

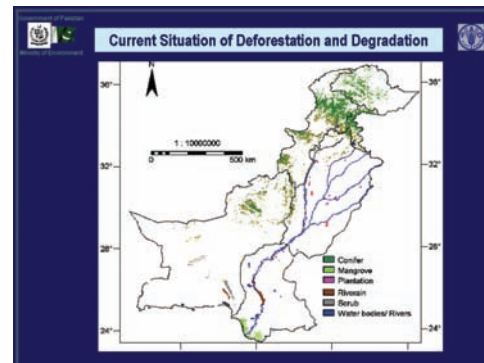
Government organization for NFI in Pakistan

Mr. Shahzad Jehangir

Promoting and Strengthening Multi-purpose National Forest Inventory System in the Asia Pacific region in connection with Climate Change

Government organizations for National Forest Inventory in Pakistan

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Current Situation of Deforestation and Degradation

	1992 (m ha)	2004 (m ha)	% Annual Change
Natural, contiguous forests	3,587	3,440	(- 0.36)
Farmland Trees	0,466	0,781	(+ 7.50)
Others (Linear +Miscellaneous)	0,171	0,171	0
Overall Forest Area	4,224	4,392	(+ 0.39)
Percent of Total Area of Pakistan	4.8	5.0	

Gross Deforestation (Natural Forests) 27,000 ha per year (1992-2004)

- Current Situation of Deforestation and Degradation**
- Causes**
- Ownership / dependence for livelihood
 - Widening gap of demand & supply (43-14-29 mm³)
 - Expansive fuel/wood alternates
 - Taxes on wood imports
 - Climate change (droughts, shifting season, epidemics, fires)
 - Shortage of irrigation water

Contribution of Forestry in National GHG emission

Pakistan's total GHG emission is estimated at 108,000 Gg (108 Mton), which makes a small fraction (0.15-0.20%) of total global emissions

GHG	Sector	Contribution (%)
CO ₂ :	Energy sector	(81%)
	Forestry/land use	7.5 MtonCO ₂ /yr (7%)
	Industries	(12%)
Methane:	Agriculture	(87%)
	Fugitive/wastes	(13%)
N ₂ O:	Agriculture	(81%)
	Sewage/Energy sector	(19%)
CO:	Transport	(81%)

Source: Pakistan National Council 2002

Strategy to Reduce Deforestation and Degradation

Sources of Funding

A. Public Sector

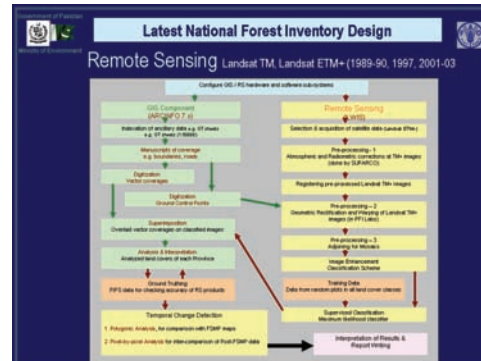
• Ministry of Environment / Mega Projects	300,000 ha
• Provincial Forest Departments (ADPs, Regular budget)	100,000 ha
Total	400,000 ha
Estimated financial requirement	Rs. 16 or \$ 200 m

B. Private sector (President's Mass Afforestation Programme)

• Public Sector Corporations / Autonomous bodies	300,000 ha
• Private Sector Companies	300,000 ha
Total	600,000 ha
Estimated financial requirement of PMAP	Rs. 24 b or \$ 300 m

Brief history of Forest Inventory

- 1st Inventory
 - Institution: Ministry of Food & Agriculture (through consultants)
 - Inventory Year: 1989-1991 (Published FSMP 1992)
 - Budget: (national: \$ 0.23 m, ADB: \$ 1.12 m)
- 2nd Inventory
 - Institution: Ministry of Environment (through Pak Forest Institute)
 - Inventory Year: 2003-04
 - Budget: (national: \$ 0.12 m, international: \$ 0.40 m)



Latest National Forest Inventory Design

RS-based: Number of sample plots actually laid in provinces, AJK and NAs

Sl #	Province	Conifer		Scrub		Riverain		Range		Total	
		F	O	F	O	F	O	F	O	F	O
1	N.W.F.P.	23	135	13	79	-	-	20	124	56	338
2	Punjab	7	39	29	166	17	102	33	192	86	449
3	Sindh	-	-	-	-	16	96	21	120	37	222
4	Balochistan	5	30	8	48	2	12	23	138	38	228
5	NAs.	25	156	-	-	-	-	41	264	66	420
6	AJK	7	45	-	-	-	-	3	18	10	63
Total		67	405	50	293	25	210	141	862	293	1770

F = Number of Full Enumeration plots O = Number of Ocular observation

Sample Intensity 10 km x 10 km, Sample size 3pixel x 3 pixel, RSME <1

Local Inventory Indicators in use of Forest Depts

Forest MAR Indicators	Scope	Producer	Frequency	Methodology	Users
Area under forest	Forest Division	Working Plan Officer (WFO)	15-20 year	Field surveys	Foresters, Planners
Open Cover Density %	Forest Division	Working Plan Officer (WFO)	15-20 year	Field surveys	Foresters, Planners
Tree species and composition	Forest Division	Working Plan Officer (WFO)	15-20 year	Field surveys	Foresters, Planners
Forest growth and yield	Forest Division	Working Plan Officer (WFO)	15-20 year	Volume tables	Foresters, Planners
Rate of forest change	Forest Division	Working Plan Officer (WFO)	15-20 year	Field surveys	Foresters, Planners
Seasonal / annual targets / progress of tree planting	Provincial	CCF, CFs, DFOs	6 monthly	Estimation	Foresters, Planners
Recruitment, recruitment / transfer of forest lands	Forest Division	Working Plan Officer (WFO)	15-20 year	Field surveys	Foresters
On and Off-site budget allocation	Provincial	Technical DFOs	Annual	Working Plan prescriptions	Foresters, Planners
Forest Revenues	Provincial	DFO → CF → CCF	Annual	Government returns	Finance Dept, Planners, policy makers
Extent of damages (fire, illegal logging, theft, insect epidemics)	Provincial	Forest Guard → CCF	Daily	Field inspection	Foresters
Demand / supplies of forest products	Provincial	CCF	Annual	Market surveys	Foresters, Planners
Forest ownership, tenure, conflicts, forest sharing	Provincial, national	Working Plan Officer (WFO)	15-20 year	Field surveys	General public, Foresters
System of forest management	Forest Division	Working Plan Officer (WFO)	15-20 year	Field surveys	Foresters, Planners
Level of community participation	Local to national	Working Plan Officer (WFO)	15-20 year	Social surveys	Foresters, Planners, NGOs, Others

- ### Government organizations for NFI
- National Network on MAR-SFM of Pakistan includes:
- Federal Ministries (Ministry of Environment, Ministry of Food, Agriculture and Livestock, Statistics Division, Ministry of Defense, Ministry of Commerce, Planning & Development Division) and their attached departments and programmes
 - Provincial Forest Departments
 - Agricultural Universities
 - National Non-Government Organizations
 - Concerned Civil Society organizations
 - International partners (including FAO, UNDP/TFP)
 - Private Sector Companies

Government organizations for NFI

Ministry of Food, Agriculture & Livestock

MINFAL: MAR-related Profile of the Organization	
Type of Organization	Ministry of Environment
Main activities MAR	"Agricultural Statistics of Pakistan"
Name of Wing	Economic Wing
Organizational Structure	Secretary Economic Consultant, Director
Funding	Government of Pakistan
Infrastructure	Combined
Sources of Information	Secondary data from provincial Agricultural and Forest Dept
Forest Reporting	Uniform but not standardized
Frequency	Annual
Scope of MAR	National, provincial
Users	Planners, researchers

Government organizations for NFI

National Agricultural Research Centre

NARC: MAR-related Profile of the Organization

Type of Organization	Public sector, Autonomous
Main activities MAR	Forest and range surveys, GISRS, reporting
Name of Wing	Rangeland Research Program, Water Resources Res. Institute
Organizational Structure	Director WRRRI, GIS Experts
Funding	Government of Pakistan, Projects (APN, ICIMCO, MOE)
Infrastructure	Semi-detached Institute
Sources of Information	Remote sensing
Forest Reporting	Need-based, client choice
Frequency	Project-based, casual
Scope of MAR	National, international
Users	Researchers, planners, decision makers, general public

Government organizations for NFI

Space & Upper Atmosphere Research Commission

- Using space technologies for natural resource inventorying and environmental monitoring
- Executing application projects of national significance
- Transferring technology to users in public, private sectors
- Imparting RS-GIS training to potential users

Government organizations for NFI

Pakistan Forest Institute, Peshawar

Pakistan Forest Institute: MAR-related Profile

Type of Organization	Attached Department of Ministry of Environment
Main activities MAR	Forestry Statistics of Pakistan, Survey and RS-based MAR
Name of Wing	Forest Economics Branch, GIS Branch
Organizational Structure	Director General Director Forestry Research Div., Forest Economist, GIS Experts
Funding	Federal Government
Infrastructure	Semi-detached Branches
Sources of Information	Secondary Sources, Field surveys, RS-based assessment
Forest Reporting	Self-designed forms
Frequency	"Forest Statistics of Pakistan" is published at 4-5 years interval RS-based MAR is need-based / project-based
Scope of MAR	National, provincial
Users	Researchers, planners, decision makers, general public

Government organizations for NFI

Forest Management Centre, Peshawar

FMC: MAR-related Profile of the Organization

Type of Organization	A Unit of NWFP Forest Dept
Main activities MAR	RS/GIS based MAR, Working plans
Name of Wing	FMC
Organizational Structure	Conservator of Forests, Forest Officers RS/GIS Consultants / Analysts
Funding	Govt of NWFP
Infrastructure	Separate
Sources of Information	Field Surveys, Remote Sensing
Forest Reporting	Forest Maps (different scales), Working Plans
Frequency	Need-based
Scope of MAR	Provincial, Forest Divisional
Users	NWFP Forest Department

Suggestions for promoting and strengthening NFI System

National Forest Policy 2010: Key objective is to establish regular forest assessment and reporting system in Federal and Provincial setups

Administration Organization: Central Monitoring by Ministry of Environment, Planning Commission

Human Resources: Proposal for National Geomatics Centre in MOE, Pooling of resources, Upgrading capacities of PFI

Financial Resources: Government plans to finance \$ 500,000, MAR Project completed, negotiations underway for TA, ODA not available

Thank You