



CGIAR Challenge Program on  
**WATER & FOOD**

Andes • Ganges • Limpopo • Mekong • Nile • Volta

# CPWF Science Report

## May – November 2012

Alain Vidal, CPWF Director



# What makes our R4D successful?





Sustainable intensification and  
ecosystem services in the Andes



# Downstream – where the concern for ecosystem services emerged



Eutrophication and shrinking of Fuquene Lake (downstream)



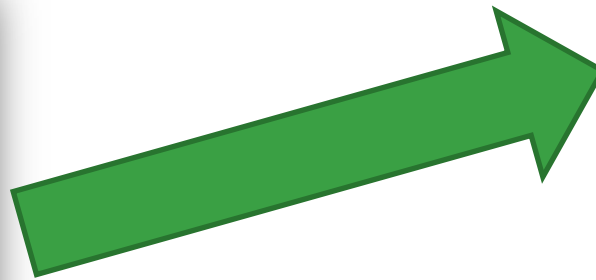
High altitude wetland (*paramo*) degraded by potato cropping and overgrazing



# Restoring upstream and downstream ecosystem services



*Paramo* restored through conservation tillage and oat/potato rotation



Water quality and downstream ecosystem services from Fuquene Lake improved

# Lessons learnt from CPWF Phase 1



**Annual net income:**  
2,183/ha

Revolving fund credit:  
+180 farmers /year

Farmers' insufficient gain and risk aversion



Conservation agriculture and *paramo* restoration supported by revolving fund

Potato cropping, grazing pressure, degradation of *paramo*

S



**Annual net income:**  
US\$ 1,870/ha

# Need for an economic engine

## Irrigation and dairy farming in Nariño



*Return on  
investment:  
150%*



Irrigation and  
alfalfa production  
supporting dairy  
intensification  
**Alliance with a  
dairy and milk  
Cooperative**

Grazing pressure,  
degradation of *paramo*

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# Empowerment: hydro-literacy to support local rights to partake in decision making



*Emerging inclusive  
benefit-sharing  
mechanisms*



*Conversatorios  
promoting  
dialogue,  
facilitated by  
stakeholders'  
"hydro-literacy"*

**Conflicts on water  
and land resources**

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Sea-level rise: an opportunity for the poor of the Ganges Delta ?



# Among world's poorest



Poverty, food insecurity, vulnerability

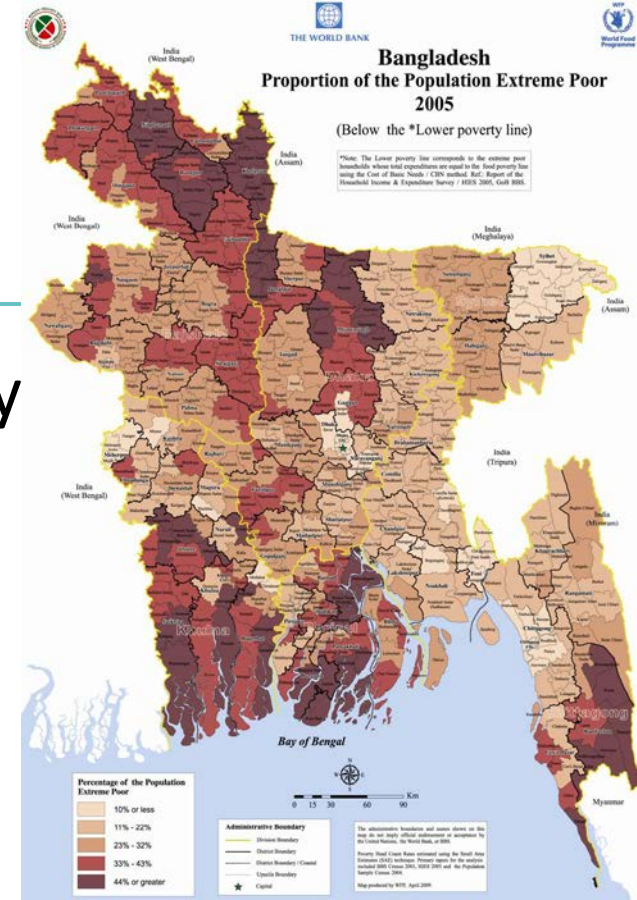
- 75% of households (HH) with 0.2-0.6 ha
- HH income US\$700/year
- 80% of population below national poverty line



Too much water in rainy season



Salinity and lack of fresh water in dry season



BBS / WorldBank / WFP (2009)

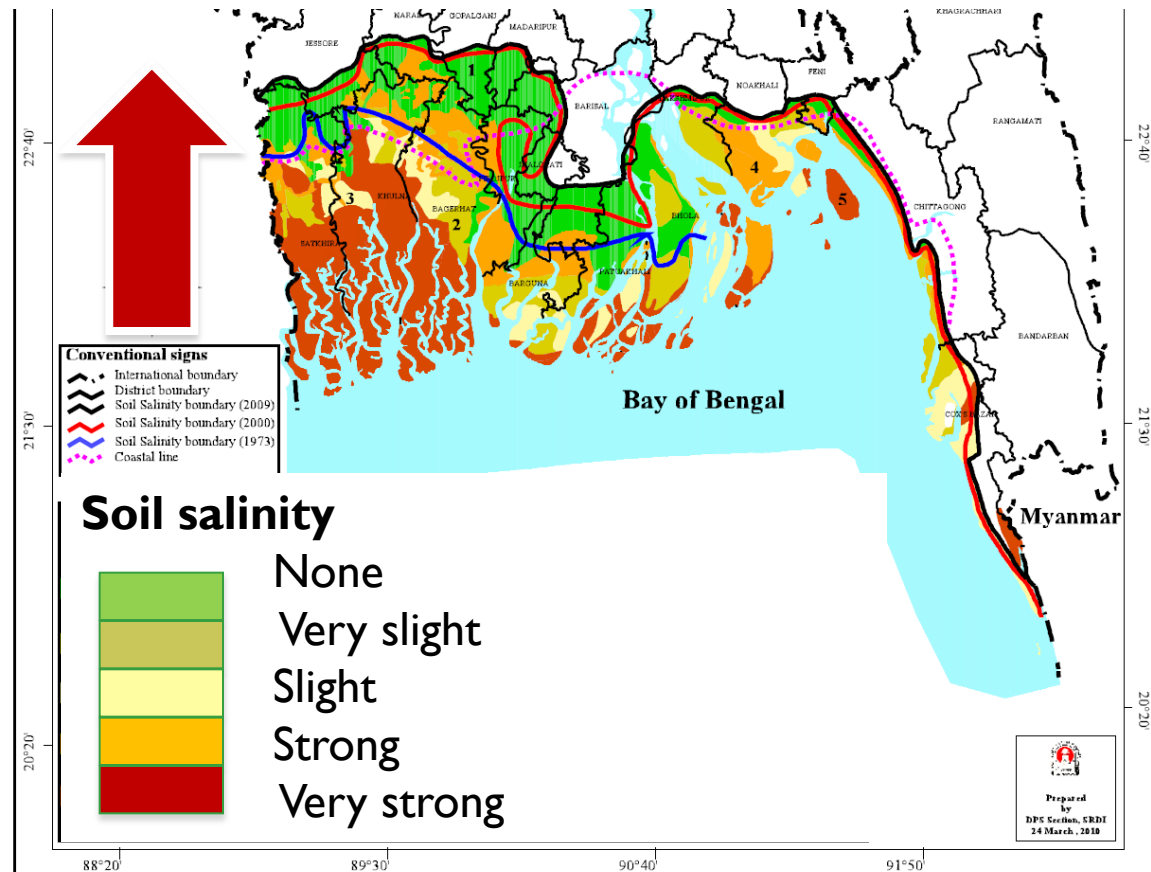


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# Untapped potential but growing pressure from salinity



- 🌿 Huge potential to improve food security and livelihoods
- 🌿 Salinity not a constraint everywhere – even an opportunity



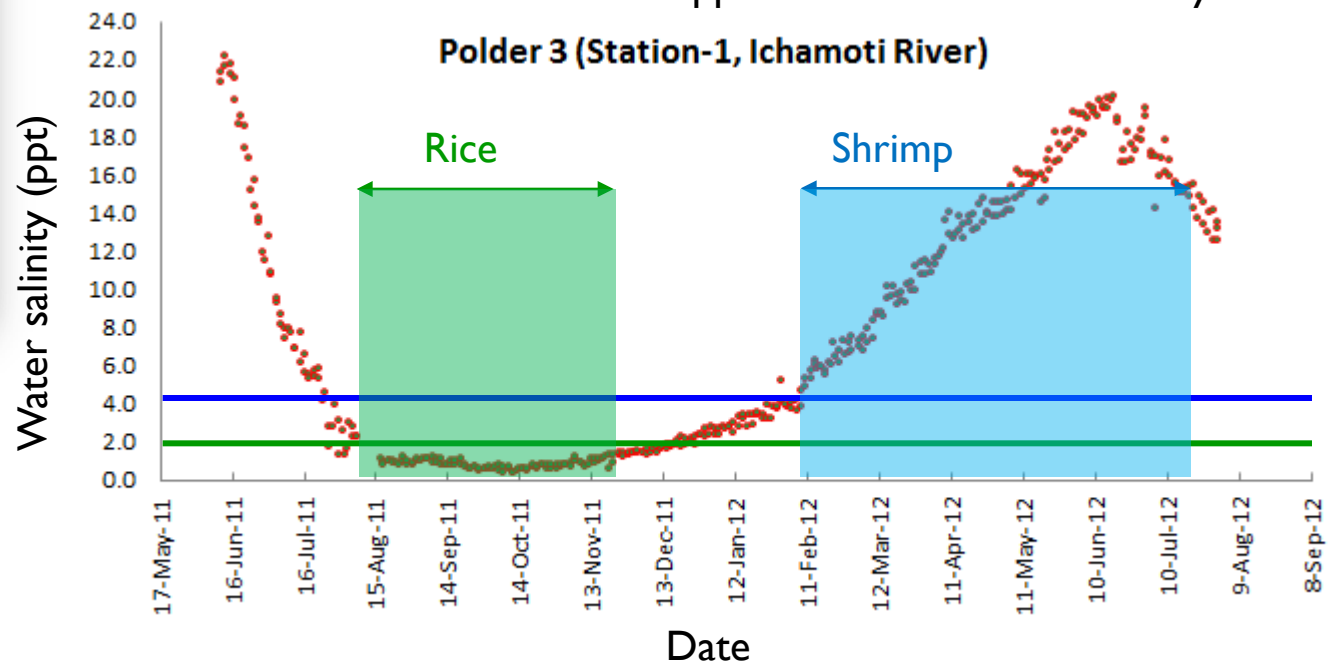
# Sustainable intensification of polders: technical and institutional challenges



● Daily water salinity

— Lower threshold limit of salinity - Shrimp

— Upper threshold limit of salinity - Rice



● Lots of viable cropping systems possible with crop diversification, fish and shrimp

● Need for political changes at national and local levels

- Canal maintenance and management
- Shifting from rice monoculture



# What makes our R4D successful?

## What are the right combinations?

- 🌿 Understanding and enhancing ecosystem services can unlock intensification
- 🌿 Combined technical and institutional innovations
- 🌿 Virtuous circles need economic engines
  - Access to markets
  - Access to credit
- 🌿 Empowerment is key to equitable solutions
  - Enhanced people's rights and institutional governance





Thank you