The Comprehensive Assessment of Water Management in Agriculture

Co-Sponsors

[Logos of CGIAR, Ramsar, FAO, and CBD]
The CA: Water, Food and the Millennium Development Goals

How can water for food be developed and managed to:

• Help end poverty and hunger
• Ensure environmentally sustainable water-agriculture practices
• Find a balance between food and environmental security?
Setting the Scene
The 840 million undernourished.

Dependent on Water for Agriculture?
- Smallholder farmers
- Urban poor
- Rural landless
- Pastoralists, fishers, forest-dependent
- Lower Food Prices
- Nutrition, food security, income
- Employment
- Vulnerable to loss of water

Source: FAO data, graphic from SEI
Water Management In Agriculture –
A spectrum of agricultural activities

Graphic from Falkenmark & Rockstrom
Past investments: a mixed scorecard

- Gains in production, productivity, food security, famine prevention, and poverty reduction.
- Lower food prices have benefited the urban poor.
- Improved health and sanitation resulting from more water

But

- Unequal distribution of benefits,
- Environmental costs
- Increased health risks (like use of untreated wastes, water-borne disease)
Environmental Water Stress

Source: CA study by IWMI, WRI, Kassel University, CA RR #2
Debates on the way forward

- Relative investments in small and large, rainfed and irrigated
- Role of trade
- The prioritization of ecosystem water needs
- The role of agriculture itself in poverty alleviation

The CA combined a diverse group of over 700 practitioners and research to engage in these debates
The water situation now is much different than 30 ago.

- Past reasons to invest: reduce poverty and famine, food production, cold war politics
- New set of issues: increased competition with growing inequity, water-driven degradation, persistent poverty, increased health risks, globalization, and climate change
How much more water?
Meat demand in kg/cap/yr

Sub-Saharan Africa

East Asia

OECD
Total food demand nearly doubles by 2050

Without improvements in water productivity, agricultural water demand doubles
• How much more water?
• Where will it come from?
• What type of water management?

To produce enough food for 2 to 3 billion more people, and meet the MDGs on poverty, hunger and environment?
What about water productivity increases?
Exploitable yield gap in OECD rain fed areas less than 0.5 tons/ha

Maize

Actual yield 8.6 ton/ha

Maximum attainable yield 9.1 ton/ha

FAO data

* Based on GAEZ attainable yields
Exploitable yield gap in SSA rain fed areas more than 4 tons/ha

Yield growth projections:

- low = 20% of yield gap bridged; med = 40% of yield gap bridged
- high = 80% of yield gap bridged

* Based on GAEZ attainable yields
Most hungry and poor people live where water challenges pose a constraint to food production – the semi-arid and arid tropics.


From SEI Report
Message 1.
Up-grading rainfed agriculture holds tremendous potential for poverty reduction and improved water productivity in the semi arid and arid tropics, especially for Sub-Saharan Africa.
#1 Priority
## Upgrading Rainfed or Irrigation

<table>
<thead>
<tr>
<th>Rainfed</th>
<th>Irrigation</th>
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<tbody>
<tr>
<td>• Many rural poor are in rainfed areas and could gain by upgrading rainfed agriculture</td>
<td>• Investing in rainfed alone is risky, past efforts have not worked</td>
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<tr>
<td>• Large potential for productivity gains</td>
<td>• Good irrigation reduces risk,</td>
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<tr>
<td>• Water management is a key.</td>
<td>• More irrigation will be necessary for more food production</td>
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</table>
Message 2:
Secure access to water for food production is a proven ingredient to fight rural poverty.

Small scale, divisible, affordable water technologies provide a means of accessing and productively using water for smallholder farmers.

Bob Yoder and Sudarshan Pandy of IDE Present Local Action
Message 3.

In “closed” river basins, further appropriation of water is not possible because limits have been reached.

New developments lead to reallocation - robbing Peter to pay Paul.
New entitlements require re-negotiation of rights.

Sergio Vargas, IMTA - Lerma Chapala Basin Mexico presents local action.
## Infrastructure: Small or Large?

<table>
<thead>
<tr>
<th>Small Scale</th>
<th>Large Scale</th>
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<tbody>
<tr>
<td>Low costs</td>
<td>Over-year storage</td>
</tr>
<tr>
<td>Affordable by individuals</td>
<td>Reduces risk</td>
</tr>
<tr>
<td>Easy to manage</td>
<td>One investment can serve a lot of people</td>
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<tr>
<td>Quick startup</td>
<td>Serves multiple purposes</td>
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<tr>
<td>Rapid payback</td>
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Message 4

“Enhance a range of ecosystem services when practicing agriculture. There is scope in both agro-ecosystems and wetlands to promote services beyond production of food and fiber”

Peter Bridgewater, secretary General, Ramsar Convention secretariat (CA co-sponsor).
Message 5

“Enhancing water productivity, gaining more yield and value out of less water, is an effective means of intensification and reducing environmental degradation”

Louise Fresco, Assistant Director General, FAO (CA co-sponsor).
Water for Ecosystems

- Make sure there is water for food and domestic use first.
- Only then can water be given ecosystems.
- We will have to give up some ecosystems, but can minimize this through better management.

- Ecosystems support poor people - fisheries in wetlands.
- Ecosystem services are highly valuable.
- Ecosystems are the resource base and cannot be undermined.
- Water productivity gains in agriculture can help meet ecosystem needs.
- Thus water for ecosystems must have priority.
Message 6.

While continued decentralization of management roles is required, the state plays a major role in water resources development and management through policies, allocation of resources, regulation and financing”

Jorge Mora Portuguez, secretary General, Freshwater Action Network-Central America.
Message 7.

*Embrace the diversity of existing formal and informal institutions involved in managing land and water at local level, rather than reforming them.*

Maria Angelica Alegria, Gender and Water Alliance-Latin America.
Decentralization?

- The real problem is not the degree of decentralization, but rather that governments are in dire need of reform.

- Through effective decentralization, communities can solve their own problems with minimal government interference.
Message 8
Reinvent Irrigation

The era of rapid expansion of irrigated agriculture is over: a major new task is adapting yesterday’s irrigation systems to tomorrow’s needs.

Irrigation will be asked to more with less water. New irrigation may be a good investment, especially in countries with low GNP.

Comments by Salah Dargouth, World Bank
Message 9 - Smallholders

“Smallholder agricultural systems are an important intervention point for measures aimed at preventing or mitigating land and water degradation in the developing world”

In many vulnerable areas, smallholder farmers are in possession of the greatest unexploited potential to directly influence land- and water-use management. Smallholder farmers make up the majority of the world’s rural poor, and often occupy marginal and vulnerable land.

Comments by Jack Wilkinson, President, IFAP.
Moving smallholders out of poverty

- Small holder agriculture is a poverty traps. Any solution to help people out of poverty should move smallholders out of agriculture.

- Interventions into smallholder agriculture, including the smallholders in irrigation, is a key to livelihood security and an important stepping stone out of poverty.
Next Steps

- Summary for Decision makers at World Water Week in Stockholm
- The Challenge Program on Water and Food follows with actionable research
- Co-sponsors take the messages to member governments
- Outreach, communication and policy dialogue based on results
Thank you

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For further information visit: www.iwmi.org/assessment