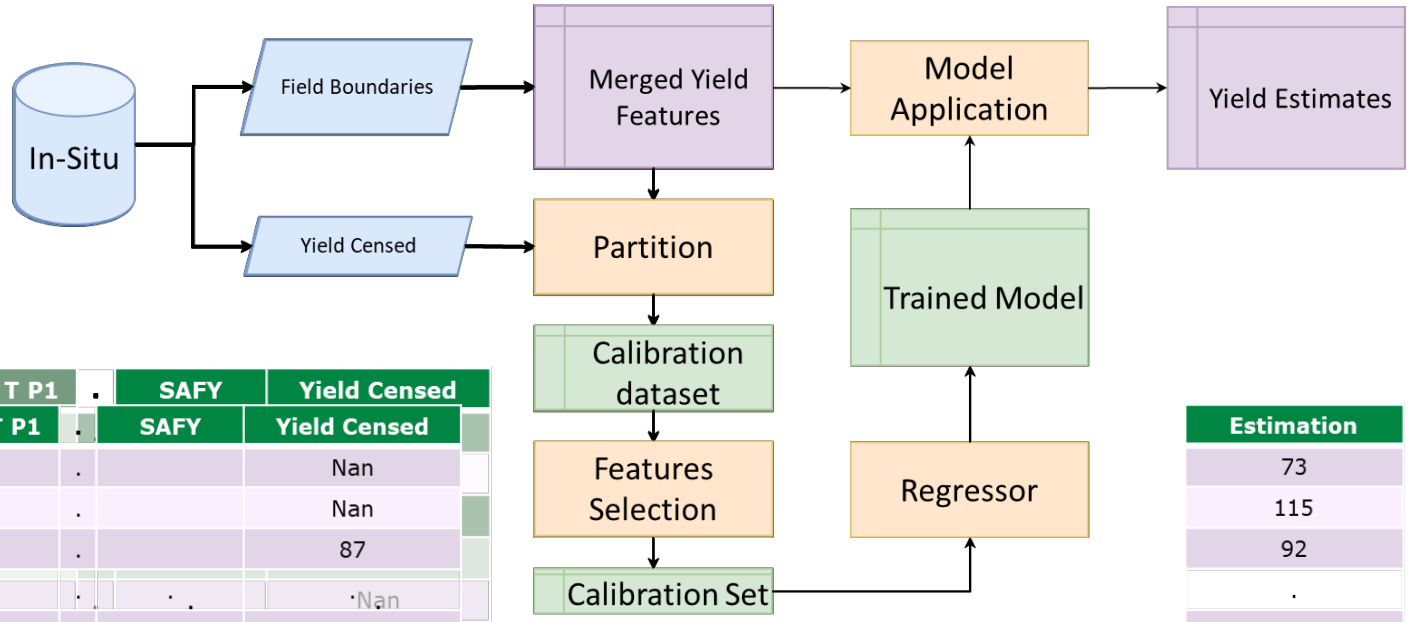
- Sentinel-2 tiles
- SU boundaries
- Crop type map

- Estimation at SU level

S4S Workflow | Yield Feature Extraction



Yield estimation



Parcel ID	maxLAI	Sum P P0	Mean T P1	.	SAFY	Yield Censed
1	7	110		.		Nan
2	5	87		.		Nan
3	2	120		.		87
748	4	113		.		Nan
749	3	74		.		Nan
750	5	120		.		98
751	6	80		.		Nan
752	4	85		.		82
753	7	100		.		101
3202	6	97		.		Nan
3203	5	115		.		78
3204	7	92		.		Nan
3205	4	105		.		Nan

Estimation
73
115
92
.
102
89
92
105
87
108
.
92
80
72
92

Parcel ID	.	SAFY	Yield Censed
.	.	.	.
750	.		98
.	.	.	.

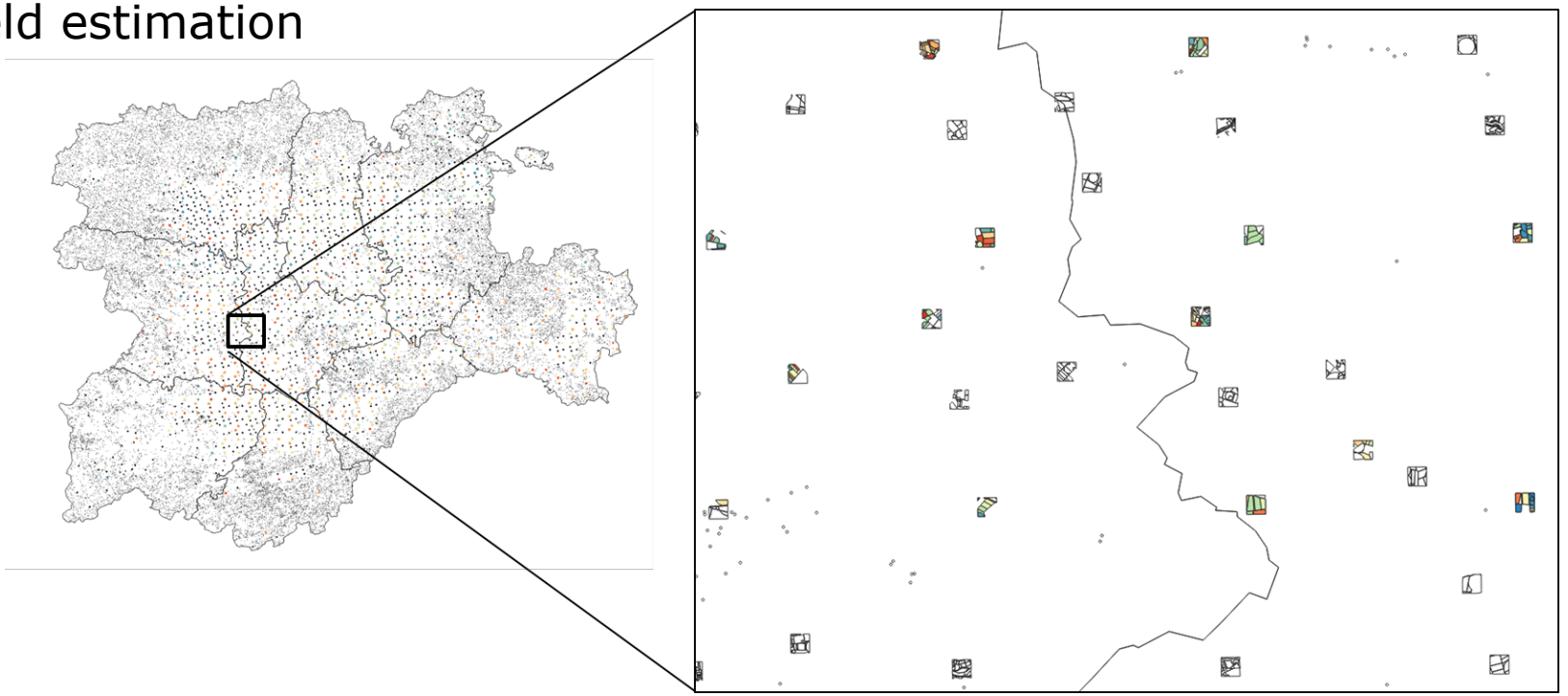
Testing the added value of EO for barley two row yield estimation in Castillà Y Lèon (Spain)

Spain NSO Argicultural Statistic Survey : **ESYRCE**

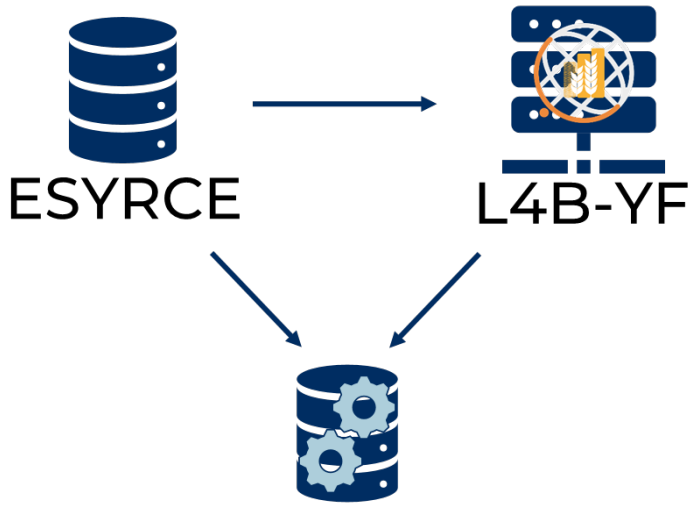
- Fields delineation into square segments
- Experts visit segments and label them
- Experts provide yield estimation for the main crops (crop cutting or eyes estimation)

Castillà Y Lèon :

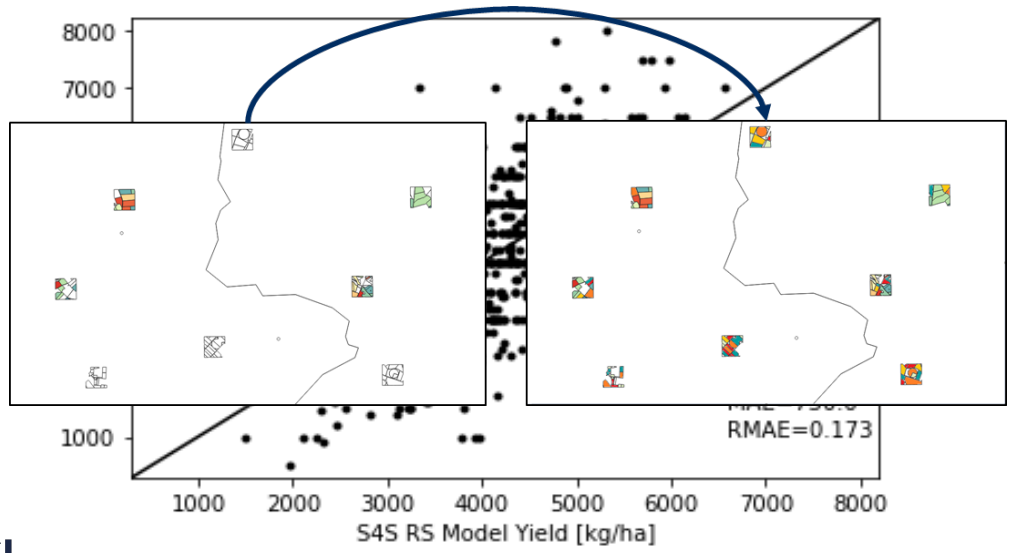
- 8100 fields of Barley Two Row
- 2310 expert visual yield estimation



Methodology

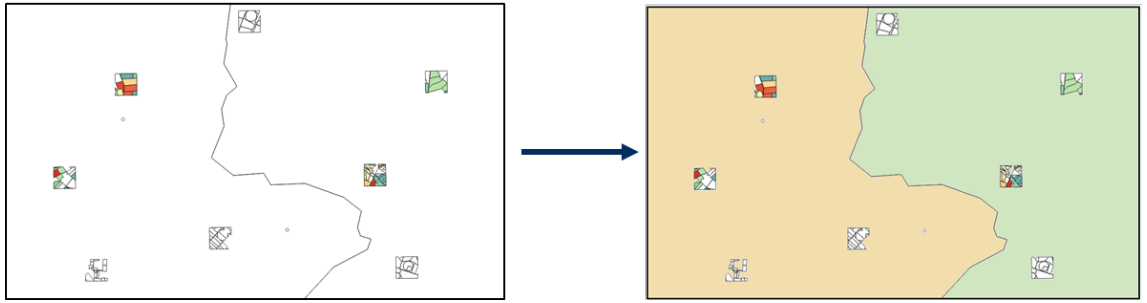


Gradient Boosting Regressor

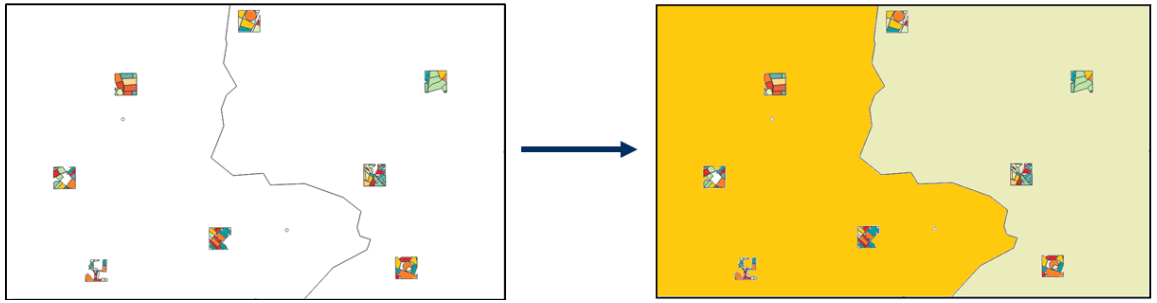


10 Repetition of 70/30 Partition

- Model null : Spatial Aggregation of 70% of the dataset

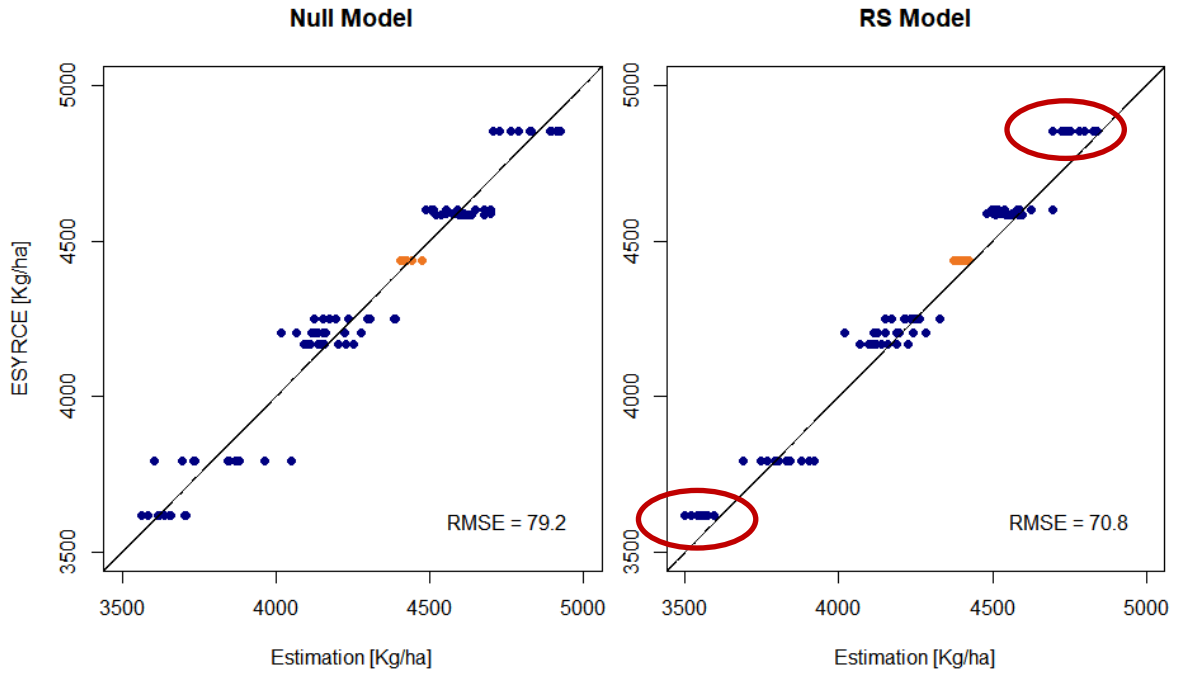


- Model RS :
  - Calibration of S4S Yield model with 70% and application on the whole dataset
  - Spatial Aggregation of estimations



EO allows reducing confidence interval

	ESYRCE		Null Model (10x)				S4S RS Model (10x)			
	N	Mean	N	Mean	Sd	MAE	N	Mean	Sd	MAE
Àvila	151	4250.2	107	4241.5	83.0	84.7	150	4232.4	34.9	37.9
Burgos	446	4852.4	315	4826.8	64.9	69.6	446	4764.3	38.2	88.1
Leòn	52	3792.7	37	3822.0	103.8	109.7	52	3817.5	57.0	59.2
Palencia	304	4585.6	211	4602.1	32.3	39.2	302	4557.5	17.0	29.9
Salamanca	122	4204.3	87	4155.8	63.1	81.5	122	4155.8	57.9	72.3
Segovia	294	4169.5	206	4168.0	52.5	52.8	294	4134.1	35.4	50.1
Soria	275	3617.5	192	3640.1	35.2	40.3	275	3542.6	26.8	74.9
Valladolid	460	4588.2	320	4574.6	37.8	41.4	459	4531.1	26.5	57.1
Zamora	206	4600.0	142	4586.8	65.0	67.2	204	4569.1	54.7	60.4
Castilla Y Leòn	2310	4437.2	1617	4426.5	16.5	20.8	2304	4391.9	14.0	45.3



- Less dispersion in RS model estimation → reduces the confidence interval

REDUCED UNCERTAINTY

- Better Accuracy in Province with few data
- RS model implies a bias, Especially for the extremes → could be rectify with the 70% calibration dataset

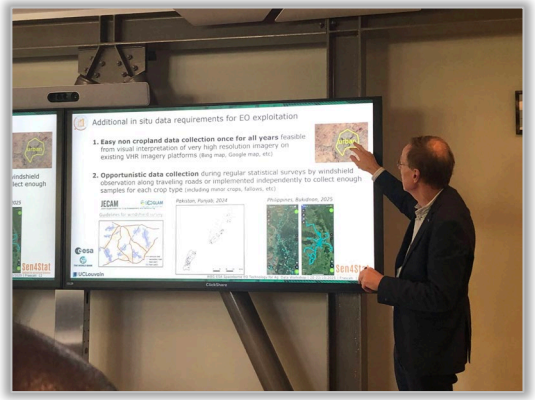
Webinar outline

- Sen4Stat overview
- User’s perspectives: the case of CRS-Sindh, Pakistan
- Sen4Stat yield component
- **News and what’s next**
- Questions and answers

Sen4Stat training at the « Spaceborne EO Technology for Agricultural Data Workshop »

Event co-organized by ESA and WB, focused on how Africa can harness the full potential of Earth Observation (EO) and in situ agricultural data to drive sustainable development

- World Bank 50x30 initiative
- ESA Global Development Assistance
- WorldCereals
- **Sen4Stat**



https://blogs.worldbank.org/en/opendata/how-can-data-from-space-shape-the-future-of-agriculture-

Sen4Stat presentation and side event @AFCAS

AFRICAN COMMISSION ON AGRICULTURAL STATISTICS

COMMISSION DES STATISTIQUES AGRICOLES POUR L'AFRIQUE

Agenda item 8: Use of Earth Observation data for agricultural statistics: Different applications

The Commission:

- **Recognized** the growing importance of Earth Observation (EO) as a complementary data source for strengthening agricultural statistics, including crop mapping, area estimation, and yield forecasting.
- **Recognized** the emerging shift among Members toward integrating Earth Observation (EO) data with area and list frames as another important step toward modernizing agricultural statistics systems.
- **Took note** of the relevance and applicability of the FAO in-situ data quality framework, and **welcomed** the positive feedback expressed by Members on its usefulness for improving the quality and interoperability of survey data for EO-based applications.
- **Encouraged** members to promote the adoption of the FAO in-situ data quality framework within national agricultural survey programmes, to assess their existing survey protocols, and to ensure that geospatial metadata and field observations are collected in formats suitable for EO analysis.
- **Commended** the efforts of FAO and partners, including the EOSTAT and Sen4Stat initiatives, for supporting members in integrating EO into agricultural statistics and **noted** the interest of Members in advancing EO-based approaches to address specific challenges such as mixed cropping systems, and in accessing technical support to operationalize these approaches.
- **Recommended** FAO and its partners to continue providing technical assistance, trainings and resource mobilization support to member countries wishing to initiate or scale EO-based agricultural statistics systems, including through capacity development, methodological guidance, and sharing of best practices.

Any countries that is interested in FAO technical assistance on any agricultural statistics area discussed during the commission should submit its official request to our FAO country office with a copy Mr Dominique Habimana, the FAO regional statistician for Sub-Saharan African countries (Email: Dominique.Habimana@fao.org), and Mr Firas who is the FAO regional statistician for Northern African countries (Email: Firas.Yassin@foa.org). The sooner the better.

https://www.fao.org/africa/events/events-detail/africa-commision-on-agricultural-statistics-(afcas)--29th-session/en

https://www.esa-sen4stat.org

→ SEN4STAT

esa

Overview Download User Stories News Team Committee Forum

ESA SEN4STAT SENTINELS FOR AGRICULTURAL STATISTICS

Development and demonstration of agricultural Earth Observation (EO) products and workflows based on the Sentinel missions of the European Union (EU) Copernicus program which support the agricultural statistics and can be integrated in the National Statistical Offices (NSO) environment

SYSTEM DOWNLOAD →

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Access Sen4Stat Ressources!
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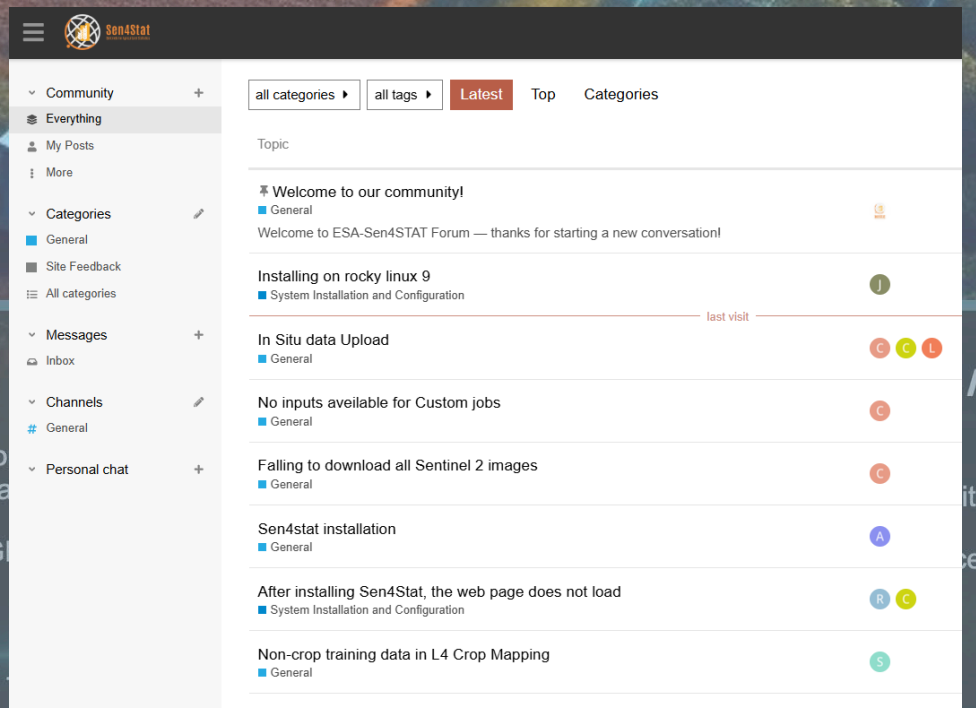
CONTACT



Sen4Stat use cases

Webinar outline

- Sen4Stat overview
- Sen4Stat yield component
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- News and what’s next
- **Questions and answers**