



# Systematic Asset Management Software (SAMS) User Manual



# SAMS USER MANUAL



# CONTENTS

Section		Page
Introduction		1
1.	EDITOR	3
1.1.	REGISTRATION AND LOGIN	3
1.2.	CREATE NEW	5
1.3.	DEFINE UNITS	6
1.4.	DEFINE ASSETS	7
1.5.	DEFINE ASSET PROPERTIES	11
1.6.	UPLOADING ASSETS FOR BUILDING IRRIGATION SCHEME	13
1.7.	MANAGING ASSETS	19
1.8.	ANALYZING DATA	29
2.	EXPLORER	36
2.1.	REGISTRATION AND LOGIN	36
2.2.	SEARCHING FOR AND EXPLORING AN IRRIGATION SCHEME	37
2.3.	UNDERSTANDING SAMS DATA STORING STRUCTURE	40
2.4.	SURVEYING AN IRRIGATION SCHEME	40

# ntroduction

# 1. WHAT IS SAMS?

Systematic Asset Management Software (SAMS) is a geographic information system (GIS) platform for government departments, donors, investment agencies, researchers, and students to facilitate learning, planning, operation and management of the assets of a reservoir or tank irrigation system.

Since ancient time, a village tank has been the backbone of village economies in Asia-Pacific and African. Over time, irrigation agriculture becomes an important part of a national economy by contributing to agricultural production. Therefore, it is important to monitor and maintain the performance of tank irrigation systems. An irrigation asset management system involves the collection of information of each asset in the system. This information can be recorded and stored as different layers (vector or raster) in a GIS in the form of spatial and non-spatial data and SAMS has the capability of integrating and analyzing spatial, non-spatial and multi-layered information in different formats and for creating management strategies for an irrigation system and socio-economic development.

The SAMS system can also generate outputs in the form of maps, tables and graphs that help irrigation officials (engineers), donor agencies, agriculturalists (researchers/students) and farmer organizations monitor the performance of an irrigation scheme at any place and time and take the necessary steps to manage the resources effectively

#### 2.1. SAMS ROLES

SAMS users can take on one of three roles: Editor, Explorer, or Reviewer.

#### i. Editor

The role of Editor is recommended for irrigation engineers, irrigators, agriculturalists, researchers, and students. Editors can build one or more irrigation schemes in SAMS, can see, and edit the irrigation schemes they create, and can start with the basic details of an irrigation scheme and further develop it with new data.

#### ii. Explorer

The role of Explorer is recommended for investors, donor agencies, NGOs, farmer organizations and school communities (teachers, students). Explorers can edit irrigation schemes. Explorers can view, learn and update irrigation schemes on SAMS as permitted by SAMS's admin.

If you would like to change your role, contact SAMS Admin (see Image 2)

#### iii. Reviewer

The role of Reviewer is recommended for government organizations (e.g., irrigation administration officers). Reviewers can see and update irrigation schemes as permitted by SAMS Admin. Reviewers cannot edit irrigation schemes.

If you would like to change your role, contact SAMS Admin (see Image 2).

# $S_{\text{ection}}$ 1

# 1. Role: Editor

# **1.1 REGISTRATION AND LOGIN**

You must create a SAMS login account. One email address can register one time only.

Once you have registered, begin by clicking Start Work and enter the basic information in the form provided. You do not need to choose a role because you will be automatically registered as a SAMS Explorer.



Once you have completed registration, go to the Home page. To create a new irrigation scheme, click Input Data.



When you click More, you will be asked to send an email to SAMS Admin to request the role you want, for example Editor (Input Data).



#### Image 3

You will receive a permission confirmation email from SAMS Admin. Login using the Username and Password you entered into the registration form.

Svetematic Ass	Start Work	×		
Management S	Login	Register		
for Irrigation	Username Username or Email	<b>O</b> ther		
This System is designed to manage infrastructu system.	Password	ę	Login	
Developed by the International Water Management Ir support from the Water Land Ecosystem(WLE) Conse	Remember me	, i i i i i i i i i i i i i i i i i i i		
CGIAR.		Close	A CAN	

#### 1.2. CREATE NEW

As an Editor, you can create a new irrigation scheme and edit other schemes you have created. Once you login as the Editor, you will be redirected to the HOME page where you can click Create New to start building a new scheme.

Water, Land and Cogstems	Systematic Asset Management Software	e <sup>(beta version)</sup>	Welcome Anuradha Silva! 风 🏠
ASSESSO	Create New Scheme		
ACC -	Country	Please select a country	
Syste	Scheme Name		
Mana	Managed By		CAR HARD
This System Irrigation sys Developed I		Save Close	
the financial	support from the Water Land Ecosystem	WLE)	
Consortium Create I	Research Program of CGIAR. New Editing		ctivate Versiows

#### Image 5

You must complete all three sections in the Create New Scheme box.

• For Scheme Name, enter the name of the agency responsible for the scheme (e.g., ministry, department, board).

Example: A country usually has several levels in its irrigation management hierarchy (national, state/provincial, district and scheme).

- For Managed By, if there is no defined hierarchy for the selected country, you can define the administrative levels.
- If a previous Editor has already entered the agency name for a country, those names will display under the down arrow and you are not required to define a level.
- As an Editor, you can also create new administration levels, but they should match administration levels for the country in which the scheme is located.

### 1.3. DEFINE UNITS

Once you have created a new irrigation scheme, you need to define Country Setting unit categories and the corresponding asset types related to the new irrigation scheme. SAMS has both metric and imperial unit systems. Go to Measurement Units System under the Country Setting tab.

SAMS has default unit categories for Length, Area, Mass/Weight, Volume/Capacity and Currency (red boxes) as well as units for length, kilometer, meter, centimeter and millimeter.



Default Unit Category: These categories are defined by the System Administrator.

#### Image 6

- As an Editor, you can add new default unit categories by clicking Add New Unit or you can add a new unit category and related units as a user-defined category (green boxes) with the relevant units by clicking Add New Category and Add New Unit.
- Once defined, you can use these categories and units for other irrigation schemes.

• Editors can also edit or delete user-defined unit categories or units by clicking Edit/Delete.

## 1.4. DEFINE ASSETS

To define assets related to a new irrigation scheme, go to Asset Nomenclature under the Country Setting tab.

- An asset is not an independent feature. An asset is always related to an Asset Category and a family called Asset Type.
- SAMS identifies an asset by using the family of the asset.
- An asset category consists of a cluster of asset types.
- Feature class type (point, line or polygon), size and color are qualities of an asset type and do not depend on the asset category.
- The geometry (length and shape) is a quality of an asset.

SAMS has default asset categories and default asset types under each default category. An Editor cannot edit or delete default categories or types.

An Editor can add new asset types to default categories or new categories with a new group of types. You can also edit and use the user-defined categories and types for other irrigation schemes.

Default Asset Category: Asset categories in the In-built Asset section are defined by the System Administrator.

Default Asset Type: Asset types under default asset categories are defined by the System Administrator.

Defining an asset type for a new irrigation scheme can be done two ways (A and B).

- A. Incorporating in-built assets (default assets) for the new irrigation scheme.
- B. Adding user-defined assets.

#### and Systematic Asset Management Software (beta version) 1WMJ 🖑 🧱 Welcome Karunakalage Anuradha Silva! 🔼 🏠 •• $\bigcirc$ Scheme As ភំង Create Ne In-Build Assets lect an asset: + Canal Structures items Water Source Command Area Met Station Main Canal Dividing Point Sub Field Canal Minor canal Distributary Canal Branch Canal Field Canal 0/11 0/0 Save Close Image 7

#### A. Procedure for incorporating in-built assets

Step 1: Under the Country Settings tab, click Asset Nomenclature.

Step 2: Click In-Build Asset.

Step 3: Select the relevant asset category from the default categories for the irrigation scheme.

Step 4: Select relevant default asset types for the irrigation scheme, including the selected default asset categories.

Step 5: Move the selected asset types to the panel on the right by clicking the arrow. Step 6: Click Save to move the selected default assets.

Adding other assets for an irrigation scheme can be done after saving by following the same steps for other categories.

B. Procedure for creating user-defined assets

This procedure can be carried out in two ways.

1) Adding a user-defined asset to the in-built asset category.

<b>(WM</b> )	CGIAR CON	r, Land and System	matic Asset Management Soft	ware (beta versi	ion)		Welcome K	(arunakalage An	nuradha Silva! 🔼 🏠
Country Setting	Input Data	Management Da	ata Collection Management Review						
Reporting Hierarchy Hierarchy	Measurement Units	Asset Nomenclature	Scheme Assets		Step 1	Step 2			
10 C 10 C 10 C 10 C			In-Build Assets Create New						
+		the last	Asset Category Asset	Structures			Defau Asset	lt	User Defined Asset
		Ster.			Add New Asset Type		Step 4		Category
			Add New Asset Category	Add New	Asset Name	Spill Way	recnnicat		Properties
		The second	Edit/Delete Close		Geometry Type	Point V	Step 5		No Properties
		E.	Asset types Step		Symbol Size	5 🗸	Length		tound
		200 2			Symbol Color		Height		
		frank 1				(Click)	Step 6		
					Save Close		· ·	acity	
nide Topographic		-	1	St	ep 7		Ai Gc	ctivate Wir to Settings to Earths	ndows o activate Windowing er • Iar Geographics <b>CSTI</b>

#### Image 8

Step 1: Open Asset Nomenclature and click Create New.

Step 2: Select the default Asset Category you want to add.

Step 3: Click Add New Asset to open the Add New Asset Type box.

Step 4: Enter a new Asset Name.

Step 5: Select a Geometry Type for the new asset (Point, Line and Polygon).

Step 6: Select display properties for the new asset (Symbol Size and Symbol Color).

Step 7: Save.

2) Create user-defined asset categories and add new assets.



#### Image 9

Step 1: Open Asset Nomenclature and click Create New.

Step 2: Click Add New Asset Category to open the Add New Asset Category box.

Step 3: Enter an Asset Class Name.

Step 4: Save.

Step 5: Follow the steps in subsection 1.4. B (1) for adding a user-defined asset to the in-built asset categories.

An Editor can edit or delete only user-defined asset categories and asset types. To delete asset categories or asset types, use Edit/Delete in the Create New Section.

After adding data related to an asset type, you cannot delete that asset type or the related asset type category.

An Editor can add properties to all selected asset categories and asset types (default + user-defined) and use them in building a new case study.

The incorporated asset categories and the related asset types can be visualized using the Drawing Toolkit in the admin section (left-hand pane).

Country - Sri Lanka	3	
<ul> <li>Assets Hierarch</li> </ul>	У	
▼ Canal		
	Main Canal	
_	Distributary Canal	
<ul> <li>Structures</li> </ul>	a	
Water Source		
Command Area		
		1
mage 10		

# 1.5. DEFINE ASSET PROPERTIES

An Editor can define Properties to an Asset Category or Asset Type related to the basic information and technical information showing in the right-hand pane.

A property belonging to an Asset Category is also related to all Asset Types under that category.

A Property belonging to an Asset Type is only related to that Asset Type.

Country Setting Input Data Mar Raparting Hierarchy Hierarchy Instances Non	Araet Araet Araet Araet Araet Sten 1		
Country - Sri Lanka	Scheme Assets		×
Country	In-Build Assets Create New		
Sri Lanka Irrigalion_Scheme Lunugamvehera	Asset Category Asset Category Add New Asset Category Add New Asset Category Add New Asset Category	Default Asset Category Properties	User Defined Asset Category Properties
Assets Hierarchy     Drawing Toolkit	Edit/Delete Help Close	Information Type	No Properties found
	Asset types     Symbol size     Symbol color       Sub Distributary Canal     3     Image: Step 3       Main Canal     4     Image: Step 3	Slope Max/design_Capac.ty Canal_Length Side_Slopes Top_width Bottom_Width Depth	
	nda a	WI	

C. Adding Properties to Selected Asset Categories and Types.

#### Image 11

- Step 1: Open Asset Nomenclature and click Create New.
- Step 2: Select an Asset Category for the new Asset Category Property.
- Step 3: Click Add New Specific Asset Property.

If you select a default Asset Category, SAMS will show the default Asset Category Properties under the Default Asset Category Properties (green box) defined by the System Administrator.

Country Setting Input Data Man.	agement Data Collection Management Review		
Country - Sri Lanka	Scheme Assets		
Country Sri Lanka Irrigation_Scheme	In-Build Assets Create Ne Asset Category Asset	(!)	Default User Asset Defined Category Asset
Assets Hierarchy	Add New Asset Cate Edit/Delete Help	Add user define asset properties Please select one!	Properties Category Technical Properties
Drawing Toolkit	Asset types Sub Distributary Canal 3 Main Canal 4	Close Asset Category Asset Step 4	Type found Slope Max/design_Capac.ty Canal_Length Side_Slopes Top_width Bottom_Width Depth
	undo		and the second sec



Country Setting Input Data Manag Raporting Hierarchy Measurement Hierarchy Units Nomen	ement Data Collection	Management Review			
Country - Sri Lanka	Scheme Assets				×
Country	In-Build Assets	Create New			
Sri Lanka	Asset	Add new property for asset category Property Name		× Default	User Defined
Lunugamvehera	Asset	Information Type	Select Category	Category Properties	Asset Category
Assets Hierarchy     Step 5	Add	Measurement Categories Measurement Unit	Select A Unit	Technical Information	Properties No Properties
Drawing lool/et	Sub Distr Main Car	Data Type Mandatory Selected	Select ~	Slope Max/design_Capacity Canal_Length Side_Slopes Top_width	IOUIIU
	and a second sec		Step 6	Depth	g

#### Step 4: When the decision box (!) opens, click Asset Category.

#### Image 13

Step 5: in the Add new property for asset category box, enter values for Property Name, Information Type, Measurement Categories, Data Type and click either Mandatory or Selected If the Property is required for an Asset Category, select Mandatory, otherwise choose Selected. Step 6: Save

- A. To add a new Property to Asset Type, select the relevant default asset or user-defined asset under a default Asset Category or a user-defined Asset Category.
- B. Apply Step 3 in subsection 1.5(c) and select Asset in the (!) box for Step 4 on the same subsection.
- C. Follow Step 5 and Step 6 on the subsection 1.5(c)
- D. An editor can edit or delete only user-defined Asset Category Properties and Asset Type Properties. Added Properties cannot be deleted.
- E. The same Editor can use the user-defined Properties related to Categories and Types for other irrigation schemes.

# 1.6. UPLOADING ASSETS FOR BUILDING IRRIGATION SCHEME

This is the final step for building an irrigation scheme on SAMS.

An Editor can upload asset properties and parameters in two ways.

- 1. Uploading a shapefile or a CSV file of the scheme with in-built properties related attributes.
- 2. Manually, by screen digitizing and entering data.
- 3. Building an Asset Hierarchy



Under the Input Data tab, you will see a Menu Bar, Admin Area and Map Viewer.

The Menu Bar (A, B, C and D) has tools to locate the scheme and uploads assets.

- A: Locate Scheme
- B: Shape File
- C: Excel
- D: Photos
  - 1. Uploading a shapefile or a CSV file with in-built properties and related attributes. To upload a shapefile or CSV to SAMS, the file must meet the following prerequisites:
    - Should be in WGS84 Geographic coordinate system.
    - The file extensions are required are .cpg, .dbf, .prj,. sbn, .sbx, .shp and .shx
    - The attribute table of a shapefile must have the following columns:

gid: primary key (similar to fid or id and fill as zero 0)

parent: The parent ID of the asset needed to identify the sequence of assets can be filled in or kept as zero until you start building the asset hierarchy.

When uploading a shapefile, the SAMS database automatically creates a unique Asset ID and Parent ID for each uploaded asset and therefore it is not mandatory to fill in gid and parent fields.

type: For the type of asset (asset types must have been defined as incorporated asset types of a scheme or Asset Types under Country Settings. It is important to define the asset type (refer to subsection 1.4).

asset\_name: For the names of the assets

photo\_id: Adding this field is mandatory but it is not mandatory to fill it in. If the Editor has a photo related to the asset, then he/she can enter the name or id of the photo using the same name as the one for the photo in the Editor's device.

All photos can be put in one folder and you can add asset-related photo IDs or names to the attribute field in the relevant shapefile and then upload the photo folder directly to SAMS with the Photos tool (D on the Menu Bar in Image 14).

You can add only 4 photos to one asset.

As an Editor, you can upload an Asset Property as an attribute of a shapefile. If there is no default property, you need to create them as scheme specific (user-defined) Properties as in subsection <u>1.5</u>. This is not mandatory, and you can enter them later using the right-hand panel (refer to Image 19).

In addition to these requirements for uploading CSV files, you need two special fields for longitude and latitude. The geographic coordinate system should be WGS84.

Table  $\square \times$ 🗄 - | 🖶 - | 🖺 👧 🖸 🐢 💥 Lunugamvehera\_Resevior × FID Shape \* OID\_ gid parent photo id Capacity type asset name 0 Reservoir/Tank Lunugamvehera resevoir 0 Polygon ZM 5340 0 0 ٠ 1 ▶ ▶ | = = (1 out of 1 Selected) 14 · • Lunugamvehera\_Resevior

Note: You can only upload point features in a CSV file.

Image 15

Scheme Upload assets Select following extensions of the		
Country - Sri Lanka     shape file to upload     Choose Files     No file	chosen	
Country Upload Help	Close	
Sri La 🕵 Open		×
← → × ↑ 🗋 « Irrigation_Schemes » Sri Lanka-14Schemes » Lunugamvehera » Reservoir Step 3 arch Reservoi	bir	م
	8== -	
	8== •	
This PC Name Date modified Type Size	e	
Desktop Desktop 12/11/2020 1:36 PM CPG File	1 KB	
► Assets H	1 KB	
Downloads Lunugamvehera_Resevior.prj 10/8/2020 10:50 PM PRJ File	1 KB	
Drawing Lunugamvehera_Resevior.sbn 12/11/2020 1:36 PM SBN File	1 KB	
Lunugamvehera_Resevior.sbx 12/11/2020 1:36 PM SBX File	1 KB	
Lunugamvehera_Resevior.shp 12/11/2020 1:36 PM SHP File	43 KB	
Lunugamvehera_Resevior.shx 12/11/2020 1:36 PM SHX File	1 KB	
Local Disk (C:)		
Local Disk (E:)		
CD Drive (H:)		
File name: "Lunugamvehera_Resevior.shx" "Lunugamvehera_Resevior.cpg" "Lunugamvehera_Resevior.dbf" 🗸 All Files		~
Step 2	Cano	:el

**Uploading Shape Files** 

Step 1: In the Upload Shape File of the Irrigation Scheme box, click the Shape File and Choose Files.

Step 2: Go to the drive and folder where the shapefiles are saved and select all 7 files with these extensions: .cpg, .dbf, .prj, .sbn,.sbx, .shp and .shx

Click Open to send the files to SAMS.

Step 3: Select Upload.

2. Screen Digitizing and Entering Data

If there are no shapefiles available to upload, as an Editor you can do an on-screen digitizing on the map.



Step 1: Under Input Data tab, select Locate Scheme (A) tool.

Step 2: Using the search bar in the Locating the Scheme box, enter the scheme location.

Step 3: Using the Mark Boundary of the Admin Area, demarcate the irrigation area boundary with mouse clicks.

Step 4: Save. After saving, SAMS will redirect the map window to the demarcated boundary area and you can start to draw geometrical features inside the Map Viewer using your mouse.



#### Image 18

Step 5: To draw an asset for the scheme, select an asset category from the Drawing Toolkit in the Admin Section on the left.

Step 6: Create a line by clicking the mouse. Double click to stop drawing.

Step 7: When you double click to stop drawing, a new pane will open on the right. Enter values for Name, Parent Asset and Asset Type.

- If there is no asset inside the map viewer, zero is assigned automatically as the Parent number for the newly created asset.
- If there are assets available, SAMS automatically assigns a parent ID to the new asset as a child of the nearest asset. However, as an Editor you can change it and assign a different parent to the new asset.
- If the asset is not linked with any existing assets in the map viewer, you should change the Parent Asset number to zero.
- This Parent-Child relationship indicates the upstream-downstream connection of assets and helps build the Asset Hierarchy of the system.

Step 8: Save

The last step for building an irrigation scheme on SAMS is building the asset hierarchy.

3. Building an Asset Hierarchy

Asset Hierarchy is a collapsible Issue Tree view, where all the assets in the scheme are listed according to their Parent-Child connectivity and geographic location. It allows users to view assets from head to tail. SAMS automatically develops a hierarchy based on geographical distance, but as the Editor you can develop it based on the actual Parent-Child connections.

An Editor can change the parent ID of each child asset to connect it with its parent asset.

To activate the Asset Hierarchy, update the Asset which has a Parent ID of zero.

When you click on an asset from the Asset Hierarchy list on the left, a popup box opens for the selected asset (red box) and an Asset Details box (green) showing Asset Name, Asset Management Details and A Recent Performance Indicator Value.

With the use of the open right pane, you can edit Asset Details, including Asset Name, Parent Id, Parent Asset, Asset Type and Symbol Color.

Asset Type and Asset Id is generated and locked by the SAMS database and cannot be edited here.

In addition to these properties, as an Editor you can edit Symbol color and Geometry.



As the Editor, you can enter asset properties and a photo related to the asset by clicking on the right-hand pane.



Image 20

# 1.7. MANAGING ASSETS

Once the Irrigation scheme is established on the SAMS platform, you can manage tasks such as maintenance, repair, production, water issues, and farmer organization details.

Some tasks are listed as defaults. As an Editor, you have the option of defining new tasks required for the irrigation scheme.

Handling tasks depends on obtaining data, which can be collected using Default Forms and Sub forms inside Main Forms. Adding data fields to both types of forms is the same process.

Default forms cannot be edited or deleted.

To activate Forms, you need to connect a form to an Asset, which means activating the Asset on the map or hierarchy list.

Country Sett	ing Input Data Managen	nent Data Collection Manag	ement Review			
Data Forms Data	a-entry View Task Status Forms		_		Form Properties	<b>]</b>
Courtry	Forms Co	nfiguratic	Default F	orms	Form Fields Water Supply Data Fields	
Irriga S.	Maintenance (Default)	Production data (Default)	Water Supply Data (Default)	Historical Data (Default)	Text Box Canal Supplies Planned Groundwater Supplied Area available Number of Farmers Officer incharge	
<ul> <li>Asset</li> <li>Draw</li> </ul>	Farmer Organization (FO) data (Default)	Repair (Default)			Rain water Expected Area cultivated Canal Name Total water supplied (Actual) FO in charge Season Rain water Received Canal Supplies Delivered Year Drainage outflows	
	Create New Form Help	Close			Total water required (Planned)     Sub Forms	

### Image 21

There are two processes.

- 1) Creating New Managing Tasks
- 2) Entering and Managing Data in Forms
- 1) Creating New Managing Tasks

#### Building a new Form

Country Setting	Input Data Management Dat	a Collection Management Re	view		
Data Forms Data-entry	View Task Status				
T					×
Country - Sri La Country Sri Lank	Forms Con Note: Default forms showing	nfiguratio	<b>NS</b> ned forms in green color	Form Fi No Form	ields Selected.
Irrigation_So	Maintenance (Default)	Production data (Default)	Water Supply Data (Default)	Historical Data (Default)	
Assets Hiera			Create New Form	×	
▶ Drawing Toc	Farmer Organization (FO) data	<b>Repair</b> (Default)	Form Name	Met Data	Step 2
	(Default)	ton 1		Save Close	
				Stop 2	
	Create New Form Help	Close		Step 5	
		ALL OFFICE			

Image 22

Step 1: Under the Management Data Collection Tab Open Data Forms (top left on the navigation bar) and in the Forms Configuration box select New Form.Step 2: In the Create New Form box, enter a Form Name.Step 3: Save.

buntry - Sri Lanka				a de la companya de la
Country Forn	ns Configura	tions	S	Form Fields
Add New Form Field			🗙 s in green color	Met Data Fields
Input Data Name	Rainfall			No form fields found
Input Data Category	Text Box	~	ter Supply Data Historical Data (Default) (Default)	ta
Unit Category	Rainfall	~		
As Unit	millimeter	~		Sub Forms Add New Field
Dr Data Type	Decimal	~	Met Data	
Mandatory	is mandatory			Step 4
Selected	is selected		Step 5	Ţ

#### Image 23

After generating the form, you can add new fields and manage the data needed for irrigation management.

If a management task is connected to several secondary tasks, you can create subforms inside the main form.

Step 4: Click Add New Field in the right pane of the Create New Forms box. Step 5: In the Add New Form Field box, enter values for the fields.

d New Form Field		×	Text Box	
Field Name			Drop Dowi	ns
Field Category	Please select value		Table	
Unit Category	Please select value		Dhotogran	h
Unit	Please select value			Length
Data Type	Please select value			Area
Mandatory	is mandatory			Mass/Wei
Selected	is selected		Image	t
			Text	Currencv
Save Close			Integer	
		Image 24	Decimal	

Enter a Field Name and values for the other options from the drop-down menus.

As the Editor, you decide if a data field is mandatory or not. If you select mandatory, you will not be able to save the form without entering values for mandatory fields.

#### Example 1: How to add a Table Field

You can create tables by selecting the field category Tables. To add table columns, in the Add New Form Field box, click the + icon. The procedure for adding a table column is the same as the procedure described in Adding New Field Step 5 on the subsection 1.7 (1).

Data Forms Data-entry		Add New Form Field			×		×
Forms	Forms Conf	Field Name	Monthly R	ainfall	F	Form Fields	
Country - Sri Lanka	Note: Default forms showing in	Field Category	Tables			Weather Indexes Fields	
Sri Lanka	Far Organiz, Adding N	New Column		Dele	eting A	Added Column	
Irrigation_Scheme	data (Default)	Save Close	Add New Table Columns		×	Sub Forms Add New Field	
			Column Name	Season		Edit/Delete	
► Assets Hierarchy	Reservoir/Tank	Command Area	Unit Category	Not a Unit	W		
► Drawing Toolkit	Water Management	Production	Data Type	Text	v		
			Mandatory Selected	✓ is mandatory ☐ is selected			
	Create New Form Close		Save Close				

#### Image 25

If you want to change an added table column, click the name of the table column and update the column. If there is nothing to change, click Save.

IN 📖 📖							×
Forms Country - Sri Lanka	Forms Confi	Add New Form Field		×	Form Fields		
Country	Note: Default forms showing in pr	Field Name	Monthly Rainfall		Weather Inde	ves Fields	
Sri Lanka	Farmer	Field Category	Tables	•	Edit Table Fields		×
Industrian Only and	Organization (FO)	Table Fields	Season		Property Name	Rainfall	
Imgation_Scheme	data (Default)		Month		Category	Text Box	▼
Lunugamvenera			Station Name Rainfall		Property Type	Rainfall	•
<ul> <li>Assets Hierarchy</li> </ul>					Property Type Unit	millimeter	▼
Drawing Toolkit	Water				Data Type	Decimal	▼
	Management				Mandatory	is mandatory	
		Column E		$\Rightarrow$	Selected	is selected	
	Create New Form Close				Update Close		
	uirda 🖉				Lever L	Jen -	



#### Example 2: Add Photograph

You add photographs to a user-defined form by choosing Photograph as the Field Category.

Data Forms Data-entry				×
Forms	Forms Confi	iguration	IS For	rm Fields
Country - Sri Lanka	Note: Default forms showing in p	Add New Form Fiel	a 🛛 💌 Vi	Veather Indexes Fields
Country	Farmer	Field Name	Weather Station	No form fields found
Gir Lanka	Organization (FO)	Field Category	Photographs 💌	
Irrigation_Scheme	(Default)			
Lunuyaniven		Save Close		Sub Forms Add New Field
<ul> <li>Assets Hierarchy</li> </ul>	Reservoir/Tank	Command Area	Weather Indexes	Edit/Delete
Drawing Toolkit	Water	Production		
	Management			
			×	
	Create New Form Close			

#### Image 27

Step 6: After adding all required fields to the form, click Save.

To delete or edit forms or the added fields in user-defined forms, select Edit/Delete in the right-hand pane (Image 27).

Example 3: How to add Dropdown boxes

Create drop-down boxes by selecting Dropdown as the Field Category.

Table 1 shows the default Dropdown category list you can choose from. In Image 28, click + to open the Dropdown Configuration box. Click each category (red outline) and select Properties (green outline).

Dropdown Category	Properties
Urgency	Urgent
	Not urgent
Priority	High
	Medium
	Low
Membership	Men
	Women
Performance	Active
	Medium
	Inactive

Table 1

dd New Form Field		×	Dropdown Configuration	
Field Name			Dropdown Category List	Dropdown Category Propertie
Field Category	DropDowns	~	Urgency	Properties
Dropdown Category	Please select	value 🗸 +	Priority	Urgent Not Urgent
Mandatory Selected	is mandatory		Membership	
Save Close			Performance	
Reservoir/Tank	Command Area	Met Data	Met Station Type	
Water Management	Production		Create New Category Close	-
			v	
Casada Maur Eastra				

Add a new Dropdown Category

Step 1: Click Create New Dropdown Category in the configuration box. Step 2: Add a Category Name.

dd New Form Field		×	Dropdown Configuration			×
Field Name			Dropdown Category List	Dropdown Cate	egory Properties.	
Field Category	DropDowns	~	Urgency	Create New Dropdown Ca	tegory	
Dropdown Category	Please select 1	value 🗸 +	Priority	Category Name		
Mandatory	is mandatory		Momhorshin			
Geoclea			Desfermence	Save Close	Stop 2	
Save Close			Performance	C #/D-bit	Step 2	
Reservoir/Tank	Command Area	Met Data	Met Station Type	LUIVDElete		
Water	Production		Step 1 New Category	Close		
			v			

Image 29

Step 3: Click on a user defined drop down type (Ex; Met Station Type) to add properties for the category. Step 4: Click Add New Property.

Step 5: In the Add New Dropdown Property box, enter a Property Name and click Save.

An Editor can add new properties to the dropdown category by applying Steps 3 to 5 above.

Add New Form Field		×	ropdown Configuration		×
Field Name			Dropdown Category List	Dropdown Category Properties.	1. M
Field Category	DropDowns		Urgency	Properties	
Dropdown Category	Please select value	•	Priority	Step 4	
Mandatory	is mandatory		Mambasshin		20070
Selected			wennersnip		-
Save Close			Performance	Add New Property	
Posonyoir/Tank (	Step 3		Met Station Type	Edit/Delete	and the
Water	Production			Add New Dropdown Property	×
Management			Create New Category Close	Property Name	
			Step 5		
				Save Close	
Create New Form Close					POWERED BY

You can only edit or delete user-defined dropdown categories and related properties.

After adding fields to the main form, you can add subforms if needed.

Using subforms, an Editor can hide data. This means Explorers and Reviewers would need to ask SAMS Admin for permission to see the data in the subforms.

- Step 1: Click Sub Forms in the right pane of Forms Configuration.
- Step 2: Click Create New sub Form.
- Step 3: Enter a Form Name and Save.

Data Forms Data-entry			×
Forms Country - Sri Lanka	Forresconformations	Form Fields	
Country Sri Lanka	Note: Defa Sub-Form List or Create New Sub-Form	Sub Form Fields No Sub Form	2
Lunugamveh	Save Close	Selected. Sub Forms Add New Field Edit/Delete	
<sup>▶ Dra</sup> Step	2 Create New sub Form Close		
	Create New Form Close		
	nue Topgraphie		

Image 31

Data Forms Data.entry View						×
Forms	-	Add New Form Field		×		
Country - Sri Lanka	Sub-Forms	Field Name		A	×	
Country	Not Sub-Form L				Sub Form Fields	,
Sri Step 4	<b>_</b>	Field Category Please select▼			Weather Station Details Fields	
Lunugamvehera	Weather Station Details	Property Type Please select Unit			No sub-form fields found	
<ul> <li>Assets Hierarchy</li> </ul>		Please select			Add New Field Edit/Delete	_
▶ Drawing Toolkit	Create New sub Fo	Data Type Please select Mandatory is mandatory			Step 5	
	Create New Form	Selected		•		
	ini ata Topog	anhio	Step 6			

Step 4: Click the newly created Sub-Form.

Step 5: Click Add New Form Field.

Step 6: In the Add New Form Field box, enter a Field Name and select values from the drop-down boxes.

When adding fields to a main form or a subform, there are no available unit categories for some fields. As an Editor, you can add unit categories and their related units by following subsection 1.3.

Using subforms, an Editor can hide data. This means Explorers and Reviewers would need to ask SAMS Admin for permission to see the data in the subforms.

#### 2) Entering and Managing Data in Forms

Editors can fill in data forms related to an asset in an established irrigation system.

#### a) Entering Data



#### Image 33

Step 1: Select an asset from the Asset Hierarchy or by clicking an asset on the map.

Step 2: On the Management Data Collection menu, click Data Entry Forms.

Step 3: From the Form Lists, select a data form (e.g., Production data).

As an Editor, you can select the data form relevant to your objective or the data which you have.

ta Forms Data-entr	Production data		Insert Fo	a Data	×
Forms	Input Data Fi	elds	Enterin	g Data	
Sund y - Sin Edini	Canal Name	RB Main Canal	Insert Table Field		X
Assets Hierarci	FO involved	Lunugamvehera West	Сгор Туре	Paddy	Historical
Lunugamvı أسلي Lunuga	Officer in Charge	Premarathna R.	Sown date	12/05/2019	Data (Default)
a-Kirir  E	Season	Yala	Harvesting date	23/08/2019	
A-LB N	Production Data	Croata Tabla	Expected harvest	123000	
A-RBI		Cicale Table	Collected harvest	118000	main form
	_		Cultivation cost	234000	(Detautt)
Drawing Toolki	Save Close	Filling Table Filed	Cultivated Area	5340	
			Income	325000 +	×
		The second second	and the second se		Close
		and the second	Save Close		Cluse

#### Image 34

#### b) Managing Data

After entering data for each asset, you can view and edit data. To begin, select an asset from the Asset Hierarchy or by clicking an asset on the map.

Step 1: On the Management Data Collection tab, click View. Step 2: Select a Task Type according to year or season.

Country Setting Input Data Mi Sorms Data-entry or Task Status Forms	nagement Data Collection Management Review Task Type	_	×	
Schen Stop 1	Form Lists	Select A Form 🗸	d Area	
Assets	No forms available.	Select A Form Maintenance Production data	Ste	p 2
Lunugamvehera     Lunugamvehera resevoir	Hein Close	Water Supply Data Historical Data Farmer Organization (FO) data	Name	RB Comman
6—Kirindi Oya 6—LB Main Canal 6—RB Main Canal		Repair Reservoir/Tank Water Management Command Area Production	d	2153
	Zoom to	Met Data	Parent Asset	794
rawing Toolkit		A. A.	Asset Type	Comman 🗸
		No. 1	Symbol Colo	r 📃
		State of the second sec	Edit Geometr	ry 🥒
			Update	Delete Help
	reinte Topographic		Basic Information	

Image 35

Step 3: Click View table and Edit in the Production Data box (green outline). You can edit data in the table columns or Delete the entire row. Step 4: Update





#### 1.8. ANALYZING DATA

After data entering and editing are finished, the Editor can analyze data concerning irrigation management purposes.

The Editor can use Summary Tables and Reports tools under Management the Review tab.

a) Summary Tables

Example 1: Paddy production from 2016 to 2020 related to an irrigation scheme.

Select the asset you want to analyze, e.g., irrigation track (right bank track or left bank track).

Step 1: Click Summary Tables on the Management Review tab.

Step 2: Select the relevant form from the Form Lists in the Summary box.

Step 3: Select a season from the Form Summary, e.g., Yala Season (Sri Lanka).

Step 4: Search for a crop type in the search bar in the opening summary table, e.g., Paddy.

Country Setting Input Data Management Data Collecti					_						
mmary Table Reports	Summary	Step 2		Show 10	🕶 er			Search:		^	
s meinformation Step 1	Form Lists	Production		Crop ▲ Type	Sown ≑ date	Harvesting 🔶 date	Expected harvest (t)	Collected harvest 🔶 (t)	Cultivation cost ≑ (USD)	Cultiv Area (ha)	
<ul> <li>▲-Rajangana</li> <li>▲-Rajangana Reservoir</li> </ul>	(Default)	data (Default)	Sup ([	Paddy	2016-05- 03	2016-08-23		13228	2812288	3020	
Kala Oya ▲ Right Gate ▲RB Main Canal				Paddy	2017-05- 03	2017-08-23		12775	2725130	3020	
Eorm Summary				Paddy	2018-05- 03	2018-08-23		11950	2707711	3020	
Show 10 v entries		Search:		Paddy	2019-05- 03	2019-08-23		15918	2312837	3020	
Canal Name 🔺 FO involved 🔶 O	Officer in Charge 🔶 🤮	Season 🔶 Product	on Data	Paddy	2015-05- 07	2015-08-27		14883	2849341	3020	
RB Main Canal RB main canal FO Siri	iwardhana R.T. Ya	la View ta	ble	Paddy	2014-05-	2014-08-27		14152	3132539	3020 🗸	
RB Main Canal RB main canal FO Sin	iwardhana R.T. M	aha View ta	ble					Update	Delete	p	
Showing 1 to 2 of 2 entries		Previous	1 N	ext 👻		and the second	POWERED BY			r	

b) Reports

In this section, an Editor can generate tables and graphs related to all records in each form and a full report with data analysis for each form. In this version of SAMS, you can generate default graphs only for the following default forms:

- a) Maintenance form
- b) Production Data form
- c) Water Supply Data form
- d) Historic Data form
- e) Farmer Organization (FO) Data
- f) Repair

Example 2: Creating a table related to maintenance including all records from 2020 to 2021.

Go to Management Review tab.





Image 38

Image 39

Step 1: Select the Asset Categories you want to analyse. In this example, the Editor has clicked Select All. Click Next.

Report generate		Report generate		
Asset Category Ass	set Type Assets Form Reports	Asset Category A	Asset Type Assets Form	Reports
Check assets which are go	ing to look	Select time range	01/01/2020	
Assets list		End date :	01/01/2021	
Select All		What do you want to do	0?	
Command Area		• To see submitted data as record	Asset name 15 Command Arsa	
RB		To see as summary		
✓ LB		C. to see as statistically		Chain A
Gate		How do you want to see	e data?	Step 4
Right Gate		• Table		
Main Canal		OGraph		
RB Main Canal				
		Select a form		Select form fields of Maintenance
Next	Step 3	Forms list	-	Select All
MEAL		Maintenance	S	Z Date inspected

Step 2: Select Asset Types. In this example, the Editor has chosen Select All. Click Next.

Image 40

Image 41

Step 3: Select Assets. In this example, the Editor has chosen Select All. Click Next.

Step 4: Select a period using dd/mm/yyyy format. Under What do you want to do? select an action, for example, to see submitted data as records. Then select, How do you want to see the data? Select a form, for example, Maintenance. Click Next.

ent Data Colle	ction i Mana	iaement Reviev	N This datatable		ance Dat	tatable	-03-2021			
Export to xls	sx		The dualast	o onothing add			00 2021.			
Show 10	✓ entries						Se	earch:		
Asset ▲ name	Date 🔶 inspected	Status 븆	Type of maintenace 🖨 needed	Urgency 븆	Estimated Cost	Required time	Need to maintenance 🖨 before	Priority 🖨	Attended to maintenance 🖨 on	Next
Left Sluice	2021-01-06	Not Completed	Block with upstream mud and need to clean	Urgent	800	21	2021-01-12	High	2021-01-10	2021
Right Sluice	2020-09-03	Completed	The left side of the sluice has been cracked and need a repair	Urgent	1600	30	2020-10-13	High	2020-09-08	2020
Right Sluice	2021-01-26	Not completed	Canal bank brok and eroored, need to repair	Not Urgent	1200	30	2021-02-28	Medium	2021-02-08	2021
Showing 1 t	to 3 of 3 entrie	s						Previou	ıs 1 Ne	ext
										Þ

Image 42

You can export content as a CSV file and change the period or asset type using the search bar.

Example 3: Create a full report for production data from 2012 to 2016.

Report generate				
Asset Category	Asset Type	Assets Form Reports		
Select time range				
Start date :	08/03/2	010		
End date :	08/03/2	021		
What do you want t	o do?			
OTo see submitted data as re	ecords			Sten /
O To see as summary				эсер т
Select a form Forms list				
Maintenance	e l	Production data	Water Supply Data	
Historical Dat	a	Farmer Organization (FO) data	Repair	Activata M
				Go toNexttings



F. Follow Steps 1 to 3 in Image 40 and 41.

Step 4 (Image 43): Enter a Start date and End date. (e.g., 08/03/2010 and 08/03/2021). Choose what you want to do (e.g., To see as summary). Select a form and click Next.

The report will have the following sections for the period you indicated:

- 1) Production data available assets.
- 2) Total cost, total income and total collected harvest for each asset.
- 3) Total income for each asset and each season.
- 4) Total cultivation cost for each asset and each season.
- 5) Total cultivation area for each asset and each season in each year.
- 6) Total cost, total income and total collected harvest for each crop type in each asset in each year.

#### **Performance Indicators**

In addition to a detailed analysis of an irrigation scheme, an Editor can evaluate the irrigation scheme's performance for different years using the Performance Indicators function on the right pane of the Map viewer. This version of SAMS can calculate outputs for four agricultural performance indicators:

- Eq. 1 Income for unit cultivated area.
- Eq. 2. Income for the unit available area.
- Eq. 3. Income for unit water supply.

#### Eq. 4. The ratio between cultivated area versus available area (maximum is 1).

#### Performance indicator equations

(5a1)	Income (\$)
(EqI)	cultivated area (ha)

Related to a reservoir where Income (\$) is the total income of the scheme in US\$ in terms of the gross or net value of production measured at local or world prices for a specific year.

Cultivated area (ha) is the total cropping area or sum of cultivated areas of all irrigation tracks of a scheme in terms of hectares for a specific year.

Related to an irrigation track of a scheme where Income (\$) is total Income of an irrigation track of a scheme as an output in US\$ in terms of the gross or net value of production measured at local or world prices for a specific year.



Related to a reservoir where Income (\$) is the total income of the scheme in US\$ in terms of the gross or net value of production measured at local or world prices for a specific year.

Available area (ha) is the total allocated area for cropping of all irrigation tracks of the scheme in terms of hectares (ha) for a specific year.

Related to an irrigation track of a scheme where Income (\$) is the total Income of an irrigation track of a scheme in US\$ in terms of the gross or net value of production measured at local or world prices for a specific year.

Available area (ha) is the total allocated area for cropping in an irrigation track of a scheme for a specific year.



Related to a reservoir where Income (\$) is the total income of a scheme in US\$ in terms of the gross or net value of production measured at local or world prices for a specific year.

Water supply  $(m^3 * 10^6)$  is the total water supply for an irrigation scheme from a reservoir or the sum of water releases from all gates of a reservoir for a specific year.

(Eq.4)	_Cultivated Area (Ha)
ι (Eq4)	Available area (Ha)

e (\$) is the total income of an irrigation track in usured at local or world prices for a specific year.

Related to a reservoir where cultivated area (ha) is the total cropping area of a scheme and Available area (ha) is the total available cropping area for a scheme.

Related to an irrigation scheme where Cultivated area (ha) is the total cropping area of an irrigation track and Available area (ha) is the total available cropping area for an irrigation track.

Example 1: Evaluate the performance of the left-bank track of Lunugamvehera scheme in Sri Lanka.

An Editor can access the Performance Indicators function from the right pane of the Map viewer.

Activate the Asset you want by clicking on the map, e.g., LB (left bank track) of Lunugamvehera at the startup.



Performance Indicators consists of two sub-functions: tables and graphs.

rformance Indic	cators				
Graphs Tab	sele		e		
Show 10 👻 en	tries			Search:	ב
Year 🔺 Inco	ome vs Cultivated Area(\$/ha)" 🔶	Income vs Water Supply(\$/m³*10°) 🔶	Income vs Available Area(\$/ha) 🔶	Cultivated Area vs Available Area	¢
2012	1282	36315	641	0.00	
2013	1419	35500	709	0.00	
2014	1334	41971	667	0.00	
2015	1470	36555	646	0.00	
Showing 1 to 4 of	of 4 entries			Previous 1 Next	_

#### Image 45

If you want to search performance for a specific year, you can use the search bar.

Performance Indicators					×
Graphs Table					
Performance Ind	icators Graphs				=
50000 (\$/m3*10*)					View in full screen
Incom	e vs Water Supply			Reset zoom	Print chart
40000 (\$/mmillicom	e vs Available Area e vs Cultivated Area ated Area vs Availabl	2015 Income vs Wate Income vs Avai Income vs Cult	er Supply: <b>36 555</b> ilable Area: <b>646 (\$</b> ivated Area: <b>1 470</b>	(\$/m <sup>3×10<sup>6</sup>)</sup> /ha)	Download PNG image Download JPEG image
S0000 (\$/m <sup>2</sup> *10*)		Cultivated Area	a vs Available Area:	0	Download PDF document Download SVG vector image
20000 (\$/m³*10*)			In	come vs Available Area	Download CSV
10000 (\$/m³*10*)	_			_	View data table
0 (\$/m²*10*)	2012	2013	<b>Itivated Area vs A</b> 2014	2015	0(\$/ha) 0

You can save the graph as a JPEG, PNG or PDF file.

c) Traffic Light System

SAMS has an alert system for maintenance of an irrigation system based on the Maintenance data form (default).

In the current version of SAMS, the Traffic Light System only works for point assets of an irrigation scheme.

**Traffic Light System indicators** 

¢	The task is not complete. 10 days remaining.
٥	The task is not complete. 2 days remaining.
$\diamond$	The task is not complete. The inspection date has expired.

#### d) System Maintenance and Repair Forms

Right Gate 1516

2021-02-08

Not Complete

The Maintenance and Repair forms consist of three operations:

- Edit
- Delete .
- Complete •

On the Management Data Collection Tab, select the View menu.

Click Complete when a maintenance or repair action is completed.

After clicking Complete, you cannot Edit or Delete.

The bell icon shows details of maintenance tasks related to each a

# $S_{\text{ection}} 2$

# 2. Role: Explorer

# 2.1. REGISTRATION AND LOGIN

You must create a SAMS login account. One email address can register one time only.

Once you have registered, begin by clicking Start Work and enter the basic information in the form provided. You do not need to choose a role because you will be automatically registered as a SAMS Explorer.



To explore irrigation schemes, go to the Home page and click Explore SAMS.

CGAR Systems		Welcome to SAMS4i		😧 nuradha Silva! 🔘 🏠
		Wetcome to onnogi		
Constant and	What is SAMS4i?			
	Systematic Asset Management Software (SAMS agencies and, researchers or students to facilitat scheme level to the regional level	) is a geographic information system (GIS) platform e the learning, planning, operation, and manageme	for government departments, donor/ investment ent of the assets of an irrigation system at the	
As States	There are 3 user level exisiting in SAMS4i			
System Manag	Explore     Default user type.     Facilitate learning SAMS with admin permitted     Input Data     Facilitate to build one or more irrigation schem	existing irrigation schemes uploaded into SAMS.	ies constructed by the editor.	
This System is c	<ul> <li>Review Schemes Facilitate to scrutinize, update and manage ad</li> </ul>	Imin permitted irrigation schemes under the review	er administration and generate reports.	di secondo
Irrigation system	What do you want to do?			
Developed by the financial sup	Card image cap	Card image cap	Card image cap	
Consortium Res	Explore SAMS	Input Data	Review	
Explore	More	More	More Activate	Windows
	or Explorers		Go to Sett	nge to activate Windows.

You will be redirected to the map window.

WWW States and the Systematic Asset Management Software (Seta version)	Welcome Karunakalage Anuradha Silva! 🔘 🏠
Welcome to SAMS4i	*
What can you do with Explore SAMS?         SAMS consists of irrigation systems in Asia and Africa. Explorer can experience SAMS by searching and learning with exist systems on SAMS         Gn back       Explore SAMS	ting default irrigation
Systematic Asset	
Management Software	
This System is designed to manage infrastructure assets on an Irrigation system.	
Developed by the International Water Management Institute with the financial support from the Water Land Ecosystem(WLE) Consortium Research Program of CGIAR.	Activate Windows
samsv2.iwmi.org/index.php#	Go to Settings to activate Windows.

Image 3

# 2.2. SEARCHING FOR AND EXPLORING AN IRRIGATION SCHEME

On the map, select the irrigation scheme you want to explore. Irrigation schemes have been created by multiple Editors, but you can only view schemes for which you have permission from SAMS Admin.

There are two ways to search irrigation schemes.

- 1. Select from Asset Hierarchy
- 2. Select from Scheme Information
- 1. Selecting from Asset Hierarchy

Select a country, and all the irrigation schemes for that country will be listed under Assets Hierarchy.

Country Setting Input Data Management Data Collect Country Setting Input Data Management Data Management Data Collect Country Setting Input Data Management Data Collect Country Setting Input Data Management Data Man	Admin Area		
Country	Selecting Country		
Systematic	c Asset Management Software <sup>(beta version)</sup>	Welcome Karunakalage Anuradha Silvat	) <b>*</b>
Country Setting input Data Management Data Col Measurement Units Nomenclature	eccon Management keview		
Explore SAMS   Scheme Information  Associal Hierarchy  -Lunugamvehera Reservoir Downstream -Padaviya -Unnichchai Tank -Udvalava -Winipe-Yodha Ela -Yodha Wewa -Rajangana -Minnerya Wewa -Rajangana -Minnerya Wewa -Rajangana -Sanaryake Smudtraya -Sanarayake Smudtraya -Sanarayake Smudtraya -Designerse Consultance	Select a scheme	Iranamuu Tank Gianu Yosho Jagkya Tank Kantalo Taak Rajangar Raseroor Parakrama San dar Reservor Manaken Anu Tank Semunyaka Samudraya	

#### Image 5

From Assets Hierarchy, select a scheme.

As an Explorer, you can do a basic survey on the selected irrigation scheme with the current interface before moving to advanced options under other tabs.

• Assets Hierarchy belongs to the selected irrigation scheme and is shown under Assets Hierarchy in the Admin Section.

Assets Hierarchy is a collapsible Issue Tree view, where all the assets in an irrigation scheme are listed based on their Parent-Child relationship and geographic location. It shows how assets are linked from the head to the tail of the scheme

- When you click on an asset, a pop-up box will open showing Scheme Name, Scheme Management Agency and Recent Performance Indicator of the asset.
- At the same time, the right pane has opened and shows the Asset Information, Photo, Basic Information and Technical Information related to the asset.

In some cases, the Production Data for a selected irrigation scheme will not be available. This depends on what data the Editor entered for the scheme.



Image 6

# 2.3. UNDERSTANDING SAMS DATA STORAGE STRUCTURE

#### Asset

- SAMS data is related to an asset.
- An asset always belongs to a Caste, which is called an Asset Category and contains Asset Types and individucal Assets.



- Only an Editor can define Asset Categories and Asset Types.
- An Explorer can see a set of Incorporated Asset Categories (default + user-defined) and Incorporated Asset Types (default + user-defined) for each irrigation scheme.

## 2.4. SURVEYING AN IRRIGATION SCHEME

An Explorer can survey a scheme's condition by viewing the Performance Indicators.

a) Performance Indicators

Performance indicators are defined by the following equations.



Income (\$) is the total income of the scheme as an output of (US\$) in terms of the gross or net value of production measured at local or world prices for a specific year.

Cultivated area (ha) is the total cropping area or sum of cultivated areas of all irrigation tracks of the scheme in terms of hectares (ha) for a specific year.



Income (\$) is the total income of the scheme as an output (US\$) in terms of the gross or net value of production measured at local or world prices for a specific year.

Available area (ha) is the total allocated area for cropping of all irrigation tracks of the scheme in terms of hectares (ha) for a specific year.

(Eq3)	Income (\$)	
	Water supply $(m^3 * 10^6)$	

Income (\$) is the total income of the scheme as an output (US\$) in terms of the gross or net value of production measured at local or world prices for a specific year.

Water supply  $(m^3 * 10^6)$  is the total water supply for an irrigation scheme from a reservoir or the sum of water released from all gates of a reservoir for a specific year.

(Eq.4)	_Cultivated Area (Ha)
(Eq4)	Available area (Ha)

Cultivated area (ha) is the total cropping area of a scheme and Available area (ha) is the total available area for cropping of a scheme.

Example 2: Evaluate the performance of the Left-bank track of Rajanganaya scheme in Sri Lanka.

Access the Performance Indicators function from the right pane of the Map viewer.

To activate right pane related to an Asset, click the asset on the map. In this example, the Left bank track of Rajanganaya at the startup.



Performance Indicators consist of two subfunctions shown as tables and graphs.

erformance Indicators					
Graphs	Table		_		
Show 10	✓ entries		Search:		
Year 🔺	Income vs Cultivated Area(\$/ha)" 🔶	Income vs Water Supply(\$/m³*10°) 🔶	Income vs Available Area(\$/ha) 🔶	Cultivated Area vs Available Area 🗧	
2012	1282	36315	641	0.00	
2013	1419	35500	709	0.00	
2014	1334	41971	667	0.00	
2015	1470	36555	646	0.00	
Showing 1 t	to 4 of 4 entries		- 10	Previous 1 N	



Image 9

For more information, contact:

Ms. Sepali Goonaratne: <u>s.goonaratne@cgiar.org</u>

Mr. Prabhath Paranagama: p.thilina-prabhath@cgiar.org





The International Water Management Institute (IWMI) is an international, research-for-development organization that works with governments, civil society and the private sector to solve water problems in developing countries and scale up solutions. Through partnership, IWMI combines research on the sustainable use of water and land resources, knowledge services and products with capacity strengthening, dialogue and policy analysis to support implementation of water management solutions for agriculture, ecosystems, climate change and inclusive economic growth. Headquartered in Colombo, Sri Lanka, IWMI is a CGIAR Research Center and leads the CGIAR Research Program on Water, Land and Ecosystems (WLE).

#### International Water Management Institute (IWMI)

Headquarters 127 Sunil Mawatha, Pelawatte, Battaramulla, Sri Lanka

Mailing address: P. O. Box 2075, Colombo, Sri Lanka Tel: +94 11 2880000 Fax: +94 11 2786854 Email: iwmi@cgiar.org www.iwmi.org