POSTSCRIPT

The impossibilities of water in agriculture: An increasingly unreal world. What we have to do about it?1

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_Alice laughed: “There’s no use trying”, she said; “one can’t believe impossible things”._

“_I daresay you haven’t had much practice”, said the Queen. “When I was younger, I always did it for half an hour a day. Why, sometimes I’ve believed as many as six impossible things before breakfast”._2

1 THE VIEW THROUGH OUR LOOKING GLASS: HERE ARE SOME OF THE INESCAPABLE REALITIES OF THE WATER/AGRICULTURE RELATIONSHIPS FACING OUR WORLD

- Population is growing – world population has now past 6,800 million; and in water stressed areas, the population grows fastest.3
- Climate change forecasts are firming up to show real regional shortfalls.
- Meanwhile agricultural water demand is sharply increasing.
- Municipal and industrial water use has shown a sharp increase.
- Recent food price doubling, even tripling showed a widespread atavistic response.4
- Groundwater depletion – we are headed for a brick wall.
- There is no new investment in low yield areas.
- Globally 70 River Basins are closing where 1,400 million people live there is no water left for more development – Yellow River, Colorado, Amu/Syr Darya, Murray-Darling, Egypt’s Nile, Lerma-Chapala, Jordan, Gediz, Zayanda Rud, Indus, Cauvery, Krishna, Chao Phraya, …5

And here of some of the equally inescapable _impossibilities_ – impossible in the sense that if food and water are essential to life itself, it seems impossible that we as an intelligent innovative species, given the above changes, countenance these developments.

- The investments in agricultural research are falling.
- There are few or negative changes in incentives for agricultural change.
- Population growth is a taboo subject; which is also attracting little or no investment.

1 This Appendix corresponds to the notes prepared and distributed by Margaret Catley-Carlson to all the participants of the Workshop of Santander (September 2009) as possible _hot issues_ related to Water and Food Security. These notes have been here included due to its interest in order to stimulate the debate.
2 Lewis Carroll – Alice through the Looking Glass.
United Nations chief addresses one solution to the challenge of overpopulation on World Population Day, as the world’s human population now reaches 6.8 billion people.
• The Doha trade round is stuck, and is being replaced by bilateral agreements.
• Yet the subsidies remain, even in high price climate and these are a major factor in agriculture production decisions, including water use.
• There is however, a closed door, closed minds to drought/temperature resistant GMOs.
• Meanwhile the maps of potential conflict areas grow.
• In the case of fisheries – ocean and freshwater are at a limit.

The essential Food/Agriculture/Water Dilemmas …

• In the future there will be 2,000 million more to feed – with a protein diet it is important to consider that 1 calorie takes 1 liter of water.
• Water scarcity is a threat to food security but we are NOT running out of drinking water – we are running out of economic water – agricultural, energy, industry, tourism uses are in competition. The poor and the environment tend to lose in this competition for economic water.
• We are not appreciably moving towards a solution.

So,

• What needs to be done?
• Why it is so difficult to do what needs to be done?
• What might be the responsibility of those in this room – different responsibilities than have existed in the past?
• Are there lessons from those who have created real change from policy prescriptions?

II WHAT NEEDS TO BE DONE? THIS IS THE PART WE ALL LIKE BEST – SETTING OUT THE SOLUTIONS

• More crop per drop (or more benefits to nature per drop).
• Expand policies and take key actions to upgrade rainfed systems – this might offer the highest potential for poverty reduction and water productivity gains.
• Some new technology:
  o Water harvesting.
  o Supplemental irrigation.
  o Field water conservation to reduce evaporation.
• Build human capacity to understand, participate, and manage systems.
• Ensure secure access (including water rights).
• Targeted investments in pro-poor technologies.

What are the enabling conditions for these things to happen? This is a zone of much less comfort.

• Cost & affordability.
• Price and profitability.
• Risk – market, climate, water availability.
• Market reform.
• Individual behaviour – eating, consuming.
• Reform incentives and institutions.
• Education.
• Whole sectoral reforms needed.
  o Craft solutions suited to local needs.
• No blueprints.
III WHY IT IS SO DIFFICULT TO DO WHAT NEEDS TO BE DONE?

- By common consent, the problem is management. Water is badly, or not sufficiently well managed, everywhere.
- No science innovations required to achieve 90% of the desired water management objectives. The last 10% can be achieved with better monitoring systems, forecasting, data management, GIS.
- There are technical answers but these are not necessarily implementable solutions.
- Policies outside of the water sector have huge influence on water resources – diets, trade, agricultural subsidies, energy.
- More and more, solutions to difficult problems can be found only in composite actions.
  - No single idea will serve – no piece of infrastructure, no new Fund, no Programme, no piece of technology, no draconian social engineering, no dramatic price movement (though these may all play roles).
  - Difficult problems of our time – global climate variability, homelessness, the obesity epidemic, narcotics trade, rational water use, finding and using cleaner energy – all of these require changes from thousands if not millions of players.
    - This creates a political problem of some considerable magnitude: leaders are expected to ‘do something’ in response to disasters, threats and challenges.
    - Real answer is often that a great number of players all need to “do something”.
    - Trick is to find the mechanisms that will increase the chances that they will move in the right direction.
- Area of greatest need is most unlikely to yield effective policy change: Africa.
- Reform is a negotiated political process – high stakes means powerful resistance.
  - Needs time consuming stuff: Coalitions, differential calculations of costs and benefits.
  - Knowledge producers and brokers have a role – but WHAT?
    - For assessing tradeoffs (water accounting, social and environmental impacts).
    - Negotiating tradeoffs.
    - Mechanisms to compensate for those who stand to lose.
    - Foster social action and public debate.
    - Share knowledge and information & knowledge equitably.
  - Scientists and academics do not speak the language of political change.

IV WHAT MIGHT BE THE RESPONSIBILITY OF THOSE IN THIS ROOM – ARE THEY DIFFERENT RESPONSIBILITIES THAN HAVE EXISTED IN THE PAST? DO WE NEED TO WORK HARDER AT GETTING THROUGH THE LOOKING GLASS?

- Little utility in the constant repetition of what an ideal state looks like . . . it doesn’t get us there.
- Meetings and conferences tend to repeat what SHOULD be done.
- What we rarely explore is why it isn’t being done.
- Need to concentrate on the “what would it take?”
- The question: “is policy change possible outside of drought, disaster, massive displacements?”

There is a terrible paradox at play here. Those who truly understand the gravity of the situation sit in rooms like this. If these crises are real, must we insist collectively that a good part of our time is spent actively trying to engage the political process – in the language and style of that process?

If not, who will do this?
Do we have a responsibility to alter style to be heard?
Do we have a responsibility to define the issues in terms that they will be listened to?

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6 Randy Olson – Don’t be such a Scientist: Talking substance in an age of style. Island Press, 2009 (proof copy).
What would have to change? So very much ... take the Millennium Ecosystem Assessment\textsuperscript{7} – an example of years of effort, lot of resources, important conclusions yet it sank without trace.

\begin{itemize}
  \item Maybe it is more useful to tell stories not recite science data.
  \item Make a case that is both accurate \textit{and} interesting – to the listener (understanding the listener).
\end{itemize}

How often do water meetings or agricultural/water meetings to move away from what \textit{ought} to be done to spend time talking about what has worked to move science and policy prescription into \textit{policy and politics}?

\textit{Let me share with you the important conclusions from a two day workshop that did exactly that.}\textsuperscript{8}

\section{V \ TRANSLATING POLICY PRESCRIPTIONS INTO ACTION – WHAT HAS WORKED?}

\textsc{Here is a synopsis of some views of those who have done it}

The first issue – only nations take real decisions about land and water use – we can only work for decisions at the national level if we want to effect real change.

\begin{itemize}
  \item It is key to have a set of prescriptions (agreed) in hand – allocation, agriculture, environment – these things had been codified, worked on – “it won’t work if everyone chooses each moment to rehearse his own research issues”.
  \item Find the rallying cry – e.g. in South Africa discovery that 1/3 did not have water became a rallying cry, probably after the decision to give water priority. Water \textit{resources} policy was a trivial concern at that point – it was water services, delivered by centralized water authority that gave the authority and legitimacy. This gave the oomph to address resources policy later. Not everything can be a priority at once. Avoid the Big Bang approach – “all issues answered in a 20 year programme of ongoing reform” – this will bog down.
  \item Opportunism – MUST be part of the process – do the preparation but seek opportunities to introduce the change in policy. Is it possible to provide a virtual shock? Do you have to wait for fish to run out of North Atlantic before there is new – or do you have to wait for a flood, a drought or cholera to get action?\textsuperscript{9}
  \item The biggest issue is fighting an entrenched mind set – bureaucracy and policy. Academics tend to avoid other than academic \textit{rules-understood} conflict. Conflict gets dirty, messy. But it is conflict that energizes people to get involved – if you can steer it.
  \item Use crisis – Rainwater Harvesting\textsuperscript{10} as a solution. Could be done in many villages of India. Scaling up – capture the imagination at a scale. Today – Rainwater Harvesting is well established; water is part of the top political agenda – e.g. the National Rural Employment Programme.\textsuperscript{11}
  \item Must not keep applying the same formulae. Get into the dirty world of public policy making – putting out the facts publicly. Policy is never complete – it is really important to constantly monitor follow up – announce this at the outset.
  \item Use the most powerful – \textit{NOT} the most scientifically interesting – data to provoke actions – i.e. show that poor actually pay for water. Effectively communicate big messages – what are we really talking about?
\end{itemize}

\textsuperscript{7} 2005. The Millennium Ecosystem Assessment assessed the consequences of ecosystem change for human well-being. From 2001 to 2005, the MA involved the work of more than 1,360 experts worldwide. Their findings provide a state-of-the-art scientific appraisal of the condition and trends in the world’s ecosystems and the services they provide, as well as the scientific basis for action to conserve and use them sustainably.

\textsuperscript{8} Policy Triggers Workshop – Colombo, Sri Lanka. 2006, November 30 (personal notes).

\textsuperscript{9} Mike Muller – Reflections on South African water policy change. Colombo Workshop.

\textsuperscript{10} Sunita Narein – Reflecting on the Rainwater Harvesting revolution in India. Colombo Workshop.

\textsuperscript{11} NREGA – Guaranteed employment in 200 districts, employment to be created in asset management, asset is water: water conservation, building water assets. National Rain fed Areas Authority. Have a National Water Recharge Authority, a Tank programme.
• Create a sense that you could actually manage groundwater levels at a community level. Living off interest and not the capital of those wells.
• Consultation is dangerous unless there is a consultation strategy – which has to be thought through in terms of a realistic assessment of the players. If language is very difficult to understand it will lead to interpretations with no champion to defend because it was too complex – no big principles to hang on to.  
• Get used to this: only the Anti side has a clear message – “if you vote for XXX you won’t be able to bathe in this tank”. Public servants were not allowed to talk; politicians would not get out and could not.
• Taxing water will always lead to an outcry. Charges or tariffs are acceptable for domestic but people could not tolerate charge for agricultural, primary paddy cultivation. Trying to close down small paddy farmer meant that three elections had water act as main issue … e.g. picture of Anuradhapura tank.
• Need to reach agreement on the entry point – how? Any entry point – liberating – and sobering. Depends as much as anything on who needs or is willing to pick up the cudgels?
• Triggers – opportunities – space for change – external and internal.
  o Content of Change – in policies and practice – i.e. barrier analysis.
  o Tactical Plan for Change – “What would it take?”
    * Motivation.
    * Idiom.
    * Opportunity.
• “What would it take”? vs more research.

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