Integrate Knowledge to Improve Water Productivity in Agriculture
World Food Production System Critical Challenges

- Social Capitals
- External Inputs
- Land Degradation
- Water Scarcity

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Each one of these constraints playing into and compounding the others, with multiplicative effects magnifying the impact on the food chain.

Today world food crisis is not a simple problem that can be fixed by new technologies, increasing resources’ exploitation or limiting access to natural and external inputs by regulation.
Impact on environment can be totally avoided or repaired?

Agreement and acceptance of bearable threshold of environmental impacts, not harming long term sustainable agriculture.

Recognise role and responsibility of rural and civil society managing mankind adapted natural environments: the agro-ecosystem.

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Present Economic Cycle Constraints

Policy Decision Makers

EU regulations
revision
Food
safety
Boost
Innovation

Productive Sectors

Convergence
AGR & ENV
Sustainable
Strategic Production
New Tech Patents
Job creation
Export

Reduce competition for
high valuable resources

Secure
ROI
Fulfil Supply
contract &
standards

Sustainable
Production
Costs reduction
Compliance with
AGR & ENV
regulations

Increase Productive Resources Use

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AGRICULTURAL WATER PRODUCTIVITY: PROBLEM OR SOLUTION??

Adapted from FAO - NRW P. Steduto 2011
SEIZE THE OPPORTUNITIES

FIGARO: Pioneering Knowledge-based Management

“The Chinese use two brush strokes to write the word 'crisis.' One brush stroke stands for danger; the other for opportunity. In a crisis, be aware of the danger but recognize the opportunity.”

John F. Kennedy

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Both are based on knowledge techniques (state identification) and adaptive optimization (short to mid term reaction and plans).

Precise Irrigation requires a real-time sensing and analysis of the factors potentially limiting production in order to drive technology management optimization.

Knowledge based management criteria are backing and integrating the precise irrigation concept, enhancing its effectiveness and adaptability.

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REMOTE & PROXIMITY SENSING TECHNOLOGIES

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SUB-FIELD MANAGEMENT ZONE

MobilLas soil and canopy sensors

Impact on irrigation system selection, design and management

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ICT-BACKED KNOWLEDGE BASED IRRIGATION MANAGEMENT

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NEW TECHNOLOGIES ARE NOT A PANACEA

To improve the productivity of water in irrigated agricultural systems a single step improvement of the irrigation technologies will be not sufficient.

A single technological innovation by itself cannot produce the expected results and when not correctly applied, can cause losses arising from investments made by Farmers, thus decreasing the Economic Water Productivity.
MULTIDISCIPLINARITY

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FRAGMENTED KNOWLEDGE INTEGRATION AND MANAGEMENT

MULTI-LAYERED GIS SYSTEM

CROP

CONTROL

HYDRAULIC

GEOGRAPHIC

Courtesy by NETAFIM

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REAL-TIME HIGH FREQUENCY MONITORING

ACCURATE SITUATION PICTURE

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PRECIPE IRRIGATION MANAGEMENT

- Precise Irrigation Management
- Precipitation; Evapotranspiration; Air Temp.; Solar Rad.; Wind speed

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North EU: Humid Climate

Mediterranean Sub-Humid to Arid Climate

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DISCOURSES ABOUT AGRICULTURAL WATER USES

POLICY MAKERS

INDUSTRIES

SCIENTISTS

FARMERS

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