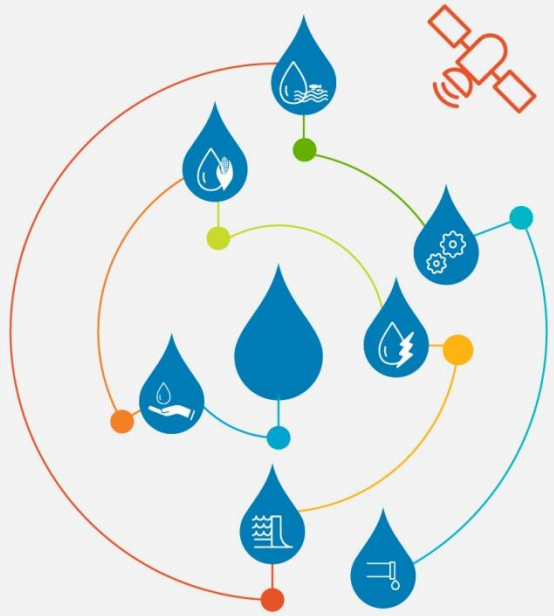
Characterizing flood based farming systems in the Ayeyarwady Delta of Myanmar



Lisa-Maria Rebelo
International Water Management Institute
Manila, 2-4th October 2018

IWMI is a CGIAR Research Center and leads the: CGIAR RESEARCH PROGRAM ON Water, Land and Ecosystems

Flood based farming systems

Suite of activities assessing flood-based farming systems in Myanmar, as part of an international program on Flood Based Farming Systems

- Contributes to a wider, international program to build capacity in Flood Based Farming Systems (FBFS)
- Support government to exploit floods in the Ayeyarwady Delta to meet development goals sustainably and inclusively
- Support dialog around managing multi-functional landscapes

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Flood based farming systems

- Deep water rice (floating rice) grown under deep water conditions where typical rice varieties do not survive
- Quick adaptation to flooding conditions (stem elongation at rates of up to 20-25 cm/day)
- Environmentally friendly (no agro-chemicals) serve as biodiversity hotspots for fish and other aquatic species
- Ecosystems services (supporting services, provisioning services, regulating services and cultural services)

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Decline across SE Asia

- Vietnam decline from 570 000 ha in 1990 to 200ha in 2015
- Cambodia 87%, Myanmar 42% decrease in area (1990-2015)
    - changes in rice production policies & research
    - undeveloped international and local markets
    - lack of research and development
    - extreme weather events due to climate change
    - upstream development

➢ Renewed focus on preserving and extending adaptation

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Information gaps:

1996

2015

The data on flood behaviour is outdated, and prevents the government from helping farmers identify which areas are suited to which rice varieties

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Changing flood regimes

- Cultivation of floating and deep water rice varieties depend on:
  - depth of flooded water
  - rate of water level increase
  - recession characteristics of the floods
- Changing due to upstream development of flood control structures, irrigation schemes, hydropower dams
- Changes in flood patterns presents new risks to farmers in terms of crop exposure to flood damage if water levels rise faster than usual or inundation occurs for extended periods

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Advanced technologies to address information gaps:

- Quantify the flood pulse associated with floating rice systems using EO and field measured hydro-meteorological data
- Develop a spatially distributed map of potential areas for the development of floating rice systems
    - ➢ Update DoA data to reflect hydrological change
    - ➢ Support farmers reduce flood risks by better matching rice type to flood conditions

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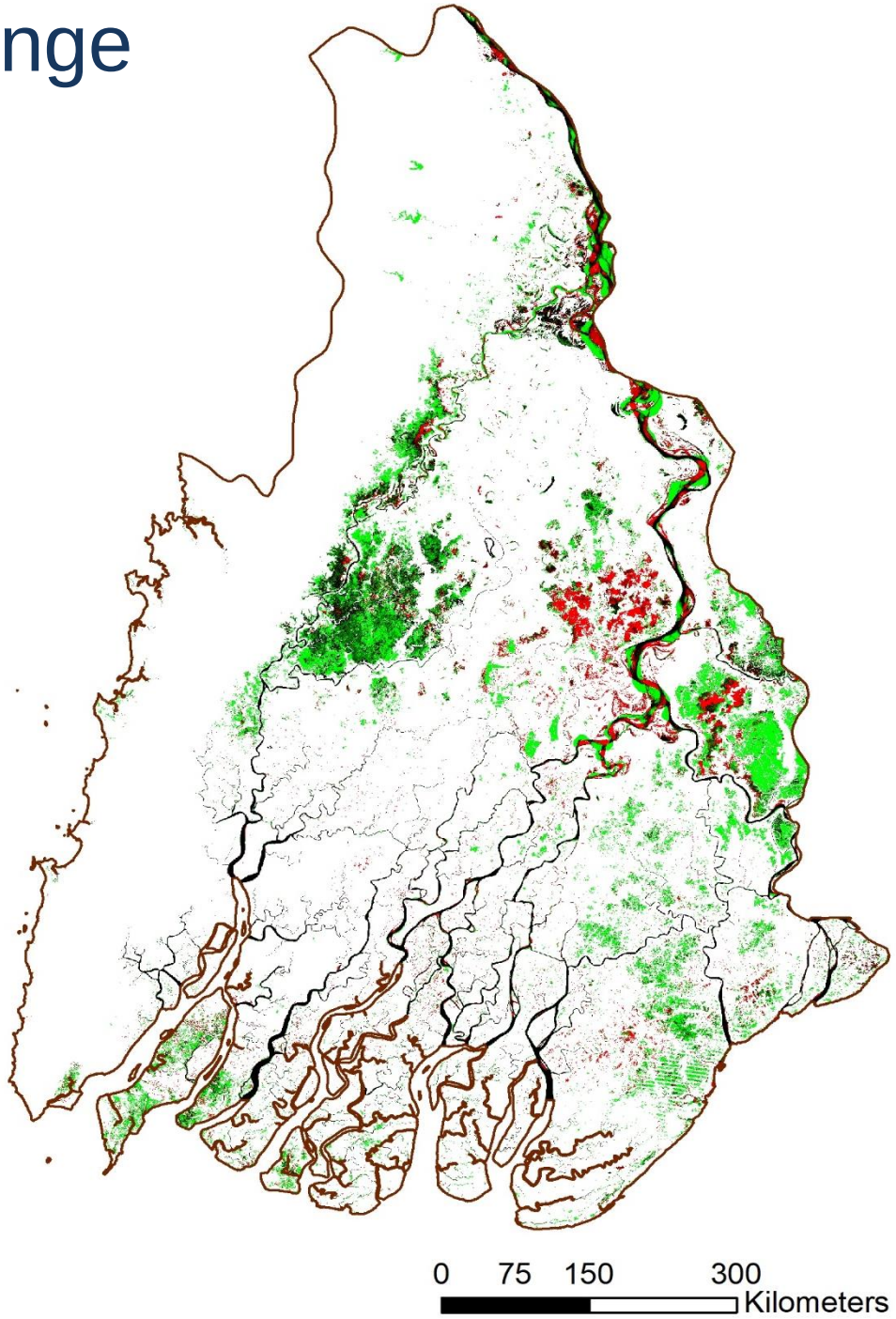
Surface water change 1984 - 2015:



76% - 100% Decrease
50% - 75% Decrease
26% - 50% Decrease
1% - 25% Decrease
No Change
1% - 25% Increase
26% - 50% Increase
51% - 75% Increase
76% - 100% Increase
No Data
Ayeyarwady Delta

Source: European Commission: Surface Water Extent

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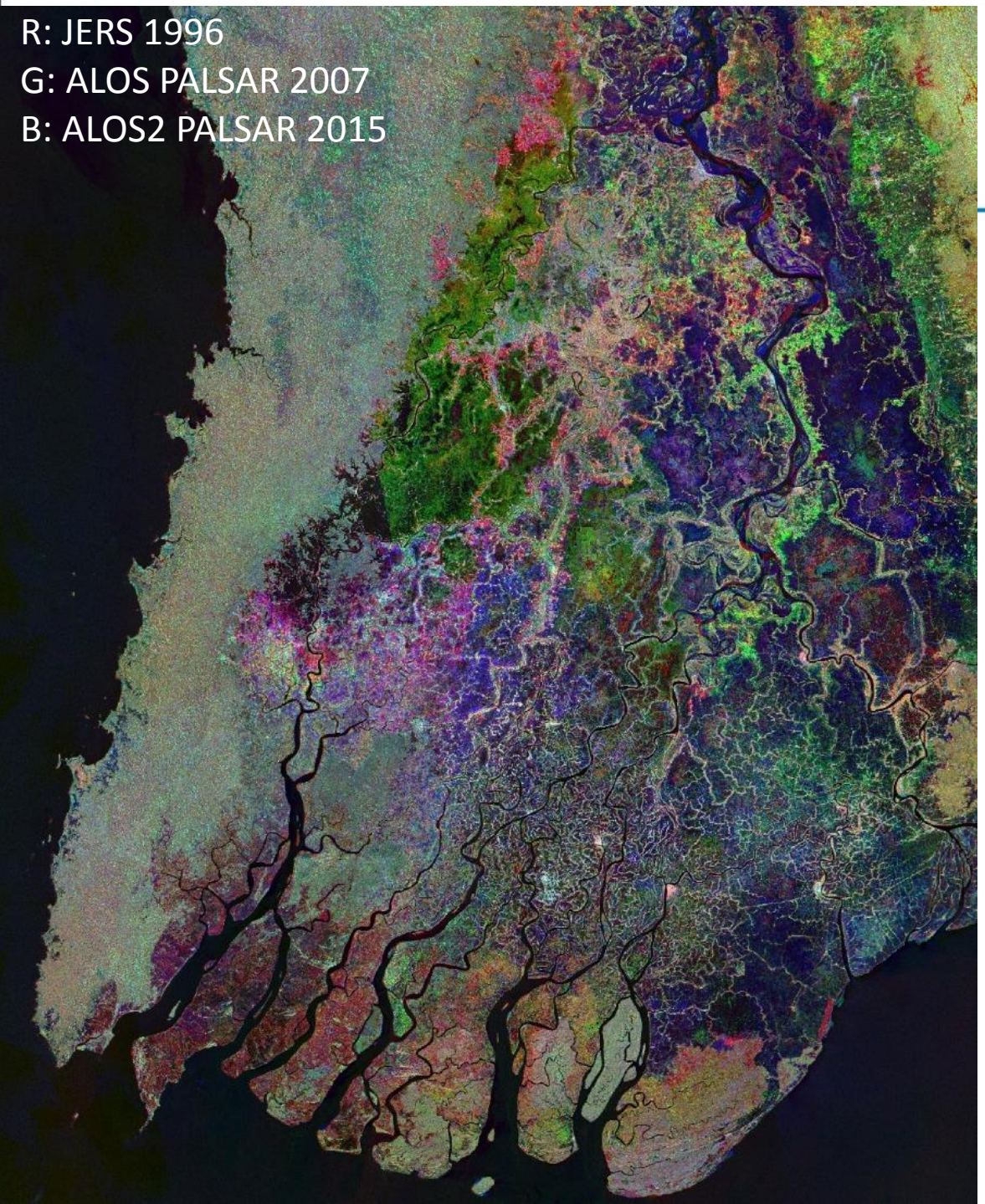

Changes in inundation: 1996 - 2015

- Spatial assessment of inundation over the last 10-20 years
- Assessment of variability in the flood pulse and spatial inundation patterns over this time period

Source: © JAXA/METI

Field based monitoring:

- Measurements at 100 sites through voluntary farmer participation
- Change in plant height and corresponding water depth

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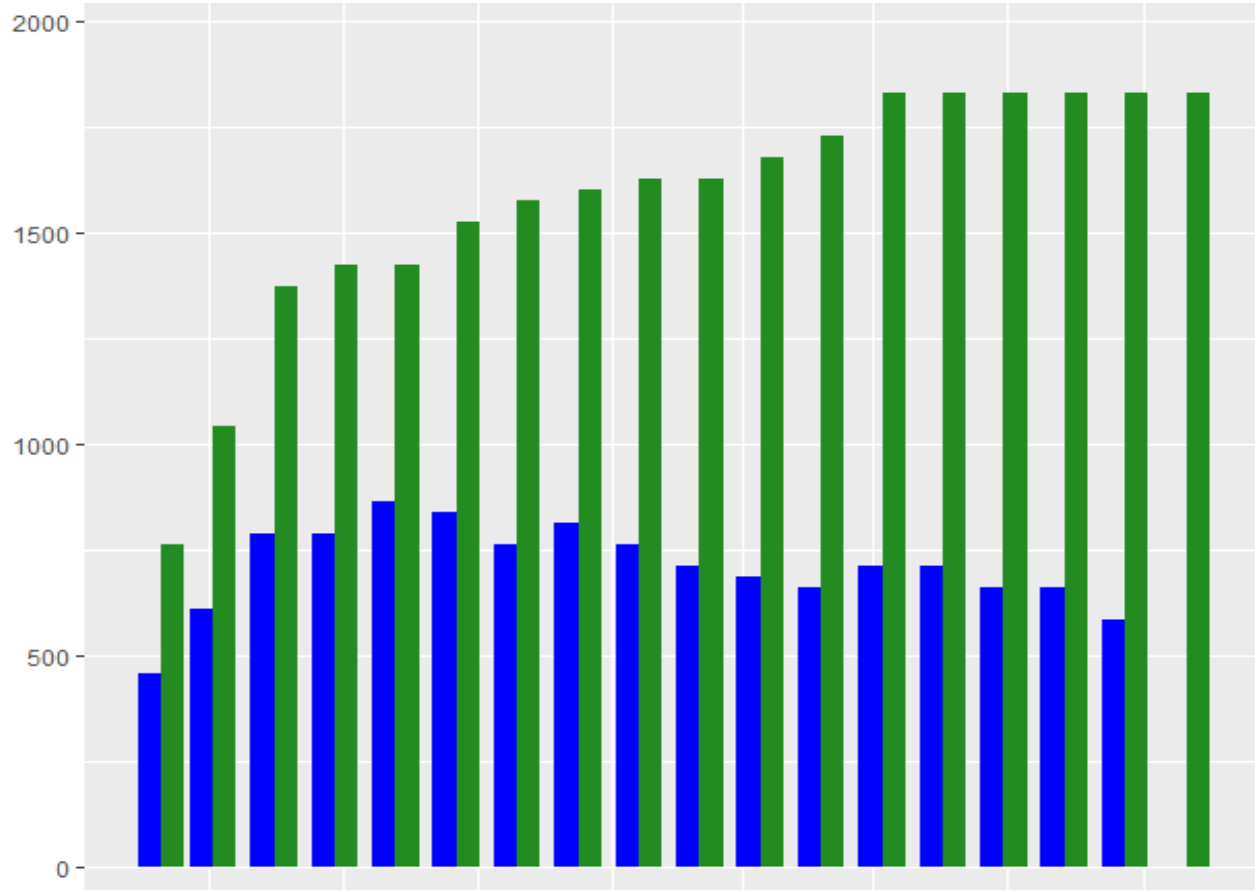
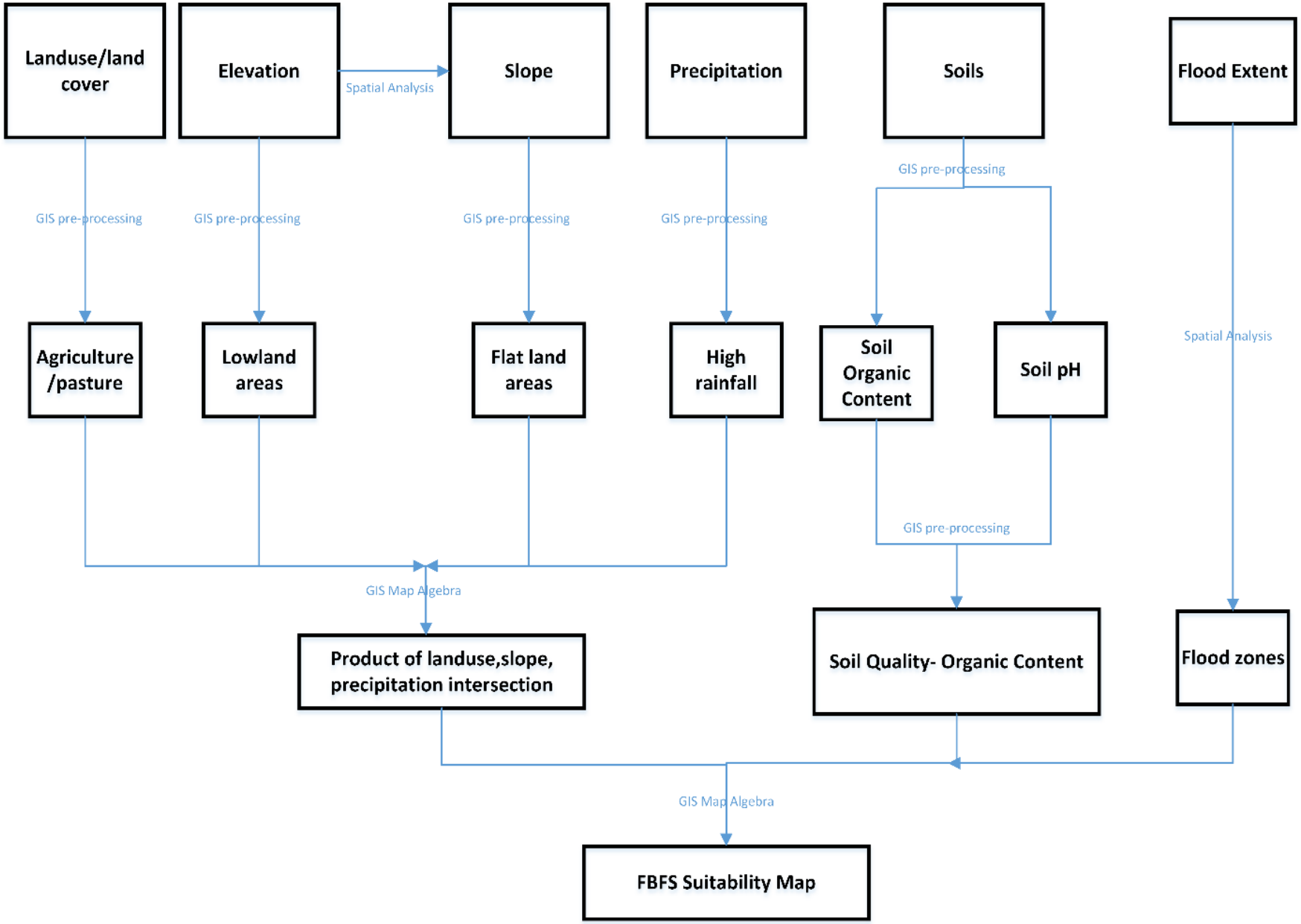


Suitability mapping:



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Summary:

- Recovery and maintenance of flood-based agro-ecological farming systems in the Ayeyarwady Delta is a way to conserve natural resources for food security and boost climate resilience

Develop maps for DoA that document trends in flooding in the delta to help determine where to cultivate specific paddy varieties in the monsoon

- Minimise the loss of ecosystem services through development activities

Build a coalition of organisations to promote a multi-sectoral approach to development planning in the delta through high level policy dialog

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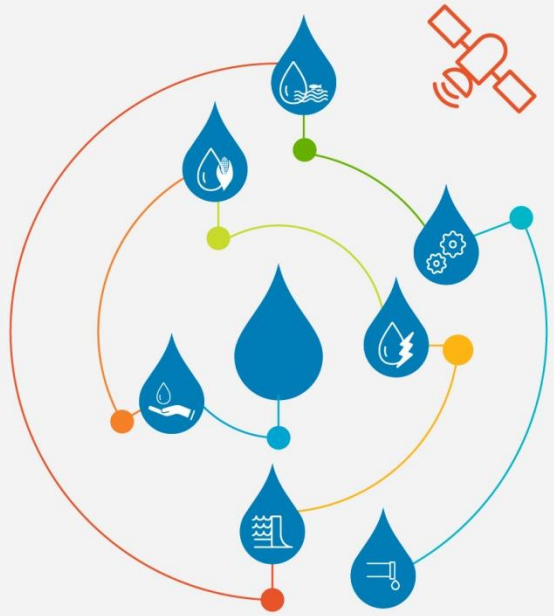
Thank you!



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Further information on floating rice systems in Myanmar:
https://spark.adobe.com/page/qh7BgpAhIoIUp/

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