Who matters and why:

A Network Perspective on Sustainability Transitions in Community-Based Forest Management

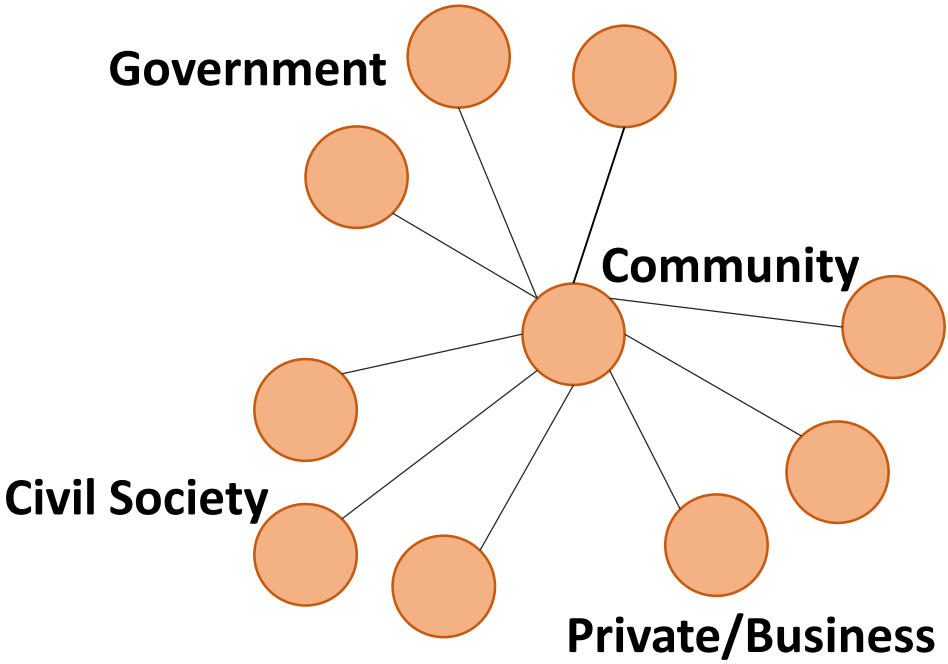# Community-Based Forest Management
EO 263, July 19, 1995

Forest conservation

Sustainable livelihood

Capacity development

" a production sharing agreement between the DENR and the participating people's organization (POs) for a period of 25 years renewable for another 25 years and shall provide tenure security and incentives to develop, utilize, and manage specific portions of forestlands"

(DENR Administrative Order No. 96-29)

> 20 YEARS

Government

Community

Civil Society

Private/Business

Partnerships

mutual interests

resources

opportunities

Legitimacy
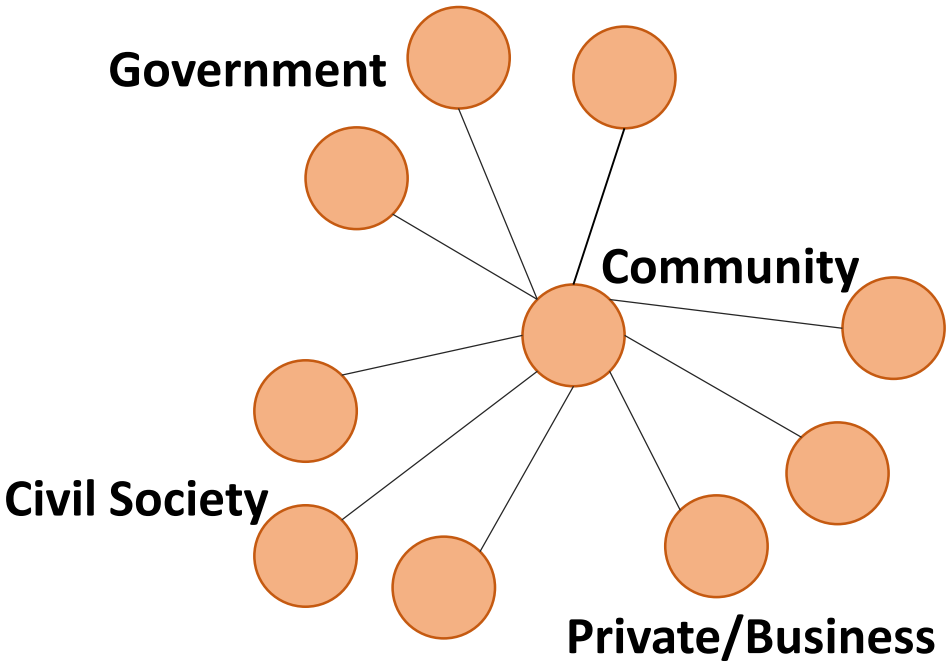
remains an important empirical challenge (Borg, Toikka, & Primmer, 2015)

Sustainability

Desired conservation outcomes were hindered by the lack of collaboration among interest groups (Philippine Master Plan for Forest Development, 2013)

Government

Community

Civil Society

Private/Business

mutual interests

resources

opportunities

remains an important empirical challenge (Borg, Toikka, & Primmer, 2015)

Partnerships

unpredictable

Legitimacy

criteria-indicators

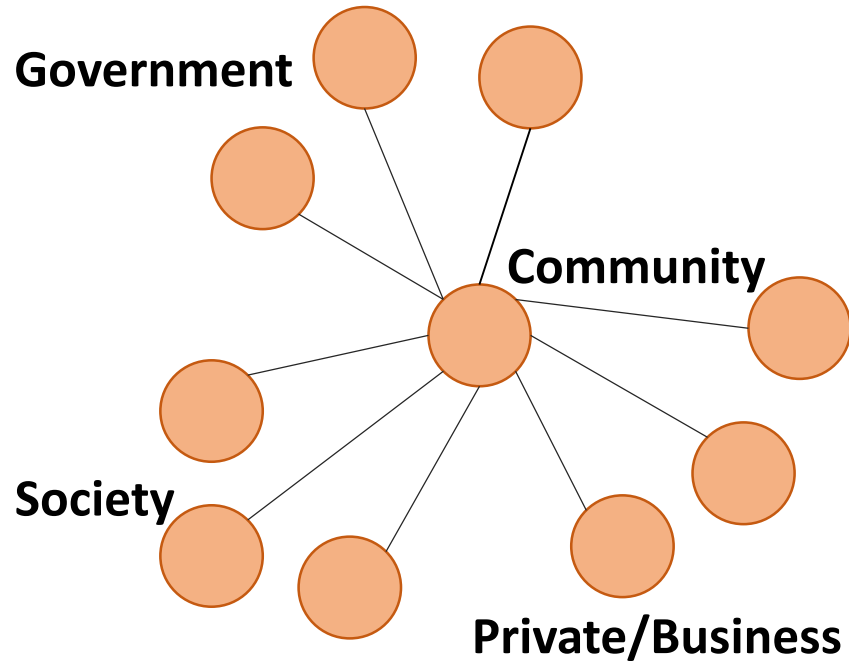# Sustainability

M & E: standard, quantifiable, attribute-based

Silent on dynamic relations (power, trust, social cohesion)

Government

Community

Civil Society

Private/Business

Partnerships

The science of assessments we do today inadequately captures the transformation process from which <u>sustainability</u> would come to emerge

We are obsessed by '<u>what should be'</u> rather than '<u>what actually is'</u>.

We have forgotten that in CBFM we are not growing trees, but <u>PEOPLE</u>.

We did not acknowledge its <u>experiential</u> nature. That success would come to emerge from people's interactions and relationships

Legitimacy   Sustainability

1. What does success mean in community-based forest management?

$$\textbf{SUCCESS} \quad = \quad f(\text{environmental, socioeconomic benefits})$$

2. What is the role of networks and policies in successful CBFMs?

SOCIAL NETWORKS
Types of actors and engagements in each CBFM stage:
Preparatory, Planning, Implementation
Network metrics

POLICIES
How is the "community" defined?

A network perspective on sustainability transitions

- We use SNA to capture the transformation process across the stages of CBFM.
- Doing this have also given us the opportunity to extract relational data that are otherwise not accounted for in monitoring and evaluation documents.
- Emphasis on the emerging pattern towards sustainability.

Limitations

- Does not statistically represent CBFM in the Philippine context
- Networks are PO-centric. It does not capture the complete network.
- Relational data obtained are treated as the **core linkages** that are significant in each CBFM stage.
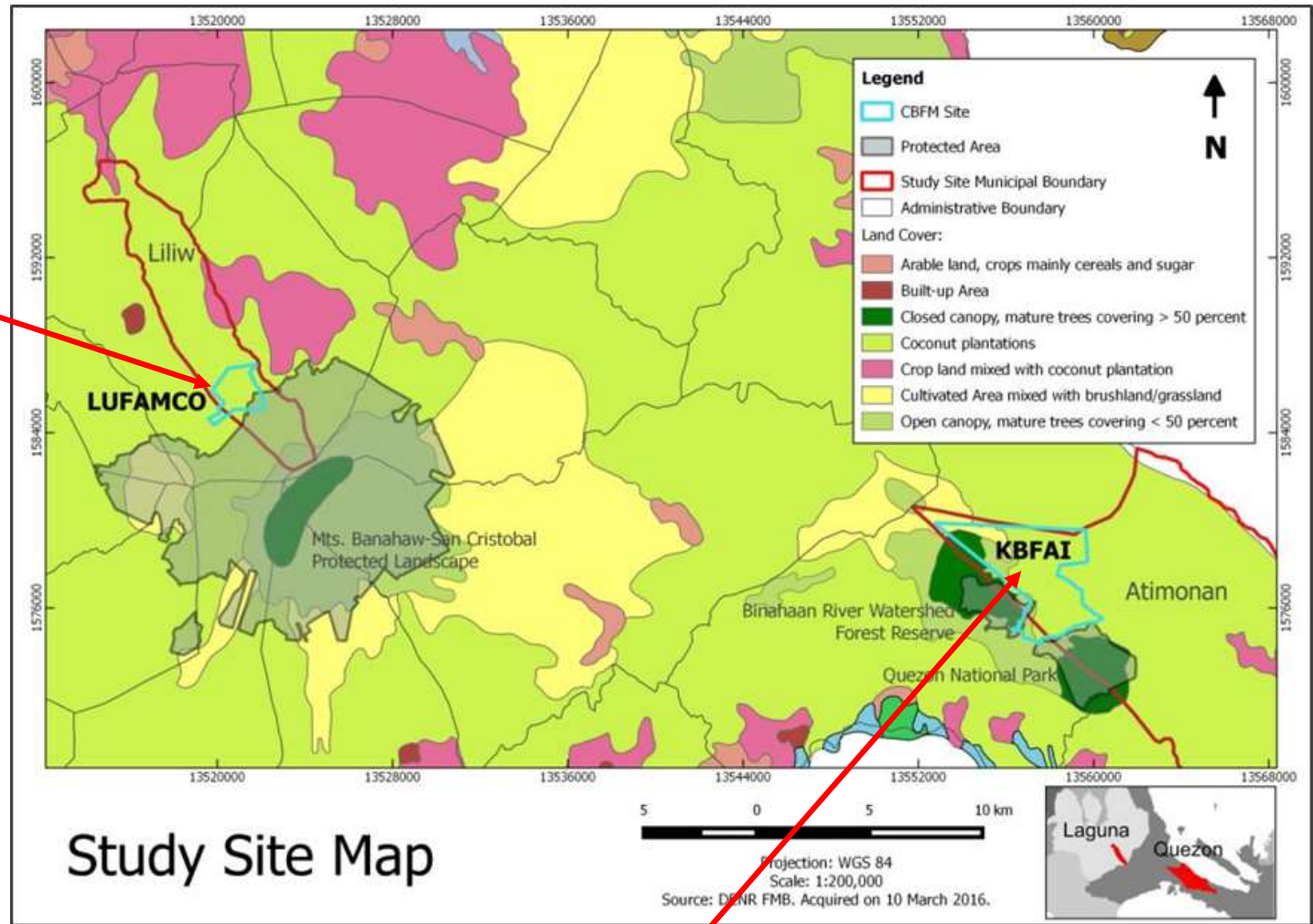- Very limited historical data.

CBFM Sites

Study Site Map

Liliw Upland Farmers' Marketing Cooperative Assoc. (LUFAMCO)

Area coverage: 360 ha

Protected Area: Mts. Banahaw-San Cristobal Protected Landscape

Land cover*: vegetable farms. **n**atural forest vegetation, secondary forest patch,

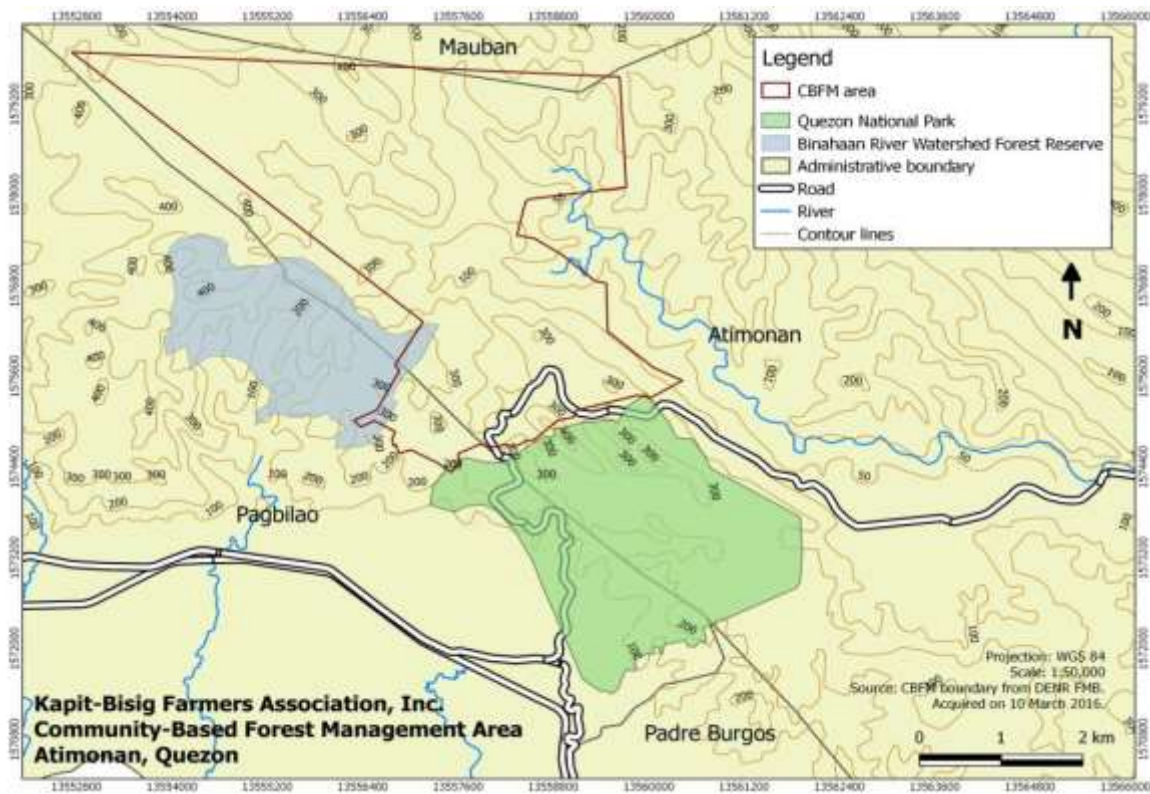**Kapit-Bisig Upland Farmers' Assoc. (KBFAI)**

Area coverage: 2,207 ha
Protected Area: Quezon National Park and Binahaan River Watershed Reserve
Land cover*: Agroforestry, Rubber Plantation, Rattan Plantation, Mahogany Plantation

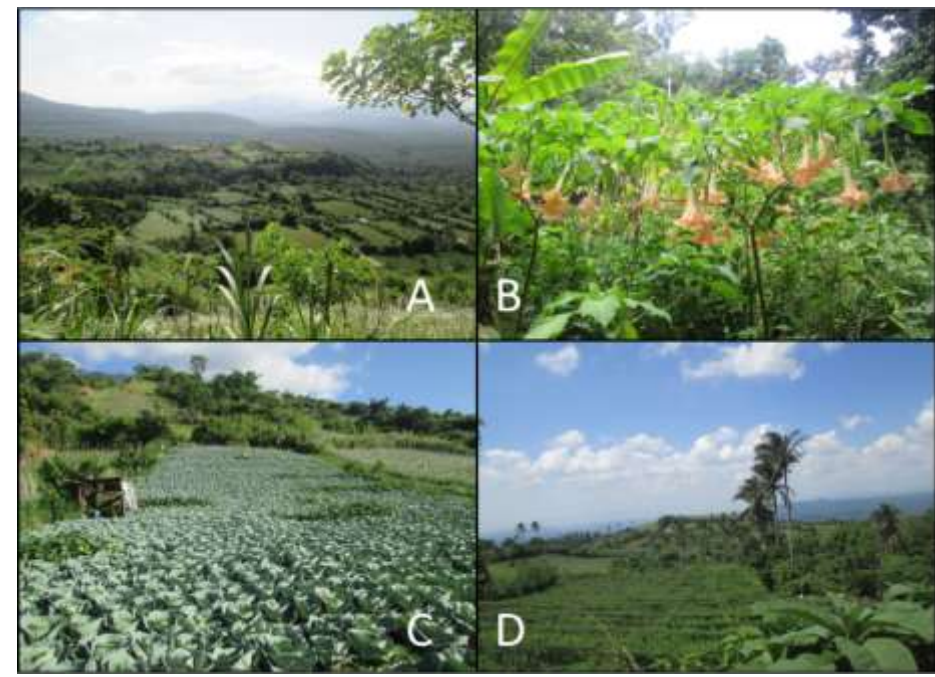*Based on project's vegetation survey

	KBFAI	LUFAMCO
Date awarded of CBFMA	June 27, 1997	November 30, 2000
Active members	~80	~45
Awards	• CBFM Best Practice (National CBFM Practitioners Congress, 2012) • Champions of Asia-Pacific Forests Award (UN FAO, 2011)	CBFM Best Practice (National CBFM Practitioners Congress, 2012)
Property Rights	Private Individual, Communal	Private Individual, State (MBSCPL)
Livelihood programs implemented	Pineapple plantation, hog raising, rice dealership, cooperative, vermiculture, handicrafts, tiger grass production, tour guiding	Vegetable farming, fruit trees, livestock, seedling nurseries, organic wine processing, vermicompost

KBFAI

Atimonan, Quezon

Liliw Upland Farmers Marketing Cooperative, Inc. Community-Based Forest Management Area Pagbilao, Laguna

General view of the forest patches within the CBFM area; A-Jade Vine (Strongylodon macrobotrys) near Transect 3 and 4; B-shows the steepness of the forest patch at Transect 2; C-Stream area near Transect 1

LUFAMCO

Liliw, Laguna

*General view of the forest patches within the LUFAMCO CBFM area; A-Jade Vine (*Strongylodon macrobotrys*) near Transect 3 and 4; B-shows the steepness of the forest patch at Transect 2; C-Stream area near Transect 1*
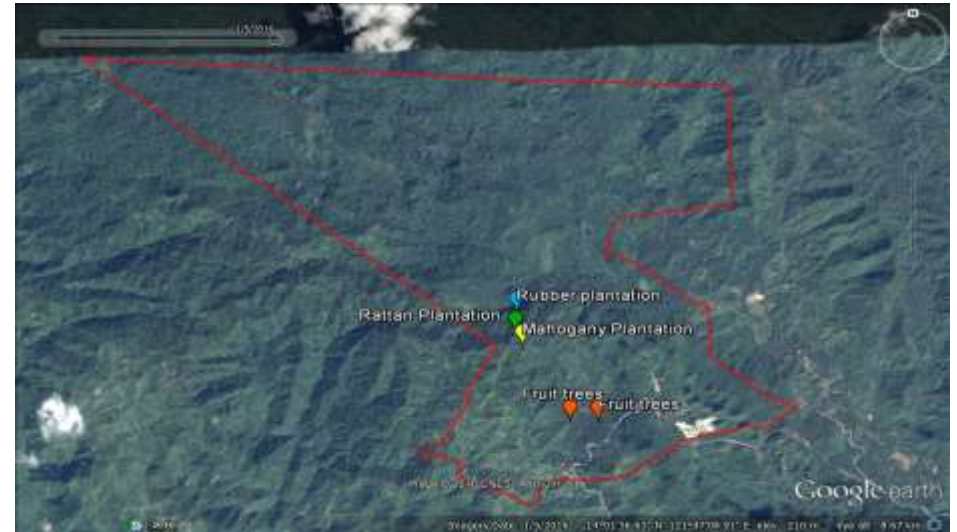
Vegetation Assessment

KBFAI

Atimonan, Quezon

- 70 Species identified
- Shannon's diversity Index = 3.5
- Species evenness = 0.47
- Dominant Species:
  Niyog, Rattan, Fruit trees (Jackfruit, Mango, Rambutan), Mahogany
- Ecologically important species:

Narra

(*Pterocarpus indicus*)

Bolong-eta

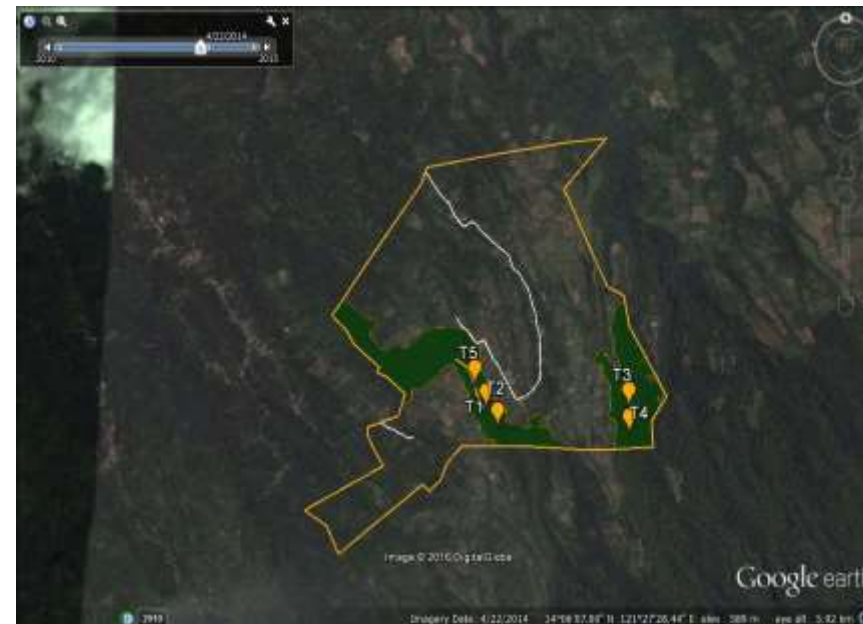(*Diospyros pilosanthera*)

Takip-asin

(*Macaranga grandiflora*)

LUFAMCO

Liliw, Laguna

- 81 Species identified
- Shannon's diversity Index = 3.8
- Species evenness = 0.55
- Dominant Species:
  Pahutan (*Mangifera altissima*), Kape
  (*Coffea robusta*), Trompeta (*Brugmansia suaveolens*), Lanzones
- Ecologically important species

White Lauan
(*Shorea contorta*)

Pahutan
(*Mangifera altissima*)

Bagtikan
(*Parashorea malaanonan*)

Soil Analyses

KBFAI
Atimonan, Quezon

- Soil pH ranging from 3.1 to 4.4
- Carbon content= 3.85%
- Organic Matter = 6.62%
- Nitrogen = 0.33%
- Carbon:Nitrogen ratio = 11.59
- Soil textural class = Sandy loam to Sandy Clay Loam

LUFAMCO
Liliw, Laguna

- Soil pH ranging from 3.2 to 4.0
- Carbon content= 7.08%
- Organic Matter = 12.17%
- Nitrogen = 0.61%
- Carbon:Nitrogen ratio = 11.61
- Soil textural class = Loamy Sand

✓ **Moderately high plant diversity**

✓ **Optimal soil condition for plant growth (forest and agricultural species)**

	BENCHMARK	KBFAI	LUFAMCO
Shannon's Diversity Index	3.8 for Agroforestry site in Mt. Makiling (Gruezo, 1997); 3.9 for Dipterocarp mid-montane forest zone in Mt. Makiling (Gruezo, 1997)	3.5	3.8
Soil pH	Forest soils commonly with relatively low pH levels (4-6) (Binkley, et al. 1989)	3.1 to 4.4	3.2 to 4.0
% Carbon	3.11% in lowland tropical rainforest(Scott, 1999); At least above 5% is desirable (FAO, 2005)	3.85%	7.08%
% Nitrogen	0.29% in lowland tropical rainforest (Scott, 1999)	0.33%	0.61%
Carbon-Nitrogen Ratio	Value of 10 in well decomposed soil organic matter	11.59	11.61

KBFAI— due to agroforestry projects
LUFAMCO— protection of natural forest

Socio-Economic Characteristics

KBFAI

Atimonan, Quezon

Year Started	Year Ended	Livelihood program	Proponent	Number of member beneficiaries	Benefits to members				Effective ? (Y/N)
					Additional HH income	Additional Skills	Source of food/ fiber for HH consumption	Increase in shared capital	
1992	present	Pineapple plantation	UNDP	11	✓	✓	✓	X	N
1992	ended (no data)	Cooperative Loan Lending	UNDP	No data	X	X	X	X	N
1995	ended (no data)	Feeds supply and swine dispersal	SPKKKB	≥ 10	✓	✓	✓	X	N
1995	ended (no data)	Hog raising, fish pond, ginger cultivation	YUFAI	≥ 10	✓	✓	✓	X	N
2001	2009	Sari-sari store	PENRO	10	✓	✓	X	X	Y
2001	2009	Copra-buying	PENRO	12	✓	X	X	X	Y
2006	present	Rice dealership	Team Energy	14 in 2006, 51 in 2016	✓	✓	✓	✓	Y
2006	2007	Hog slaughtering	Team Energy	10	✓	X	✓	X	Y
2007	2008	Vermiculture	Team Energy	24	✓	✓	X	X	N
2007	present	Tiger grass production	DENR-CARP	12 in 2007 20 in 2016	✓	✓	✓	X	Y
2011	present	Handicraft making	DOST-FPRDI	5 in 2011 2 in 2016	✓	✓	✓	X	Y
2012	present	Fruit Trees	DENR-NGP	communal land	Not yet	✓	X	X	Y
2014	present	Bantakay Falls Tour Guiding	MTO-Atimonan	9 in 2014 20 in 2016	✓	✓	X	✓	Y

LUFAMCO

Liliw, Laguna

Year Started	Year Ended	Livelihood program	Proponent	Number of member beneficiaries	Benefits to members				Effective ? (Y/N)
					Additional HH income	Additional Skills	Source of food/ fiber for HH consumption	Increase in shared capital	
2001	2001	Fruit trees, crops, and livestock animals	DENR IV-A	No data	No data	No data	No data	No data	N
2001	present	Lending Business Project	LUFAMCO, DENR IV-A	No data	X	✓	X	✓	Y
2010	present	Working animal, farm implements	DENR-CARP	40 asarol; 12 spray; 3 horses being used by 4 members	✓	X	X	✓	Y
2011	present	Seedling nursery	LABB, FPE, USAID	23 backyard nurseries, 1 established PO nursery	✓	✓	X	✓	Y
2012	2016	Demo farm for high value crops	LUFAMCO	45	✓	✓	X	✓	Y
2013	2013	Tomato and cabbage seedlings as incentive for planting narra and langka	DENR-CARP	45	✓	X	✓	✓	Y
2014	present	Organic Ampalaya and Tomato Wine Processing*	Save Mt. Banahaw Movement	45	NA	✓	NA	NA	NA
2014	present	Rice seedlings, vermicompost	UPLB	2	✓	✓	X	X	Y

* still in the design and planning process

Summary of data on livelihood projects*

| BENEFITS	% Total	
	KBFAI	LUFAMCO
Additional HH Income	85	62.5
Additional Skills	77	62.5
Source of Food/Fiber for HH Consumption	54	12.5
Increased in Shared Capital	15	62.5
Sustainability (still being implemented up to 2016)	46	62.5
Perceived Overall Effectiveness	61.5	75

*Based on FGDs and KIIs

So, are these CBFM sites successful?

Social Networks

- Type of Nodes
- Type of Engagements
- Density (total actual links over total potential links)
- Degree Centrality

(Indegree, i.e. towards the ego &

Outdegree, i.e. from the ego)
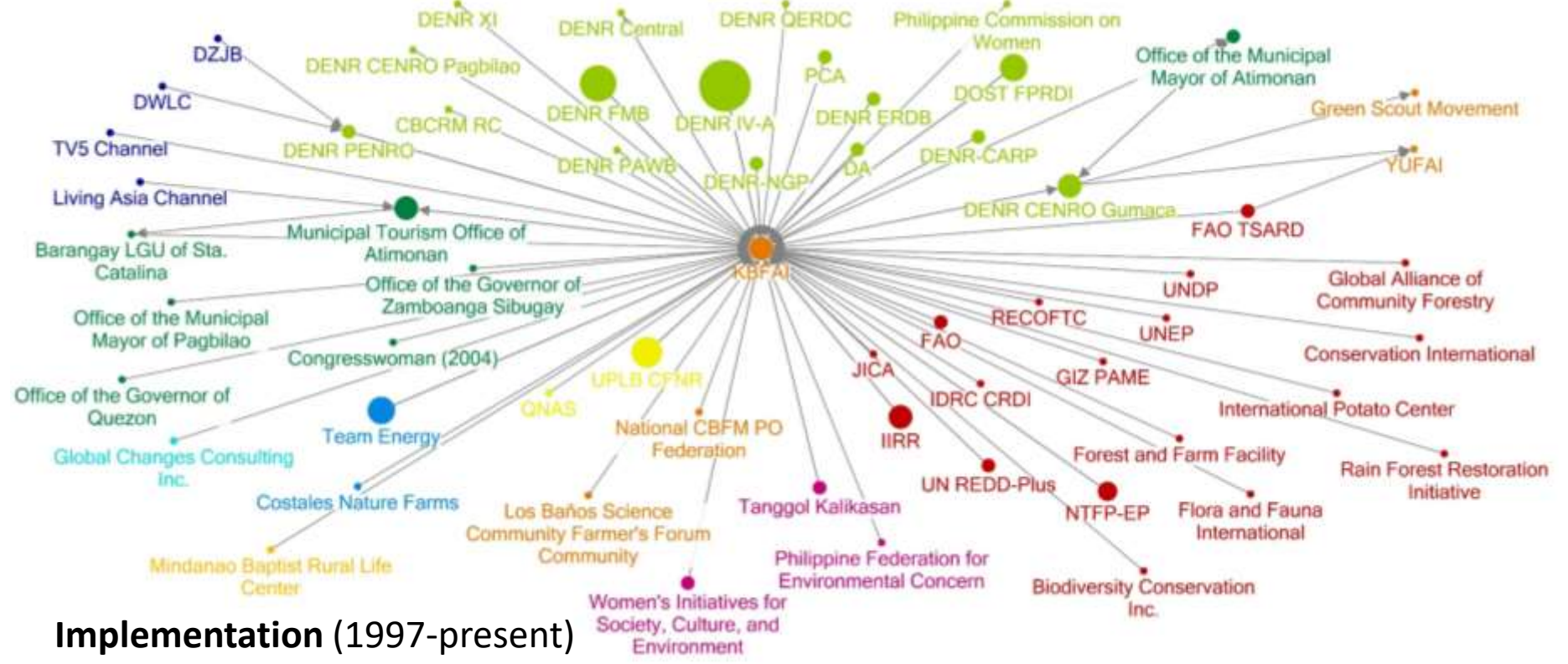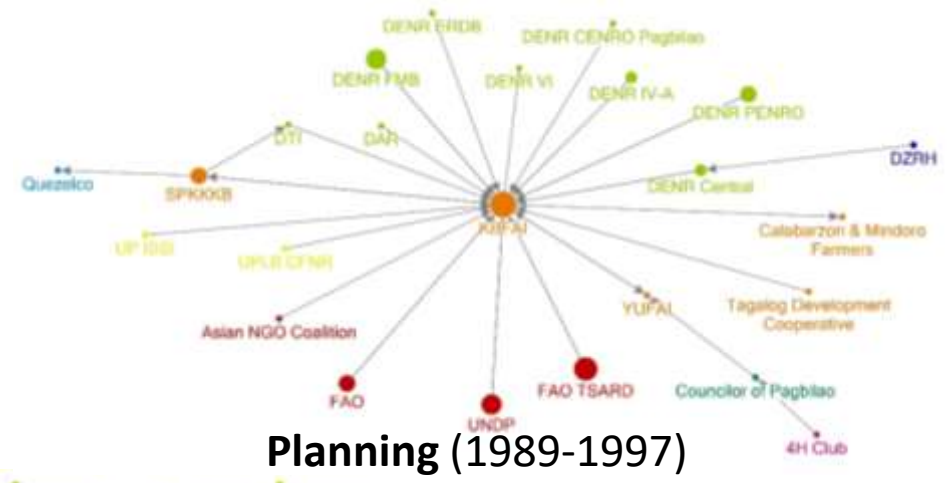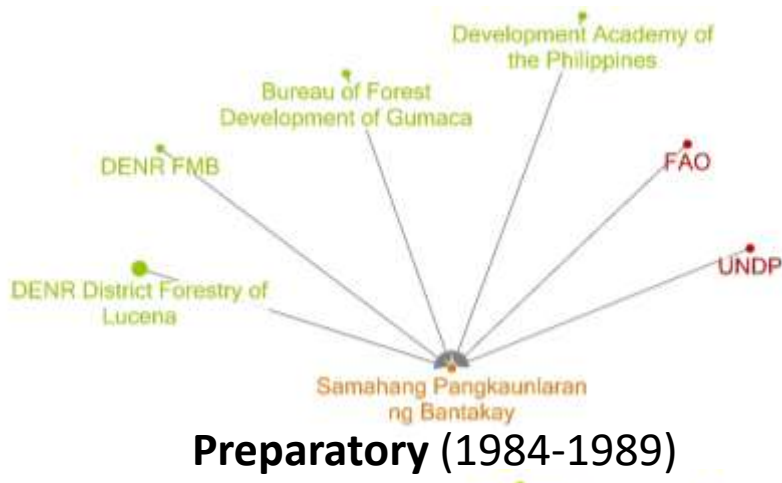
KBFAI: WHO'S CONNECTED WHEN?
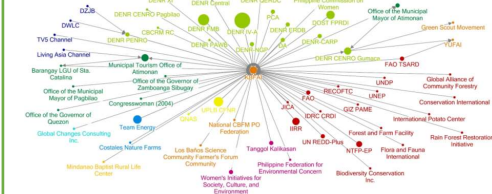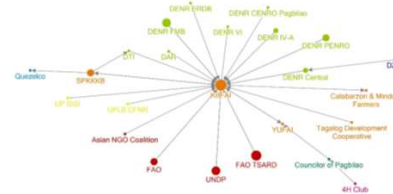
Network Graph				
Type of Nodes		**Preparatory (1984-1989)**	**Planning (1989-1997)**	**Implementation (1997-present)**
Government	LGU	0	1	7
	GA	4	9	17
Non-profit, non-government	INGO	2	4	18
	NGO	0	1	3
	PO	1	5	5
	Religious	0	0	1
Private	Business	0	1	2
	Media	0	1	4
	Research	0	0	1
Academe	Academe	0	2	2
Total		7	24	60

Preparatory (1984-1989)

Planning (1989-1997)

Implementation (1997-present)

KBFAI Network

● LGU	● INGO	● Business/ Company	● Academe
● GA	● NGO	● Media	
● PO	● Research Consultancy		
● Religious Group			

LUFAMCO: WHO'S CONNECTED WHEN?
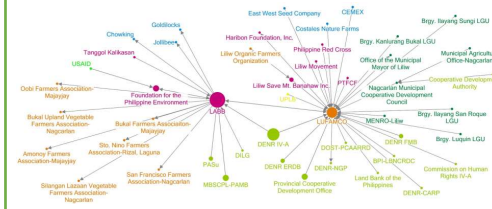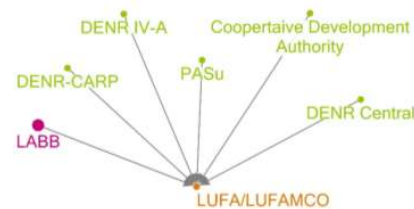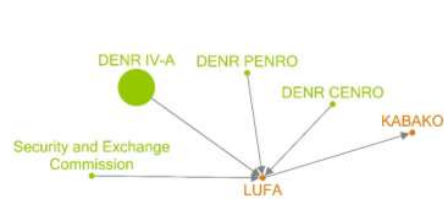
Network Graph				
Type of Nodes		**Preparatory (2000-2009)**	**Planning (2009-2011)**	**Implementation (2011-present)**
Government	LGU	0	0	9
	GA	4	5	14
	Foreign	0	0	1
Non-profit, non-government	NGO	0	1	8
	PO	2	1	8
Private	Business	0	0	6
Academe	Academe	0	0	1
Total		6	7	47
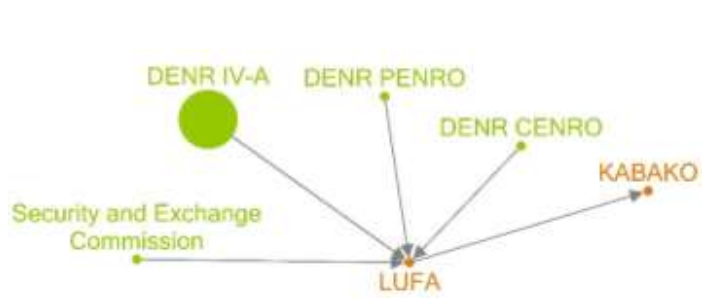
Preparatory (2000-2009)
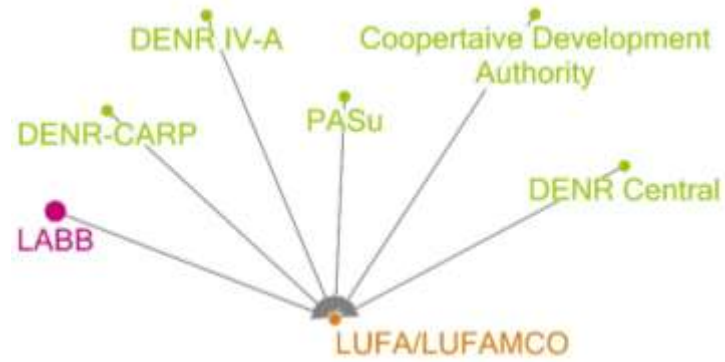
Planning (2009-2011)
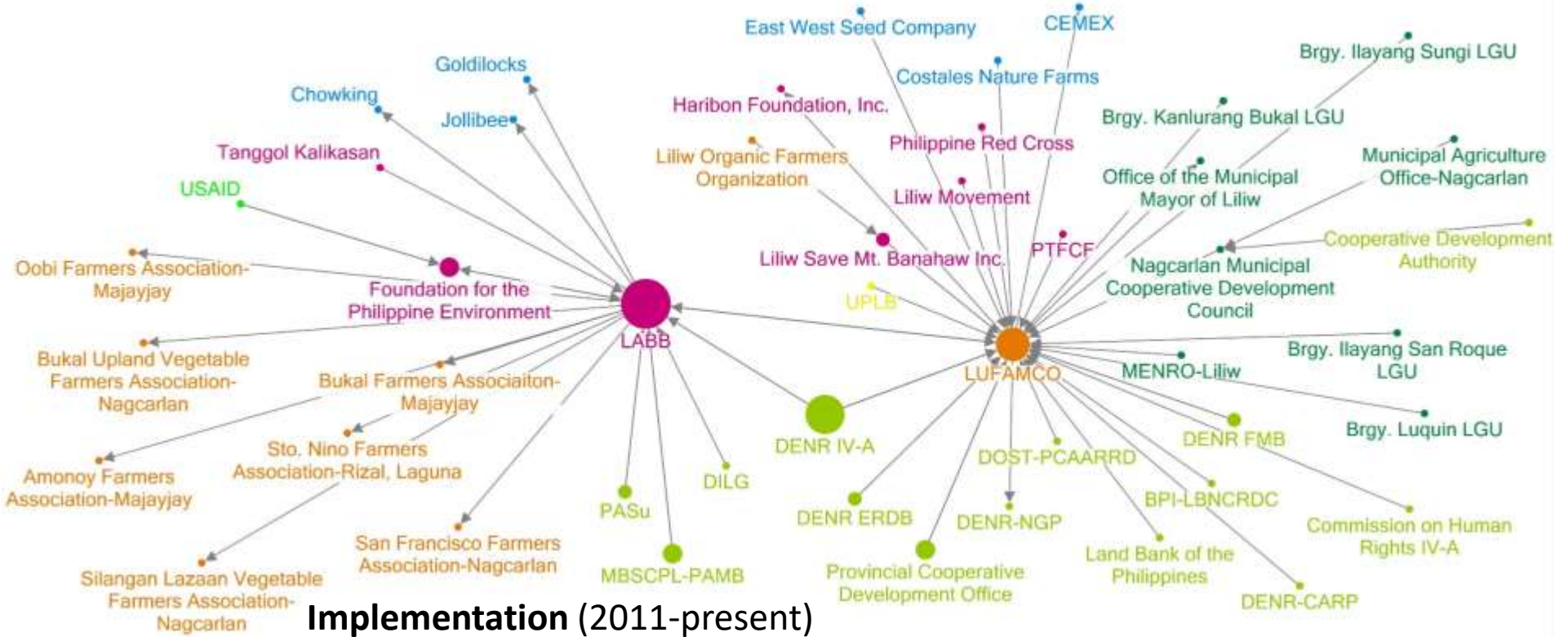
Implementation (2011-present)

LUFAMCO Network

Legend:
- LGU (dark green)
- NGO (magenta)
- Business/ Company (blue)
- Academe (yellow)
- GA (olive green)
- PO (orange)
- Foreign (bright green)

KBFAI Sustainability Transition: WHO MATTERS?

Capacity & Organizational Development	Livelihood Programs	Forest Protection and Management
1. DENR District Forestry of Lucena	1. FAO TSARD 2. UNDP 3. DENR FMB	1. DENR IV-A 2. DENR FMB 3. UPLB CFNR
Preparatory (1984-1989)	**Planning (1989-1997)**	**Implementation (1997-present)**

Legend:
- 🟢 LGU
- 🟩 GA
- 🔴 INGO
- 🟣 NGO
- 🟠 PO
- 🟡 Religious Group
- 🔵 Business/ Company
- 🔵 Media
- 🟦 Research Consultancy
- 🟡 Academe

LUFAMCO Sustainability Transition: WHO MATTERS?

Forest Protection and Management	Forest Protection and Management	Forest Protection and Management
1. DENR IV-A	1. LABB	1. LABB 2. DENR IV-A 3. FPE
Preparatory (2000-2009)	**Planning (2009-2011)**	**Implementation (2011-present)**

Legend:
- LGU
- GA
- Foreign
- NGO
- PO
- Business/ Company
- Academe

PRE-CBFM STAGE

- "Communities" in CBFM were pre-identified and organized by the DENR.
- Observed pattern: upland farmers in buffer zones of protected areas organized into POs

PREPARATORY STAGE

- Projects were initiated by DENR and were focused on capacity and organizational development/ forest protection and management

PLANNING STAGE

- Projects were mostly on forest protection and management coupled with livelihood opportunities initiated by external organizations.

IMPLEMENTATION STAGE

- Infrastructural projects initiated and, in some cases, funded by the PO.
- Most of the engagements were on forest protection and management.
- There is sustained interaction with other POs, NGOs, and private sector actors.

Type of Engagements in the KBFAI Network

Type of Engagements in the LUFAMCO Network
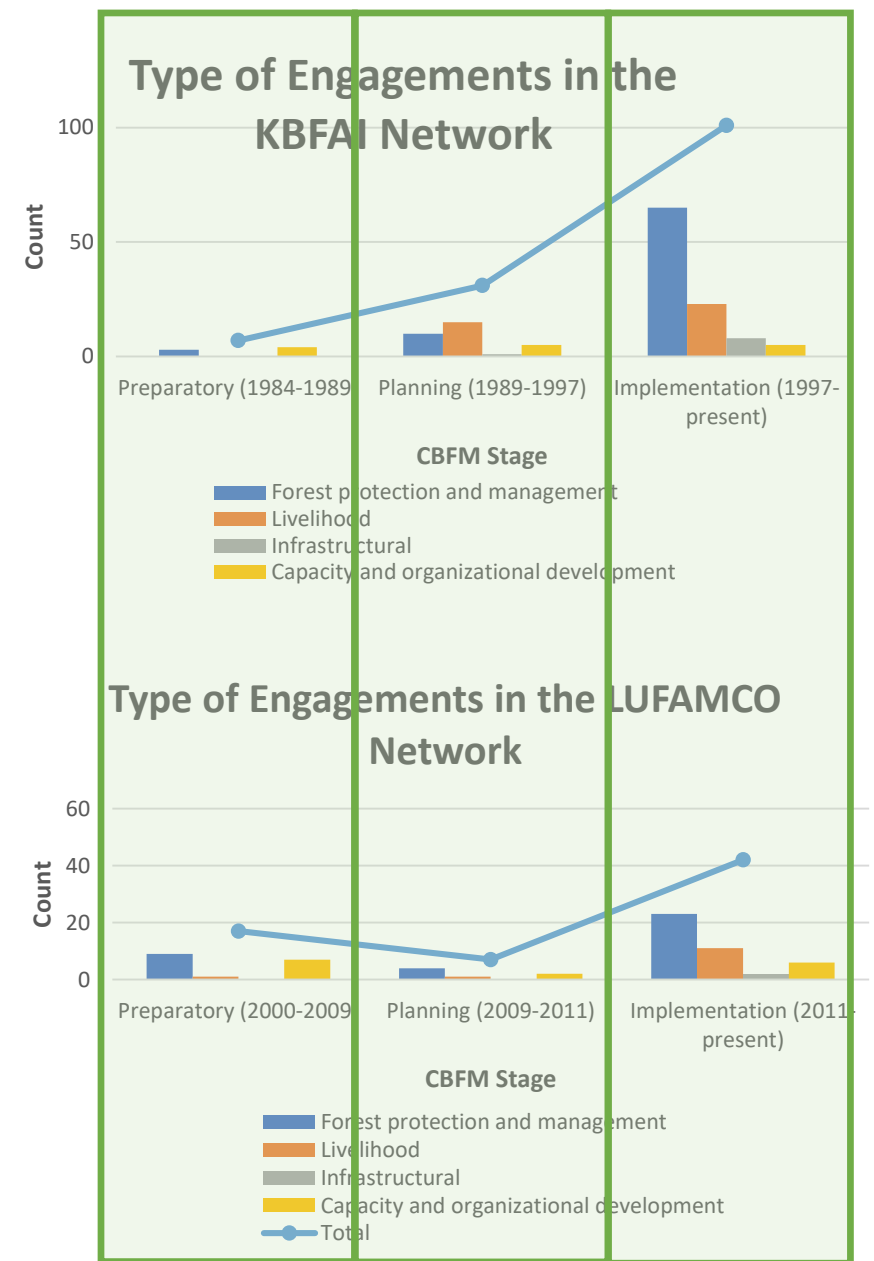
PASSIVE PARTICIPATION
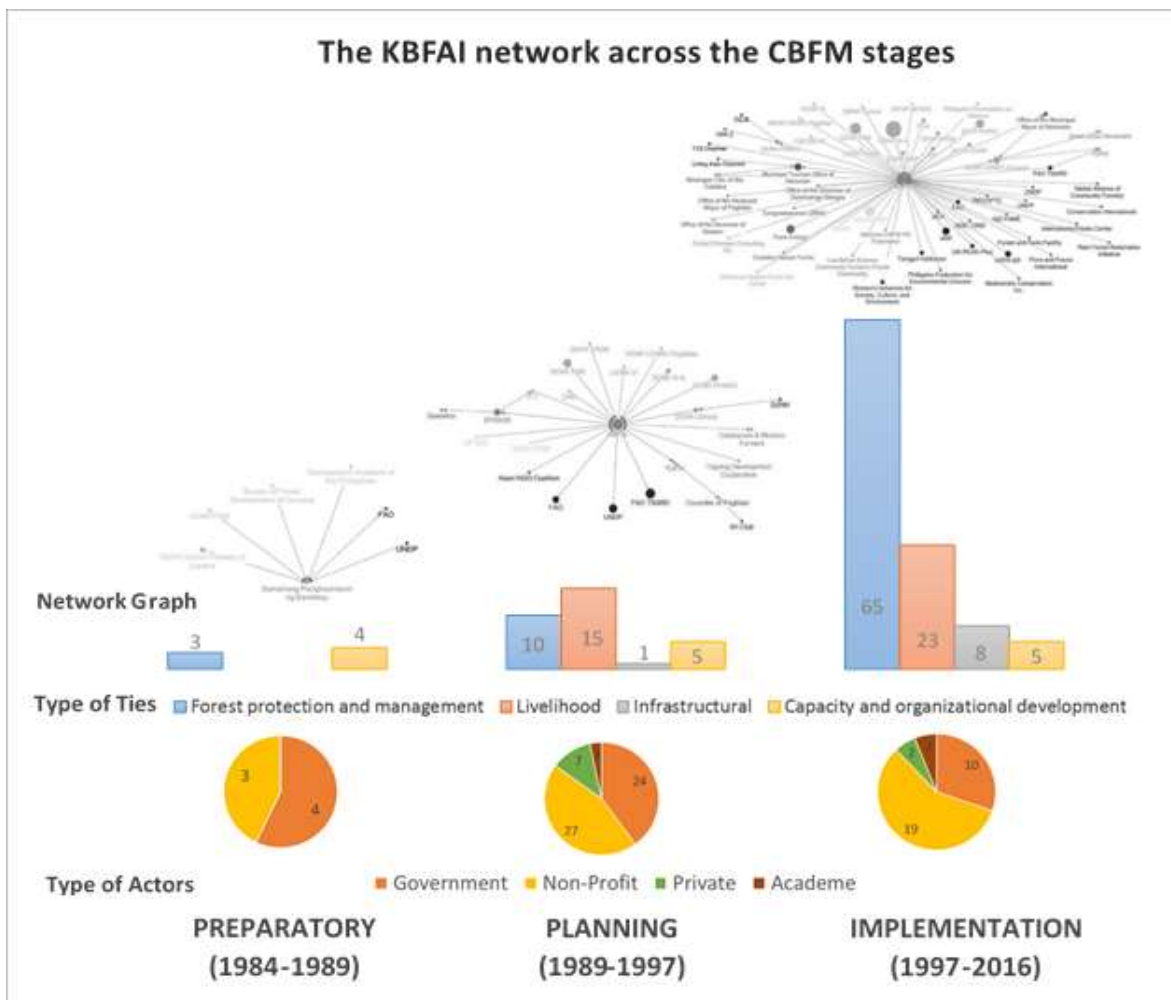
Fig 2. The evolution of the KBFAI network, type of ties, and type of actors

Fig 3. The evolution of the LUFAMCO network, type of ties, and type of actors

	Preparatory	Planning	Implementation
Graph Density (%)	14.29	4.71	1.86
Indegree	6	17	53
Outdegree	0	4	4

	Preparatory	Planning	Implementation
Graph Density (%)	16.67	14.29	2.27
Indegree	4	6	23
Outdegree	1	0	5

Challenges & Lessons Learned

Pre-CBFM, Preparatory, Planning Stages

- Passive participation in earlier interventions initiated by the central government and international funding institutions
- Misfit of the implementation design to the local socio-ecological context is observed in documented issues, e.g. failures of livelihood projects, in the earlier stages

Planning and Implementation Stages

- PO learned to negotiate their own needs with different government and non-government entities that influence decisions and actions on forest management.

- The network of social relations that has emerged from decades of negotiation accumulated learned experiences, trust, and connections to key people in the government, NGOs, and the private sector.

CBFM

Paradigm shift
Community stewardship
Participatory approach
Communal property ownership

Government and international funding institutions:

The local community could restore or create a new institutional arrangement to bring back the "harmony" between the people and the environment (Leach, Mearns, & Scoones, 1999).

How can CBFM promote communal property ownership if
- it is immensely difficult to attract members to join the PO and sustain their participation?
- the concept of equity is that CBFM benefits must be shared equally to individuals?

The "community" according to the CBFM Strategy of the Philippines (DAO 2004-29)

"a group of people who **may or may not** share common interests, needs, visions, goals and beliefs, **occupying a particular territory** which extends from the ecosystem, geographical, political/administrative and cultural boundaries, and any resources that go with it."

Emphasis: exclusively "occupying" (mainly the place of livelihood) a defined spatial boundary

Implication: gives an opportunity to have a community-constructed and local one

- beneficial to local communities whose members strongly self-identify with the set of norms, beliefs, and knowledge defining their community

- vagueness of this definition may leave communities struggling to create their own self-organizing community, including the case of KBFAI and LUFAMCO, but could be strategic for specific "communities" near protected areas
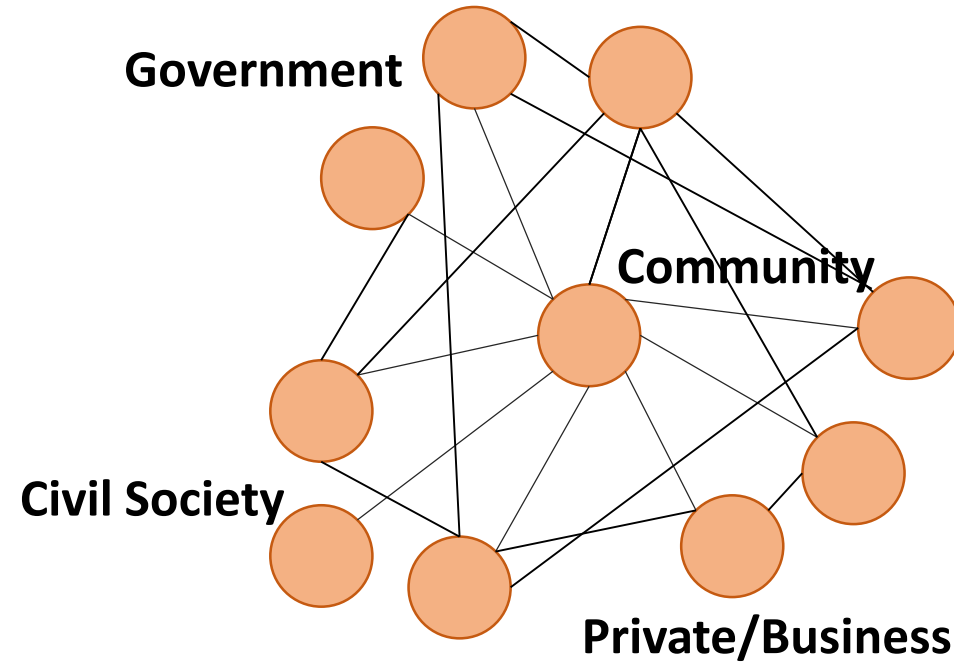
Lessons from anthropology

Outsiders have shaped and reshaped the ideas of community through time:

- bounded spatial unit with a distinct, integrated social structure, and a set of shared norms and common interests (Agrawal & Gibson, 2001; Blaikie, 2006)

- In contrast to the market and the state that operate by means of competition and coercion (Hayami & Godo, 2005)

Indigenous notions of community and ecological sustainability

- Egalitarian

- Generalised reciprocity

- Usufruct, instead of individual rights; people as stewards not owners.

- Limited importance placed on material wealth

- Trust is being gained by people who stayed long enough regardless of affiliation
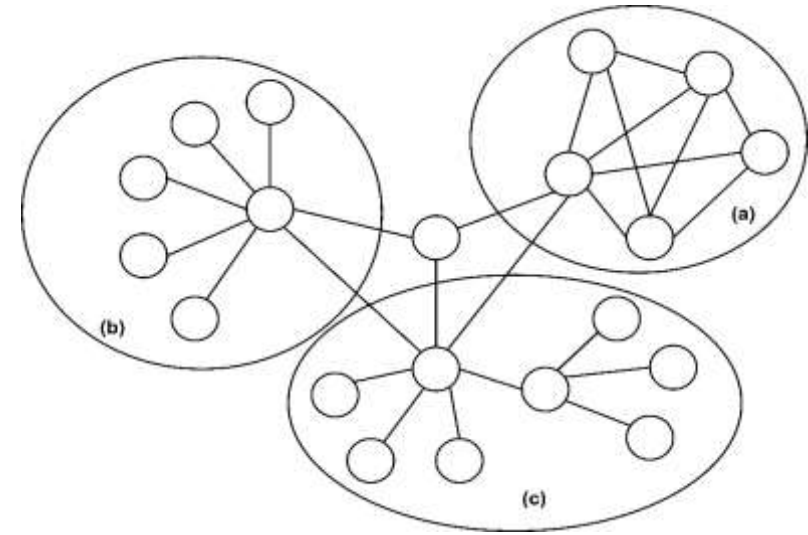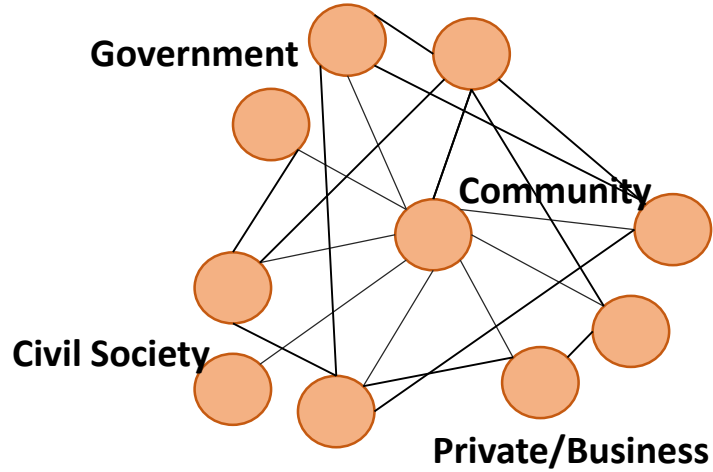
A network perspective
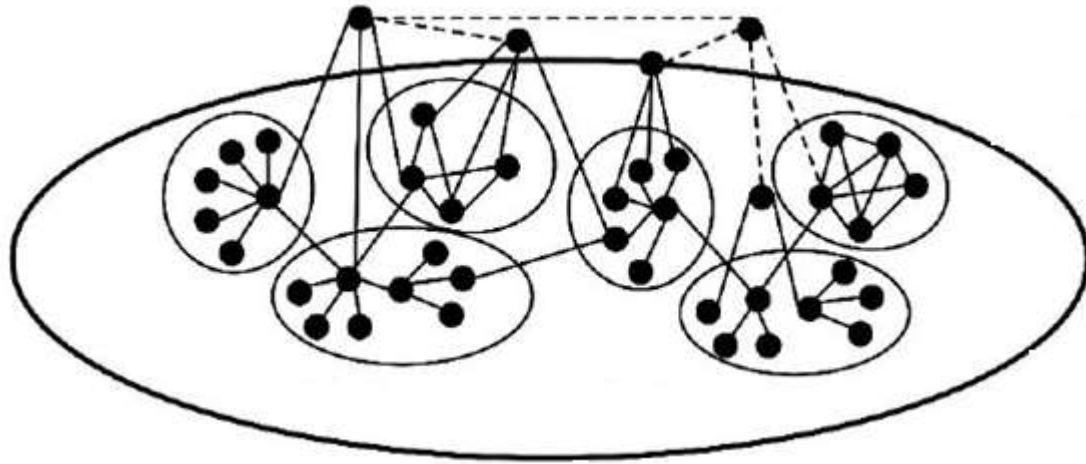
Recommendations:
A network perspective

PREPARATORY

Passive participation

- Educate the people's organization/community about their **location relative to protected areas** and other important sites.

PLANNING

Misfit of implementation design

- Mainstream the concept of connected networks as a **"community of communities"**

- Organizing networking events would be particularly effective in a **regional scale** aligning the agenda to particular critically important environmental areas in the country, incl. the private sector and the academe

Diversifying access to resources and opportunities
Designing own projects according to the features of the place

IMPLEMENTATION

Many projects failed but partnerships remain

- **Field monitoring and evaluation** by the implementing institutions as external checks of the performance, especially in areas where government support for monitoring and evaluation is scarce.

Recommendations:
A network perspective

Network of partnerships

Community of communities

Landscape-based

Recommendations:
A network perspective

People, power, agency
Place and identity
Perspective taking
Practice
_____

in the context of rapid change

Sustainability pathways:

Imagined orders-
- collectively shared principles;
- shared network of stories;
- from immature Anthropocene to conscious/ mature Anthropocene

Social Network Analysis (SNA)

A systematic method to analyze relational characteristics of forest governance and subsequent behavioral patterns of organizations and institutions.

GENERAL STEPS FOR CBFM ASSESSMENT

1. Comprehensive documentation of the PO's history and milestones through FGDs, KIIs, and archival research

2. Organizing typologies of nodes and engagements; Encoding and generating preliminary graphs in NodeXL

3. Presentation of the data to the PO members/officers in a plenary workshop asking:

All the organizations and institutions that initiated projects in the site or that they seek information/resources from, the specific project, and year

TARGET OUTPUTS

1. Preliminary list of actors, projects and initiatives; CBFM stages and their corresponding years; idiosyncracies of the PO

2. Preliminary typologies and network graph

3. Improved typologies and network graphs

GENERAL STEPS FOR CBFM ASSESSMENT

4. Supplementing the current network graphs with secondary data from copies of certificates of POs and other reports

5. Validation workshop

6. Generating and interpreting network metrics (performing network statistics if applicable)

TARGET OUTPUTS

4. Improved typologies and network graphs

5. Final typologies and network graphs

6. Measures of classic network metrics such as graph density, degree centrality (indegreee/outdegree), centralization, betweenness centrality, and closeness centrality; Patterns in the number and types of nodes and engagements across CBFM stages

https://nodexl.codeplex.com/
Basic Excel Template 2014 is open source

Thank you!

Rico Ancog
Clarissa Ruzol
Ayesha Sarapuddin
Roel Alfredo Ruzol

Email: cdruzol@up.edu.ph