

# Undertaking Restoration: Building-in Resilience

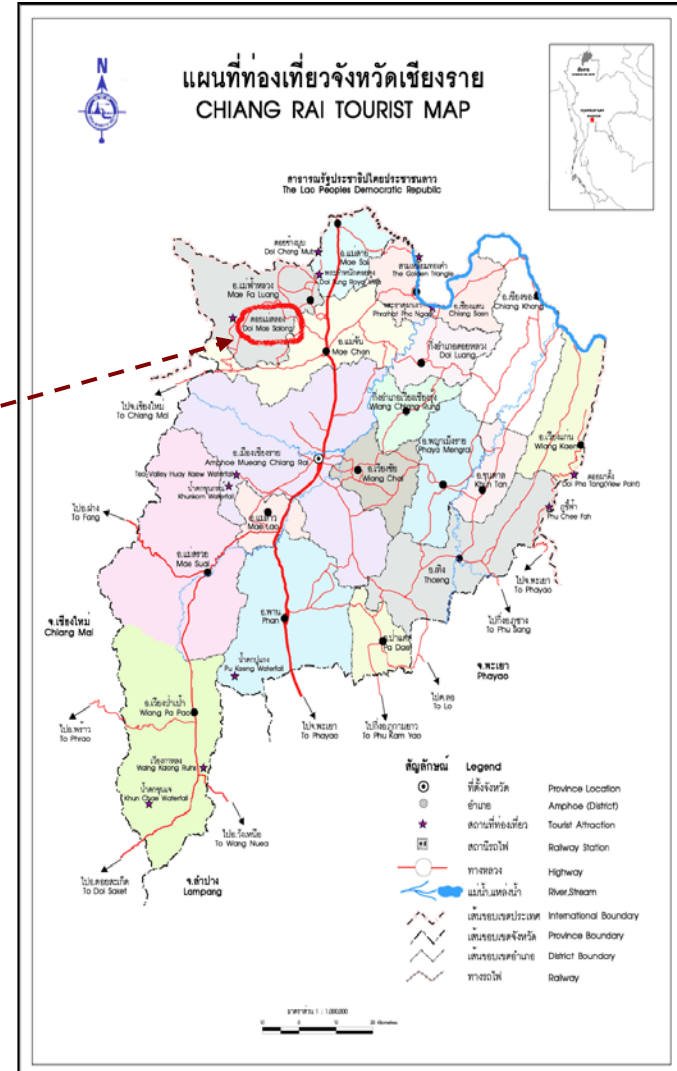
A photograph of a man herding a group of black cattle in a savanna landscape. The man is in the foreground, wearing a light-colored wrap and a red shawl, carrying a long wooden staff. The cattle are in the middle ground, and the background is filled with scattered trees under a clear blue sky.

**Gill Shepherd**  
Commission for Ecosystem Management,  
IUCN SER Mexico, August 2011



# Landscape location

- Doi Mae Salong, Chiang Rai Province, Northern Thailand. Mekong headwater area. Core site 90 km<sup>2</sup> + 15,000 inhabitants.
- National Reserve Forest. Military area controlled by Royal Thai Armed Forces.
- Occupied by ethnic minority groups; Myanmar refugees; Kuomintang remnants since 1961



# Events before IUCN intervention

## Original landscape condition

Unplanned immigration and land clearing had led to a complex and fragmented land use pattern

- Heavily degraded watershed, agriculture, forest patches, erosion
- Declining water quality and quantity; downstream communities complaining of degrading water resources
- Deforestation, chaotic slash and burn
- Population pressure

## Initial intervention

Royal Thai Armed Forces started to reforest in areas where fields had already been established.

- Much protest from settlers



# A multistakeholder approach

- Army with IUCN, local NGO and hill inhabitants built an approach based on stake-holder negotiation, participatory land use planning and more integrated institutional interaction.
- Other key partners: Local Government; Land Development Office; Watershed Conservation and Management Unit; Chiang Mai University Forest Restoration Research Unit.



# A more integrated and intensively managed landscape, too



- Clearer de facto ownership of trees, farm-plots and forests 'settles' the landscape.
- Emphasis has been on adding value to land for settlers through better farming practices + better fruit tree and crop varieties. Has led them to invest in the landscape for income generation.
- Greater local trust has made land swaps possible where fields were located in areas more suited for reforestation, such as ridges.
- Result: watershed rehabilitation and restored ecosystem function largely through agroforestry - and also significant areas of reforestation through Chiang Mai Univ.

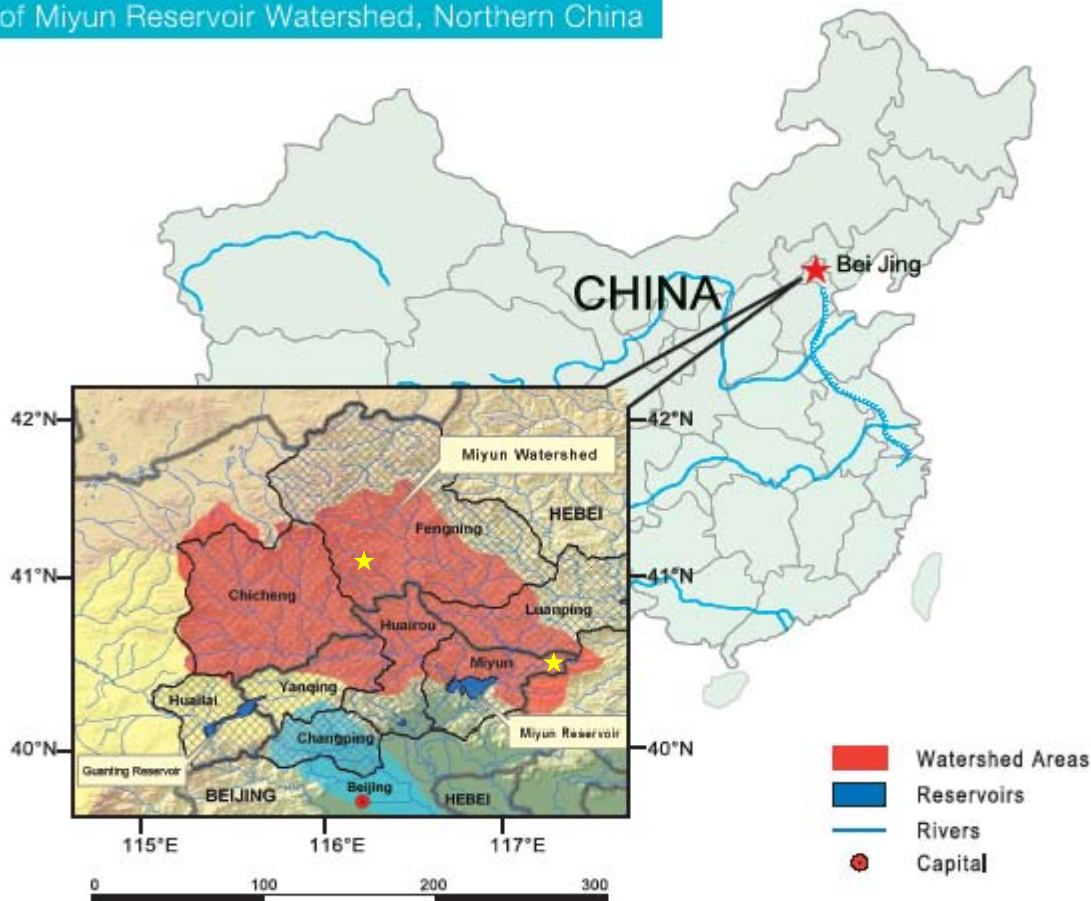
# What made this evolution towards resilient restoration possible?

- The Army had the power and authority to make changes happen, and they are in charge of the area.
- BUT they have been open to a bottom-up approach, having already experienced the failure of other approaches.
- The enthusiastic individual leadership of the RTAF Commander (on left) has been crucial.
- He said, “This has been the most difficult assignment in my military career. It is much more difficult than giving orders”



# Miyun watershed, above Beijing in China

Map of Miyun Reservoir Watershed, Northern China



- The total watershed area is about 16,000 km<sup>2</sup>.
- 70% of the drinking water supply for Beijing's 17 million residents.
- one of the most important watersheds in the whole of China and the world



High forest cover (65%) but mostly sub-healthy, degraded, pine monoculture. Strict logging quotas constrain livelihood opportunities because of need for watershed protection.

## Forest Inventory



## Biodiversity survey



## Social economic survey



Led  
to

## Forest management plans



## Silviculture treatments



# Pilot site interventions

## Livelihoods



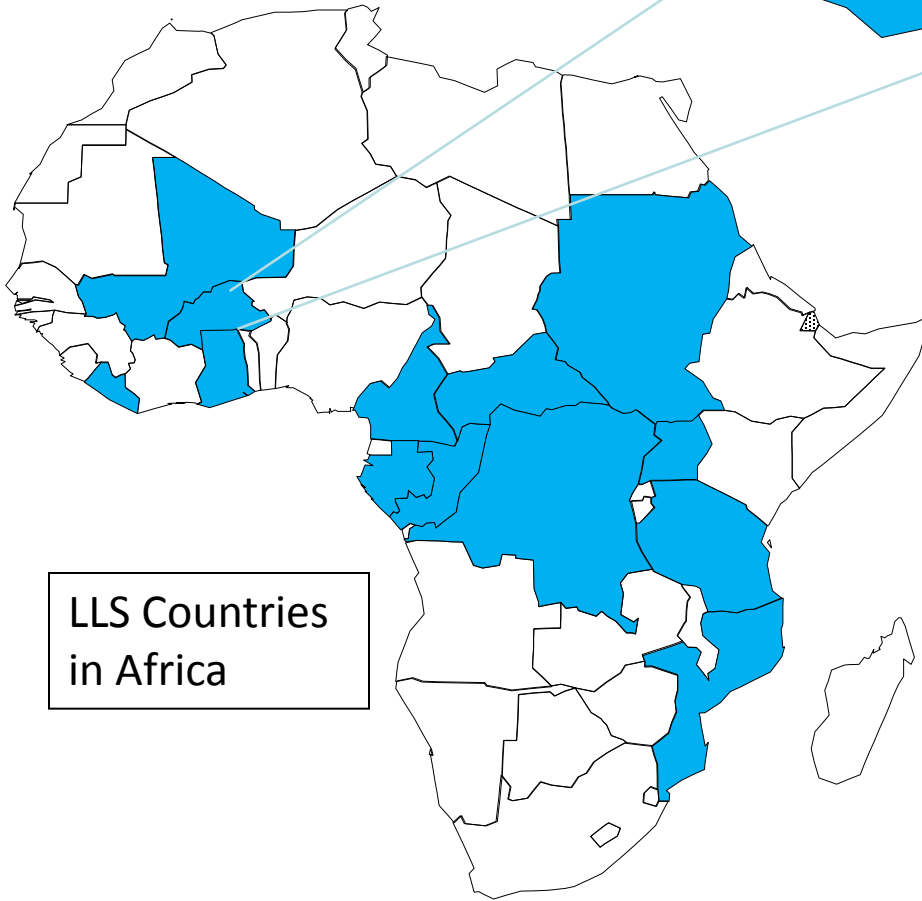
- Fuelwood essential in the bitter mountain winters, especially for heating the bed-platforms known as 'kang,' from below.
- But it was possible to make 'kang' 36% more fuel efficient without loss of warmth.
- And to train farmers' cooperatives in forest management techniques and better 'kang' building techniques for the future.

# Advocacy and impacts

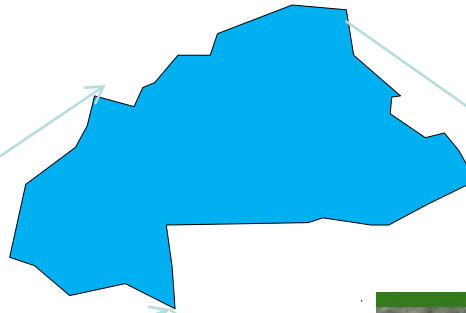
- Pilot site results publicised in the national press, through government visits to the sites and through visits from important international visitors.
- Results at the original two pilot sites have been so positive that:
  - They are leading to the replacement of the 30 year old logging ban in Beijing's main watershed area, with forest management that better serves watershed values and forest-based incomes for local residents
  - The Beijing government has just decided to apply the pilot approach to the whole watershed (16,000 km<sup>2</sup>)



# Burkina Faso



LLS Countries  
in Africa



Sablogo forest





### **Sablogo: The original problem**

- The Sablogo landscape covers an area of 34,000 hectares. Before IUCN intervention, agriculture, animal husbandry, the gathering of NTFPs, medicinal plants and fuelwood all happened in any part of it. There were literally thousands of cattle in the forest. Local people themselves realized that the forest was nearly gone, and should be protected.

# A coalition for action

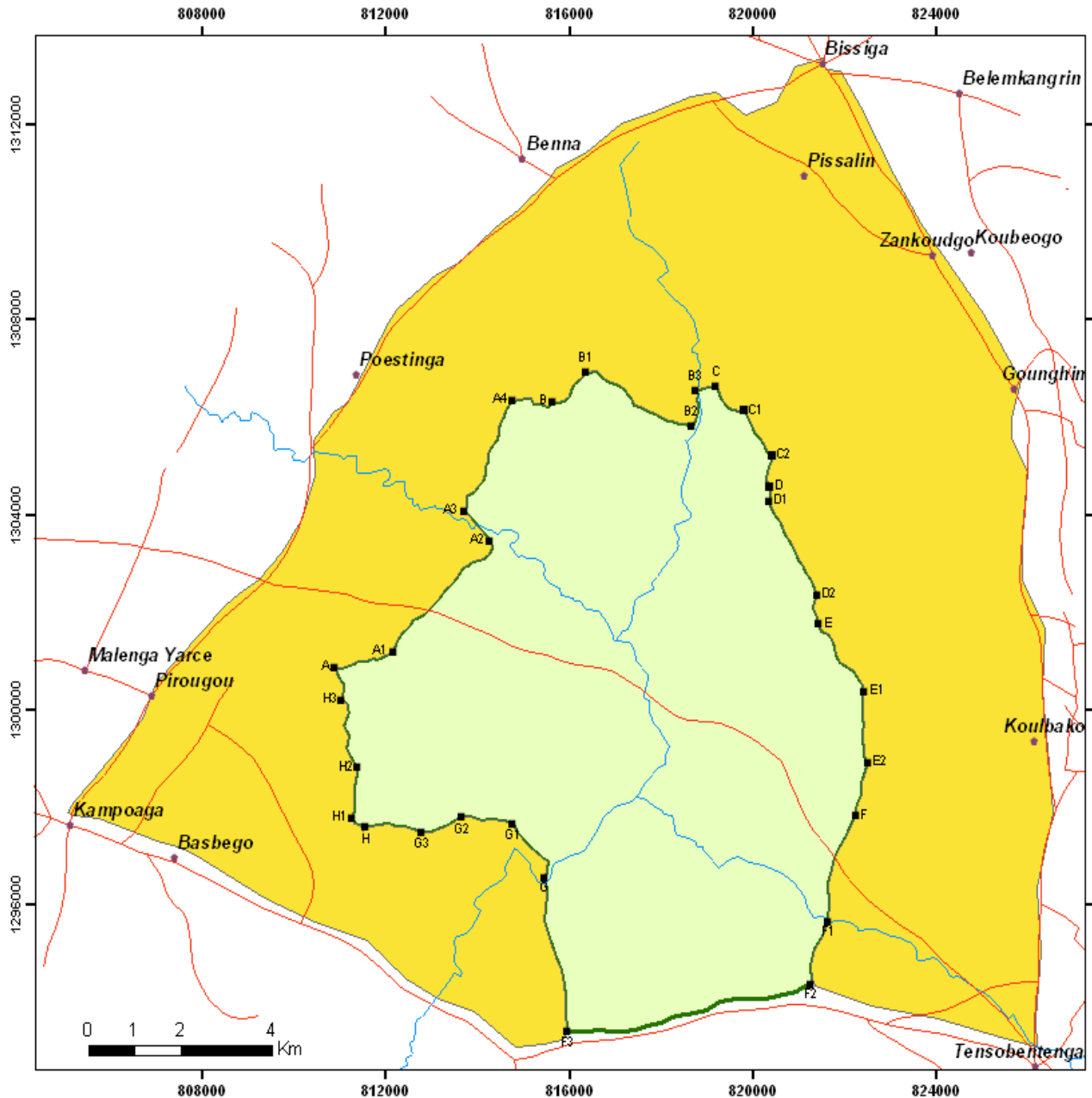
## Stakeholders

- Five sets of stakeholders were determined to restore the forest: the communities, the Customary Authorities; IUCN, the Provincial Governor; and the District administration

## Motives

- The governor wanted to intervene when he saw a sequence of satellite photos of the area and realised how quickly the forest was disappearing.
- Local people wanted to re-link forest islands, partly through removing cattle and protecting natural regeneration, and partly through the planting of indigenous tree species.
- They and IUCN wanted to zone the area for differing land-uses.





# FORET DE SABLOGO



**LEGENDE**

- Localité
- Sommet
- Voies de communication
- Rivière
- ▭ Zone forestière
- ▭ Zone Agro-Sylvo-Pastorale

Superficie zone forestière = 9892 ha  
 Superficie zone Agro-Sylvo-Pastorale = 18212 ha

Collecte de données terrain : J.D. ILBOUDO  
 Edition cartographique : R. BAYALA  
 Commanditaire : UICN-Burkina  
 UTM 30P WGS84  
 BNDT (IGB)  
 Février 2009

# Institutional evolution

- The three villages which share ownership of Sablogo now meet together regularly to plan forest management group activity.
- Forest and agriculture and livestock are in symbiosis in the landscape. The forest cannot be protected without working on the other issues too. Understanding differing reliance by differing stakeholders is essential.
- Local technical services (e.g. Forestry) now have a more active and focused involvement in Sablogo than before.
- The Minister of the Environment is closely following progress. Since the country's decentralization of natural resource to local authorities, Sablogo is the first example of concrete action.



**MOST IMPORTANT OF ALL** - people have understood that it is possible to change their environment in their favour: they are not the passive victims of degradation.

# How much resilience?

- 1. What kind of / how much resilience is needed in the particular context?**
  - In all three cases presented here, more resilience has been built in by strengthening, and making more explicit, the rights of individuals and institutions responsible for different parts of the landscape
  - More rights, coupled with more responsibilities, have been the formula in each case.
  - The upper limits in the case of Thailand and Miyun in China will not be reached for some time.
  - But upper limits in the case of Burkina were reached and dealt with. It was impossible to maintain the free access of thousands of migrant herders and their animals to the forest. Individuals can be allocated farmland, but animal numbers have had to be limited.

# The balance between resilience and productivity

2. **What is the appropriate balance between increasing resilience and increasing productivity?**
  - Our three examples all show that one way of increasing resilience is to increase productivity.
  - The more a resource is valued, and can provide value, the more it will be protected and invested in, though new institutional arrangements will probably be necessary to improve sustainability
  - The alternative to higher productivity in such areas is not better protection, but rapid degradation.



# Resilience trade-offs?

## **3. Are there trade offs between ecological and economic or social resilience?**

- In the cases cited here, it has been possible to reverse degradation and to initiate restoration through natural regeneration, planting and more active management.
- In each case, as well, plans for the increased resilience of the resource in the future have been made.
- The work has involved choosing forms of restoration which make technical and ecological sense, but which are assured by building in greater socio-economic and institutional resilience at the same time.
- So – far from trade-offs – different forms of resilience can support one another.

# Predicting risks to resilience

## 4. Can we (or how can we) predict the ecological and economic risks at particular locations?

- Prediction without any prior investigation would be almost impossible
- As a minimum we need an understanding of human use of the area, the direction of travel, and the institutional framework (the network of institutions) within which the location is being managed, and its effectiveness.
- None of the current examples take place on private land, and the networks of institutions which carry out the initial restoration work become the drivers for continuity and sustainability into the future.
- Collaboration in each case has involved people who live in the location, government employees and external facilitation in the early stages.
- Longer term resilience grows from a combination of local and external expertise, and from support for local on-the-ground institutions.
- If the supporting institutions fail or cease to exist, so will the resilience of the location.