


 HIGH COMMISSION OF WATER AND FORESTS, AND
 LAND RECLAMATION ORGANIZATION

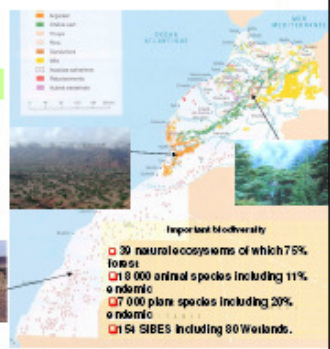
INDICATORS OF MONITORING AND FOLLOWING OF FOREST HEALTH IN MOROCCO



ASSALIF.
 AADEL T.
 JANAHT.

1st Global Meeting on Forest Classification
 Rome, Italy, September 9-10 2009

FOREST MOROCCAN: rich and diverse heritage



Introduction

- Woodland: 9 million hectares
- Natural forests: 5.8 million ha
- Reforestation: 56,000 ha
- Tobacco plots: 3.3 million ha

Methodologies

Results & Discussion

Conclusion & Recommendations

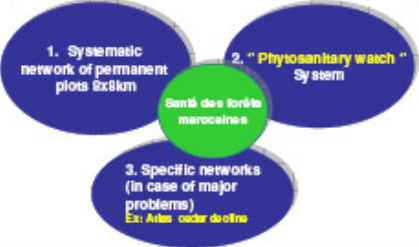
Forest Health → **Ignorance of the extent of damage**

Important biodiversity:

- 30 natural ecosystems of which 75% forests
- 18 000 animal species including 11% endemic
- 17 000 plant species including 20% endemic
- 51 SIBES including 80 Wetlands.

STRATEGY: 3 complementary monitoring system installed

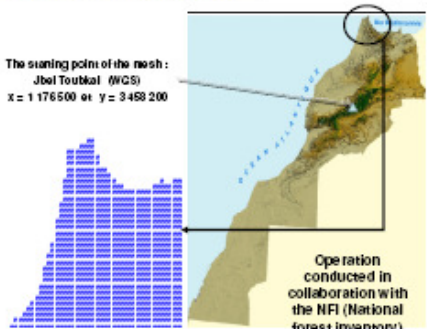
Projet FAO-TCF-MOR-3101: In the Middle Atlas pilot area (2006 to 2008)



Principle: retain the indicators that are simple, rapid and reliable assessment information to forest health.

1. A network of permanent plots systematic mesh of 8 km x 8 km

The starting point of the mesh: Jebel Toubkal (WGS)
 x = 1 176 500 et y = 3 458 200






Operation conducted in collaboration with the NFI (National forest inventory)

La placette de suivi

Methodologies

- Center determined by Geographic coordinates
- Selection of samples trees (20 stems dominant) in spiral from the center of the plot
- Replacement trees in cases of disappearance

sample = tree Center plot Landmark

Systematic Network 8x8 km

1. Objective: Follow objectively the large interannual changes of the vally of Korse sands

2. Tools:

- Parcense plot
- Notation sheet + Practical fieldbook
- Web application Input
- Database

3. Resources people:

- 2 notaires by Province
- 2 minimaors by Region

Notation: once / year (from June 15 to July 15)

4. Results:

- Annual State of the Forest Health
- Maturity of the health development
- Adapting the physionantary technique

Criteria of notation

Mandatory criteria

- Pruning
- Mortality of the branches
- Defoliation

Other causes of damage or symptoms

Other causes of damage to biotic and abiotic origin

2- Phytosanitary watch system

Objective: Detection of damage outside the systematic network permanent plots

Phytosanitary watch

1. Objective
The reporting of forest damage instantly to its detection

2. Tools

- Watch phytosanitary sheets Manual
- Web application Input
- Database

3. Resource people

District Manager
Good ground cover
Constantly present on the ground

- Appropriate: Antennas
- Notifies the opportunity to tour

4. Results

- Standardized information in real time
- Follow appropriate damage
- Memory Phytosanitary

2008 results of forest health in the middle atlas area (phytosanitary network 600 km)

Evolution of the defoliation level of cedar of the Specific network of tracking of cedar atlas decline from 2003 to 2009 (Middle Atlas cedar area)

Year	Very Severe	Severe	Moderate	Minor	Null
2003	~10%	~15%	~35%	~30%	~10%
2004	~10%	~15%	~35%	~30%	~10%
2005	~10%	~15%	~35%	~30%	~10%
2006	~10%	~15%	~35%	~30%	~10%
2007	~10%	~15%	~35%	~30%	~10%
2008	~10%	~15%	~35%	~30%	~10%

- Pruning is found over a quarter of the trees observed with 3% increase between 2007 and 2008 --- Project of development socio-economic
- The defoliation shows signs of physiological impairment: Atlas Cedar, Green Oak, thuja and Juniper oxycedri --- Re-examine the methods of forest management: Mode of treatment.
- The reports of attack by the pest 'Processionary pine' increased from 4% in 2007 to 5% in 2008 --- Maintain vigilance through phytosanitary watch system.
- More than 30% zeen oak (*Quercus faginea*) have suffered a deterioration --- Solicit a study to install a specific network monitoring.
- Ensure progressively the grafting of other disciplines like the biodiversity, pédology, phytosociology...

Addressing Forest Degradation in the Context of Joint Forest Management in Udaipur, India

Presented by:
Michael Klein
International Union of Forest Research Organizations (IUFRO)
IUFRO's Special Programme for Developing Countries

Project Lead:
Promode Karki, Prasad Singh, Ghanshyam Shahabuddin and Rajeshwar Singh Jaiswal, 2008.
India: Singhraj is titled as the land under forest cover. In: Don Kees Lee (Editor), 2008: Keep Asia Green, Volume II "South Asia", IUFRO World Series Volume 23-81.

FCS, Foundation for Ecological Security, India: Project Location Site: Udaipur, Rajasthan:
<http://www.fcs.org.in/india/fcs/india.html>

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Recent IUFRO-led Scientific Publication Initiatives on Rehabilitation of Degraded Forests in Africa and Asia

1. Rehabilitation of Degraded Lands in Sub-Saharan Africa
 Lessons Learned from Selected Case Studies
 Presents success and failure of forest rehabilitation in various eco-regions of Africa
<http://www.iufro.org/asia/asia/asia/asia/asia/asia/>

2. "Keep Asia Green"
 Analyzes past and ongoing forest rehabilitation and restoration efforts in the Asia Pacific region.
<http://www.iufro.org/asia/asia/asia/asia/asia/asia/>

State of Knowledge – Information Gaps – Research Needs – Policy Recommendations

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Addressing Forest Degradation in the Context of Joint Forest Management in Udaipur, India

Community Development Project
<http://www.fcs.org.in/india/fcs/india.html>

FES
 Forest Ecology and Management


Tropical dry forests and grasslands (semi-arid eco-zone) in Udaipur District of the north-western state of Rajasthan, India.

These villages (1500 inhabitants in 300 vital households)

Foot-hills and valleys of the Aravalli Hill Range


- Forest land: 237 ha
- pasture: 147 ha
- Un-irrigated agric. Land: 13 ha

Typical situation in many dryland areas in economically disadvantaged countries



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Status of Forest Degradation



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Assessment of Forest Degradation

- Step 1: Socio-economic situation**
 - Growing population with insufficient income
 - Sustenance through government programs and migration
- Step 2: Reduction/loss of vital goods and services**
 - Insufficient water for human consumption and irrigation
 - Low productivity of agriculture crops and livestock
 - 20% drop of income from forests (fuelwood, grass)
- Step 3: Status of forest degradation**
 - Low stocking density and loss of tree species
 - Degradation of pasture land (i.e. low grass production, loss of grass cover)

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Forest Rehabilitation Projects

Project on natural resource management and dairying

- 40% of total fodder intake of animals from forest lands;
- Bring common land under active village governance;
- Provide legal rights on the usufructs from common lands.



Poverty alleviation through social mobilization around natural resource management

- Reduce migration to cities for unskilled labour;
- Creation of local employment opportunities.



Development of models of local self-governance at village and inter-village level for natural resource management.

Strengthen decentralisation of governance over natural resources
 Continue protection of forests and common lands through village institutions.



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Results of Forest Rehabilitation Efforts




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Results of Forest Rehabilitation Efforts



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Conclusions „Assessment of Forest Degradation“

- Defining forest degradation through a indirect three-tiered approach at the local level
 - Socio-economic situation
 - Reduction of goods and services from forests
 - Status of forest degradation (visual field inspection)

Many rehabilitation projects are based on this type of indirect assessment

Provides the basis/motivation for implementing a forest rehabilitation project;

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Conclusions „Forest Rehabilitation“

- Rehabilitation targets include
 - Increased ground vegetation cover – improved grass production – reduced soil erosion (controlled grazing, check dams etc.)
 - Increased tree biomass – improved fire wood production (forest protection; planting of hedgerows etc.)

Quantifying progress towards achieving the rehabilitation targets requires monitoring of indicators (biological, structural etc.): data on „before – after scenarios“ (on project-by project basis)

Rehabilitation measures lead to higher forest biomass levels, in order to achieve improved productivity. This may or may not be in line with other goals (e.g. carbon, biodiversity etc.)

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Conclusions „Investment Strategy“

- Investments into forest rehabilitation
 - Field work (planting; fencing; check dam construction; etc.)
 - Changes in the management of forests through
 - Adequate policies and regulations;
 - Local institutions;
 - Capacities (including retraining of forestry staff); and
 - Employment/markets etc.

Large portions of investments are needed to bring about a social transition to SFM. Otherwise rehabilitation results (e.g. improved production; reduced emissions) are only short-lived.

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Thank you for your attention

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ASSESSING AND REVERSING FOREST DEGRADATION THROUGH GLOBAL PARTNERSHIP



Stewart Maginnis
Director, Environment and Development Group

International Union for Conservation of Nature



Introduction to FLR and GPFLR

Forest Landscape Restoration brings people together to identify, negotiate and implement practices that restore an agreed optimal balance of the ecological, social and economic benefits of forests and trees within a broader pattern of land uses

Underlying principles :

- Multi-functional:
- Situation specific:
- Participation:
- Scale:
- Adaptive Management

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Global Partnership on Forest Landscape Restoration

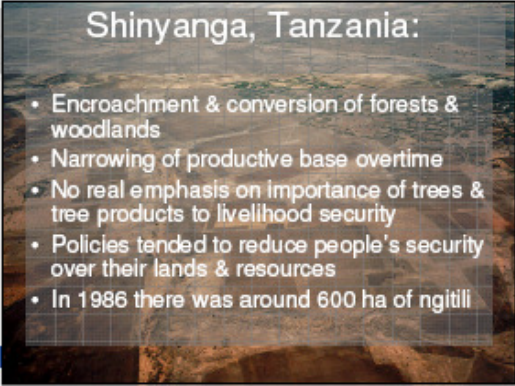
Aims

- Support partners in effectively restoring degraded forest landscapes
- Establish and improve relationships among different interest groups involved in forest landscape restoration
- Encourage the development and use of innovative FLR approaches and methodologies

GPFLR Learning Network GPFLR


- Research phase (Jan-March 09), Scoping phase with learning sites (April- Sept 09), Operational phase (October 2009 onwards)
- See www.iucn.org/transformlandscapes.org

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Shinyanga, Tanzania:

- Encroachment & conversion of forests & woodlands
- Narrowing of productive base overtime
- No real emphasis on importance of trees & tree products to livelihood security
- Policies tended to reduce people's security over their lands & resources
- In 1986 there was around 600 ha of ngitili




POSTIVE LANDSCAPE LEVEL CHANGE BUT BENEFITS NOT SPREAD EQUALLY

- **Shinyanga, Tanzania**
The "Desert of Tanzania" now benefits from:
 - USD 1200/household/yr in economic assets
 - 500,000 ha of new assets
 - Contributes x1.6 compared to regional average income
 - Benefits extend to 2.5 million people but still issues of underlying disparity




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Shinyanga - Preliminary outcomes

Issue	Outcome
Economic value of retained ngitili in as per hectare per annum	\$16 (which is higher than the national average rural consumption of \$4.50 per month per person)
Cost of soil loss damage as a result of the degraded forest	Around \$1500 per hectare per year
Average value of 18 natural resource products used per annum	Per household: \$1,200 per annum Per village: \$7,00,000 per annum Per district: \$90,422,000 per annum
Species of tree, shrub and climber found in degraded ngitili	104
Other tree species (by season only)	18 to 20 different families of grasses and herbs
100 species recorded (by season only)	1-18 bird species and 10 mammals
Reduction in time for collecting various natural resources	Reduced collection time by: Fuelwood: 2 to 5 hours Pole: 1 to 2 hours Flesh: 1 to 2 hours Water: 1-2 hours Cattle: 2-4 hours
Percentage of households using ngitili products for various seasons in the 7 districts	Education: 20% (10% to 30%) Diversity nutrition: 22% (1% to 45%) Fodder and forage: 21% (10% to 31%) Medicinal: low (10 spp) 14% (5% to 30%) Fuelwood: 61% (4% to 92%)

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South Platte Watershed



Buffalo Creek Fire - 1996

- 11 miles burnt in half hour
- 11,900 acres burned
- Multiple flooding events
- Loss of life and homes
- Total costs USD 25 million



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STARTING POINT



- Dense uniform forest
- Susceptible to pest attack
- Vulnerable to crown fires

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Open forest structure
December 1896

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Expected benefits of landscape restoration in South Platte Watershed



- Reduced risk of catastrophic crown fire and post-fire erosion; return to natural fire regime
- Reduced forest density
 - converts understory to grass and shrubs
 - favors rapid understory recovery after fire and reduced post-fire erosion
- Increased runoff water for riparian areas
- Improved habitat for wildlife

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Ideal restored landscape in Denver means:



- **Diverse landscape structure**
- **Openings**
- **Low-density forest**



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CONCLUDING THOUGHTS



- FLR is an obvious remedy to degradation as currently defined and is a useful way of framing the enhancement of carbon stocks
- Flexibility is required – no single blueprint (specifically the REDD opportunity should not become a carbon straight-jacket)
- Several learning sites indicate that countries are not bound to follow the forest transition curve.

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