Lunch-time Conference External Cooperation Infopoint

Brussels , 04-12-2014

SEVENTH FRAMEWORK PROGRAMME

Innovation in Irrigation for rural development

- the Green Wheel approach

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for the EAU4Food Consortium

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European Union and **A**frican **U**nion cooperative research
to increase **Food** production in irrigated farming systems in Africa

Duration:
June 2011 – May 2015
(4 years)
Total value: 5.2M €

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SEVENTH FRAMEWORK PROGRAMME

1	Stichting Dienst Landbouwkundig Onderzoek	Alterra	Nl
2	Institut d'Economie Rurale du Mali	IER	Mali
3	University of Zambia	UZAM	Zambia
4	Council for Scientific and Industrial Research	CSIR	RSA
5	Institut National de Recherches en Génie Rural Eaux et Forêts	INRGREF	Tunisia
6	Mekelle University	MU	Ethiopia
7	International Water Management Institute	IWMI	Ghana
8	Centre de Cooperation International en Recherche Agronomique pour le Developpement	CIRAD	France
9	Overseas Development Institute	ODI	UK
10	Lisode	Lisode	France
11	Consejo Supoerior de Investigaciones Cientificas	CEBAS-CSIC	Spain
12	University Eduardo Mondlane	UEM-FAEF	Mozambique
13	Stellenbosch University	SU	RSA
14	IRSTEA (former CEMAGREF)	CEMAGREF	France

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The project

Tunisia
(Medjerda/Merguelil)

Ethiopia
(Gumselassa and Korir)

Mali
(Kimbirila/Tissana and Kamaka)

South Africa
(Giyani)

Mozambique
(Chókwè)

Duration:
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Core objectives EAU4Food

- Innovation in irrigated farming systems
- To quantify specific limits for intensification of irrigated agriculture within given environmental and socio-economic conditions

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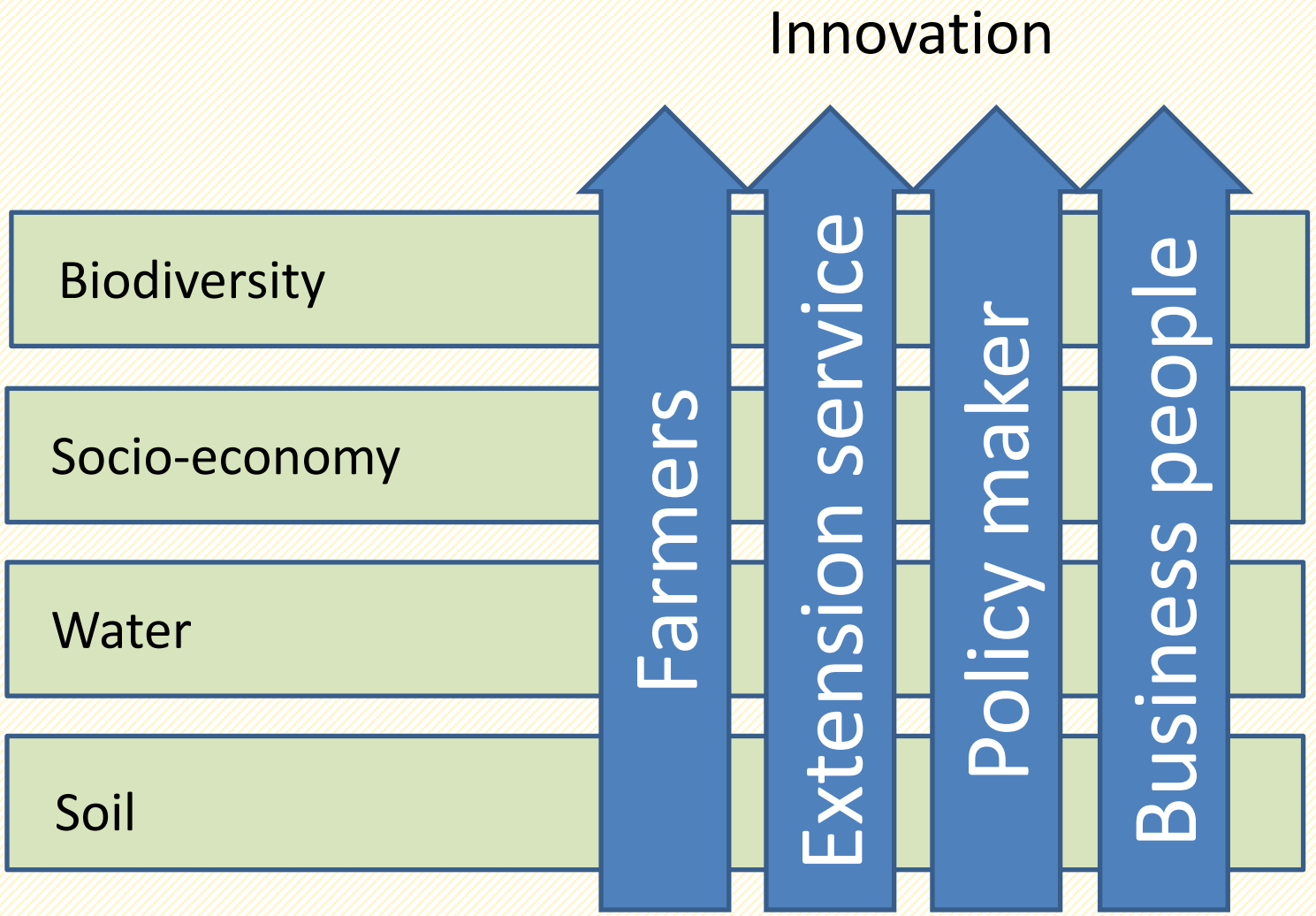
EAU4Food transdisciplinary approach



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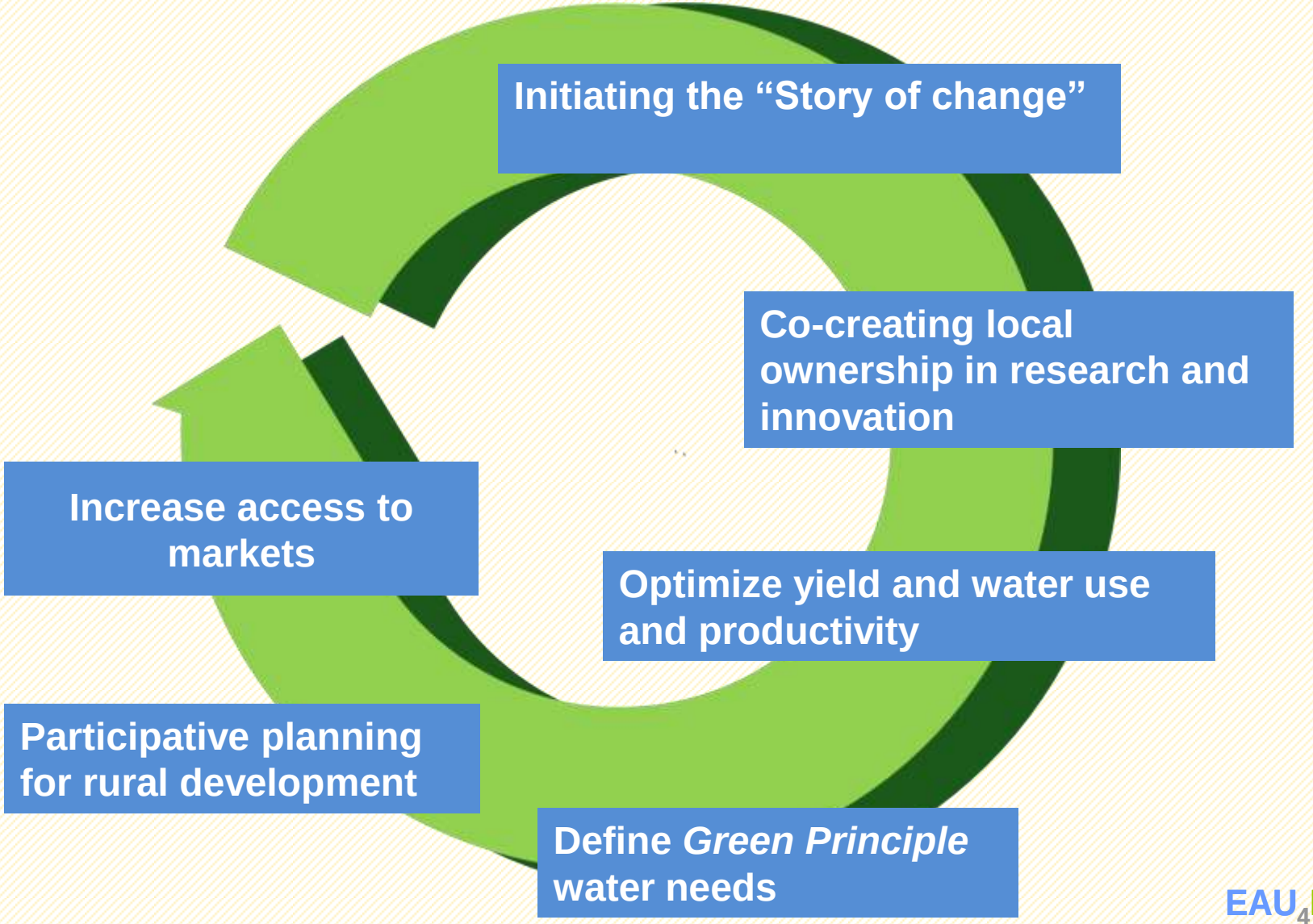
The EAU4Food Green Wheel Approach



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Initiating the "Story of change"

1

Setting up
- a community of practice (COP) AND
- a learning practice alliance (LPA)

Monitoring of engagement

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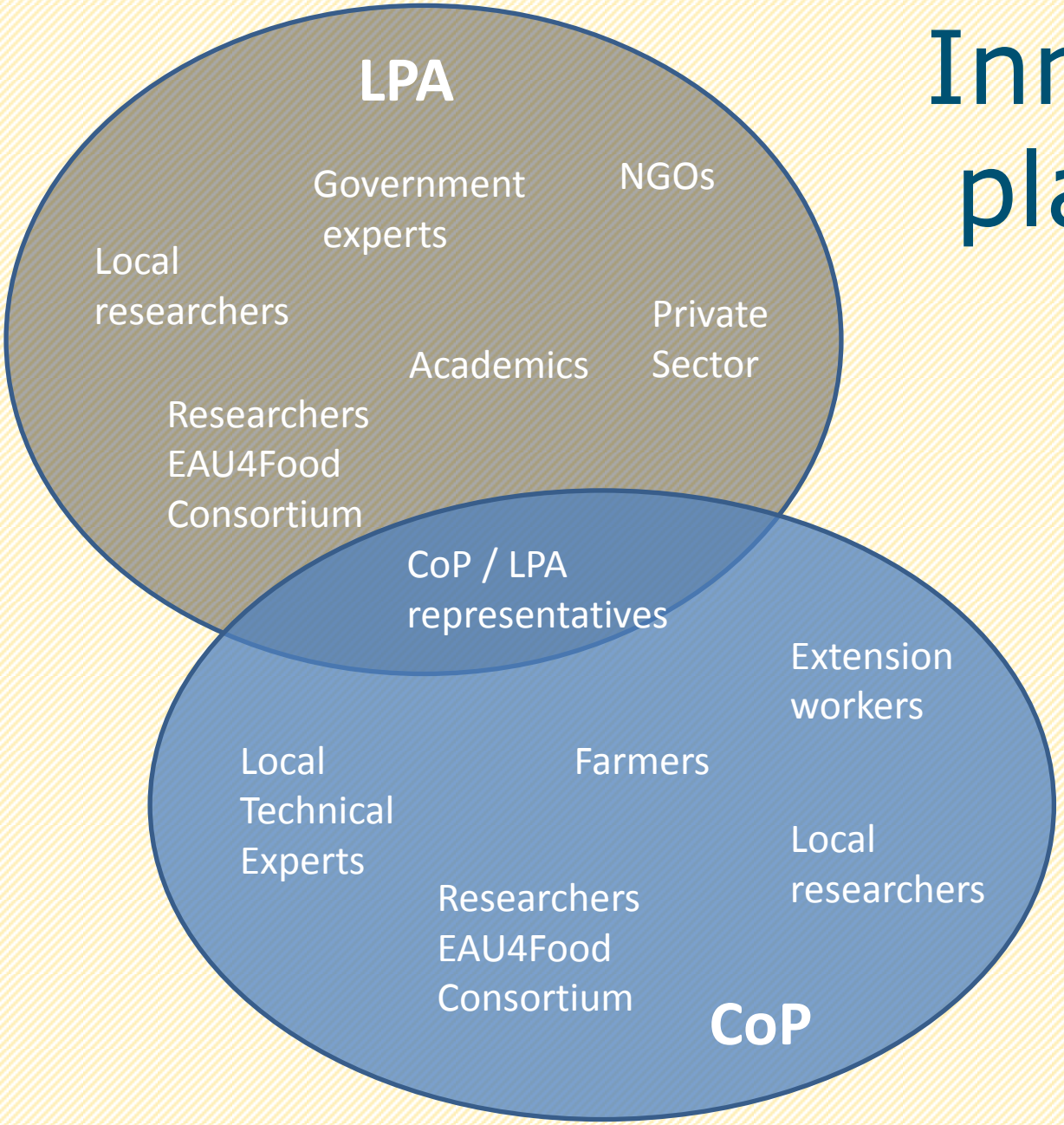
Innovation platforms



LPA = Learning & Practice Alliance

CoP = Community of Practice

Linking up the local level (where research takes place) with the sub national/ national arena (where decisions are made & policies formulated)

Stories of change

Goytoytum, an Agricultural Extension Worker at Gumselassa irrigation scheme (Ethiopia), explains how the project and the innovative approach of research has given her confidence to promote innovations among farmers

"Previously, I used to be challenged by the farmers while trying to promote practices such as application of compost and manure at Gumselassa (my current target area)… the farmers at Gumselassa repeatedly refused to practice them as they used to say use of compost and manure specifically on onion fields favor occurrence of worms that affect the crop growth. Considering their resistance and lack of previous action research, I used to be hesitant."

N. Oates, E. Ludi, N. Mason, 2014

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Stories of change

“Now, thanks to the action (practical) research carried out by EAU4Food project for the last two years, I am able to debate with and convince the farmers on the workability of these innovations based on the obtained and practically demonstrated results by the project. The farmers are also quite convinced that they can get higher yields through practicing scheduled and measured irrigation water, use of botanicals for crop protection, and use of dam silt.

I do hope many farmers will practice such innovations in the coming years.”

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Co-creating local ownership in research and innovation

2

Initiating research by farmers

Actual involvement of the farmers in monitoring and research

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Involving Farmers in problem identification

Case study	Gumsalasa (Ethiopia)	Chókwè (Mozambique)	Giyani (South Africa)	Niono KO2 (Mali)	Jendouba-Brahmi (Tunisia)
P 1	Scheme design and construction	Irrigation and drainage infrastructure	No equipment (irrigation)	Decrease in soil fertility and canal maintenance	Water logging and drainage
P2	Canal maintenance	Lack of credit,	Farm management	Crops pest and diseases	Lack of farmers' organization
P3	Salinization	Drainage Problems resulting in salinity	Marketing – lack of exposure	Cropping techniques	Lack of Labor

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Example Ethiopia

Simplified Irrigation scheduling at Gumsalasa irrigation scheme

E. Yazew, S. Habtu 2014

TR_1	FOA_2	SP_1
SP_2	TR_2	FOA_3
FOA_1	SP_3	TR_3

TR-traditional (farmers practice), FAO-Conventional, SP-Simple practical scheduling techniques

Figure 2.1 Research design for the 2014 experiment

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Example South Africa

Example Mali

Dicko, M. et al. , 2014

Improved water management

Inefficient water use :
14,000-21,000 m3/ha

Major constraint of water management is related to the lack in canal maintenance

bef.

After negotiation

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Example Mozambique

Low Pressure Drip Irrigation

- Flood resilient
- Higher water & nutrient use efficiency
- Reduced labor need

Famba, S. et al. 2014

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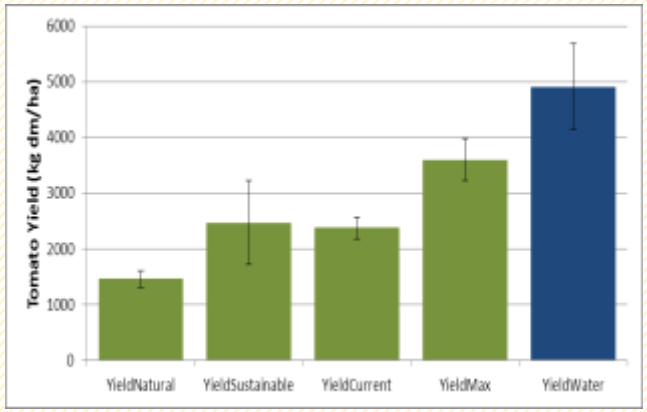
Optimize yield and water use and productivity



3

Calculate yield gaps, optimal fertilizer application, salinization risks, and optimal irrigation scheduling.

Share findings in farmer field schools

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PLOT 1
[+F, -M]
Recommended fertilizer
No Mulch cover

Crop yield

Zava: Plot	Irrigation	Yield (t/ha) I season	Yield (t/ha) II season (mulching experiment)
1	drip	19	-
2	drip	18	-
3	furrow	10	-
Mzilela: Plot			
1	drip	22	**> 50**
2	drip	25	**> 50**

C. Pienaars, 2013

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Define "*Green Principle*" land & water needs

In semi arid areas any water abstraction affects the remaining flow in rivers and the recharge of groundwater.

4

Water needs for **nature** and **public health** defines remaining water resources for agriculture

Compliance to legislative framework is key to avoid uncontrolled overconsumption

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Allocation of water is subject to political decision making

Water Supplies	million m^3 a^{-1}
Natural resources	
Surface water	195
Subtract:	
- ecological reserve	-29
- invasive alien pl.	-12
Groundwater	32
Usable return (flow irrigation and urban)	16
Total	202
Water Requirements	
Irrigation	158
Urban	6
Rural	18
Afforestation	36
Transfers outside the catchment	15
Total	233

Water supplies and requirements in the Letaba catchment approximated for 2005 (DWAF, 2004)

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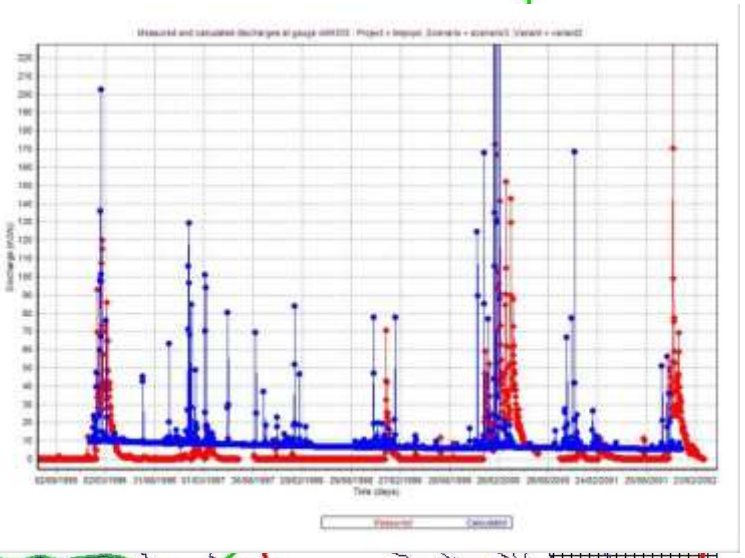
Basin Scale

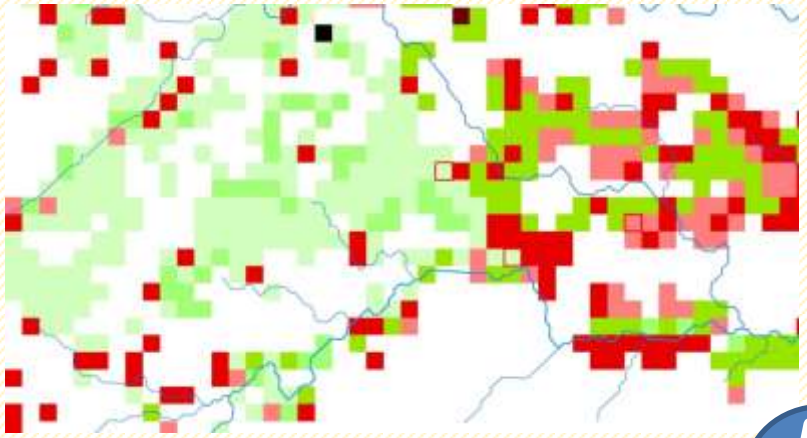


Field scale

5 x 5 km
grid

Querner, 2012

Participative planning for rural development



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Upcoming development in irrigated agriculture will increase the total water consumption.

Participative modelling and planning leads to more realistic scenarios and a better planning.

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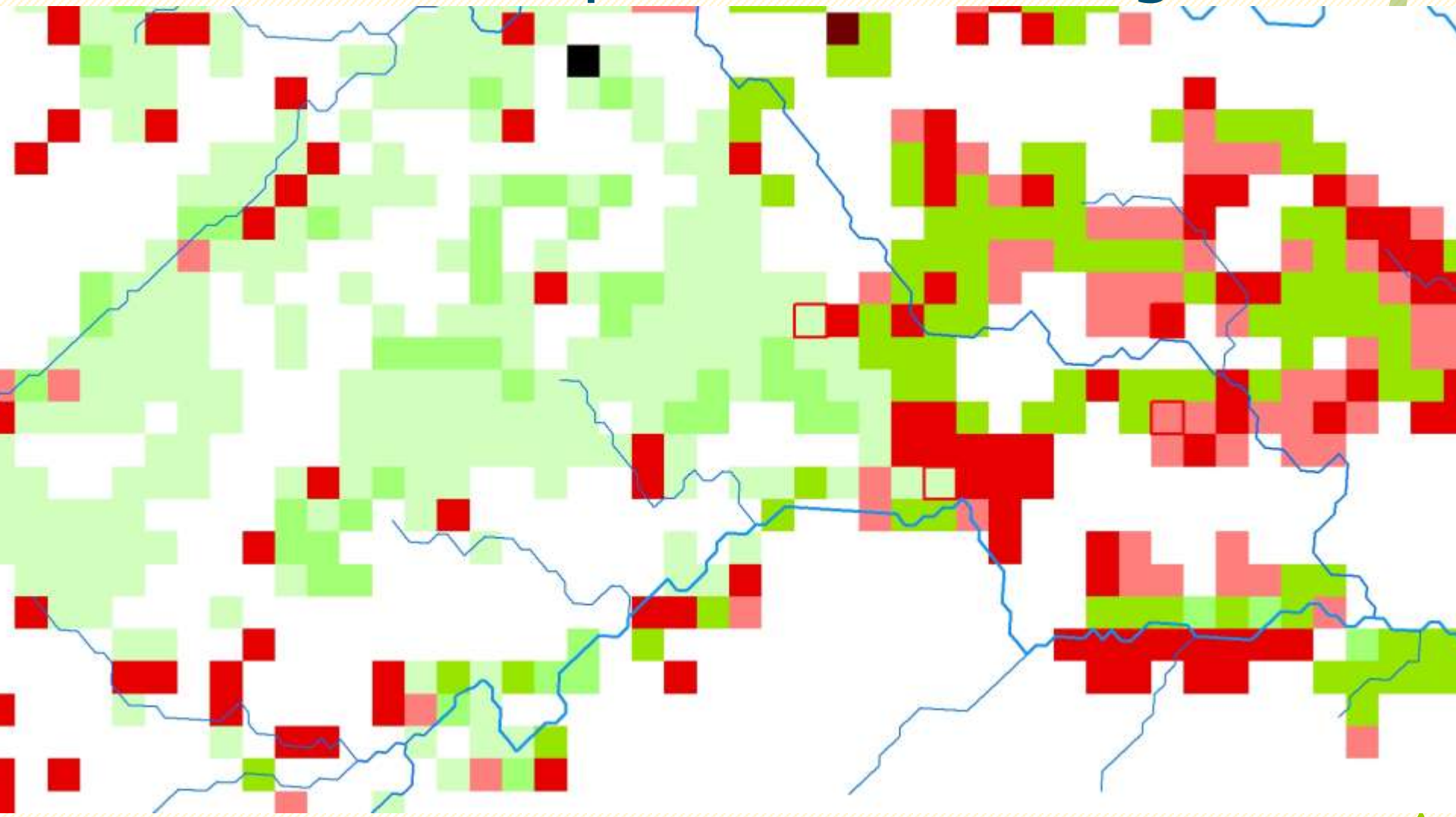
Participative Modelling



Querner, 2014

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Participative strategy development

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Increase access to markets

6

- Access to market need dedicated effort
- Use innovation cooperatives and value chain extension

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Launching the InnoGiyani PPP

Improving access to markets

MANOMBE Cooperative Trust

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UNIVERSITEIT STELLENBOSCH UNIVERSITY

Mopani Super SPAR

DACOM

LIMPOPO PROVINCIAL GOVERNMENT

ZZ2

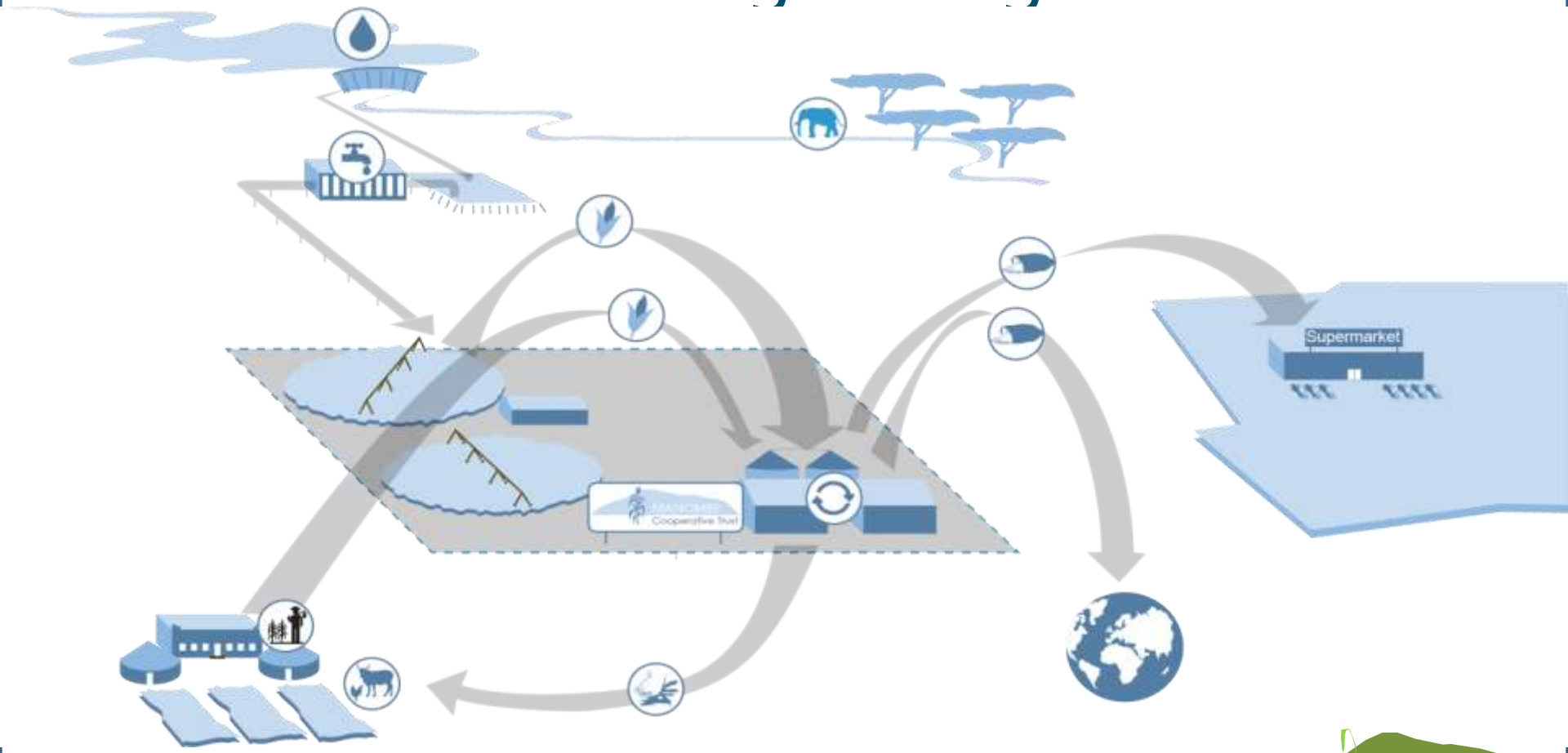
PPP InnoGiyani

- Lead **Manombe Cooperative Trust**
- Total: 6 Mio Euro (50% own contribution)
- Co-funded by the NL Ministry of Foreign affairs: 3 Mio €
- Duration +5 Years

Targeted outcomes

- Rehabilitate **600 ha former irrigation** area
- Reconstruction of the **maize mill** in Giyani
- Production of locally branded, **high quality maize flour**
- Re-invest profit for supporting the cooperative (small holder) farmers
- **Training facility**
- **Innovation platform** to diversify agribusiness opportunities

Agribusiness innovation and inclusive green growth



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Mopani Super SPAR

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LIMPOPO PROVINCIAL GOVERNMENT

MANOMBE Cooperative Trust

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EAU4Food Outcome

- Capacity for transdisciplinary innovation is built
- Basis for **Science-Policy-Business Interface** created
- **Large momentum** is gained, attracting interest of industry, NGOs, government
  - Ethiopian Govornment is already supporting further implementation
  - Private companies in Moz. , South Africa supporting

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Conclusion & Outlook

- **Opportunities to use the Green Wheel approach**
- **Outscale the implementation**
  - Further innovations
  - Further implementation to other farmers in the regions
  - Implementation at other countries
  - Extend the cooperation with non-agri stakeholders
- Local Capacity could be used for developing a **network of reference sites** for transdisciplinary innovation

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