



Towards improved water use and management within the framework of climate-smart agriculture: prospect for smallholder farmers

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Water resource

- **Water availability & use in agriculture**

- Water is very essential resource for agricultural production

- Agriculture is the current most user of fresh water

- *In South Africa, agriculture uses almost 60% of available water*

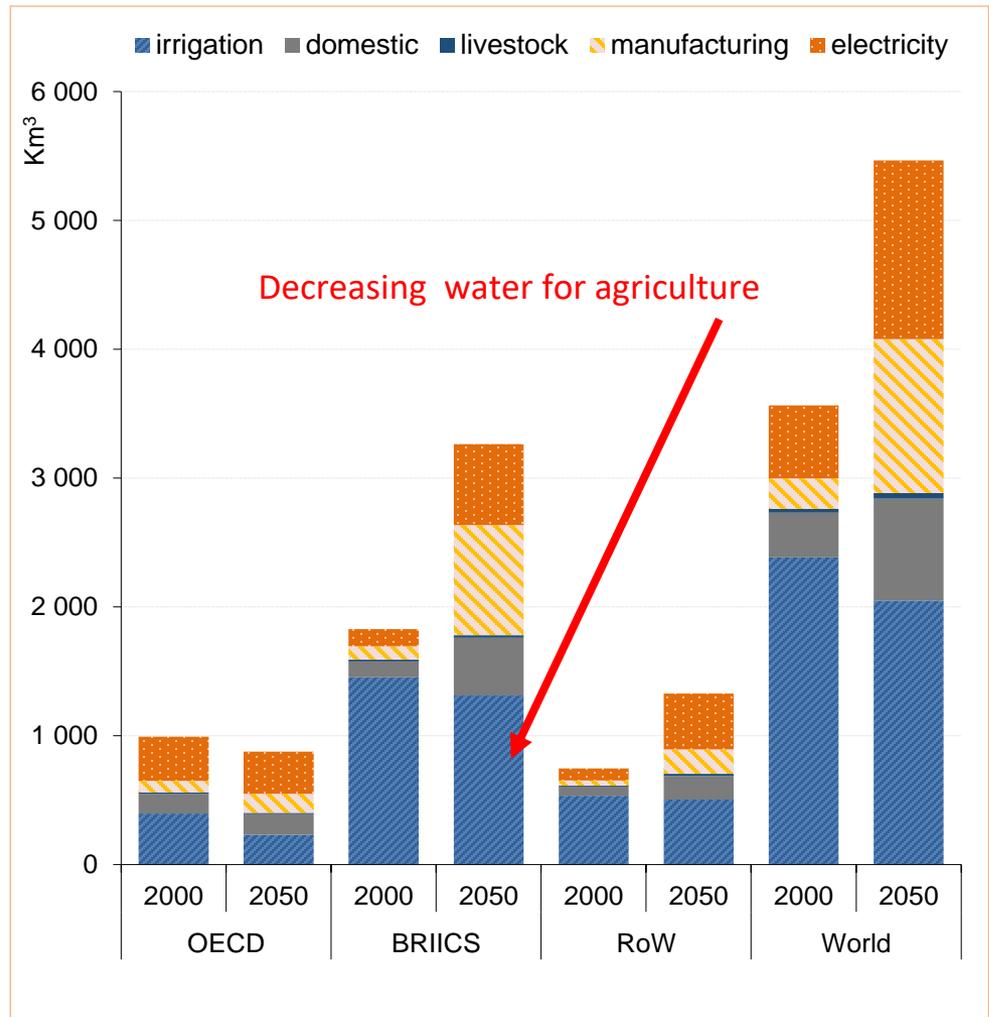
- *Globally, approx. 70% of available water is used for agriculture*

- Availability of water for agriculture is however getting limited



This is due to:

- ✓ increasing water consumption,
- ✓ low levels of water resources replenishment and the
- ✓ impact of external factors (i.e. climate change)



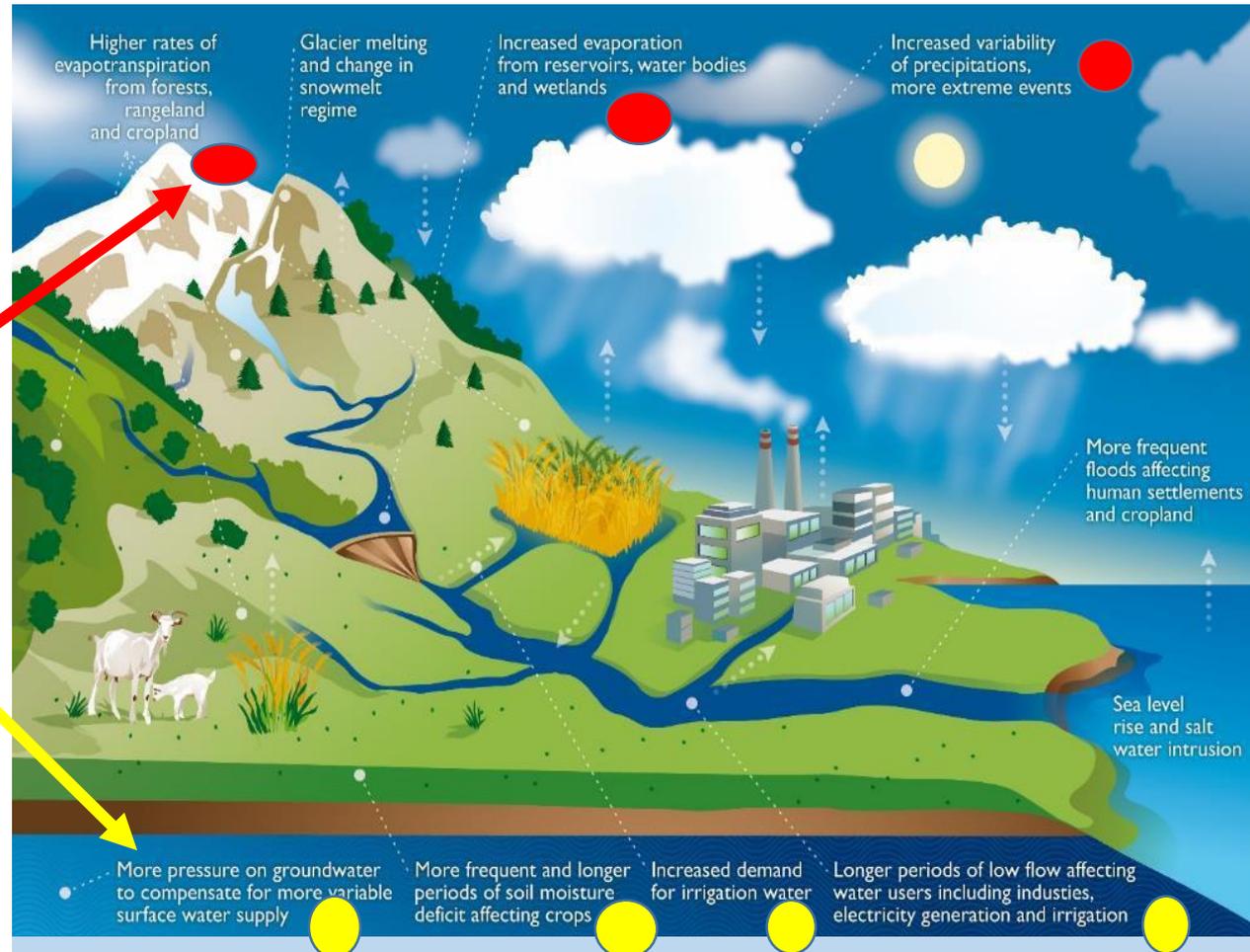
Global water demand: Baseline scenario, 2000 and 2050 (OECD 2012)

External factors....

■ Climate change

❖ Undeniable impacts on water cycle for agriculture:

- Direct effect - precipitation and evaporation cycle
- Indirect effect - migration and changing patterns of consumption



Source: FAO, 2013

Moving forward.....

- **Practicing climate-smart agriculture is essential** (i.e. AWM Technologies)
 - Reducing vulnerability to climate change through addressing water drivers
 - ✓ *Water use efficiency, conservation, waste prevention and less water-intensive crop option*
 - Framework for smallholder farmers is being developed

▪ Why Smallholder Farmers?

- **Vulnerability**
 - ✓ *Already climatically stressed - They dwell at semi-arid region - approximately 450 mm annual mean rainfall*
 - ✓ *Rely on rain-fed production system*
- **Potential and opportunities**
 - ✓ *Gradually moving into irrigation agriculture through Land and water reform*
 - ✓ *According to policy, there are commercial farmers of tomorrow*

Identified water smart technologies applicable at farm level



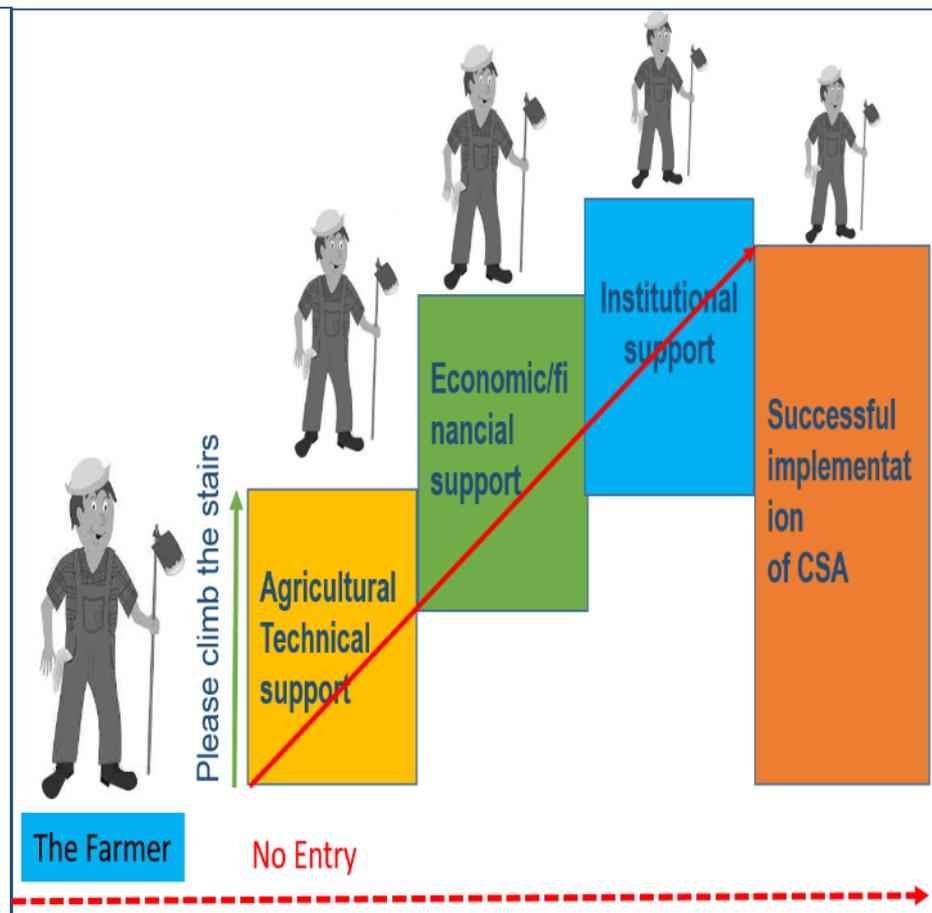
- Efficient irrigation technologies to reduce evaporation losses
- On-farm water storage
- Deficit and supplementary irrigation
- Crop varieties- drought resistance

Implementation of water smart strategies in agriculture

- The adaptability of smallholder farmers to cope with water shortage in semi-arid zones is possible,

✓ but it requires that certain barriers or limitations be overcome

✓ Scaling-up still a challenge



Conclusion

- Given the fact that major impact of climate change on agriculture results from its effect on water cycle;
 - ✓ *It is essential that potential responses to climate change that integrate crop and water management practices be in the forefront of adaptation approach for smallholder farmers in semi-arid.*
 - ✓ *However, there has been very little work systematically evaluating the effectiveness, impacts, costs and benefits of these programs*

THANK YOU



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