Overview of WLE initiatives on floods and drought in South Asia

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Framing WLE's Water Risks and Building Resilience Strategy

Governance, policy and institutional arrangement

Risk Identification	Risk Reduction	Risk Transfer
Historical hazard data, analysis and changing hazard trends	Preparedness: early warning systems, emergency planning and response capacities	CAT insurance
Exposed assets and vulnerability	Mitigation and prevention: Medium to long term sectoral planning (e.g., building resilient infrastructure)	Weather risk management
Risk quantification		Bundled solutions
		Other emerging products

Capacity building and gender, youth and inclusiveness

Knowledge products and advisory services

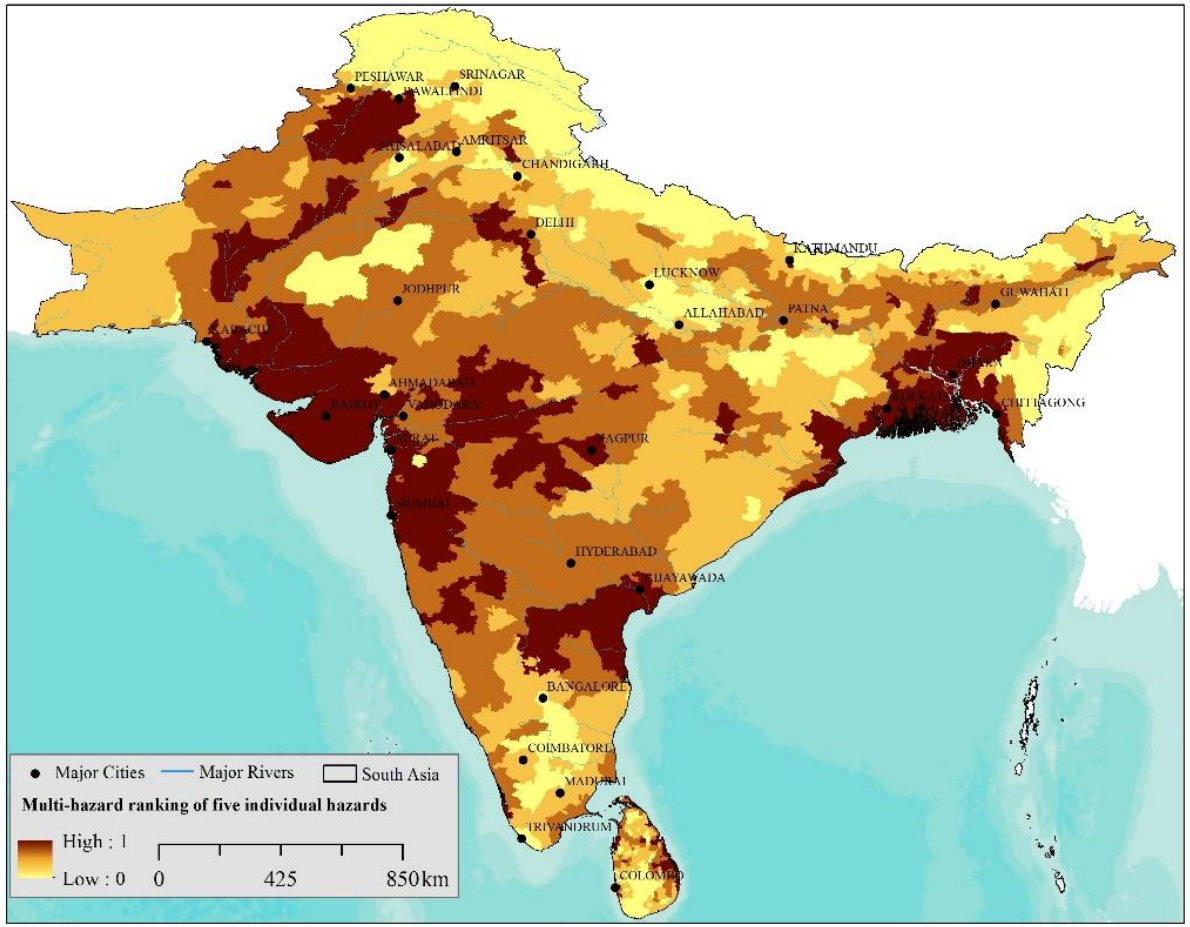
Partnership for transformation

CGIAR RESEARCH PROGRAM ON Water, Land and Ecosystems

IWMI

Identifying vulnerability hot spots for climate change

Some areas will be more affected than others.
IWMI design locally relevant adaptation measures



Drought
70% land

Floods
12% land

Cyclones
8% Land

Extreme heat
Widespread

Salinity
Coastal ingression

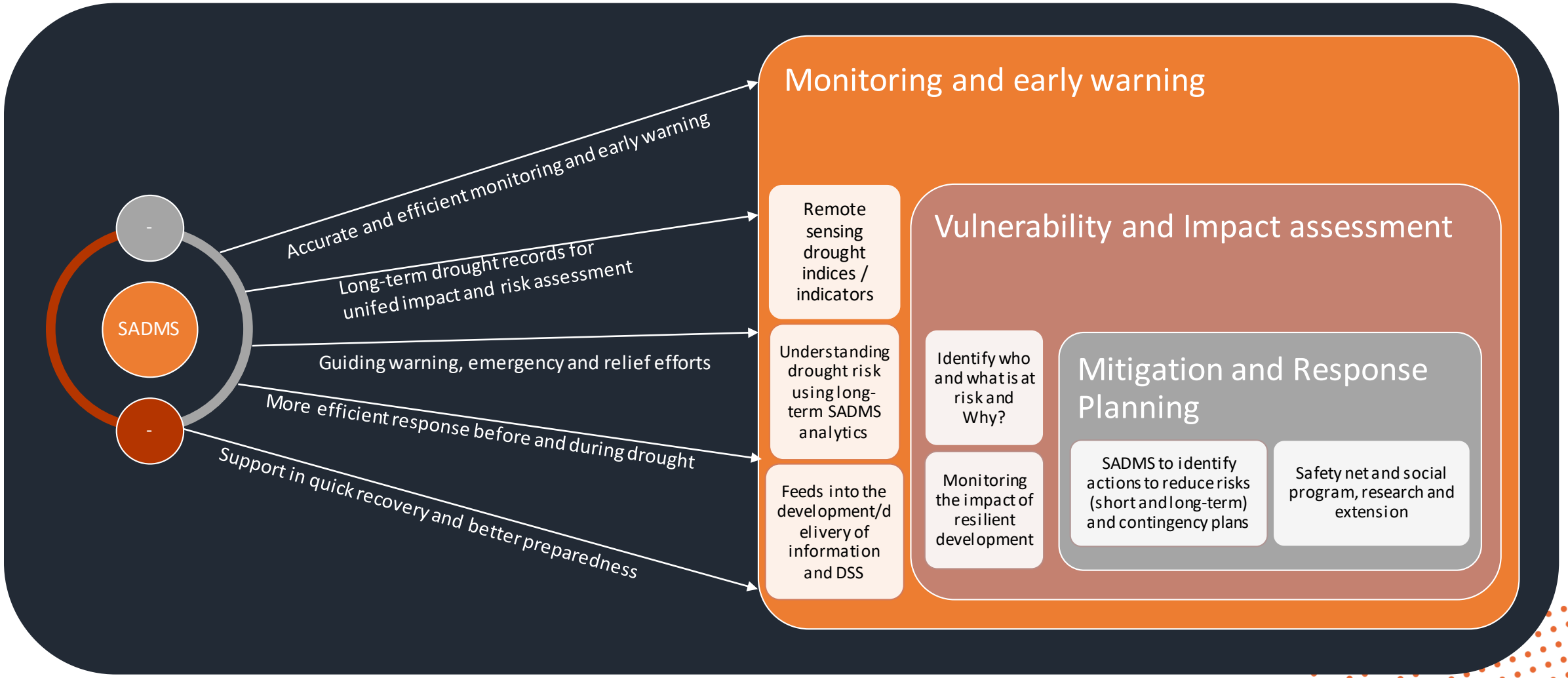
Climate change
Very vulnerable

Food security and poverty
key issues

Main Users: World Bank, ADB, CG Centres and academics

South Asia Drought Monitoring System (SADMS)

strengthens three drought pillars

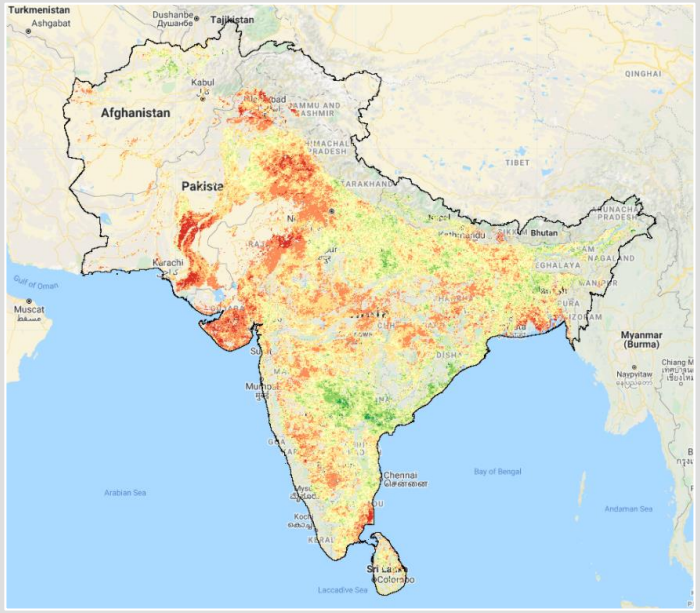


Drought Surveillance System for South Asia

GEOSPATIAL WORLD AWARDS

GEOSPATIAL media + communications

Information and Action

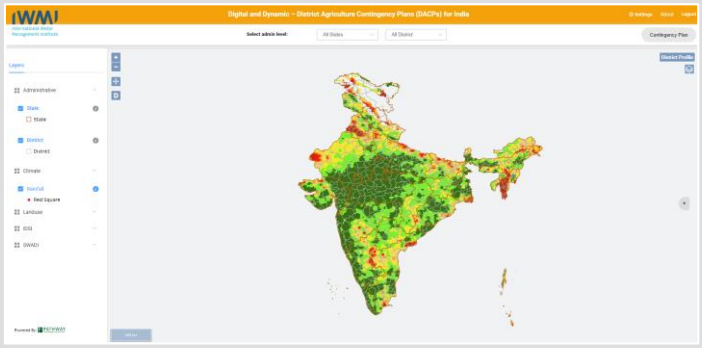


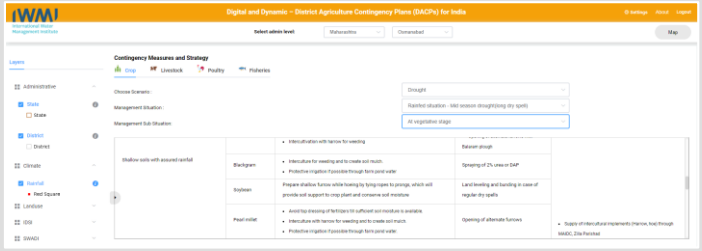
Agriculture Stress monitoring using satellite indices

Knowledge

Consultation and awareness on the digital tools and actionable information

Decisions

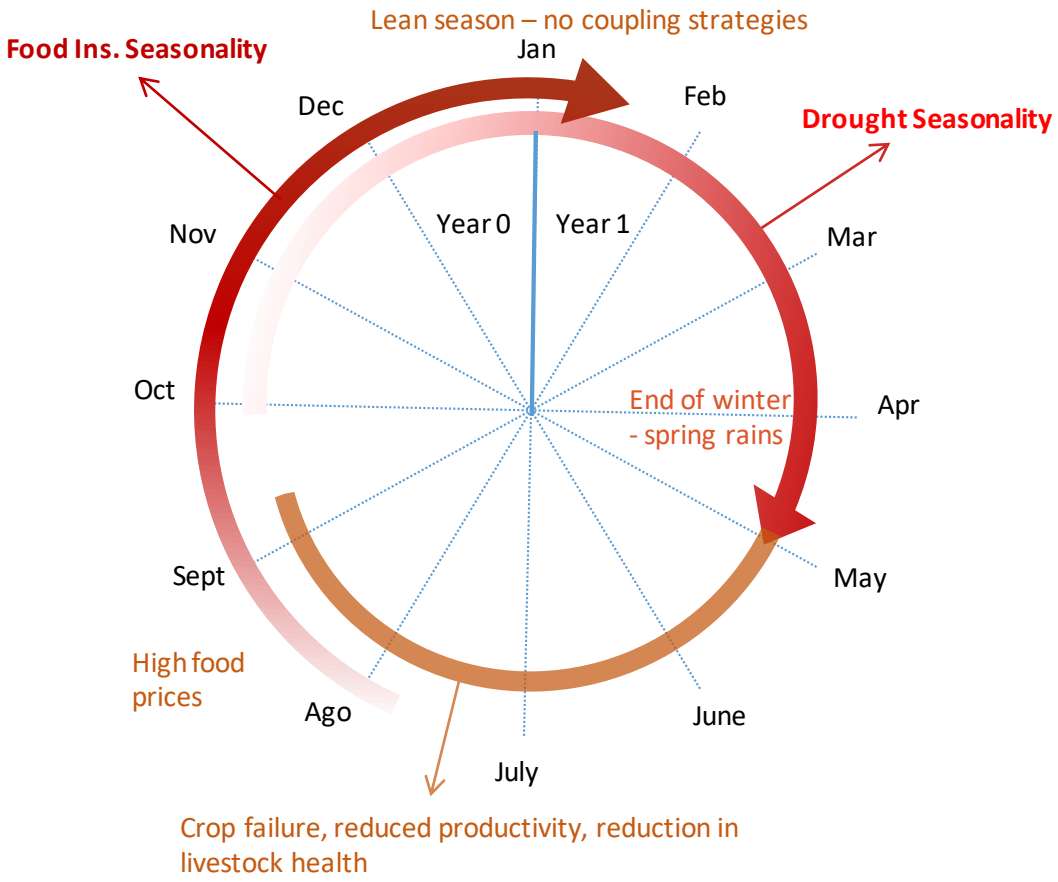




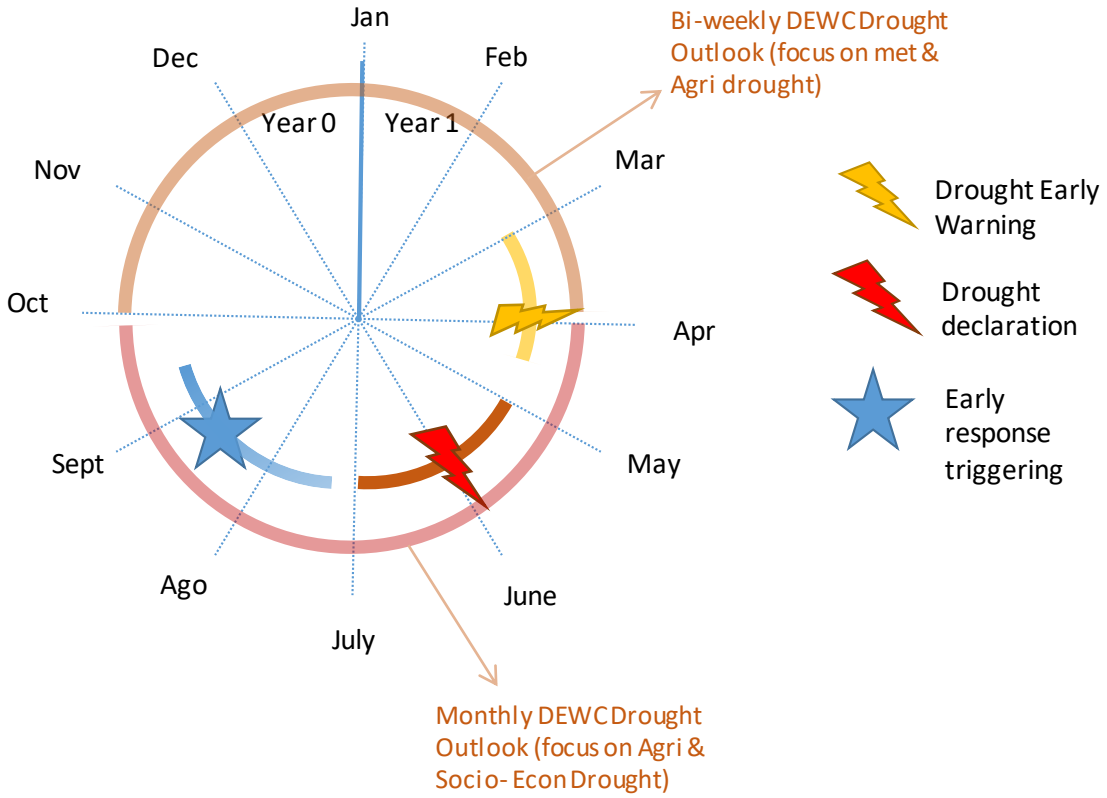
Drought response strategies integration information and knowledge products for decision making process

Seasonality of drought and food insecurity vs monitoring and triggering

Drought and food insecurity seasonality



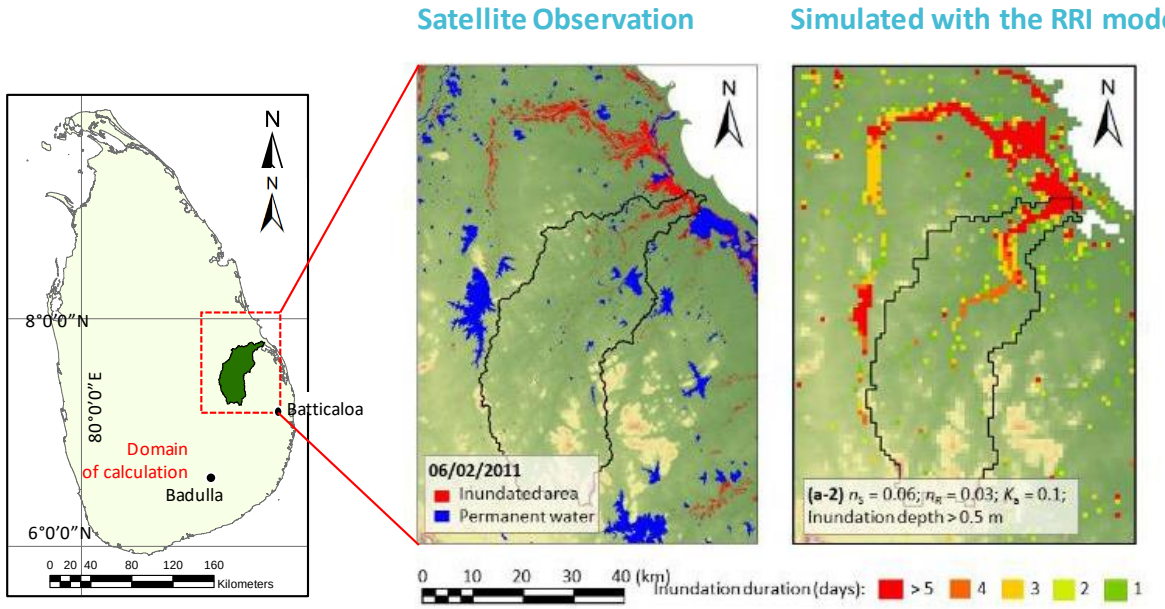
Monitoring, detection and triggering



Source: World Bank

Flood Inundation Modelling in Sri Lanka (Basin scale)

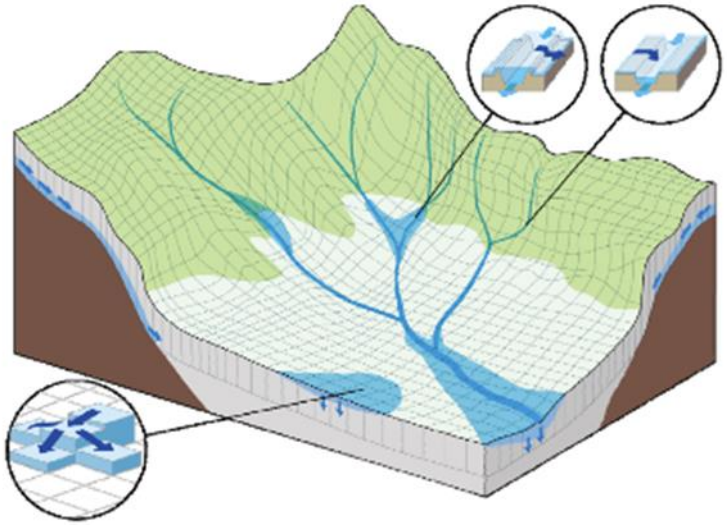
Simulated extents of flood inundation by the models



- Able to complement discrete-time results of satellite images (and also in cloudy periods);
- Applicable to hazard prediction and vulnerability evaluation;
- Able to assist NRT simulation for early alert framework, even in poorly gauged basins.

Amarnath et al. 2015

The RRI model



Numerical model for simulation of two-dimensional flood inundation distribution which was developed by ICHARM.

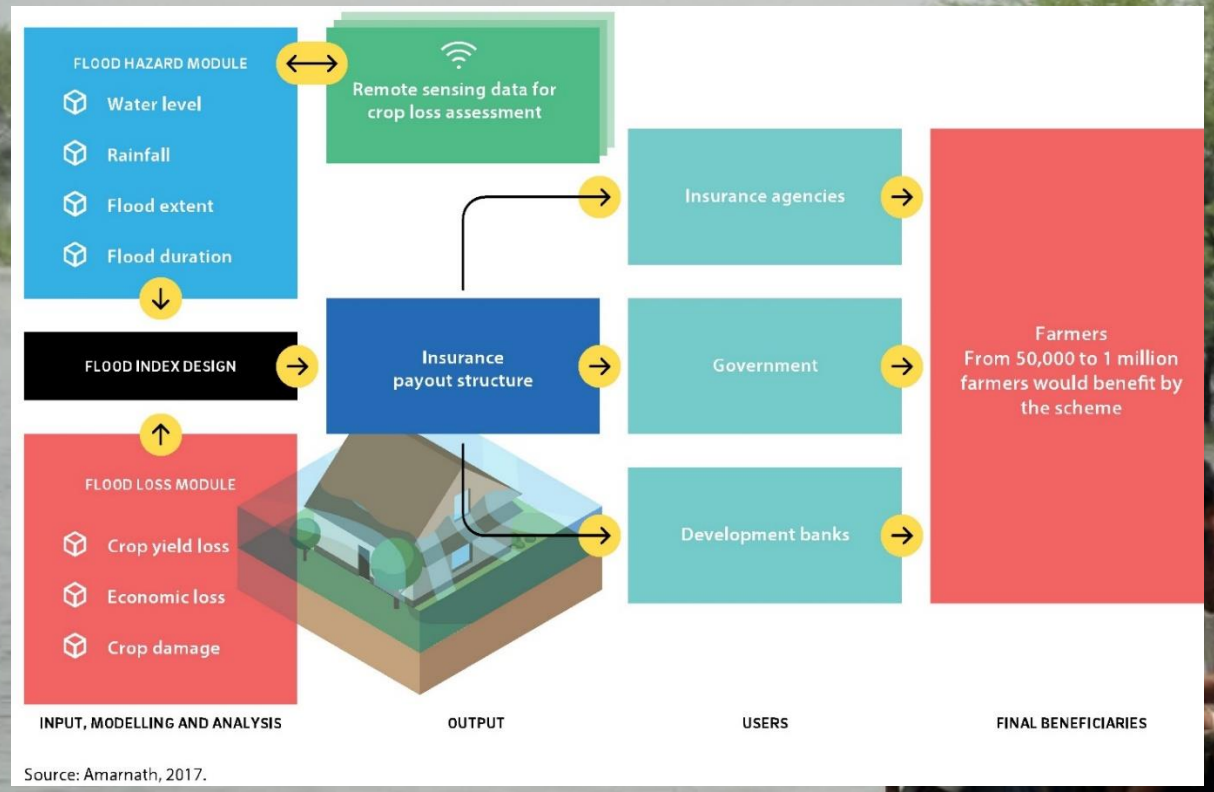
Merit of the RRI model

Combination of slope flow and channel discharge: this helps to apply to areas which have hills and flood plains.

Free of charge; this could help decision making in developing countries.

RRI model (Sayama et al., 2012)

Insuring the uninsured



Source: Amarnath, 2017.

Pilot trials
In India and Bangladesh since 2017

+10,000
Households

$170,000 USD
Total payout

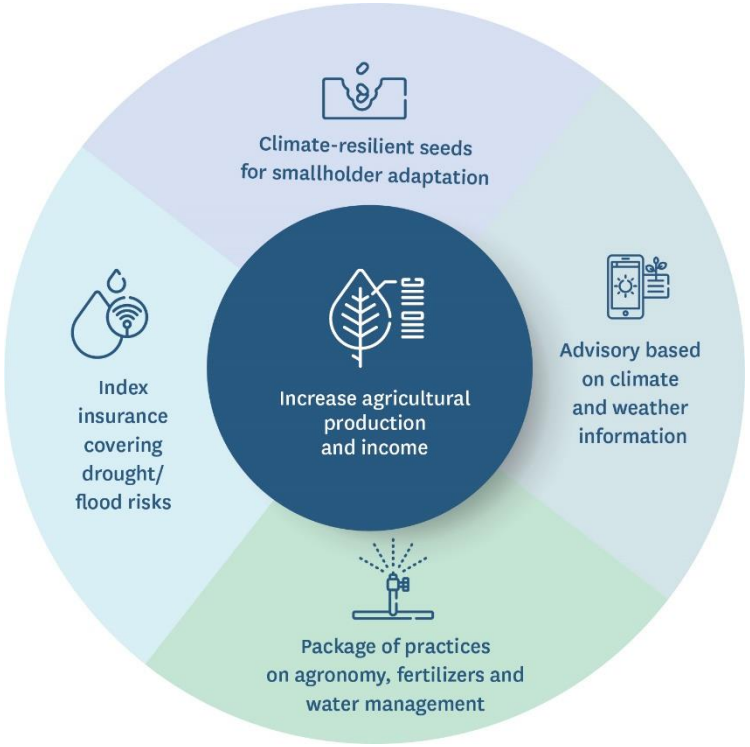
125k HH
Scaling

De-risk through bundled solutions

Build resilience to supply chains and improve productivity

- Smallholder farmers are among the most vulnerable to climate shocks
- Lack of education and technical skills, poverty, agricultural investments, limited assets and financial capital are major reasons for low investments in enhancing adaptive capacity.
- Technology could be the key to improving smallholder resilience to disasters and their opportunities for recovery.

- IWMI and its partners offers
  - Weather based weather insurance with
    - Seed inputs
    - Weather forecast and
    - Agriculture advisory services provided to insured farmers
    - Grain procurement
    - Credit link (sooner)

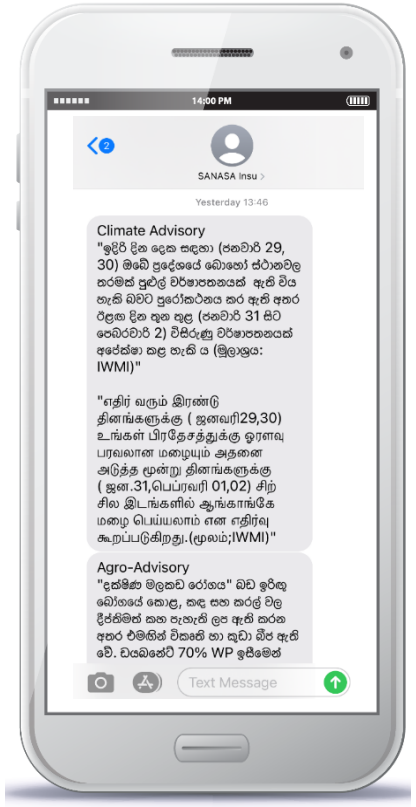


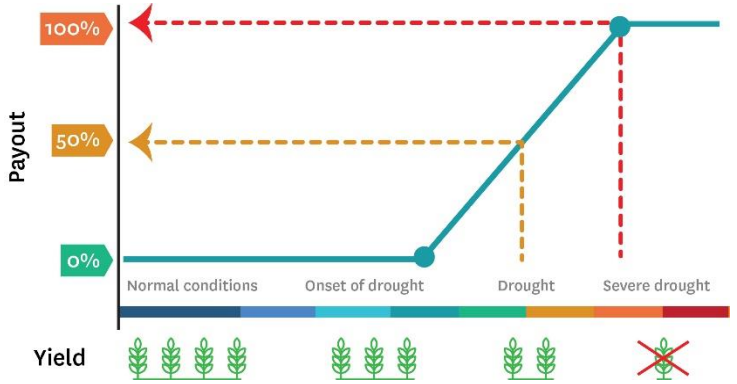
Source: IWMI

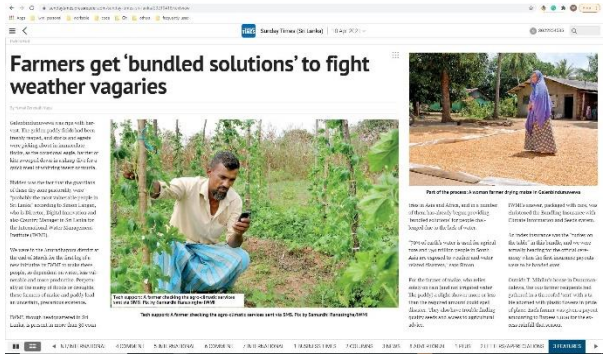
BICSA
Bundled Solutions to Manage Agricultural Risks

BICSA in Sri Lanka

Better seeds, Weather Index Insurance and agroclimate advisories






Farmers get 'bundled solutions' to fight weather vagaries

[Sunday Times (18 April 2021)]

https://bit.ly/3ylmbpQ

- WII developed uses satellite data
- Developing aggregator model with value-chain partners

Scaling in 5 Districts
PPP Model

+15,000
Households

IWMI's ongoing drought resilience projects

South Asia + Afghanistan (DEWS)

CGIAR Research Program on Water, Land and Ecosystems · MAFF Ministry of Agriculture, Forestry and Fisheries 農林水産省 · The World Bank

ICAR · World Meteorological Organization · Global Water Partnership

Southern Africa

FAO · SADC

MENA

USAID From the American People

Senegal and Ethiopia

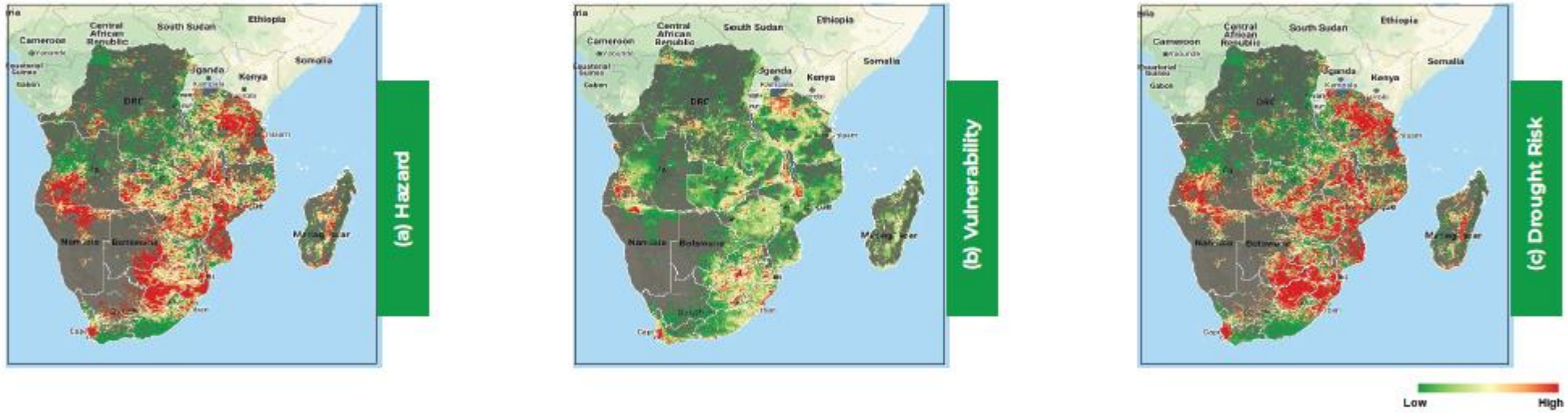
The World Bank

Southern Africa Drought Resilience Initiatives (SADRI)

WASA Products Utilization

Vulnerability and Impact Assessment

Fig 5a-c. Drought hazard, vulnerability and risk maps for SADC, October 2015



The above maps (Fig 5a-c) depict regional drought hazard areas (a), areas of vulnerability (b) and drought risk (c) for southern Africa during the El Nino event in October 2015. Among the drought-prone areas in SADC, the NDRI shows that the western and southern parts of the region, as well as the north-eastern parts, are more vulnerable and at a higher drought risk (maps generated by IWMI/WASA).

https://geowb.maps.arcgis.com/apps/MapJournal/index.html?appid=cb0fc8aa450f4b35a018f7e0115867be

WLE Outcomes and Key messages

- Preparedness through monitoring and early warning is an important step towards **proactively enhance disaster resilience** among communities (SADMS, WASA)
- **Promoted institutional coordination** and disaster risk governance are critical in responding to climate shocks
- **WLE knowledge products and information services** helped in achieving resilient society (AF-DEWS)
- **Build capacity among stakeholders** and promote innovation for empowering communities (e.g. SAARC, UNOOSA)
- **Integrated adaptation focus** in achieving sustainable development and Sendai framework for Disaster Risk Reduction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RESEARCH PROGRAM ON Water, Land and Ecosystems
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