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Targeting Investments in Medium to Large Scale Irrigation Schemes

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Innovative water solutions for sustainable development

Food · Climate · Growth

Context

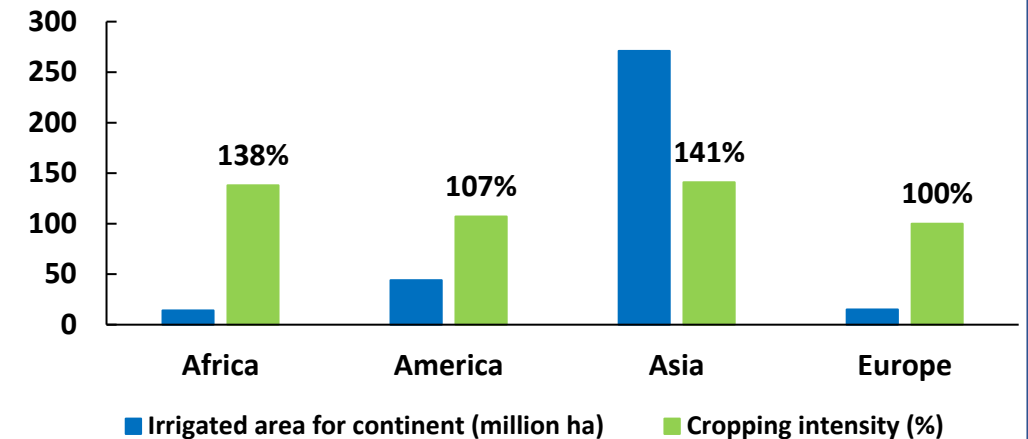
Sub-Saharan Africa:

- Irrigation performance has not improved over six decades
- Investments in irrigation have failed to deliver promised benefits
- Lack of financial resources to ensure long-term maintenance.

<https://www.nature.com/articles/s41893-020-00670-7>

Asia:

Country	Water Use Efficiency
India	38%
Sri Lanka	40%
Pakistan	36%



Investments

In 2020, ADB financed more than 200 irrigation projects, with investments totaling \$6.6 billion, and about \$1.1 billion worth of investments are on the pipelines for irrigation.

Despite past decades of investment, the irrigation subsector continues to be impaired with:

- Poor system management
- Lack of adequate maintenance,
- Poor service delivery,
- Low cost recovery.



Historical trends

The Build-Neglect-Rehabilitate Cycle

- Stems from an “infrastructure-only” approach to irrigation development of the past
- Breaking it requires a long-term focus on service delivery
- Investment cost in management represents a small fraction of typical infrastructural cost but present an opportunity for achieving major leaps in performance enhancements.



A fresh take on service delivery

Water service-delivery functions

- **Irrigation service-** Ensure scheduling and delivery of agreed-on-quality, quantity, reliability, flexibility and equity to enable specific uses of water in the scheme.
- **Drainage services-** Ensure the evacuation of excess water to avoid salinization and production losses after extreme events.
- **Other water uses (if applicable)**
Water supply for the rural population and animals

Organizational functions

- Financing (capex and MOM)
- Technical operations, organizational and related process management.
- Asset management and strategy.

Government functions

- Transparency and customer orientation.
- Enabling policies and legal instruments.
- Institutional and organizational coherence, accountability, and inclusion.

Agriculture information and its accessibility

Less availability of DSS's for irrigation management compared to water supply and sanitation:

- For monitoring irrigation performances
- For guiding and prioritizing to make investments that have lasting impact
- For making extensions or changes in environmental polices



SAMS4i

- Free and open source platform,
- Build, store and analyze data based on assets in an irrigation scheme,
- Generate performance reports for scheme regional/ sub-country and country levels.
- For irrigation scheme managers, government departments, donor agencies, investors and researchers



Inputs

The scheme can be build up on SAMS using **Digital Twin** options as, Shape files, CSV files and, Photos.

Users can generate **management forms** and add **data** on:

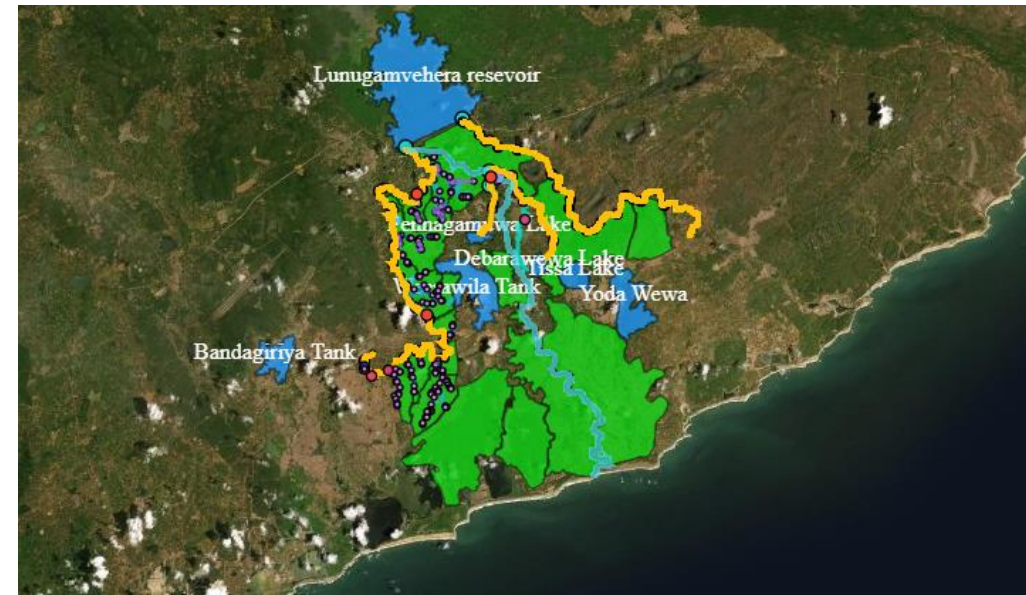
Repair and Maintenance

Production

Water supply

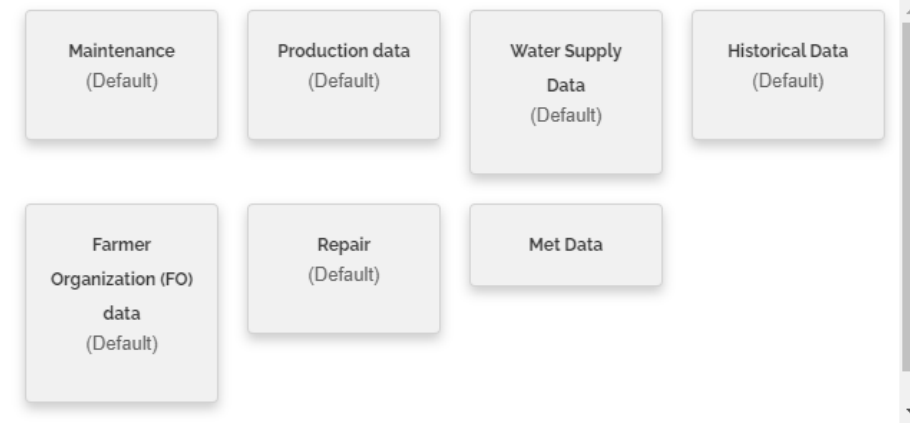
Farmer organizations

Historical data



Forms Configurations

Note: Default forms showing in purple color and user-defined forms in green color



Create New Form

Close

Basic information

Admin Section

Map View

Side Pane



Systematic Asset Management Software (beta version)

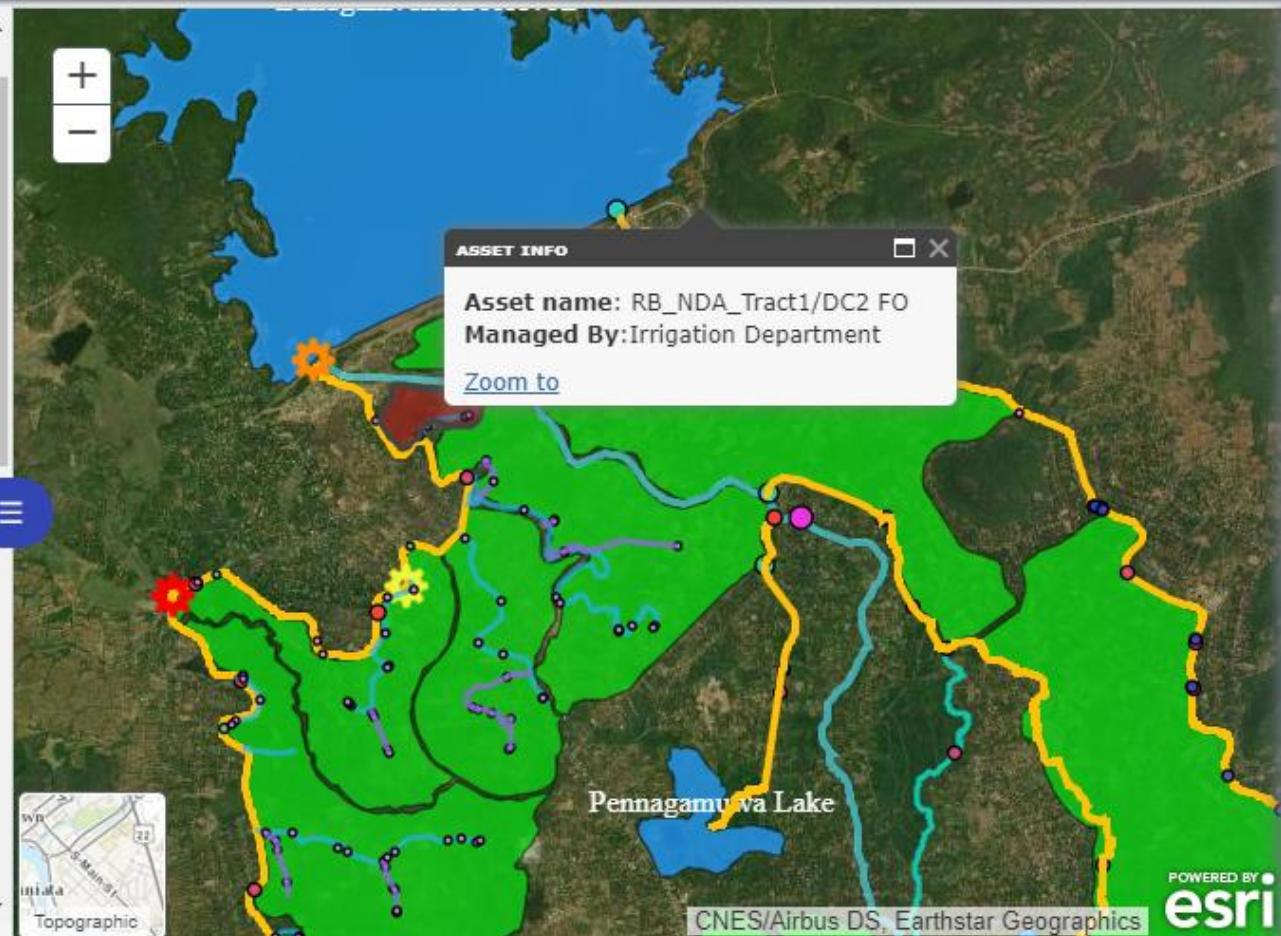
Welcome Anuradha Silva!

Home Country Setting Digital Twin Management Data Collection Management Review

Home New Existing Exit
Scheme

Assets Hierarchy

- Lunugamvehera Reservoir Downstream
 - Lunugamvehera reservoir
 - Kirindi Oya
 - Ellagala Anicut
 - Ellagala OS 4
 - Ellagala OS 1
 - Ellagala OS 2
 - Ellagala OS 3
 - Left Bank Canal Sluice
 - LB Main Canal
 - Right Bank Canal Sluice
 - RB Main Canal
 - RB/CR-2-Regulator 1(1)
 - RB/Tract1/DC2
 - RB/Tract1/DC3A/3B
 - RB/Tract1/FC6
 - RB_NDA_Tract1/DC2 FO**
 - Canal Speel 1
 - RB/Regulator (2)
 - RB/Water pump station 2
 - RB/Canal Speel 2
 - RB/CPR-4/Regulator 1(3)
 - RB/Regulator (4)
 - RB/CPR-5/Regulator 5(5)



RB_NDA_Tract1/DC2 FO

Asset Details

Basic Information

Irrigable Area (ha)	53
Number of Farmer Families	58

Update

Performance framework and indicators

Framework:

- Service Delivery
- Agricultural performance
- Financial performance
- Environmental performance
- Gender Performance

(around 5 indicators under each performance area)



SAMS4i capabilities, Performance indicator graphs

Performance Indicators



Graphs

Table

Performance Indicators Graphs



SAMS4i capabilities, Report Generation, Tabular...

Paddy production details of right-bank track in Rajanganaya reservoir for secondary (Yala) season from 2012 to 2019.

Search:

For crop type
Year

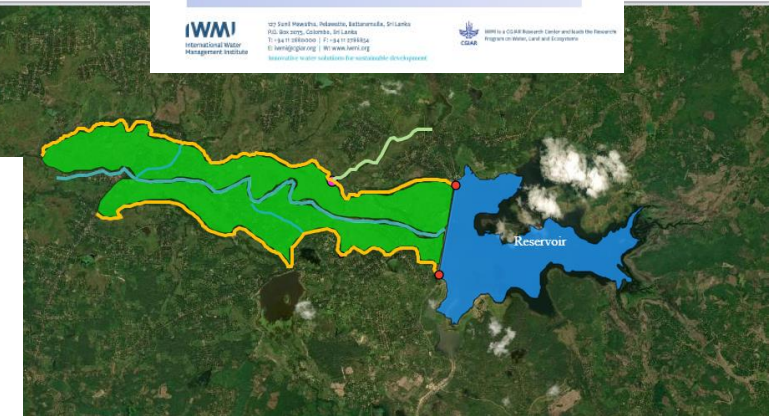
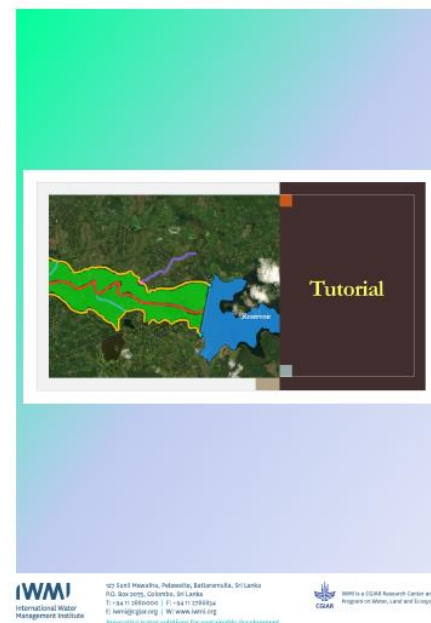
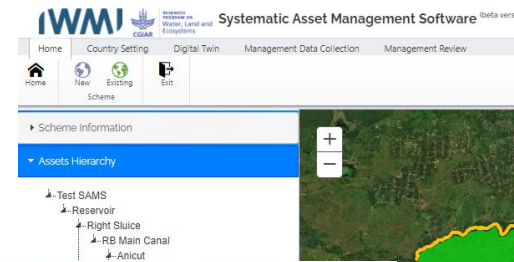
Asset name	Canal name	Fo involved	Officer in Charge	Season	Crop Type	Sown date	Harvesting date	Expected harvest(t)	Collected harvest(t)	Cultivation cost(\$)	Income(\$)	Cultivation Area(ha)	Send_email_to_ow
LB Tract	LB Main Canal	LB main canal FO	Jayathissa L.P.	Yala	Paddy	2018-05-04	2018-08-24	9893	2241482	3285017	2350		
LB Tract	LB Main Canal	LB main canal FO	Jayathissa L.P.	Yala	Paddy	2012-05-02	2012-08-22	10603	2637918	2883353	2500		
LB Tract	LB Main Canal	LB main canal FO	Jayathissa L.P.	Yala	Paddy	2017-05-04	2017-08-24	10575	2255902	2962185	2350		
LB Tract	LB Main Canal	LB main canal FO	Jayathissa L.P.	Yala	Paddy	2016-05-04	2016-08-24	10950	2328053	3003497	2400		
LB Tract	LB Main Canal	LB main canal FO	Jayathissa L.P.	Yala	Paddy	2014-05-07	2014-08-27	11715	2593162	3510449	2250		
LB Tract	LB Main Canal	LB main canal FO	Jayathissa L.P.	Yala	Paddy	2015-05-07	2015-08-27	12320	2358726	3398152	2200		
LB Tract	LB Main Canal	LB main canal FO	Jayathissa L.P.	Yala	Paddy	2013-05-07	2013-08-27	11518	2665065	3448353	2500		
LB Tract	LB Main Canal	LB main canal FO	Jayathissa L.P.	Yala	Paddy	2019-05-04	2019-08-24	13178	1914600	3887871	2300		

email to user

SAMS4i Help desk

Users will be **guided** and **helped** to learn and **explore** SAMS with,

- Comprehensive SAMS's User Manual, and
- SAMS's tutorial and example data.



SAMS4i locations



Sri Lanka



India



Ethiopia



Myanmar



Pakistan



Uzbekistan



Tajikistan

<http://samsv2.iwmi.org>

Key messages

- Common framework to store and assess data to enhance service delivery
- User friendly tool for scheme managers , planners, donor agencies etc.
- Assessments within and among irrigation schemes
- Different administrative scales and controlled access for data security (Admin hierarchy)
- Developing and incorporating other IWMI work – e.g. Spatial indicators and SMARTSTICK



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Management Institute

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