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Carbon Finance in Extensively Managed Rangelands

Issues in project and sectoral approaches

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Tennigkeit & Wilkes (2008) An Assessment of the Potential for Carbon Finance in Rangelands (WISP & ICRAF)

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Scope of investigation

- Carbon market trends and potential for demand
- Biophysical potential
- Economic feasibility
- Institutional issues
- Methodological issues
- Capacity constraints
- Mostly considers project approaches

Limitations

- Only investigated CO2 mitigation potential
- Focused on rangelands in traditional pastoral areas of developing countries, but used data from extensive pastoral systems in developed countries because of data limitations
- Study completed in 2 weeks

Main findings

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- Demand limited by exclusion from compliance markets
- Biophysical potential has been proven for several management measures in a variety of rangeland types
- Documentation of implementation costs and economic feasibility almost non-existent
- Rangelands are often in large contiguous areas, but this requires institutions to aggregate individual households' carbon assets
- Land tenure in communal rangelands likely to be the biggest constraint
- Potential project developers have strong capacities for promoting adoption of carbon sequestrating management practices
- Potential project developers have limited understanding of market opportunities
- National agencies and some potential purchasers have little awareness of the mitigation potential of rangelands
- In the short-term, there is potential to develop methodologies for voluntary market projects
- Recommendations: bridge key knowledge gaps; raise awareness; early pilot action + capacity building + readiness

For details, please refer to the original paper

Some key issues for today:

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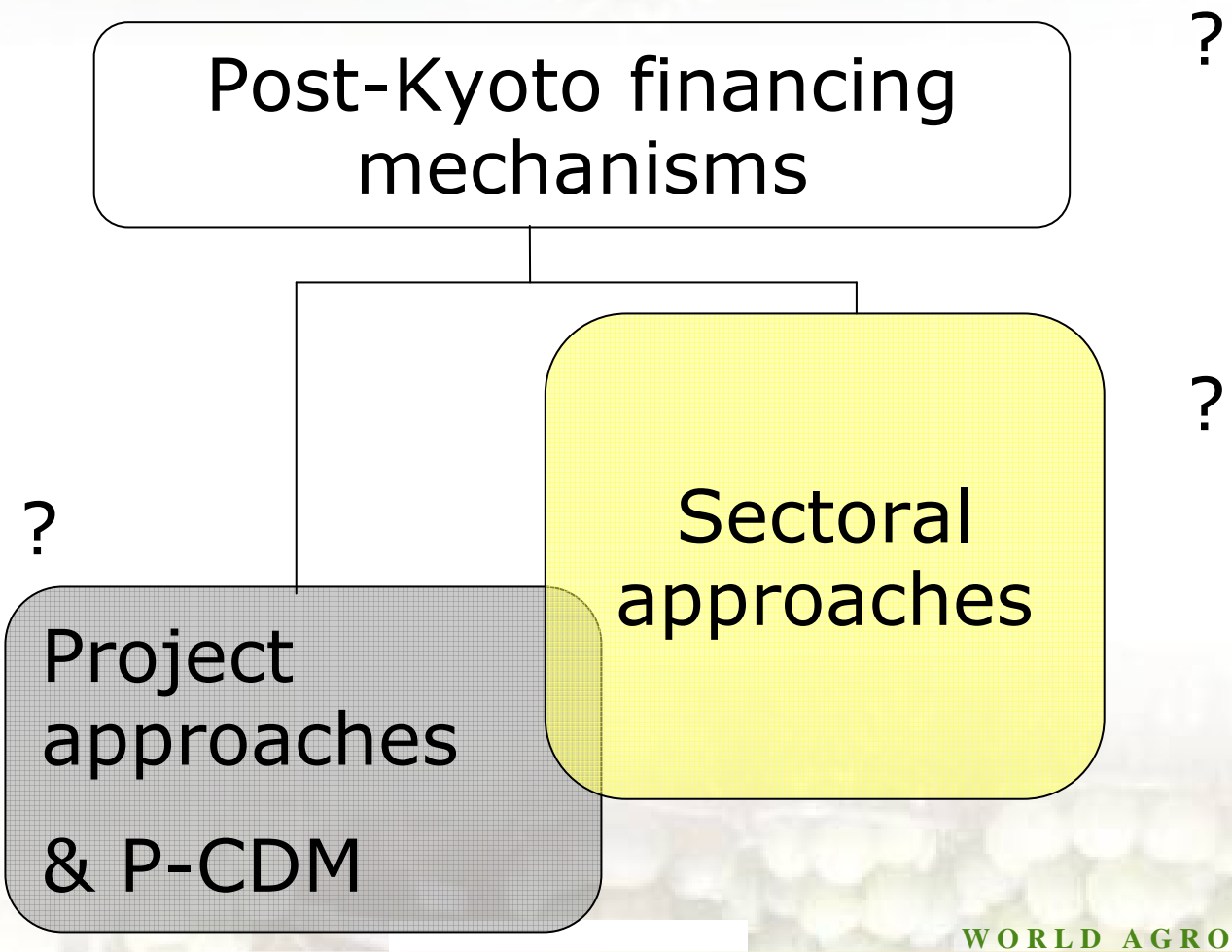

When and why a project approach?

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In immediate short-term: only voluntary market projects because not CDM eligible

In medium-term: potential for CDM eligibility, especially in absence of national baselines

In longer-term: potential as a support to developing sectoral approaches, and where sectoral approaches are not feasible

- Necessary for developing and piloting methods, calibrating models, building capacity
- Can generate financial flows before national / sectoral accounting systems are in place

Potentials and issues in a project approach

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Potential 1: Mitigation measures known and generally available

Potential 2: Financial costs reportedly very low

Constraint 1: Very little documentation for developing countries

Constraint 2: Tenure systems

Constraint 3: Modeling and monitoring methods yet to be developed for extensive grazing systems

Potential 1: Mitigation measures are well-known and generally available

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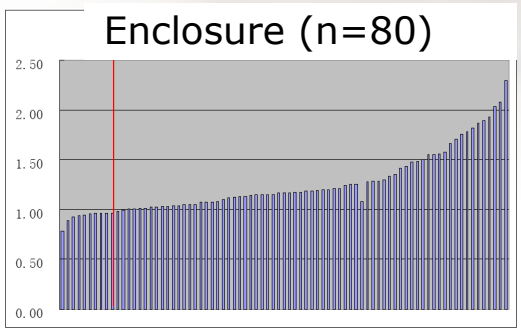
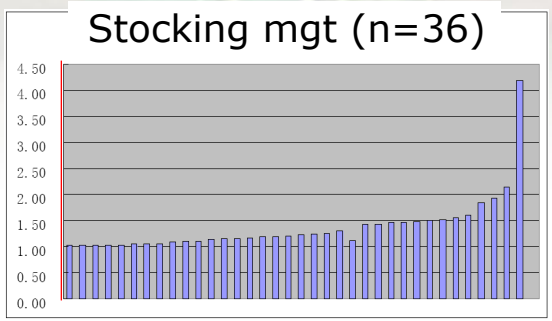
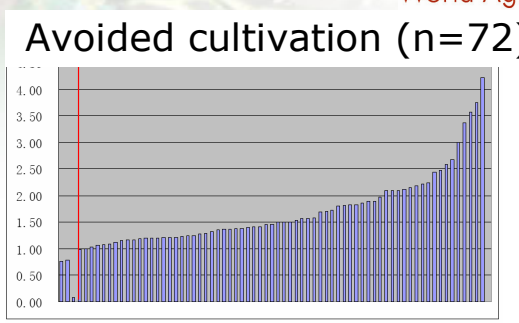
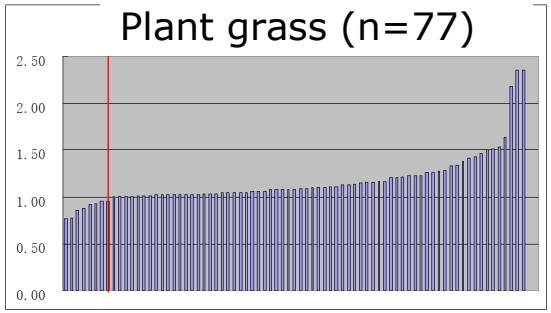
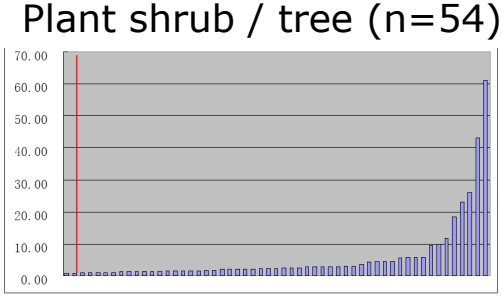










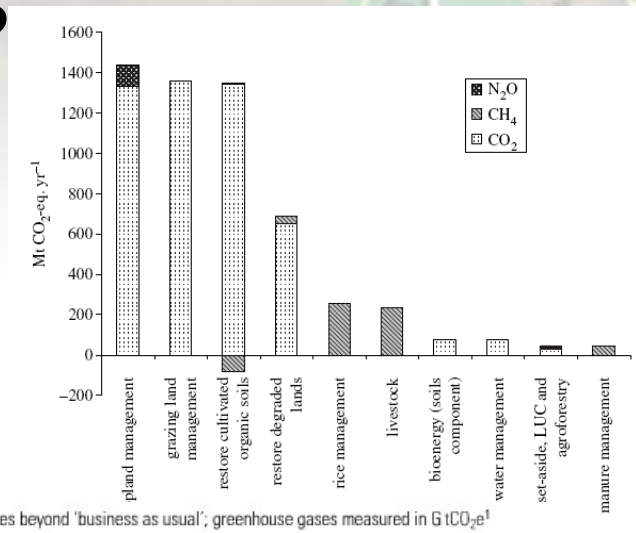
Response ratios in China' s grassland areas

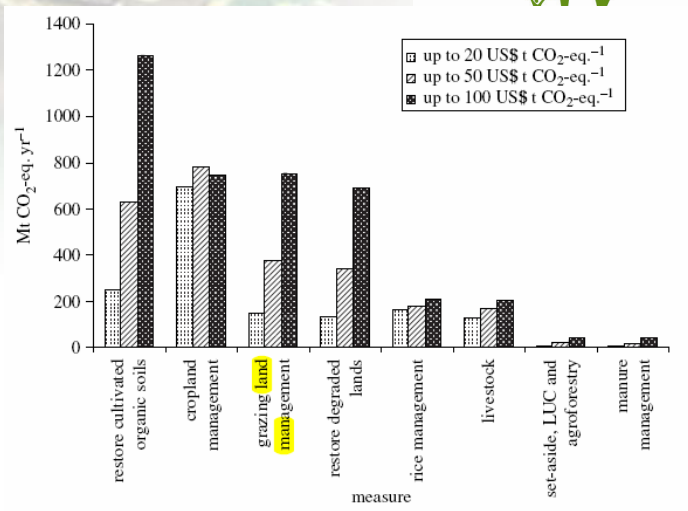
Country of origin of C sequestration database data points

Americas	Africa & M. East	Asia & Oceania
Argentina (n=4)	Saudi Arabia (n=2)	Australia (n=63)
Brazil (n=31)	Tanzania (n=1)	New Zealand (n=40)
Canada (n=41)	Uganda (n=1)	China (n=9)
Colombia (n=23)	Zimbabwe (n=3)	
Costa Rica (n=10)	Burkina Faso (n=1)	
Mexico (n=4)	South Africa (n=2)	
USA (n=69)		

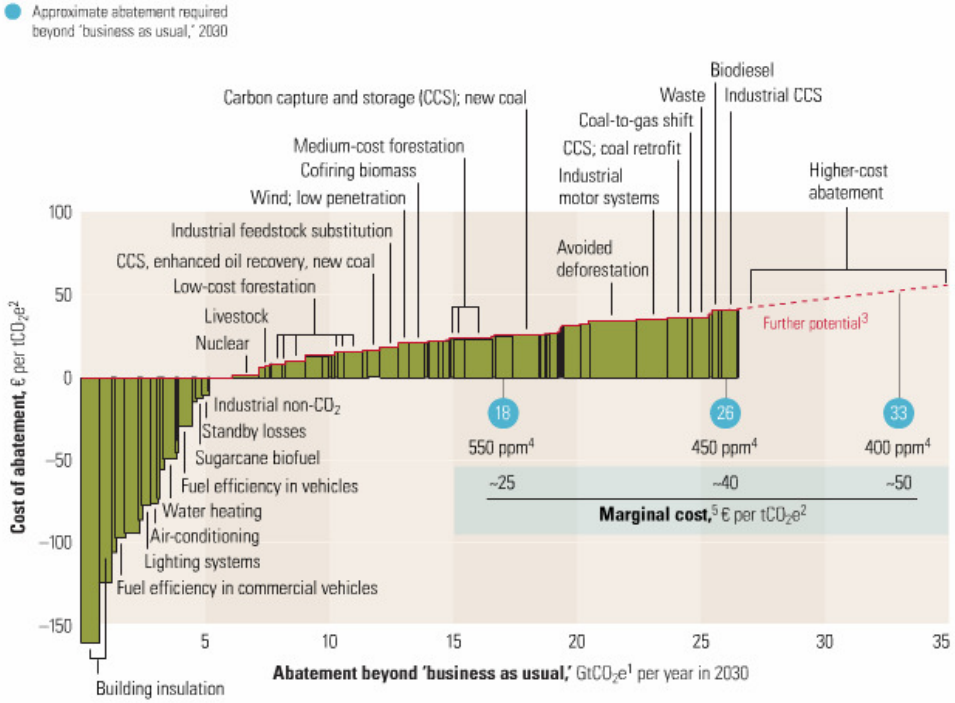
Many regions are under reported

Potential 2: Mitigation in rangelands is low-cost?





Global cost curve for greenhouse gas abatement measures beyond 'business as usual'; greenhouse gases measured in G tCO_2e^1



- Smith et al (2008): assumes $5/ha; finds supply is price sensitive

- McKinsey (2009): assumes Euro 2-4/ha/yr and 0.1 – 0.8 tCO2e/ha/yr; finds grassland management is very price competitive

Constraint 2: Tenure systems

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VER or CER buyers need legal certainty;

implementation requires control over land use

→

- Where tenure is clear (whether private or collective) AND use rights are excludable, there is potential
- Where traditional land use does not have legal recognition, or where pastoralists are unable to exclude others from land use, this presents significant challenges

Land users in Madiama (Mali):

-Locally resident agro-pastoralists

-Seasonally resident pastoralists

-Absentee livestock owners

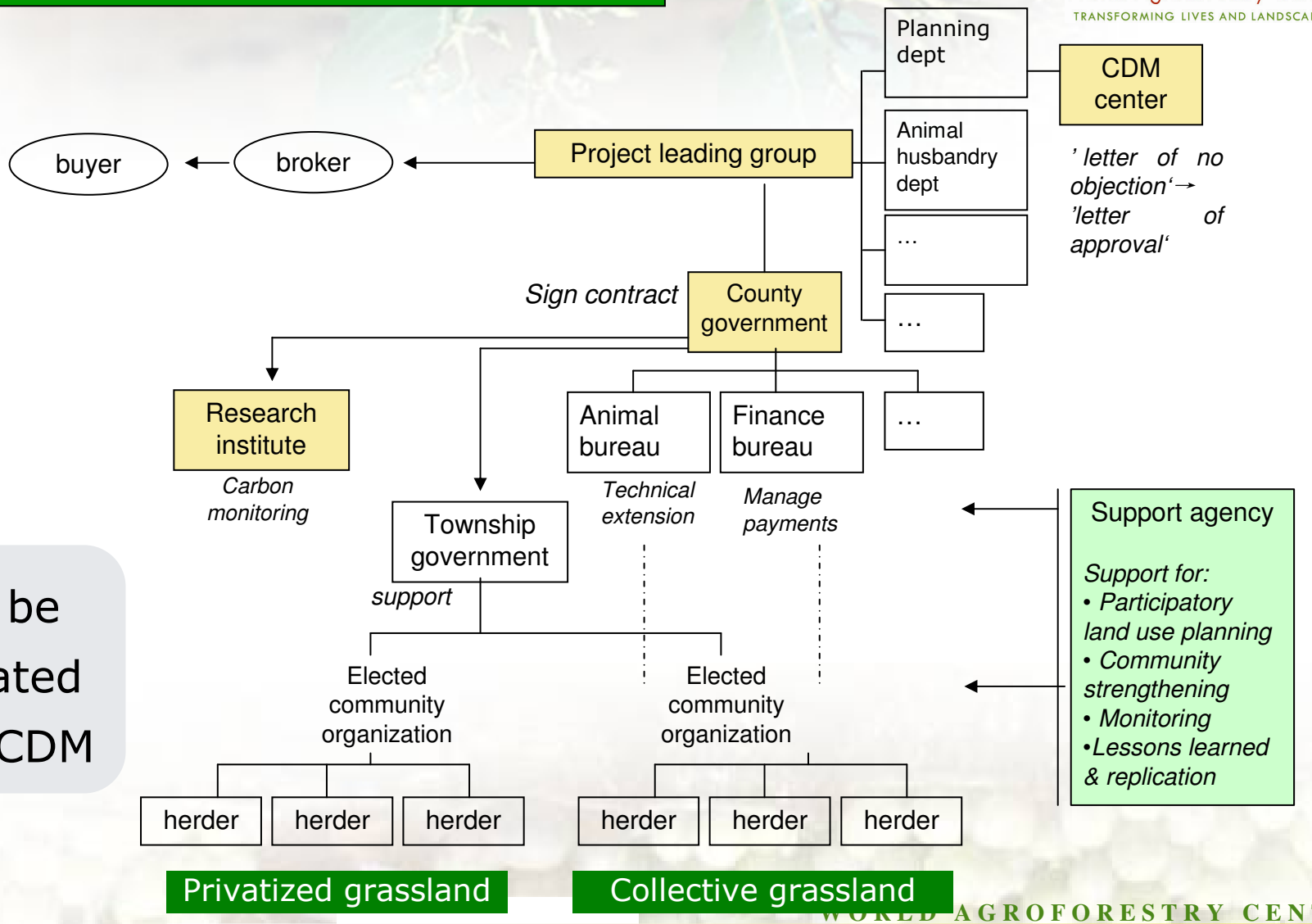
-Hired herders

-Migrating cattle herders

Village chiefs can restrict use by outsiders, but villages also have informal use rights in other villages

(Roncoli et al 2007)

Hypothetical institutional set-up (China, clear tenure)



Could be replicated into pCDM

Constraint 3: Modeling and monitoring methods

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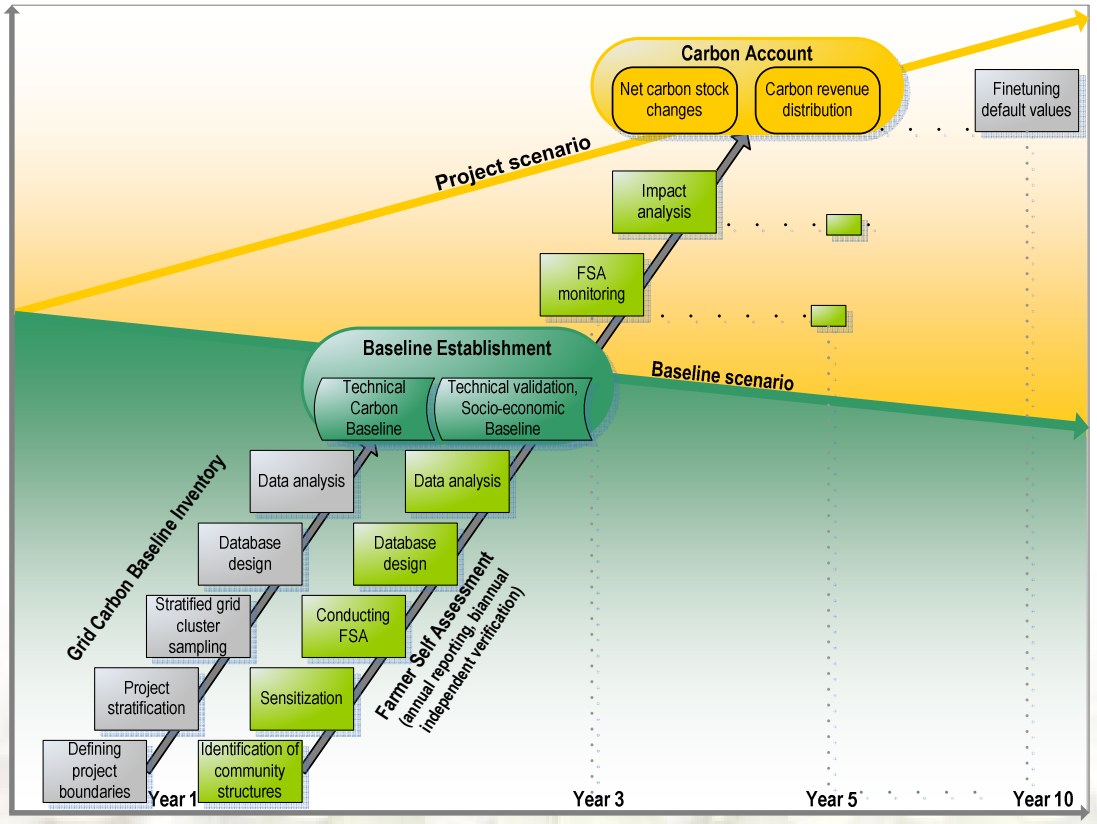
Livestock keepers will adopt management practices when *expected* net benefits are higher than *expected* net benefits of current practices

→ Partly an institutional & communication issue

→ Possible solution: activity based monitoring

Baseline establishment and monitoring concept



Tennigkeit & Woelke 2009

When and why a sectoral approach?

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In medium-term: Because cost of small-scale pilots is high, sectoral approaches can cover a larger area at lower unit area cost

In medium- to long-term: strong support for developing a sectoral CDM approach, linking with national accounting & credit trading

- Reduces transaction costs in covering increasingly large areas
- Can link with multiple funding sources (national, international, private)

Potentials and issues in a sectoral approach

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Potential 1: Can cover very large areas (regional / sub-national / national)

Potential 2: Lower transaction costs per unit area than project approaches: 20-25% of project design costs (Sudha et al 2006)

Constraint 1: Management activity data for baselines often missing (GEFSOC)

Constraint 2: Capacity for verification

Constraint 3: 'Implementability'

What might sectoral approaches look like?

See BAP 1b(i,ii); AWG-LCA5 submissions by Korea, Australia, EU

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Voluntary mitigation actions

(Korea: voluntary registry, but if not MRV-able, cannot attract international finance)

Assisted mitigation actions

(components of NAMAs that bilateral or multi-lateral assistance can target, but ODA cannot be used to generate credits)

Sectoral crediting and trading

(Sector no-lose targets, Low Carbon Development Strategies; 'deviations from baseline' can generate tradable credits, but must be MRV-able)

What might sectoral approaches look like?

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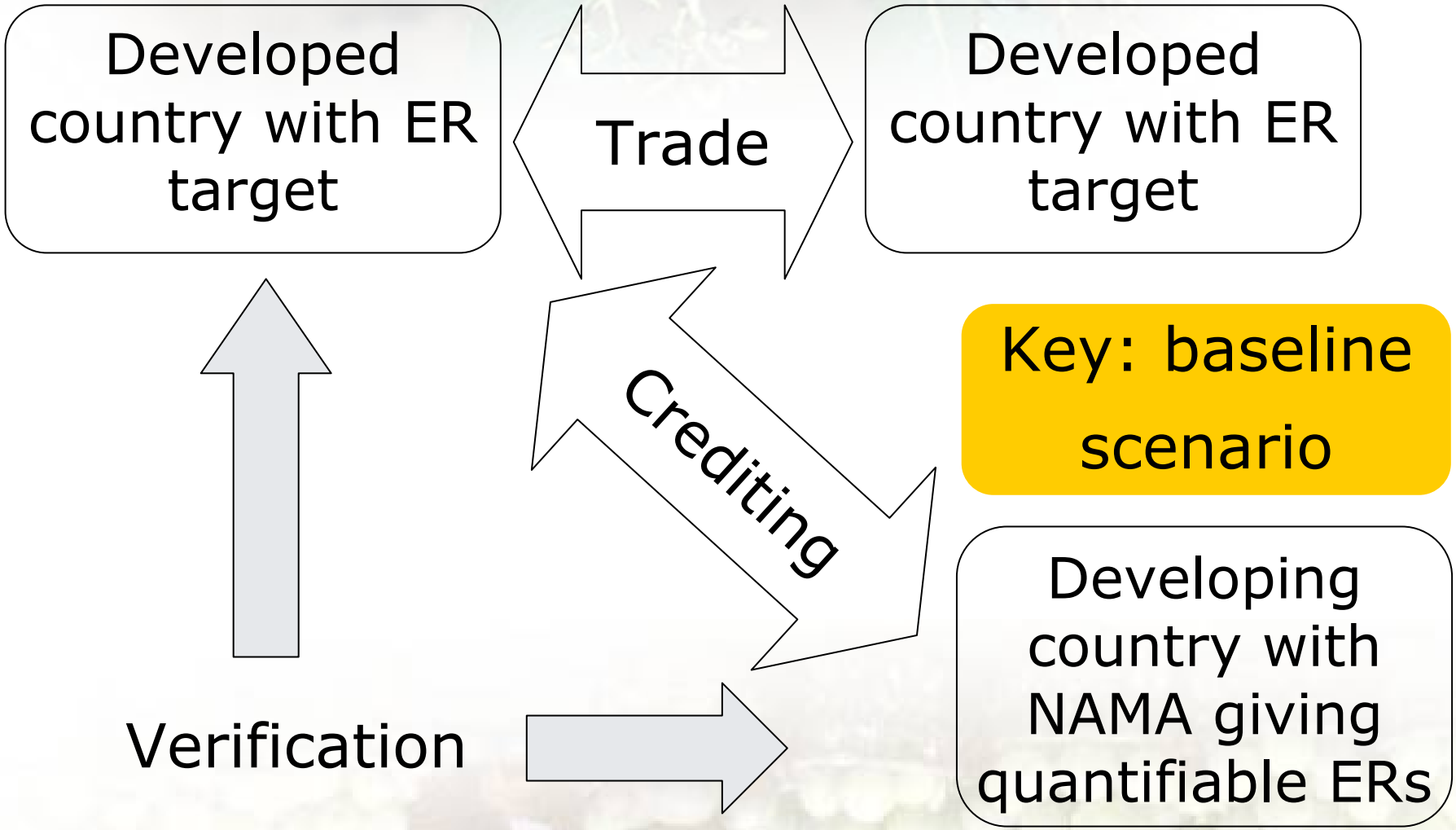
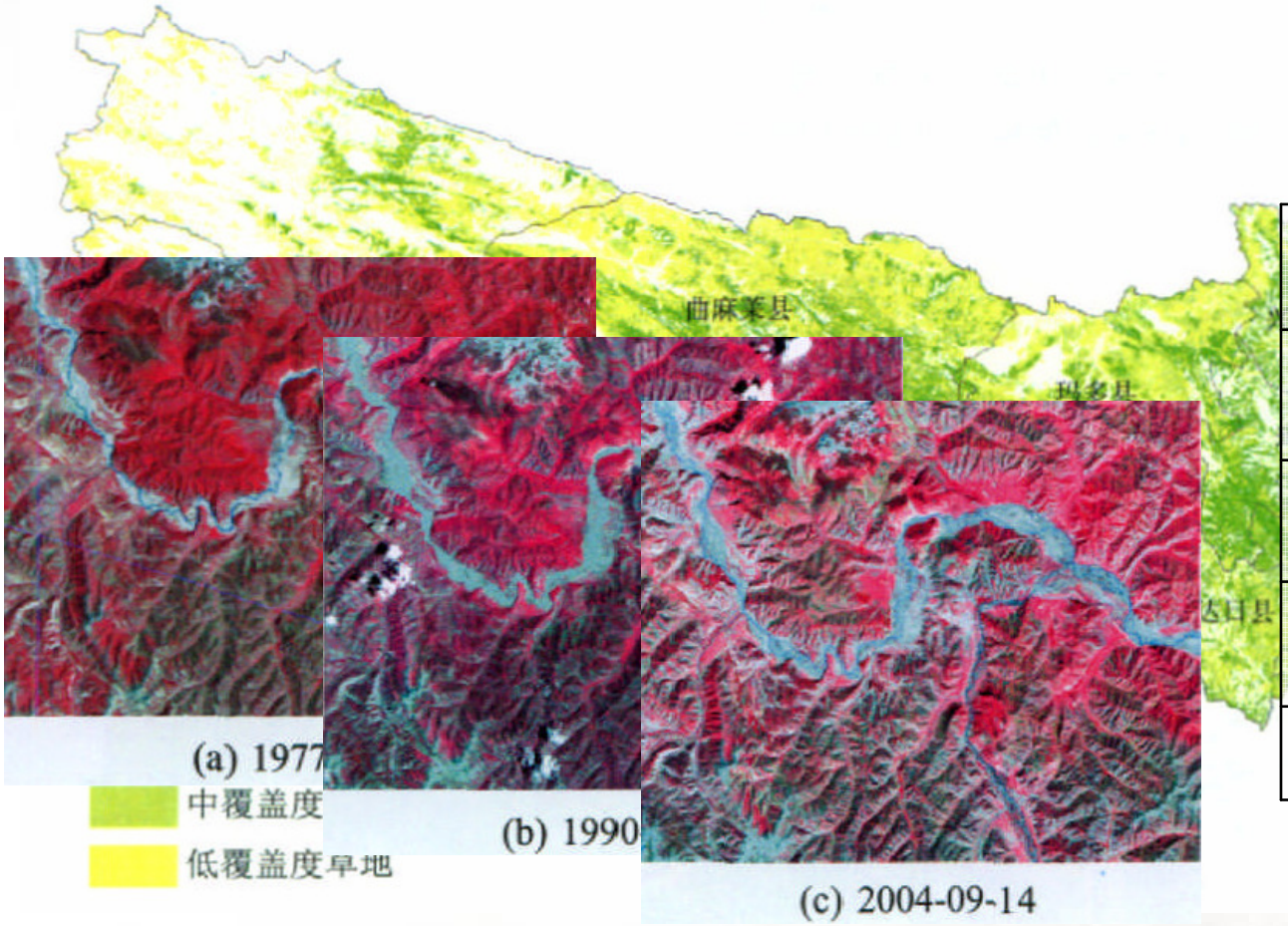


Hypothetical example from Qinghai, China



1990-2004	Speed (ha/yr)
Lightly degraded	428,647
Medium degraded	210,368
Severely degraded	7929
improved	474

Liu Jiyuan et al 2008

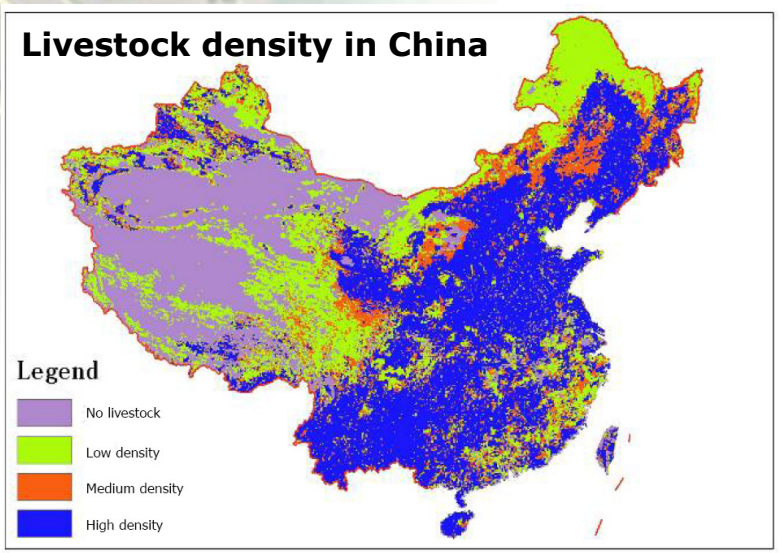
Methods for developing baseline scenarios using historical data exist; verification and updating every 5 or 10 years is also possible

Issues in development of a regional baseline scenario:

-Projection of historical trends, or

-Projection + probability of LUCC due to identified risk factors

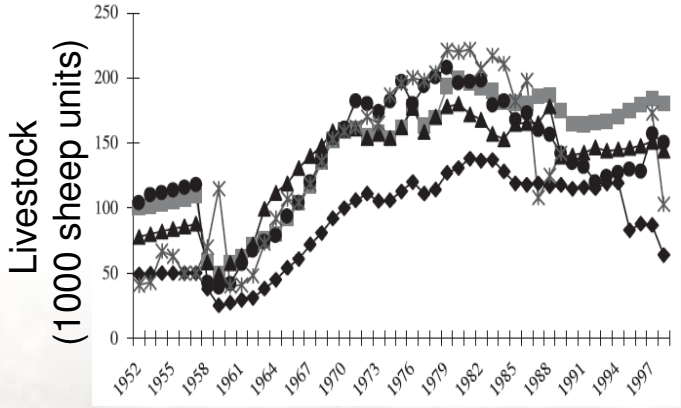
BUT scenario projections are very sensitive to assumptions



China LADA team 2008

AND

- management activity baseline data limited (cf GEFSOC)
- Few methods for prediction of risk factors and socio-economic drivers of LUCC in rangelands



Wang et al (2007)

Constraint 1: Management activity data for baselines often missing

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- Constraint 2: Verification

What to MRV? Inputs? Outcomes? GHGs?

And what about domestic & international capacity to MRV?

- Constraint 3: 'Implementability'

What is the potential for high adoption rates of improved management practices on a large scale in most rangeland countries? (not enough known about socio-economic feasibility)

→When would a sectoral approach be the most suitable option?

Conclusions:

Carbon finance approaches

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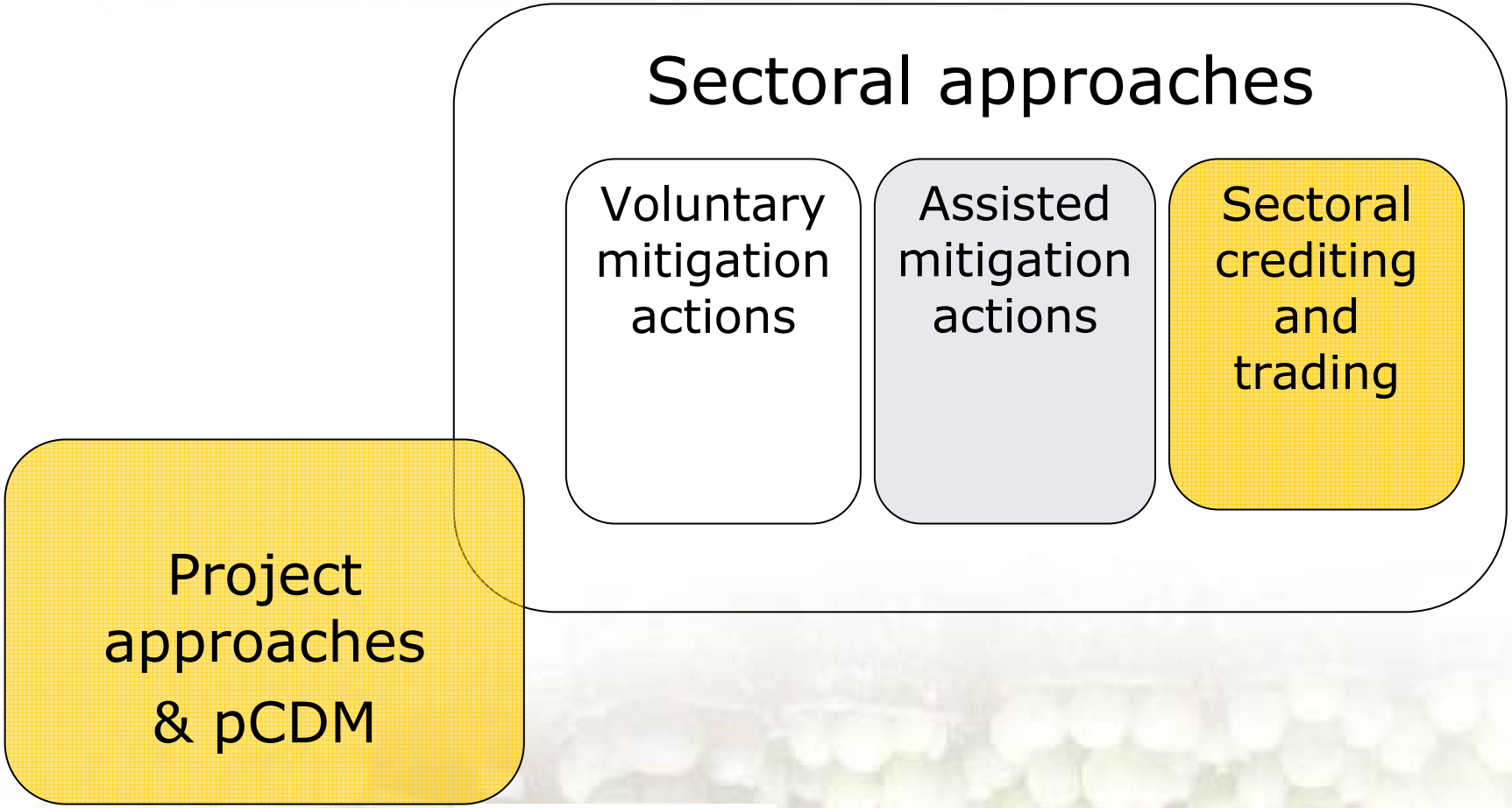

Conclusions

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- Carbon finance in rangelands is in its very early stages, both in project and sectoral approaches
- For some countries, the goal will be to develop sectoral baselines and sectoral crediting approaches
- Pilot projects will be essential to doing this
- For other countries, sectoral approaches will not be viable in the near future, but project approaches may be
- Early pilot action will be essential to developing capacities