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International Water Management Institute

CGIAR RESEARCH PROGRAM ON Water, Land and Ecosystems

RS based diagnostics for irrigation scheme performance

Lisa-Maria Rebelo
Karthi Matheswaran
Petra Schmitter

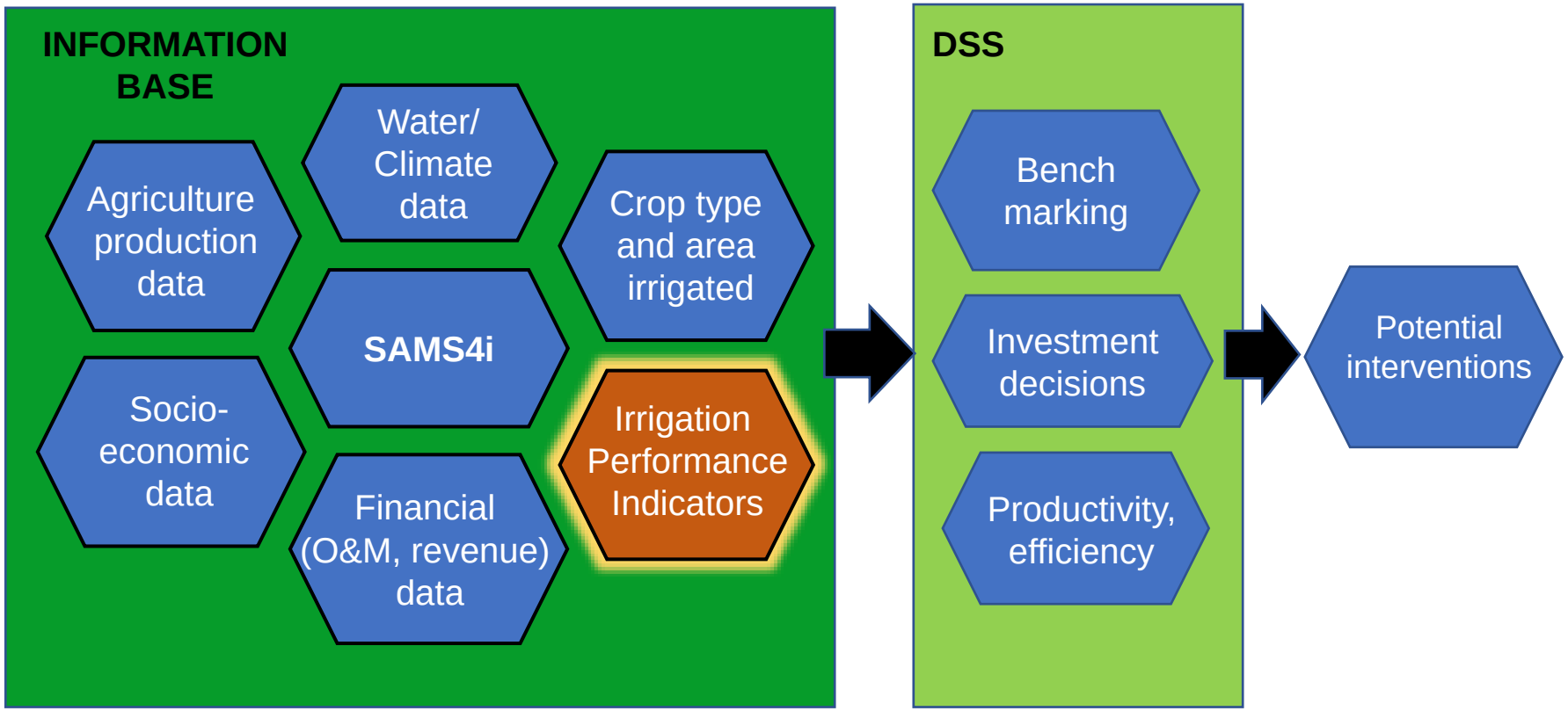
March 2021

Innovative water solutions for sustainable development

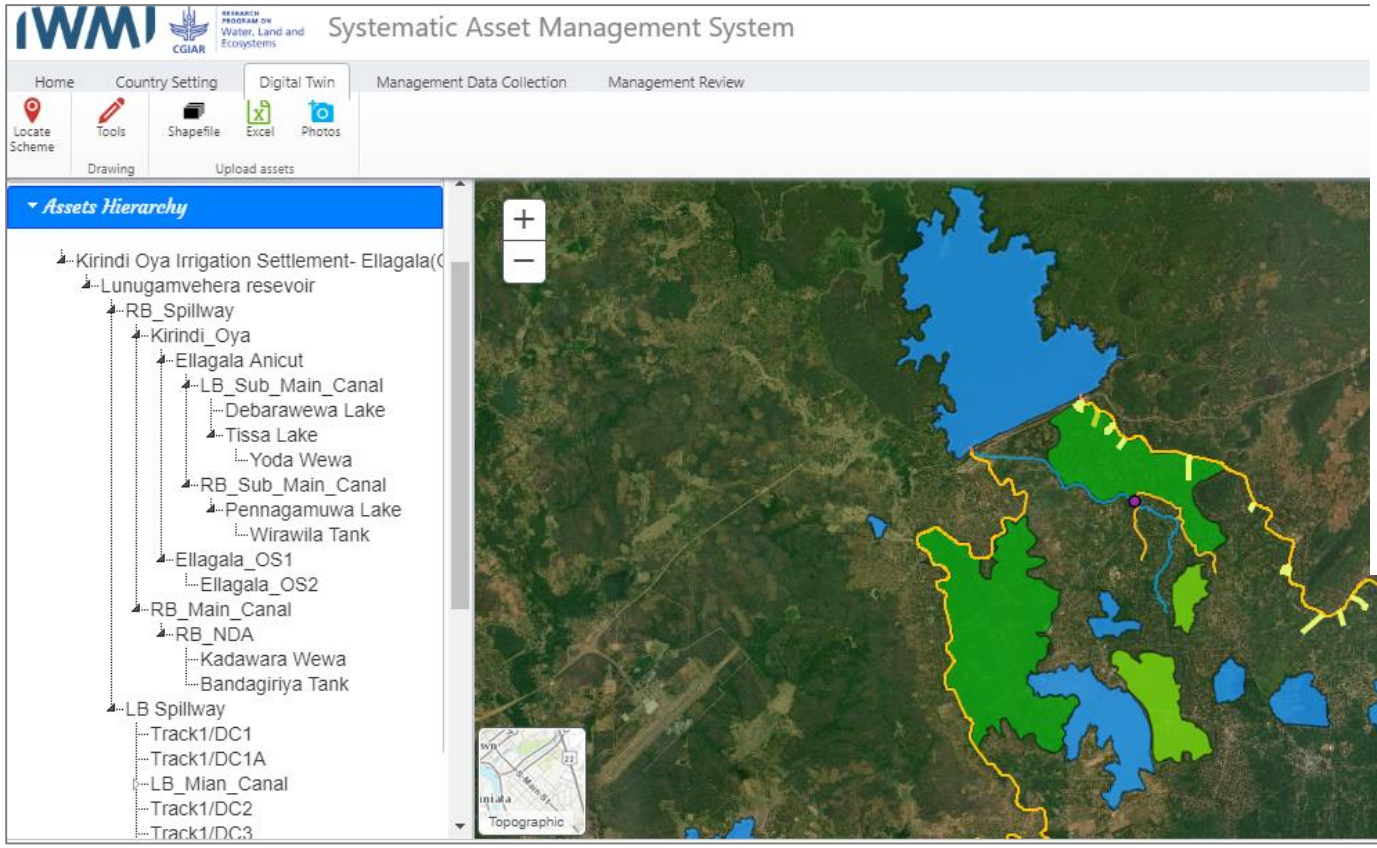
Food · Climate · Growth

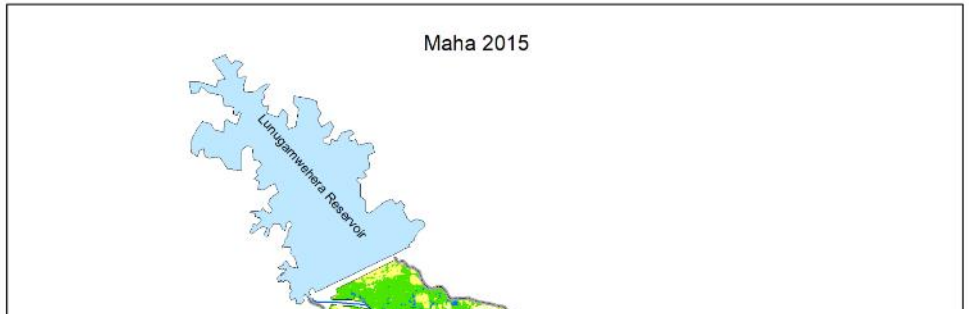
Systematic Asset Management Software 4 Irrigators (SAMS4i):

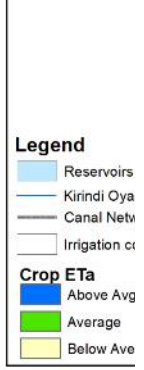
- SAMS4i is a GIS based program for planning, operating and managing asset networks based on spatial and non-spatial data
- The software has the capability to store and analyze multi-layered (assets) information and manipulating individual and aggregated outputs to improve management and maintenance

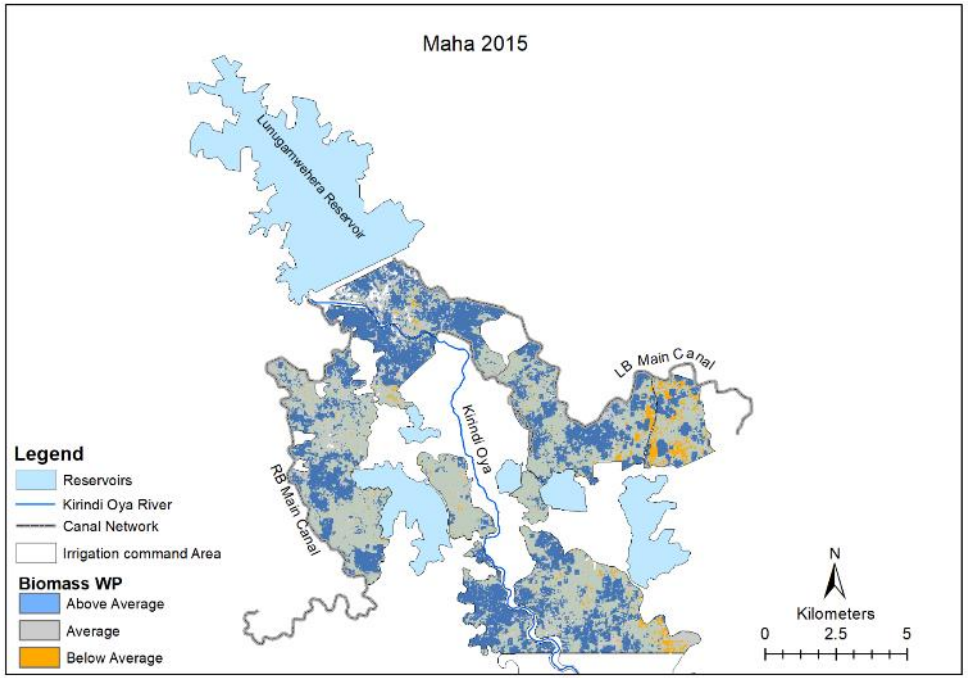


Assessing performance and prioritising investments in Sri Lanka's irrigation sector



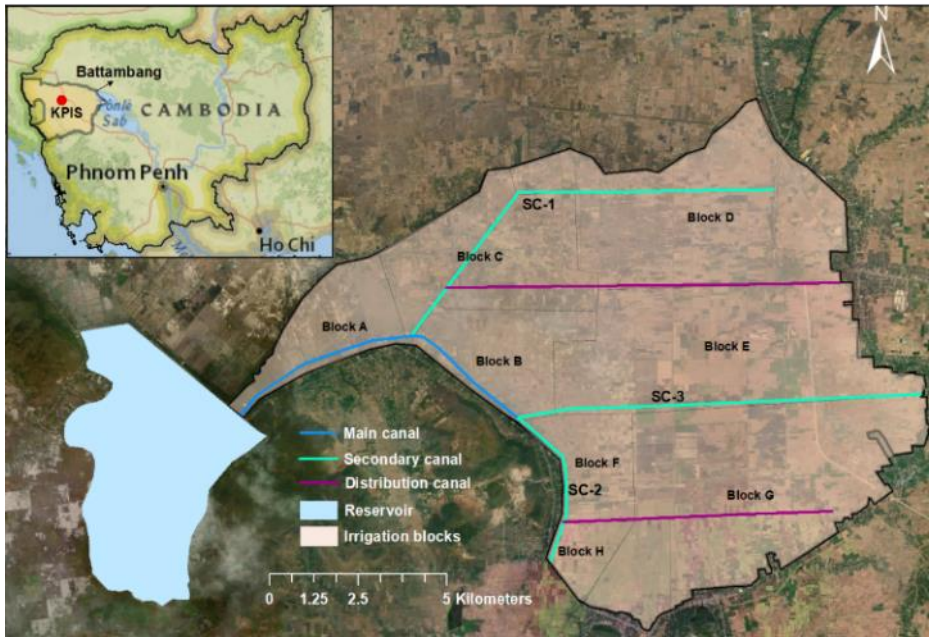




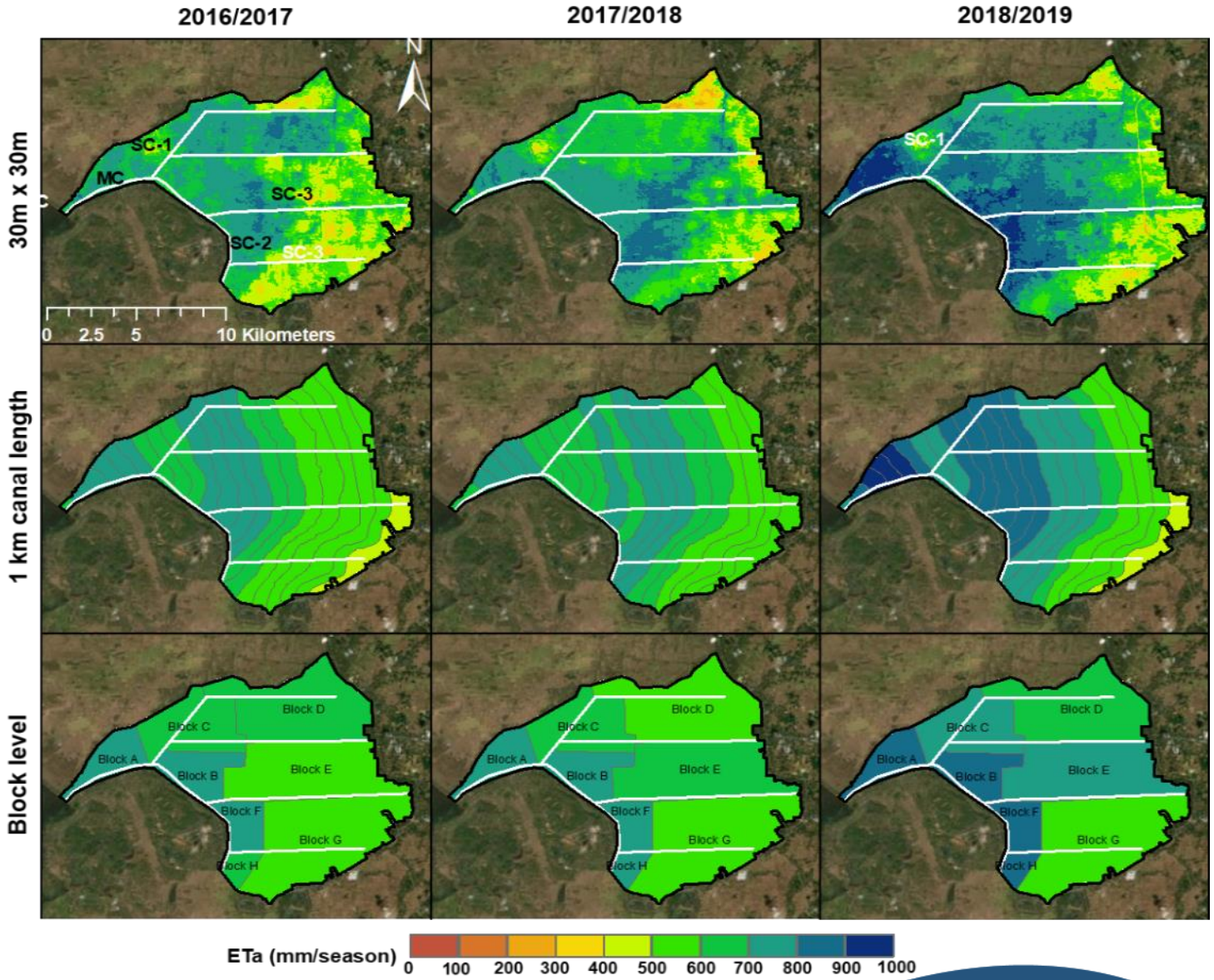


Lunugamwehera Irrigation scheme

Kamping Pouy, Cambodia



- Reservoir - 139 MCM
- Total command area - 19,000 ha
- Irrigation season - Dec to Apr
- Paddy rice



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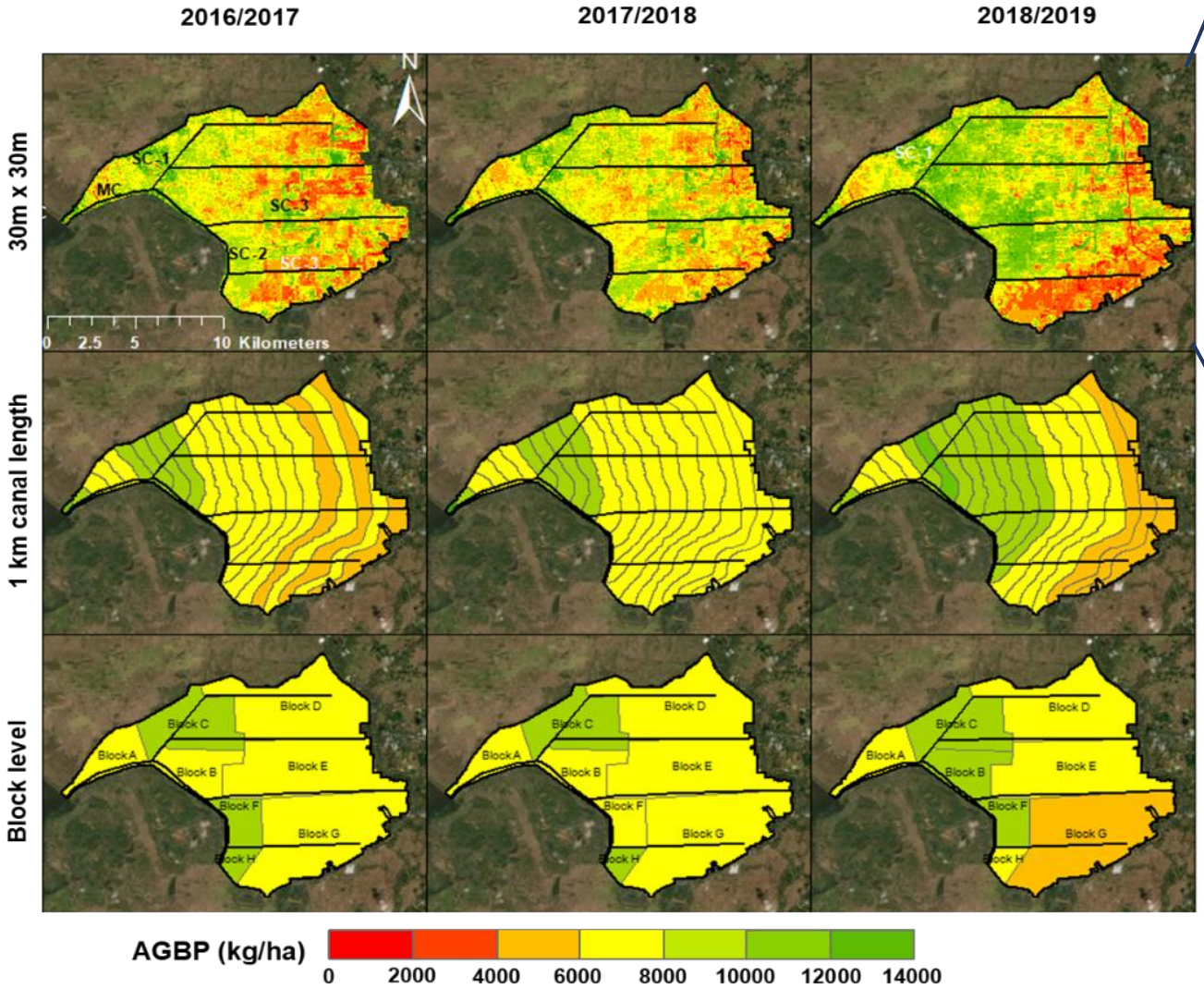
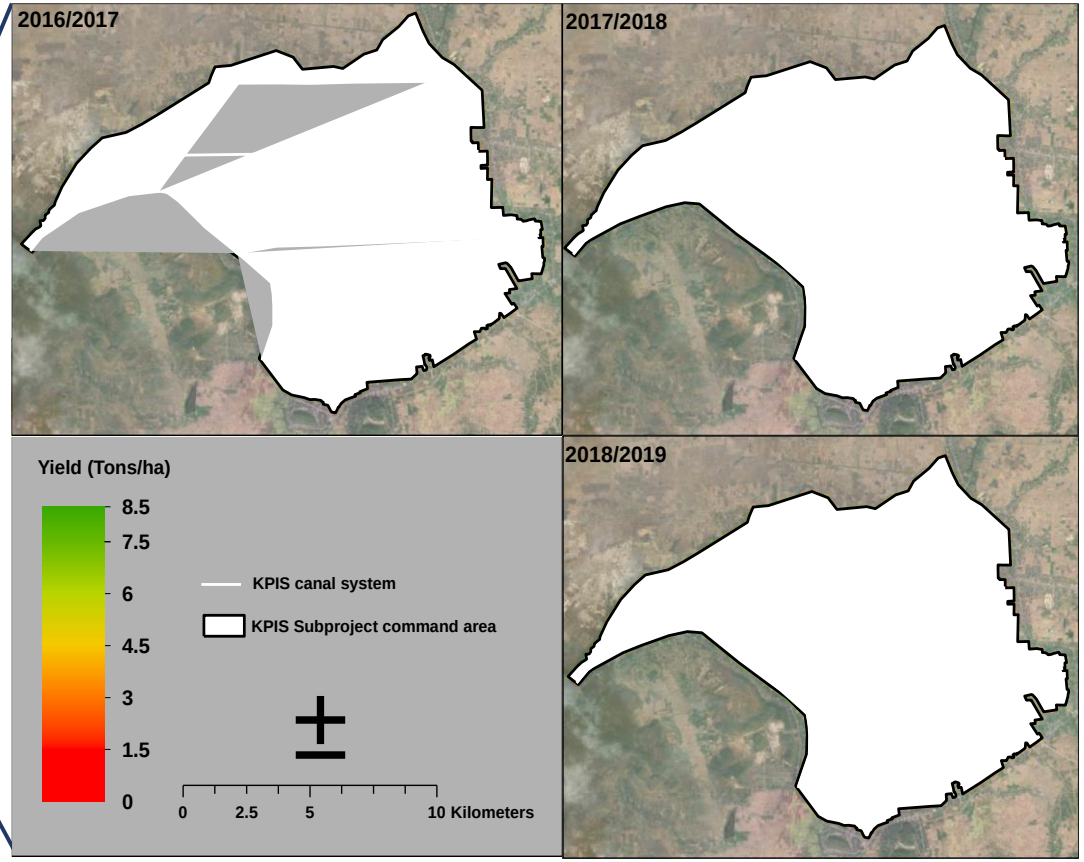
Kamping Pouy, Cambodia





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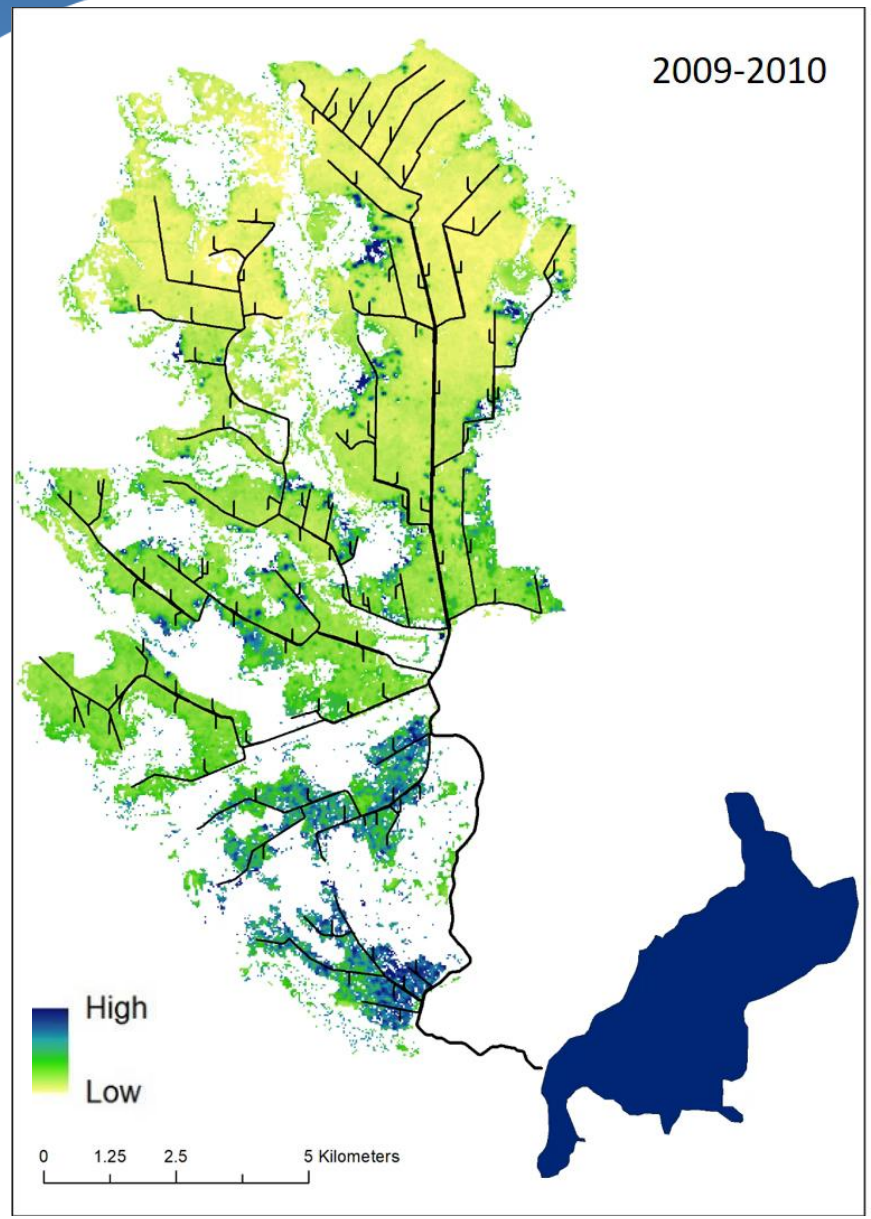
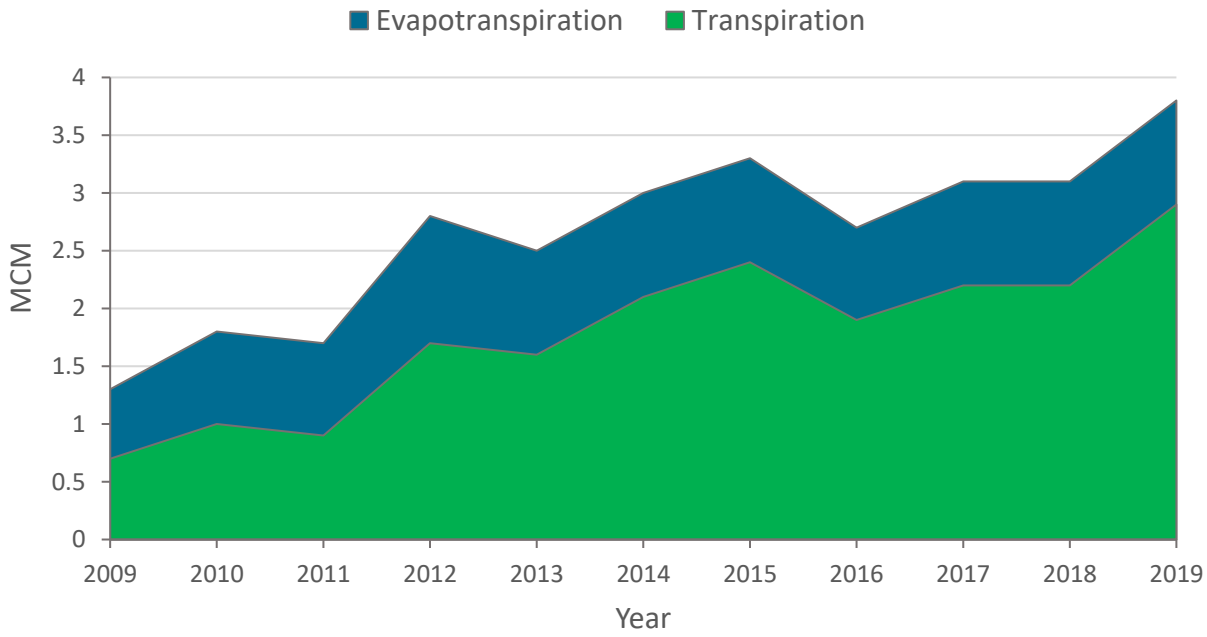
Water Consumed during the irrigation season



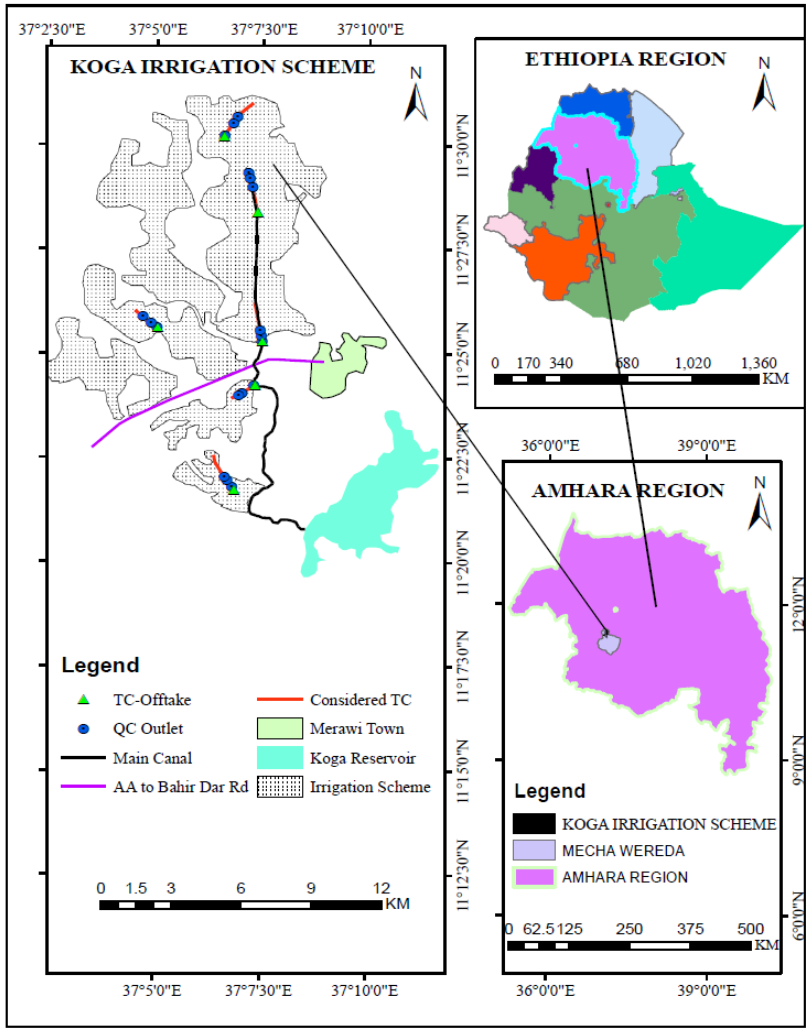


https://wapor.apps.fao.org/home/WAPOR_2/2

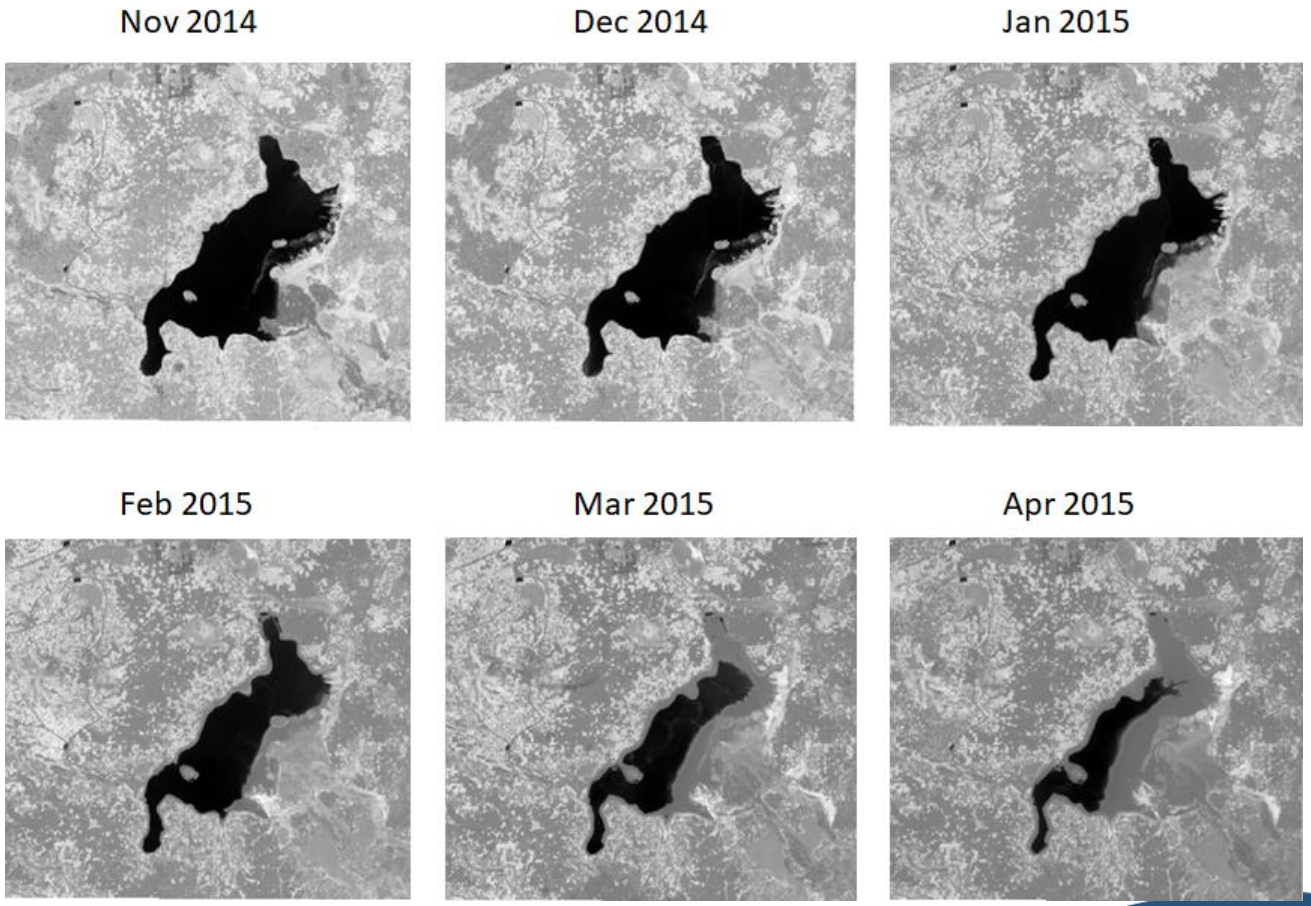
Food and Agriculture Organization of the United Nations

International Water Management Institute

Koga Irrigation Scheme, Ethiopia



Source: Menwagaw Tadele Damtie, 2020



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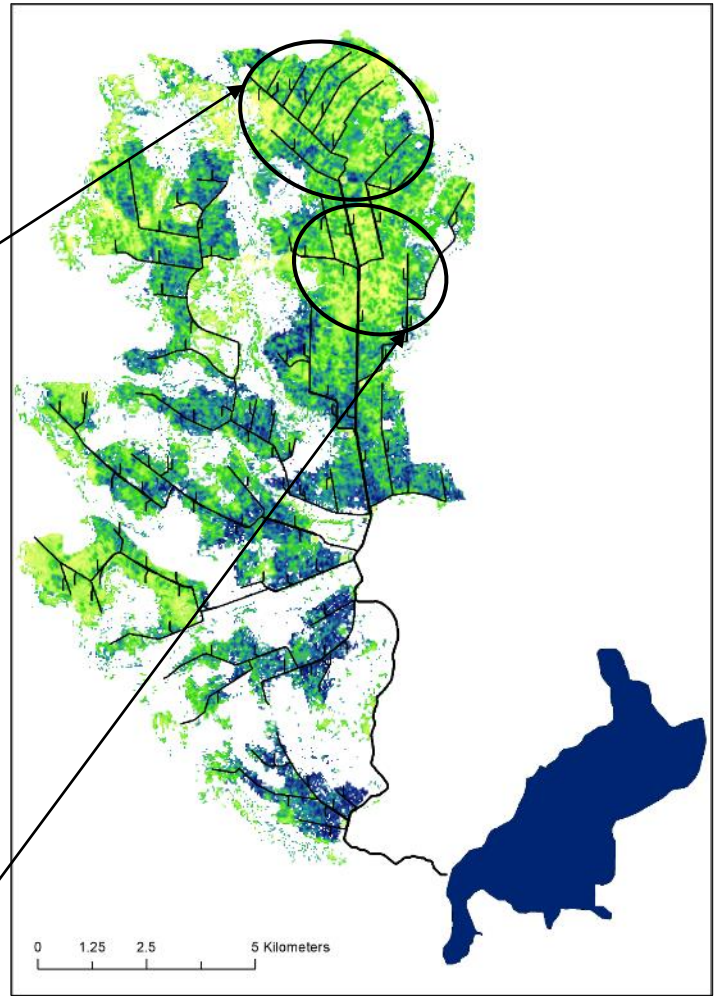
Understanding water delivery:

Performance indicator	Good	Fair	Poor	Head		Mid		Tail	
				Kudmi	Chihona	Adibera	Tagel	Andinet	Teleta
Adequacy	0.9<x<1.1	0.7<x<0.9	<0.7 of >1.1	1.02	0.91	1.17	1.14	0.97	0.84
Equity	<0.1	0.1<x<0.25	>0.25	0.14	0.14	0.18	0.04	0.19	0.36
Reliability	<0.1	0.1<x<0.2	>0.2	0.1	0.31	0.27	0.05	0.23	0.05



- Adequacy, equity and reliability differs among blocks which influences when water is available to irrigators
- The scheme functions on a rotational basis depending on crop (8-10 days)

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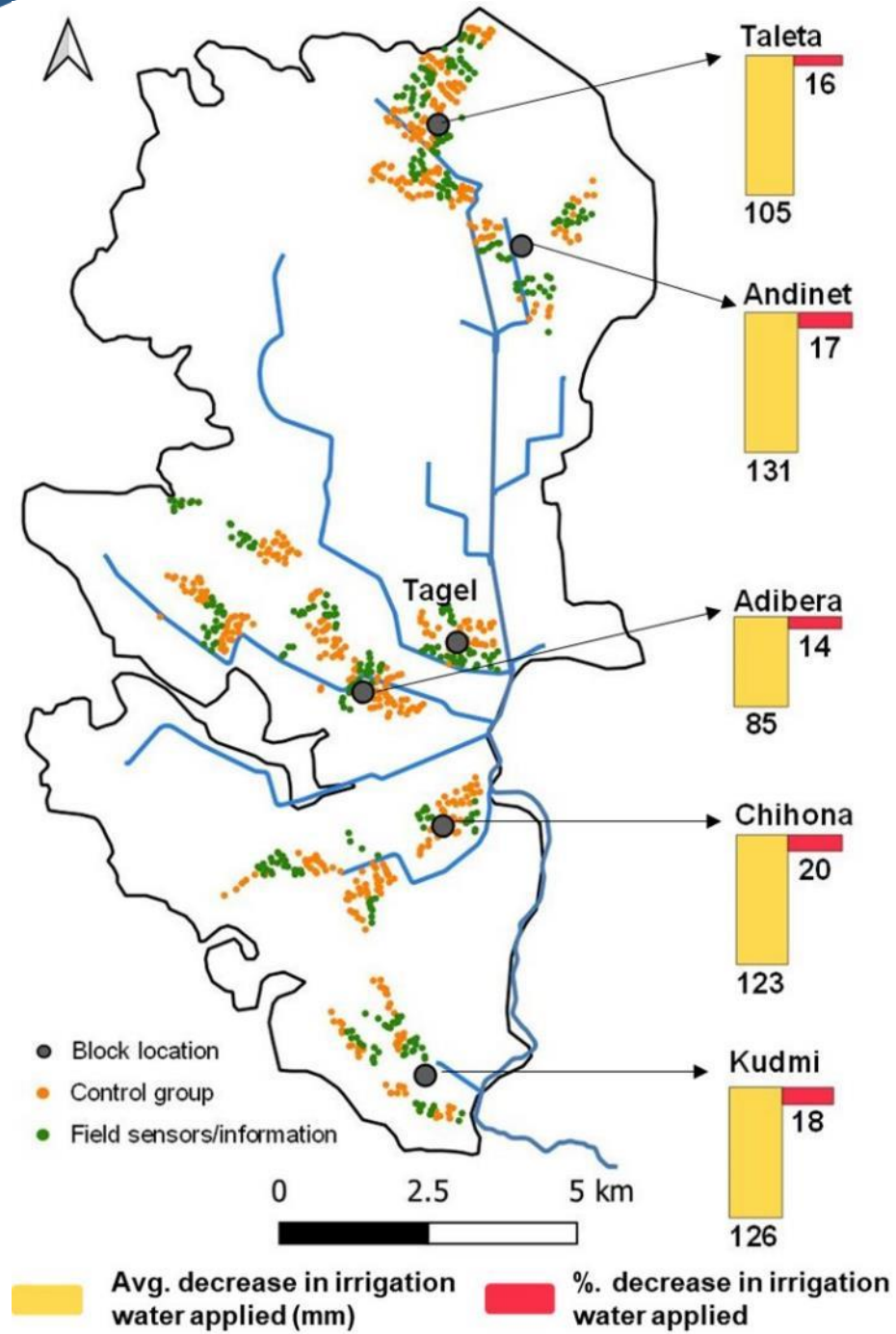
Reducing water applied and increasing yields:



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Key messages:

By integrating the outputs from the remote sensing analyses with ground level data, we are able to provide a powerful suite of decision support tools which collectively contribute to:

- Improved benchmarking
- Better asset management
- Targeting of investments and selection of priority assets/blocks/schemes
- Identification of areas of decreasing performance related to water availability, governance and/or productivity
- Address issues before they become critical

➢ In combination these tools can be used to improve the planning, design, and management of irrigation systems

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Thank you!

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Innovative water solutions for sustainable development

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