

# Systems approaches to innovation for control of parasitic weeds in rainfed rice in Tanzania and Benin

Marc Schut, 17 June 2014



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Conceptual paper: Role of research in innovation processes

Published

Review paper: Systems approaches to innovation crop protection

Published

Methodological paper: RAAIS

Moderate revisions

Under review

Empirical paper: RAAIS analysis of parasitic weeds in rice in Tanzania

RAAIS analysis of parasitic weeds in rice in Benin

Reflection on value of integrated systems approaches to innovation

Comparative paper

Work in progress

Input MSc and PhD-studies

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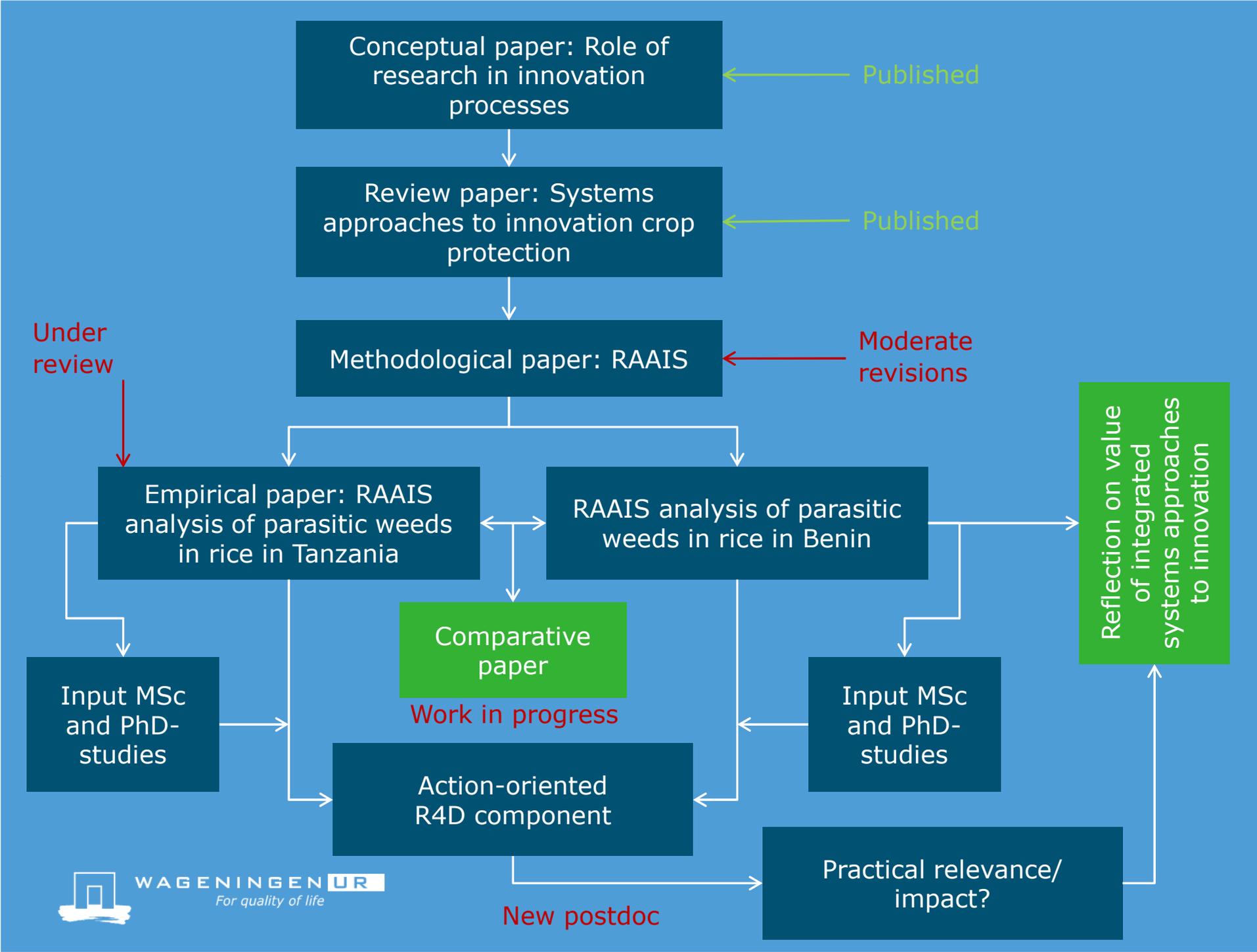
Action-oriented R4D component

Practical relevance/ impact?

New postdoc



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# Conceptual paper: Need for systems approaches to innovation

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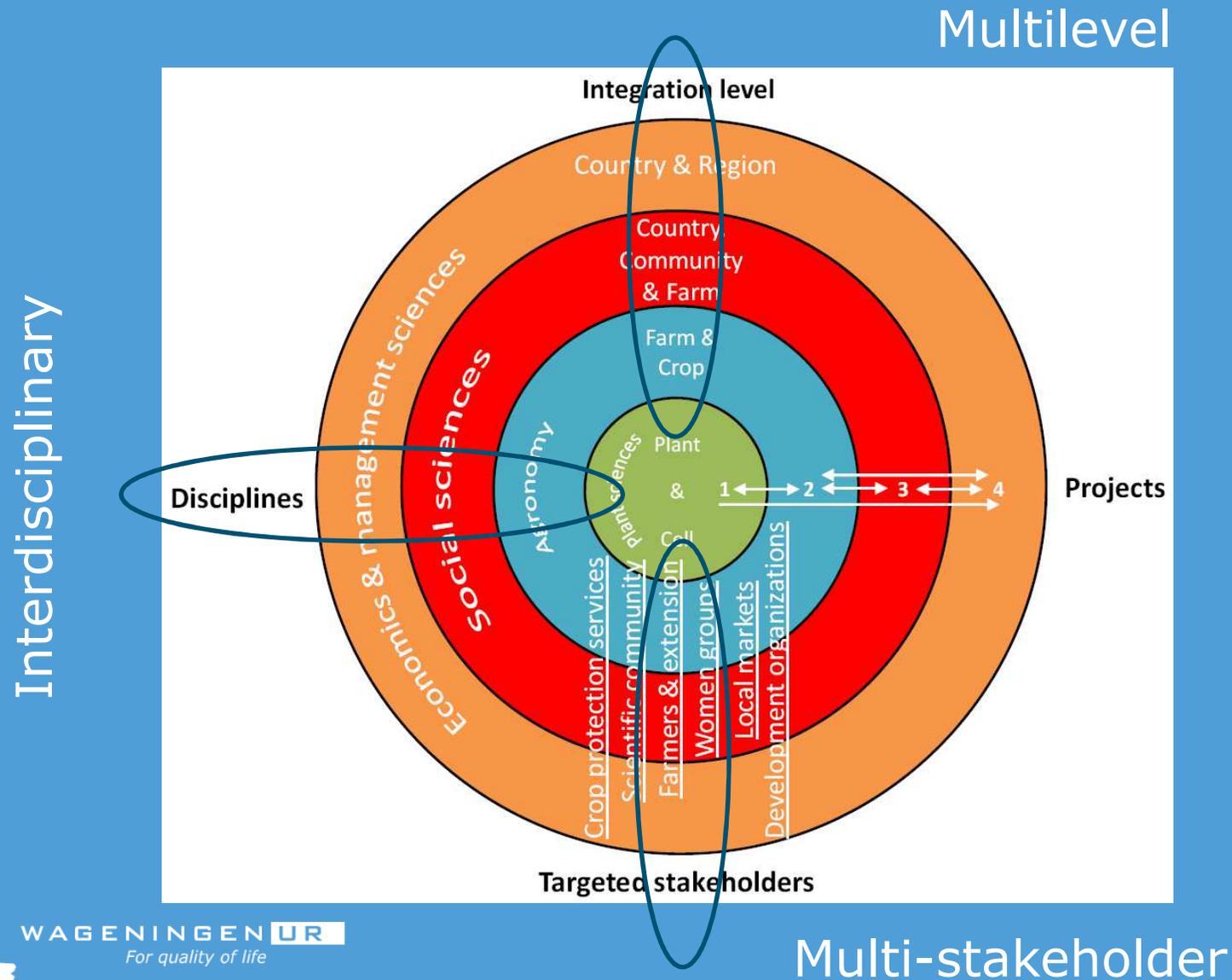
Parasitic weeds are a complex agricultural problem:

4 Key characteristics:

1. Complex problems have different dimensions and can therefore not be fully understood by analysing these dimensions separately (multi-dimensional)
2. Innovation is constrained and enabled by multi-level interactions (multi-level)
3. Different stakeholder groups and organisations involved in exploring solutions (multi-stakeholder)
4. Highly unpredictable (more embedded and dynamic and action oriented research approaches)



# Integration of the four subprojects



# Review paper: Systems approaches to innovation in crop protection

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- Limited attention for institutional and political dimensions as compared to biophysical, technological, socio-cultural and economic dimensions.
- Focus on farm or national level, while multi-level interactions are rarely analysed.
- Stakeholder involvement in analysing crop protection problems, and identifying solutions remains limited.
- Innovation narrowly defined as the successful development of technology by researchers, transfer by extensionists, and adoption and diffusion of crop protection technologies among the end users; farmers



# Methodological paper: Rapid Appraisal of Agricultural Innovation Systems (RAAIS)

- Absence of operational framework for AIS analysis
- Participatory tool for 'rapid' systems diagnostics
- Researcher (outsider) and stakeholder (insider) systems analysis
- Use of multiple methods (workshops, questionnaires, interviews, secondary data analysis)
- Identify coherent innovation strategies
  - Specific: Directly related to problem under review
  - Generic: Related to innovation capacity in agricultural system



# Empirical paper: RAAIS for parasitic weeds in rainfed rice production in Tanzania

- Specific entry points for innovation
  - Parasitic weeds awareness (farmers, extensionists)
  - Co-develop parasitic weed strategies (multi-stakeholder collaboration)
- Generic entry points for innovation
  - Multi-level interaction (development and implementation of agricultural policy)
  - Policy coherence and structural allocation of resources (investment in human resources and adequate backstopping and incentive structures and monitoring and evaluation mechanisms for extension officers)



# Comparative paper: Socio-organisational dimensions of parasitic weeds in SSA

- Large proportion of problems in the agricultural sector (including those directly or indirectly related to parasitic weeds) are of socio-organisational nature:
  - For Benin, the system is functional for cotton (main export/ cash crop), but not for staple crops.
  - Crop protection systems focus on addressing pests and diseases outbreaks rather than on weed prevention and control
- Need for more structural collaboration between different stakeholder groups (including researchers) in developing and implementing parasitic weed strategies



# Research for Development impact



- RAAIS has been adopted as integrated systems analysis tool by CGIAR Research Programme for Humidtropics
- RAAIS workshops held in Burundi, Rwanda (2), DR Congo, Cameroon and Nigeria to identify opportunities and constraints for sustainable intensification of crop-livestock systems
- May 2014 RAAIS training for 20 Humidtropics and N2Africa country coordinators



# New postdoc

- Dr Edmond Totin (Benin)
- PhD: “An institutional perspective on farmers’ water management and rice production practices in Benin”
- Initiate participatory research-for-development strategy to address parasitic weeds in rain-fed rice in Benin and Tanzania
- Capture effectiveness of multi-stakeholder approach
- Intended start: 1 August 2014

