New Trends on Smart Agriculture – the water challenge

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Where do we stand?

Water is a scarce good – why?

IoT Week 2016 in Belgrade: Different dimensions of scarcity:

- Geographical scarcity – inadequate quantity and quality
- Political scarcity – inadequate rules and agendas
- Economic scarcity – inadequate infrastructure
- Technical scarcity – inadequate maintenance and tools
- Social scarcity – inadequate information and communication
- Scientific scarcity – inadequate research on water topics

Can IoT and “Digital Water” help to overcome scarcity?

Digital Water – A holistic term
Towards a digital single market for water services
EU Action Plan

Action Plan:

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ICT4Water Action Plan, Digital Single Market of water services
Water and Agricultural

... Not really something new
Well known facts ... estimates ... and consequences

Globally, we use 70% of our water sources for agriculture and irrigation, and only 10% on domestic uses.


"In Africa, only about 6% of the total cultivated land is irrigated... It is estimated that irrigation alone could increase output by up to 50% in Africa."

DTCC's natural resource management efforts promote rainwater harvesting, recycling, gravity-fed drip irrigation and alternate wetting and drying (AWD), among other water conservation techniques.

29% of the world's fresh water is used for animal production. 1 serving of chicken requires 330 gallons of water. A complete vegan meal requires 98 gallons of water. Make the connection!
If we want to go on ...

.... We have to change
Towards a smart water framework

SW.1
Reinforce better utilization and effective deployment of new technology enablers

SW.2
Promote a Digital Water Innovation Hub

SW.3
Improve efficiency and circularity in digitalization of water use and reuse
A European Action Plan is good ...

... But what is our role?
We need to understand ... develop ... transform ...

Water Smart Agriculture ...

So what is Water Smart Agriculture?

In its simplest sense, Water Smart Agriculture is an approach to farming that balances water availability, access and use across the range of water sources, and according to principles of socio-economic, environmental and technical sustainability. It seeks to maximize returns whilst protecting environmental flows and ensuring equality within farming systems.

... into Smart Water Agriculture
Think water when thinking smart farming ...

... A holistic approach
Use natural water resources ...

Manage and improve use of natural sources

- Use drones to provide new perspectives on hydrometry
  (http://aquaticinformatics.com/blog/hydrology/drones-providing-new-perspective-hydrometry/)
- Improved flow gauging of natural water resources and better understanding of water availability
Where to irrigate ...

Smart Sensing

- Enable tailor made solutions
- Measure quality and quantity of water used
- Collection of data and use of data sources to improve efficiency
When to irrigate ...

Smart Irrigation

- Use water as stress relief for plants
- Make best use of a scarce resource
- Sustainable way to improve harvesting
The way ahead

- Smart water management is an integral part of digital farming

- EU Action plan is a very adequate framework to link developments in water management to developments in smart farming

- AIOTI can provide one of the platforms for bringing the water sector and the agricultural sector together to implement the action plan.