

## Improving Resilience for the Poor

A. Vidal, D. Mpairwe, D. Peden, M. Quintero, T.P. Tuong  
*CGIAR Challenge Program on Water and Food*

ICID Workshop WG-Poverty  
Yogyakarta, 61st IEC Meeting of ICID  
13 October 2010



## Re greening the Uganda “Cattle Corridor”



Termites destroy any attempt to reseed degraded pasture



Community corraling of cattle for 2 weeks permits pasture establishment



Local organizations invest in up scaling of pasture regeneration

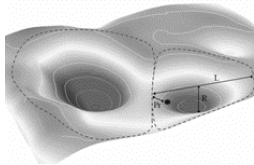


## What exactly is resilience?

🌱 The capacity of a system to absorb disturbance and reorganize while undergoing change, while retaining essentially the same function, structure, identity, and feedbacks (Walker et al. 2004)

🌱 4 components:

- Latitude
- Resistance
- Precariousness
- Panarchy cross scales

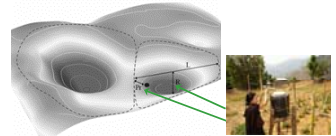


## Addressing the resilience challenge

🌱 Increase resilience of social ecological systems?

🌱 Humans can influence attributes of resilience

➡ *adaptability*



🌱 They can also create a fundamentally new system

➡ *transformability*

- Scenario planning to explore plausible transformations
- Example: shifting rangeland activities from livestock to ecotourism

## Review of CPWF adaptive and transformative management cases

Re greening the Uganda  
“Cattle Corridor”



Restoring river flows, quality and  
ecosystem services in the Andes



Restoring the sustainability  
of the Mekong Delta  
agro ecosystem

## Re greening the Uganda “Cattle Corridor”

Restoration of  
vegetative pasture  
grass cover, more  
feed availability to  
animals, carbon  
sequestration



Ecosystem passed a  
seemingly irreversible  
threshold, unable to  
recover



## Restoring ecosystem services in the Andes



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



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

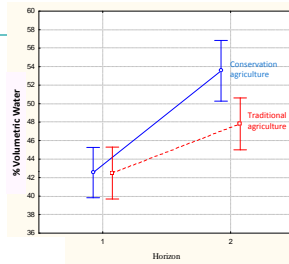
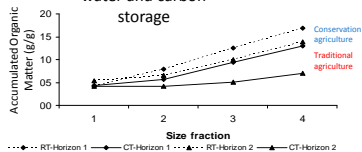


## Resulting changes on upstream water

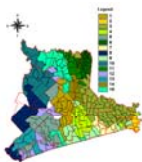


Better soil porosity, filtration, increased water and carbon storage

More water stored, restoring the buffer role of *paramo*



## Restoring the sustainability of the Mekong Delta agro ecosystem



Farmer adoption of diverse rice shrimp fish production systems

Zonal sluice gate management allows brackish or fresh water at different times of year

Provincial government recognized brackish water as a resource; promoted new systems

## Diversification supporting economic growth

Before



After

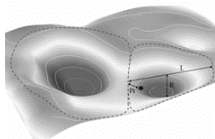


Growth rate of Bac Lieu province (2004 – 2006) 15.7%/year  
Income of rice shrimp system: ca. US\$ 2,150/ha/year

## Lessons learnt on food production social ecological systems

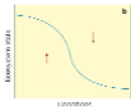
### States defined by recurring (local) variables

- Soil properties (eg organic matter, carbon)
- Water quantity and quality
- Animal density (livestock, fish)
- Household income
- Community organisation



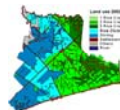
### Generally resistant but precarious

### Non linear changes, most often reversible



## Lessons learnt on adaptability and transformability

Degraded food producing systems are often locked in resilient (poverty) traps



Institutional and technical innovations mostly enable adaptation (transformation seems to require more time and dramatic changes)

Long term efforts required to strengthen the resilience of desired states

- Negative feedbacks (innovation adoption vs. risk aversion)
- Precariousness

