

Irrigated agriculture offers “win-win”
opportunities for sustainable intensification:
Europe and Africa working together to avoid
repeating errors and making the best of water

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Setting the scene I

Irrigation has been fundamental for developing the rural economy where rainfall is scarce and erratic e.g. S Europe & N Africa

Direct benefits (Hussain 2007)

- reduces the risk of crop failure
- increases cropping diversity, land productivity & food production

Indirectly linked to

- improved nutrition, developed food markets, generated employment and created conditions for agri-food industry (Falkenmark & Lannerstad 2005; Playán & Mateos 2006)
- education, health, and social equity (van den Berg & Rubens 2006; Hanjra et al. 2009)

Setting the scene II

Irrigation development in Mediterranean Basin contrasts with limited development in Sub-Saharan Africa (SSA) in spite of its potential (Giordano et al. 2012; Xie et al. 2014):

- potential irrigated area in SSA is 100 million ha approx.
- less than 10 % developed and cultivated (but now rapid change)
- the expansion could generate annual net revenues of US\$ 14-22 billion, improve food security and incomes for 113-369 million people

Recent review (van Ittersum et al 2016) →

irrigation must expand to cover food demand by 2050 in SSA

Challenges

However, irrigated agriculture in SSA has failed in many areas to impel development (Inocencio et al. 2007; Comas et al 2012; Gómez-Macpherson et al. 2013):

- Degradation of schemes, several cases abandonment
- Overexploitation of resources, contamination

Nevertheless

- recent large investments in developing and rehabilitating irrigated land in SSA (also EU funded)
- rapid expansion in many areas
- large part of the development expected to be based on groundwater irrigation (MacDonald, 2012; Burney et al., 2013)

WILL HISTORY REPEAT ITSELF?

Research needs I

Similar environmental problems associated to irrigated agriculture already faced in the Mediterranean basin; plus modernization associated to high consume of energy and expansion questioned

North Europe already thinking on irrigation expansion because of climate change scenarios

Both EU and AU need to

- Evaluate different model arrangements for sustainable intensification: large, mid or small-schemes? energy consumption vs water conservation?
- Identify sustainability criteria and evaluate their application at plot, farm, scheme & watershed scales

Research needs II

In SSA, most of new investments are for rice production

- Which conditions result in sustainable & viable rice cultivation?

Irrigation can facilitate **crop diversification** as risks related to water scarcity are reduced

- Traditional crops usually grown in rainfed conditions (sorghum, millet, cowpea, feed crops,...) can be adopted for irrigation provided adapted cultivars and management are identified (García-Ponce et al. 2013). Links to livestock feeding?
- In regions close to important markets, commercial crops (e.g. fruit trees) can represent important alternatives
- How to improve water management, soil fertility, weed management, mechanization (small equipment now available)?
- Participatory research to identify constraints and show benefits

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Thank you!

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