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Monitoring for Drivers of LUC

MRV and Monitoring for REDD+ Pilot Course

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Drivers of deforestation

- Economic factors
- Accessibility and markets and services
- Subsistance farming – commercial farming
- Opportunity costs (livestock, agriculture, charcoal production, logging..)
- Policy incentives (agriculture, forestry..)
- Understanding the land-use pattern (ownership-and cultivation)

Forestry Underpinning Drivers

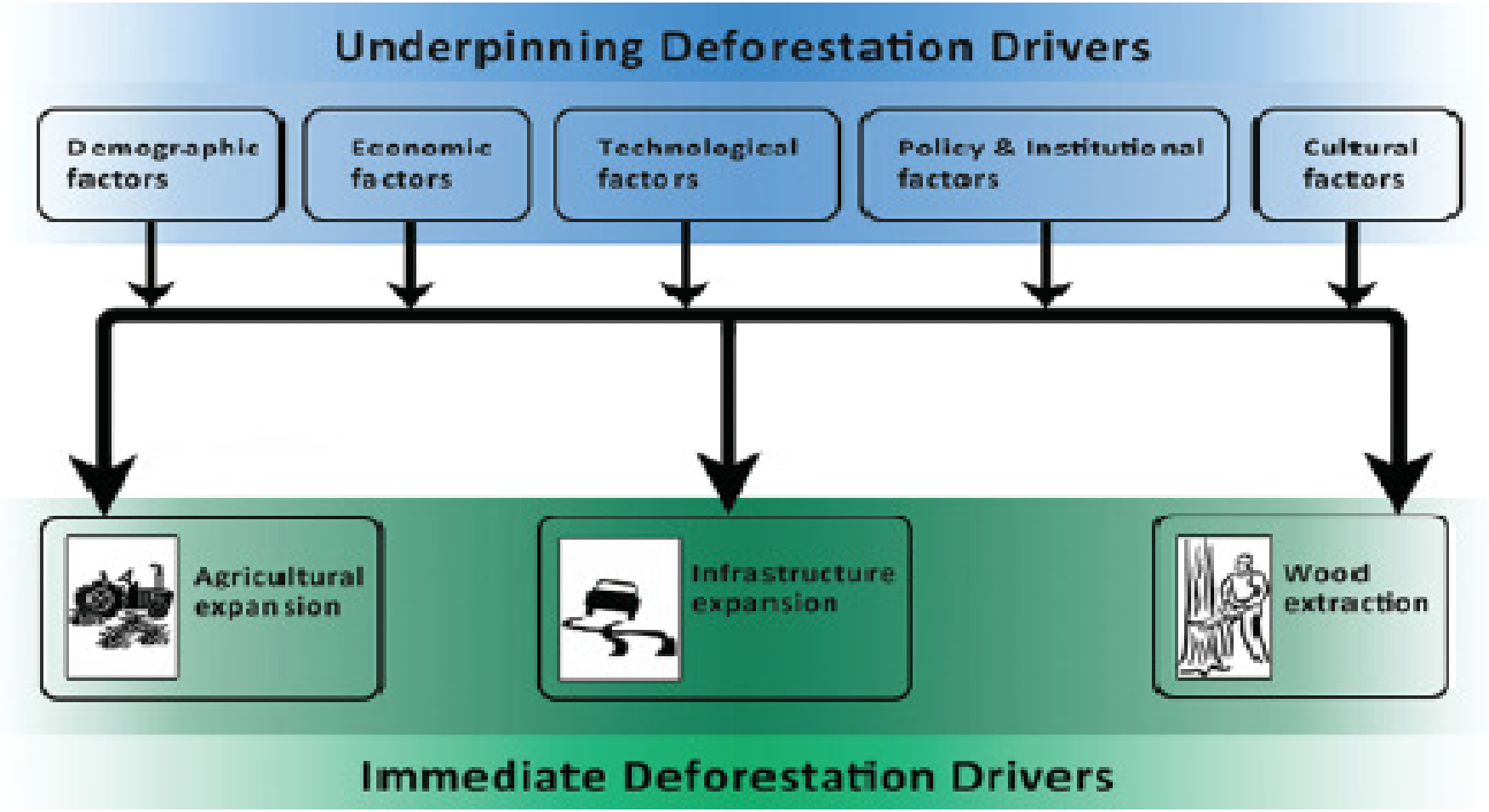

Fig. 1: The flow chart describes the interaction between the two levels of deforestation drivers; the so-called underpinning and immediate deforestation drivers

Source: UN-REDD, Lindgreen

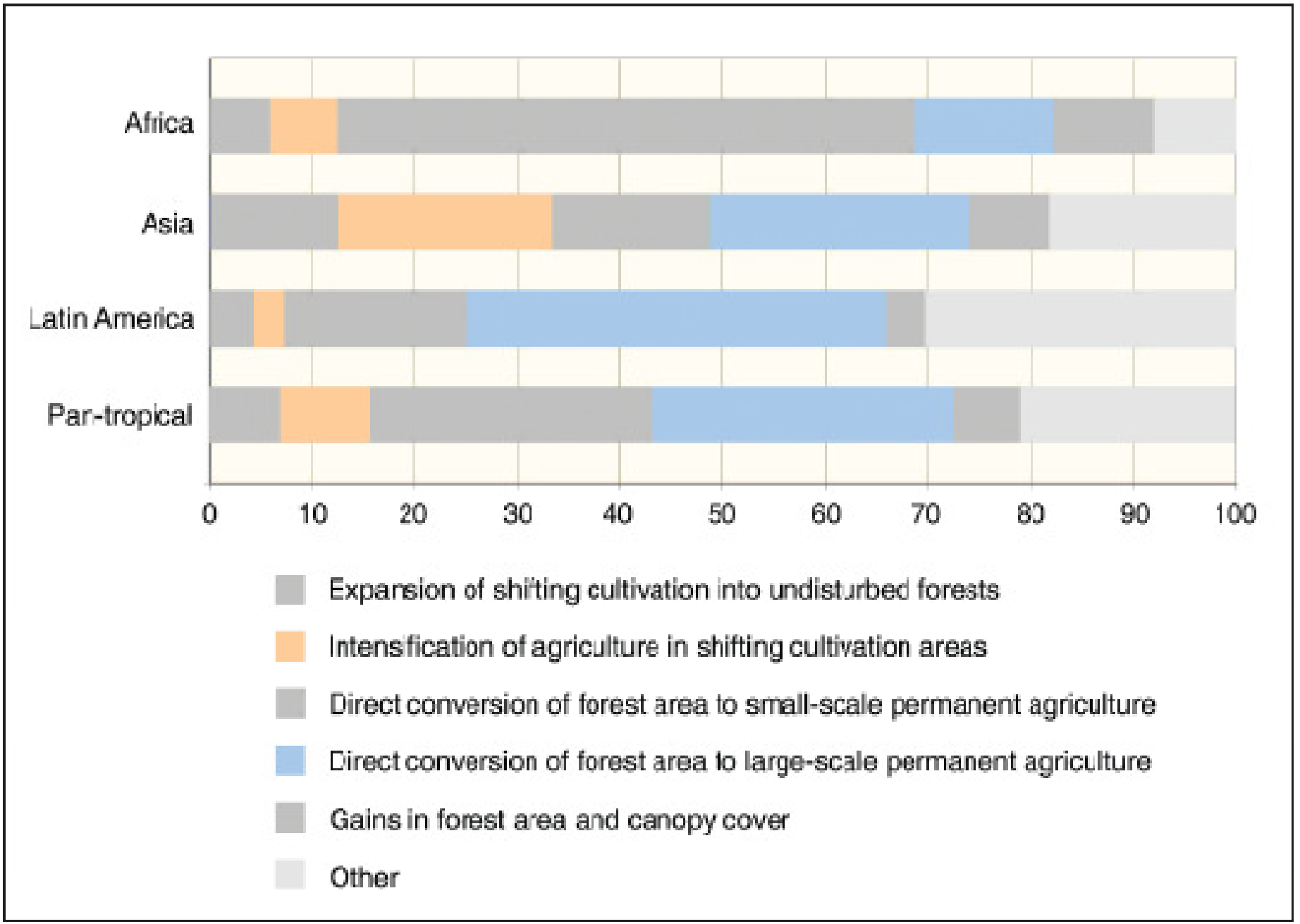

Fig. 2: Deforestation drivers per region between 1980 and 2000 expressed in %[10]

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Outputs of NAFORMA/Tanzania

NAFORMA is a Multipurpose inventory

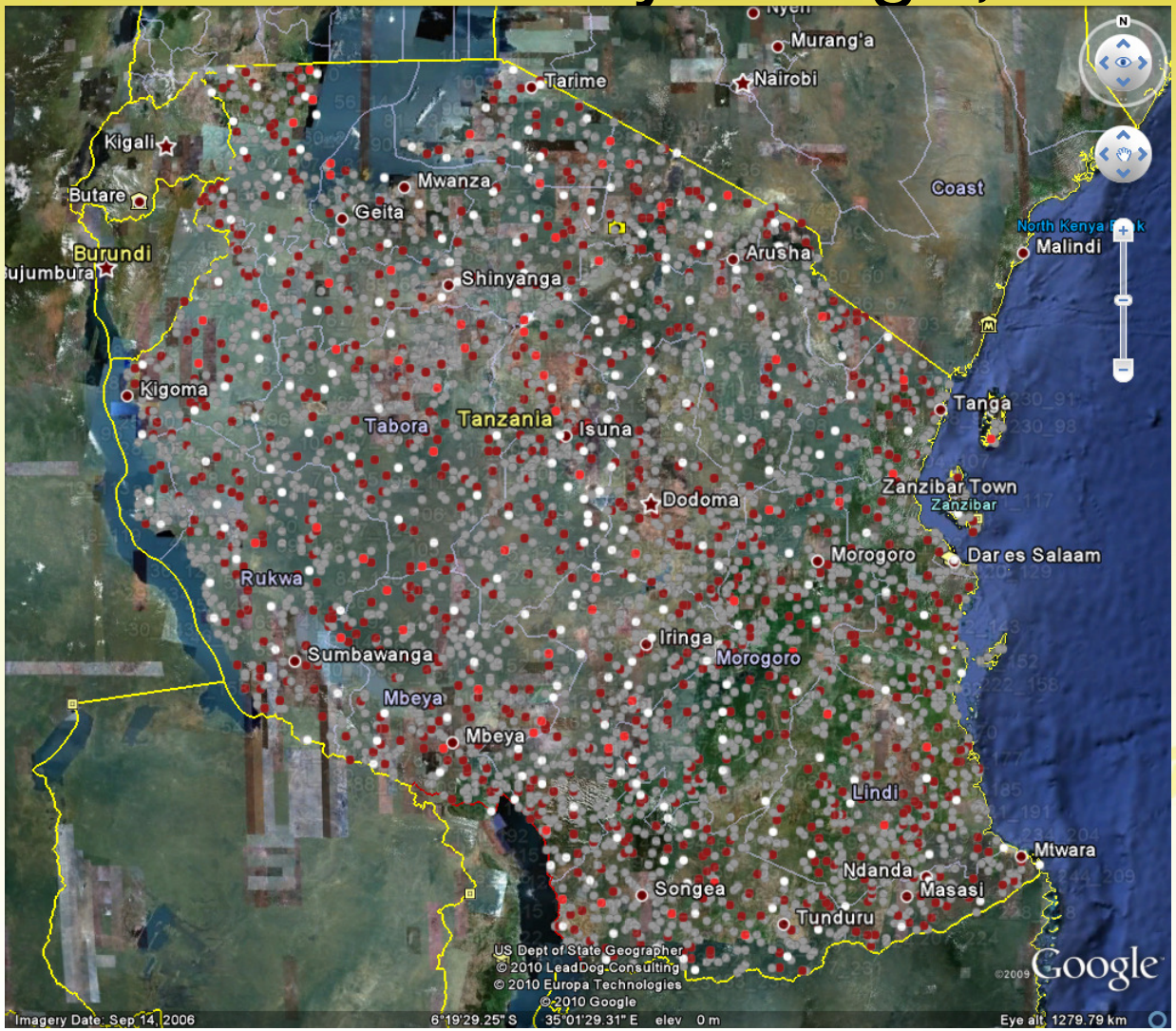
Information on:

- Forest and tree attributes (volume, biomass, carbon, biological diversity, health etc)
- Land use, land use change and forest (Area & area change)
- Products & services, use, users, management, governance
- Drivers of LU change and REDD+
- Maps (spatial distribution of resources, fragmentation, etc)

For:

- policies, strategic planning from inter-sectoral perspective and donor/investment planning and implementation monitoring
- Support implementation of international agreements, particularly strengthening countries' readiness for REDD+ and GHG reporting

Field inventory design, location of plots



Approach and criteria for Socio-economic and governance studies:

- Linked to biophysical (50%)
- Appr. 3400 Sample Clusters of which app 850 are permanent sample clusters
- Appr. 5000 HH interviews
- Low additional cost
- Capture target population living in or near forest
- One-day time budget

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Method for Socio-Economic and Governance Data Collection

NFMA SE methodology is a field-based, scientifically sound, and practical approach to collect information on:

- forest tenure
- land-use planning
- forest management
- forest revenues & economic incentives

NAFORMA uses two types of **interviews**

- Key informants
  (non-probability sample of knowledgeable individuals)
- Households
  (probability sample)

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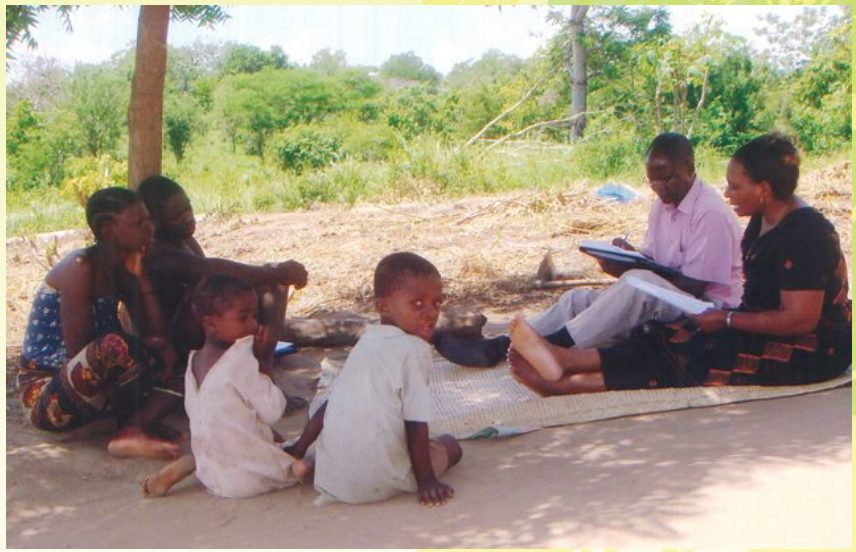
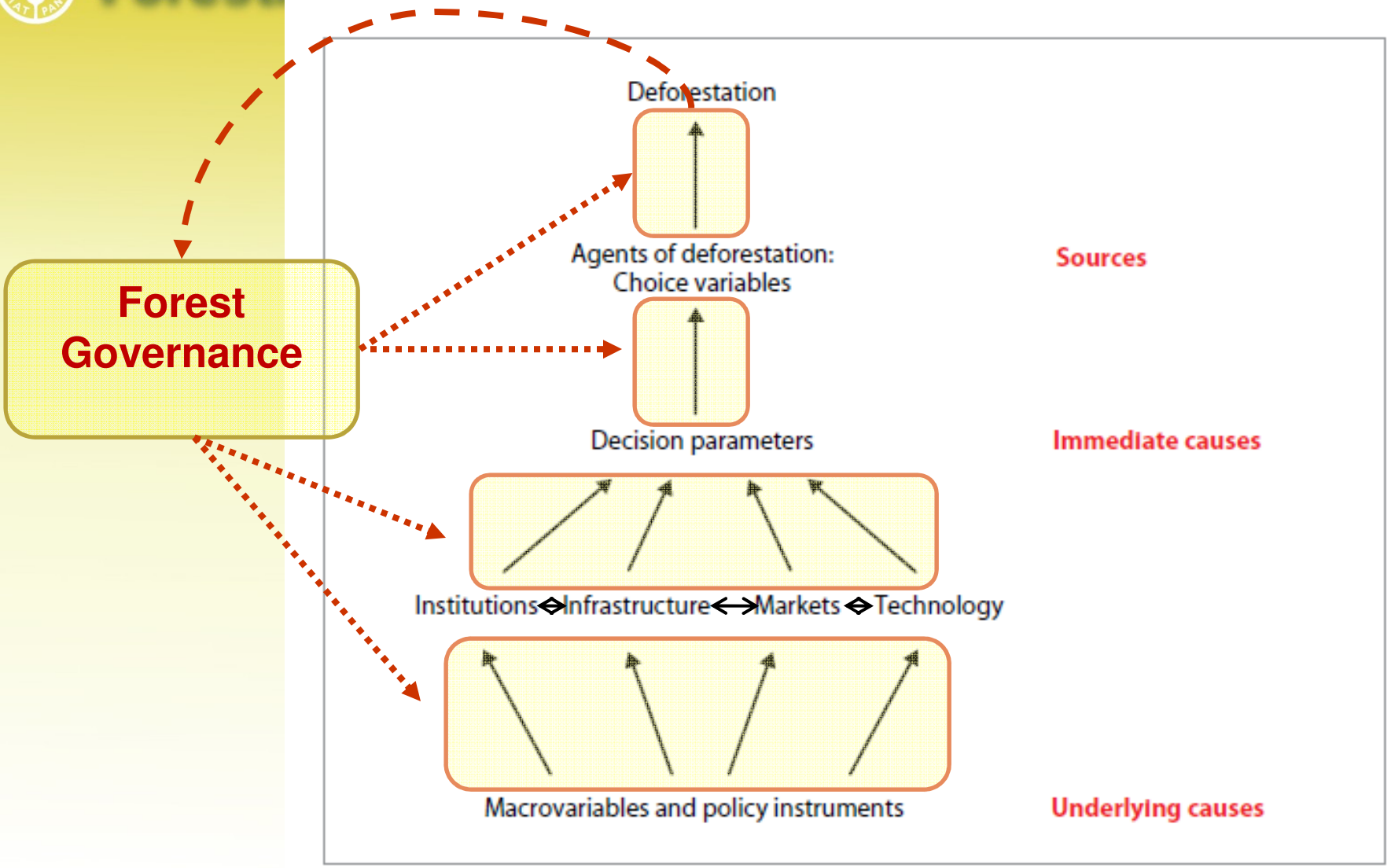
Information Needs

- Interviews with stakeholders
  - Identify priority variables
  - Inventory of existing data
- How policies affect land use decisions
- Specific data gaps , i.e.:
  - Energy consumption
  - Forests and food security
  - Reach of government programs, i.e. PFM
  - Anticipated REDD+ reporting requirements and PES





Source: Angelsen and Kaimowitz (1999)

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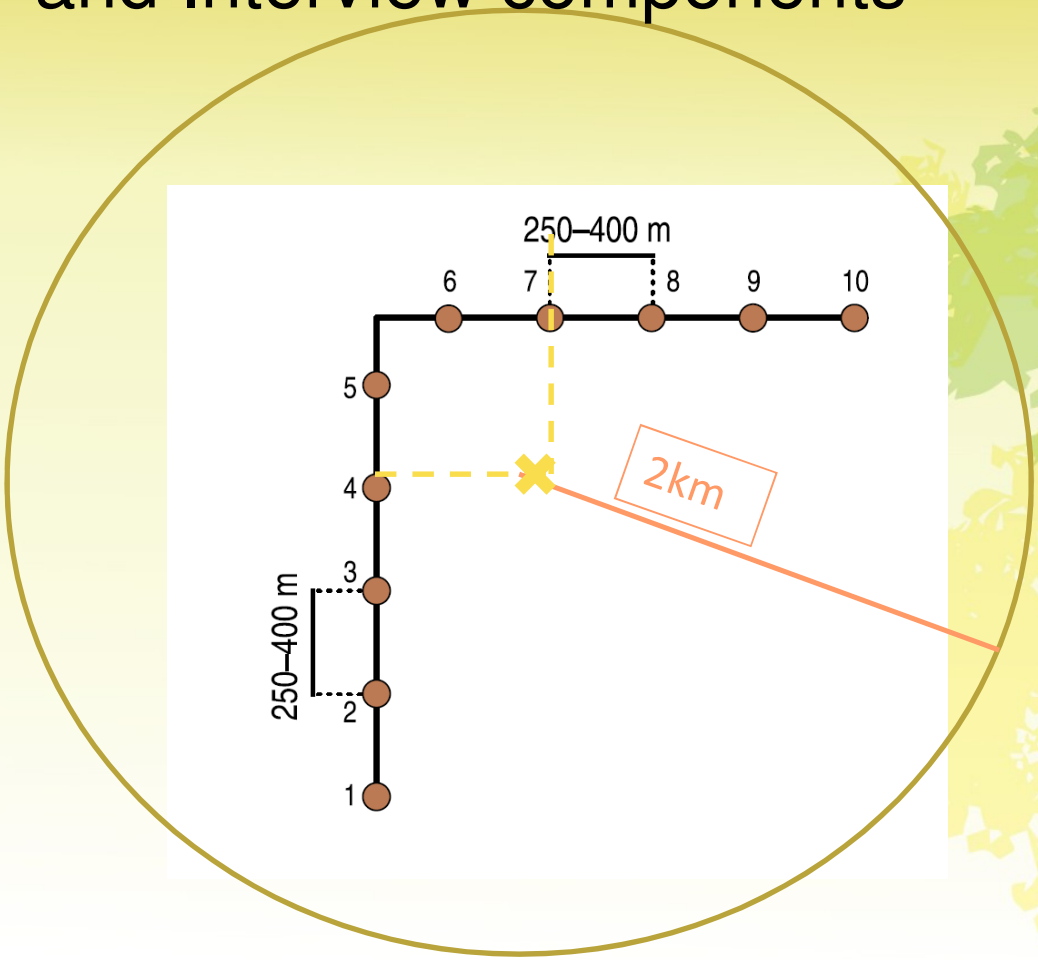
Relationship between Biophysical and Interview components



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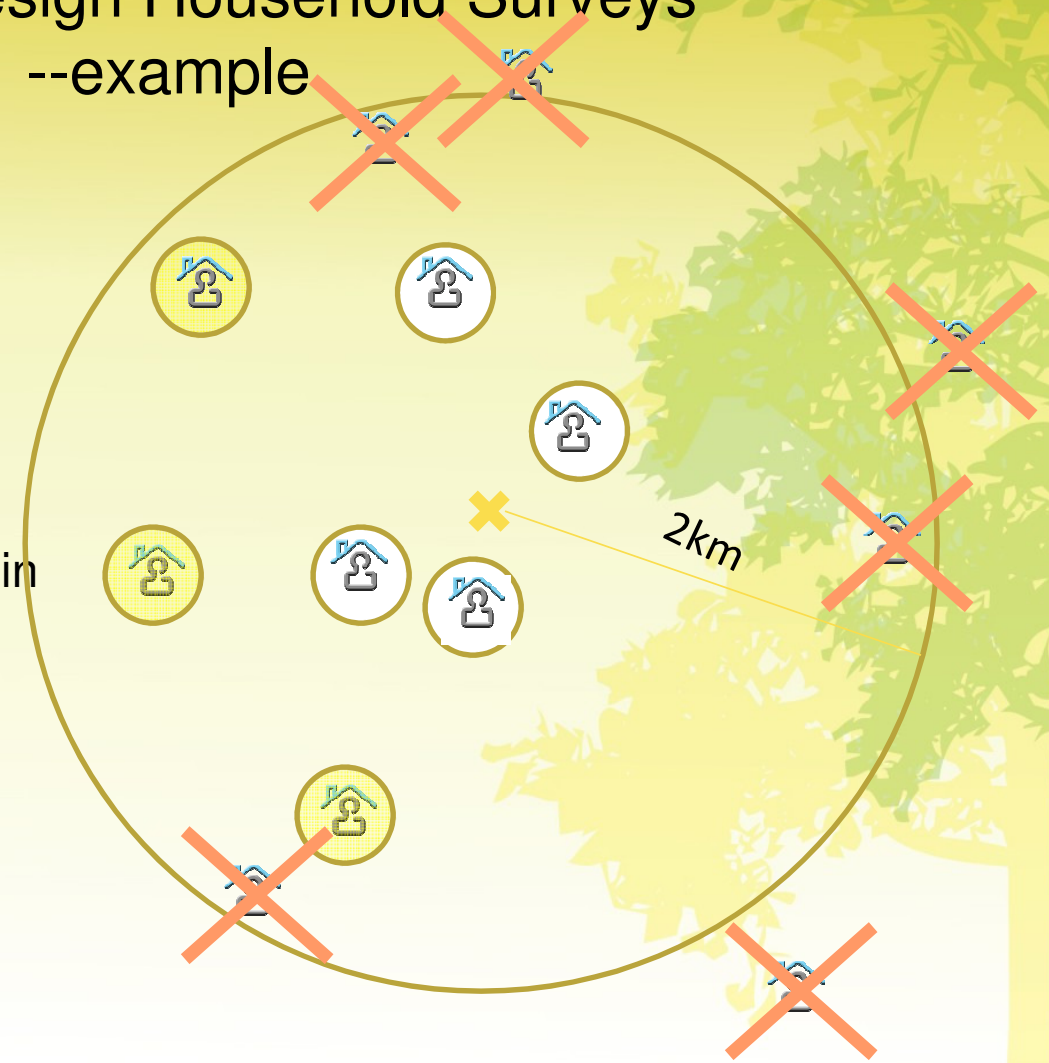
Sampling Design Household Surveys --example

- Selected households
- Backups
- Not selected

- If there are no households in SU, two HH are selected in nearest settlement

- Conservative estimate: ~5000 HH interviewed



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Socio-economic and Forest Governance monitoring approach – integration into NFMA

1. Data needs assessment
2. Biophysical inventory design
3. Integration of interview design
4. Training
5. Field testing
6. Revision and adjustments
7. Fieldwork
8. Analysis of the results
9. Dissemination of results

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Key Informant Interviews

- Individuals who know about forest use in the area (i.e. land owners, village elders, etc)
- Cluster level information (rights, conflicts)
- Enforcement, forest management
- Non-probability sample
- Data useful for hypothesis building and qualitative analysis

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Household Interviews

- Data on forest role for:
  - Food security
  - Energy needs
  - Products and services
  - Sources of livelihoods
  - Participation
  - Forest Governance
- Profitability of land use alternatives
- Relationships with governance actors
- Field-tested and available for comments
- 70 enumerators trained
- Avg. duration <50 min/HH

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17. **Management agreement:** management arrangement between the land owner and other groups. To be indicated according to option list, choose one alternative only ample question

Options		Description/definition	Code
Owner is the exclusive manager		The owner retains management rights and responsibilities within the limits specified by the legislation	**1**
Joint management	**with communities**	Management decisions remain with the owner and the management activities are executed by local communities (including indigenous and tribal communities), according to an agreement. The agreement allocates temporary exploitation rights for specific products or activities. Are included lands allocated for extraction purposes through licenses or concession	**2**
Joint management	**with private companies/ private sector**	Management decisions remain with the owner and the management activities are executed by private companies, according to an agreement. The agreement allocates temporary exploitation rights for specific products or activities. Are included lands allocated for extraction purposes through license or concession	**3**
Devolution of management rights	**to communities**	The owner devolves land management to the local communities (including indigenous and tribal communities) according to leases or management agreement	**4**
Devolution of management rights	**to private companies/ private sector**	The owner devolves land management to the private companies/private sector/individuals according to leases or management agreement, including rental	**5**
Not known		There is not enough information to obtain management agreement	**90**
Other		To be specified in notes	**99**

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3. Please indicate the household's main sources of energy and how they are acquired.

Energy Source Used	*Acquisition Methods** *(Multiple values possible)*	*Quantity/month consumed*	*End Purposes*** *(Multiple values possible)*
Firewood		Head loads	
Charcoal		bags	
Gas		kg	
Kerosene		liter	
Electricity		TShs	
Other (spec)			

4. Please indicate the amount of land that you currently own and have access to

Category	*Area owned individually*		*Do outsiders respect boundaries?**	*Area of land owned communally to which the household has access***		*Do outsiders respect boundaries?**
	Unit Acres/Ha	*Area*		*Unit Acres/Ha*	*Area*	
Cropland (not irrigated)						
Cropland (irrigated)						
Pasture (natural or planted)						
Forested land (including woodlots, silvipasture etc)						
Other vegetation types, spec:						
Land rented or borrowed						

** 1= yes, everybody; 2= most people; 3= Most do not respect; NA=Not applicable;** Estimates, including ranges of value--i.e. 10-15 acres-permitted*

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Governance

1. Accountability:

1.In the past 12 months, have you experienced any problems relating to the use of land, water, forests or any other local natural resource? (Codes: 1=yes, 0=no) | (If yes go to Q2, if no go to Q4, and write NA in Q2 and Q3))	
1.If yes, have you asked any government representative (local or national) for assistance or help of any kind to help solve the problem, (Codes: 1=yes, 0=no) | (If yes go to Q3, if no go to Q4 and write NA in Q3)	
1.If yes what was the response? (Codes: 0=unaccomodating, 1=accomodating with follow up action, to solve problem 2=accommodating without follow up action, 9=Other specify)	

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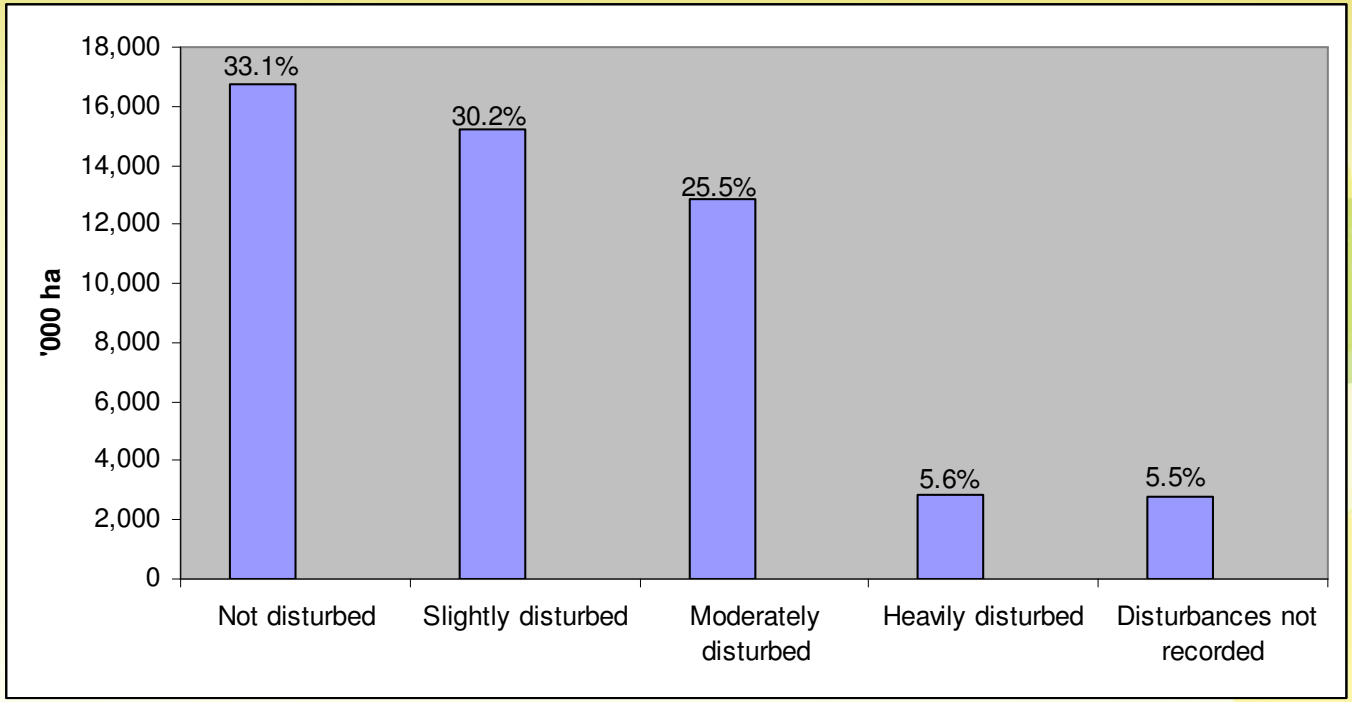
Condition of forests/Zambia



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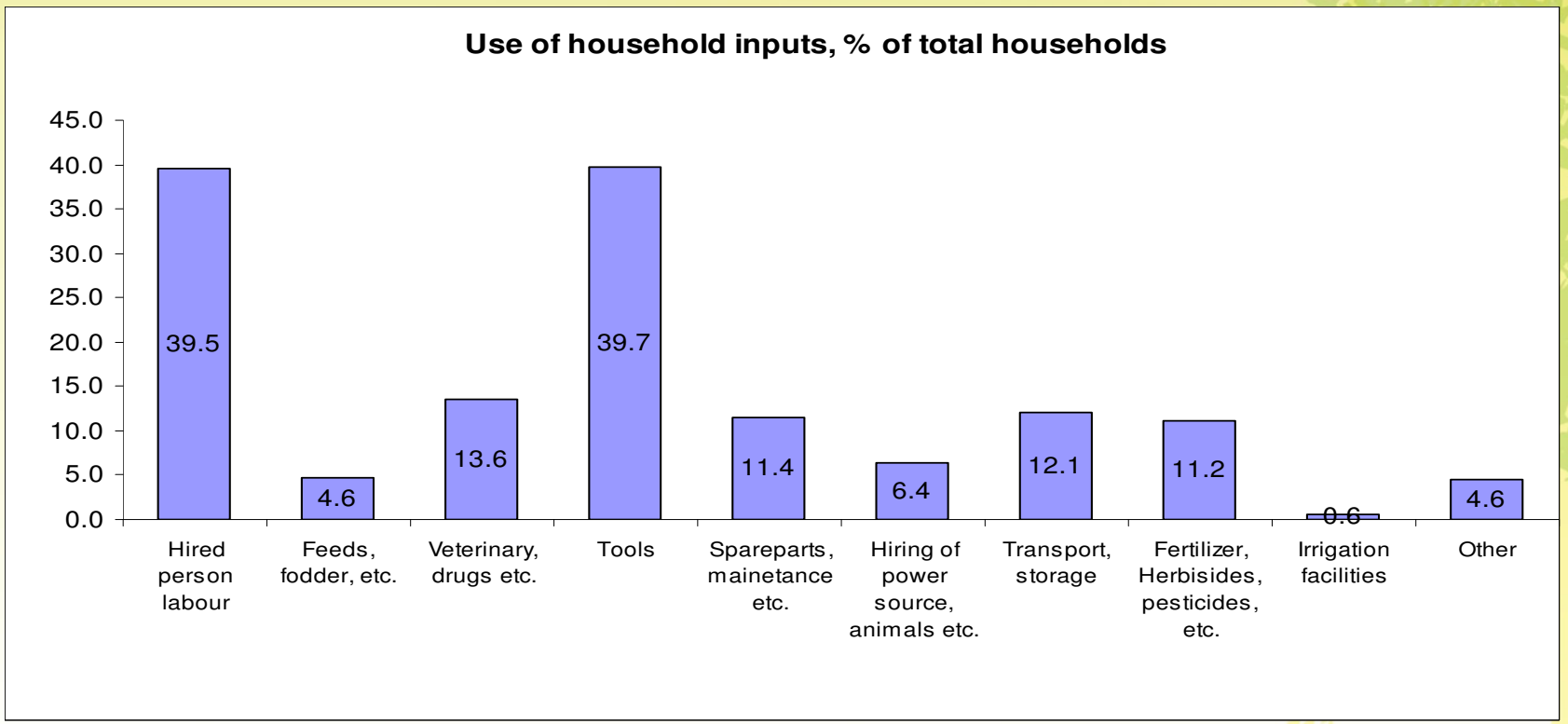
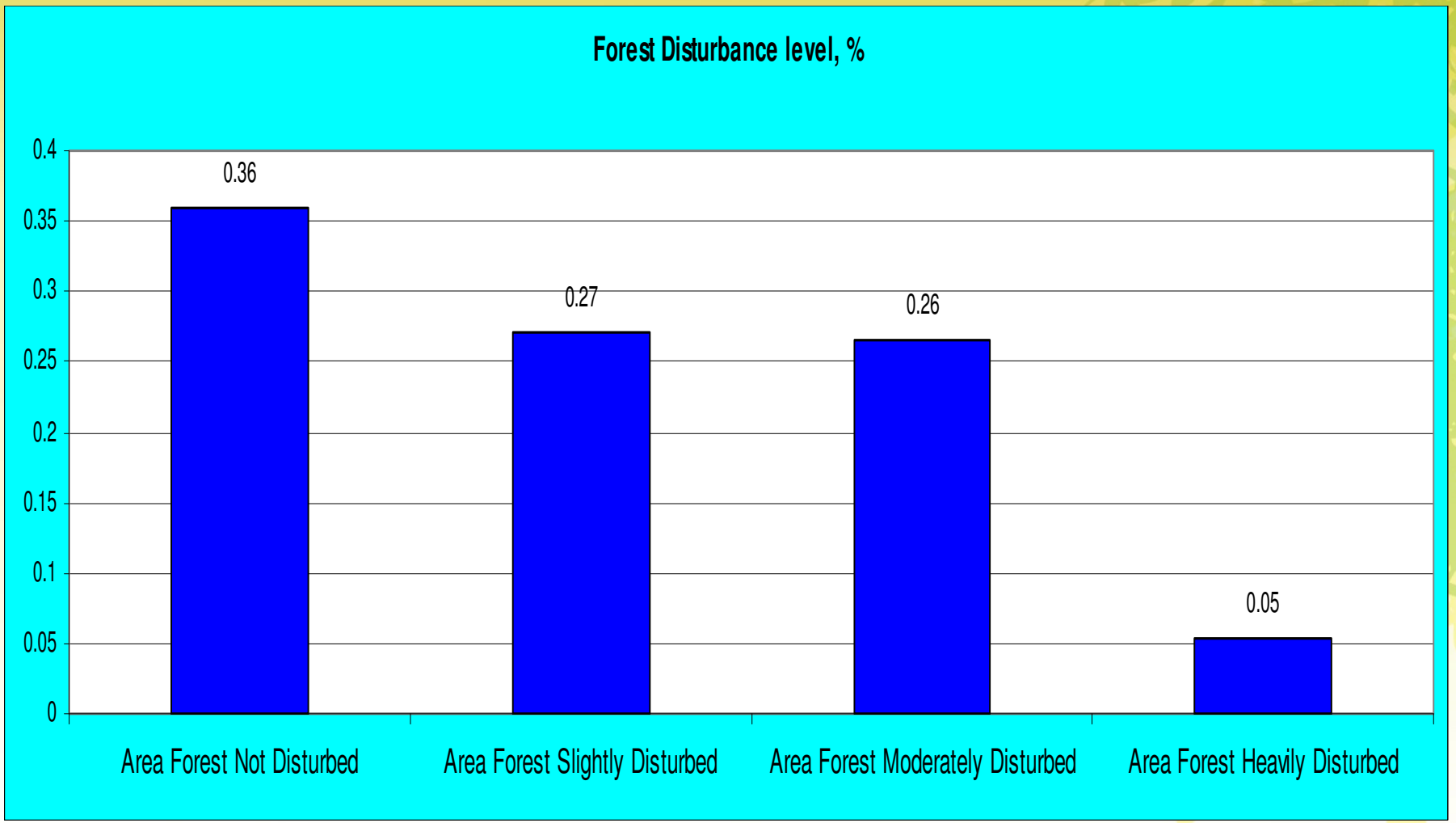
Inputs/Zambia



What is the condition of most forests in Zambia?



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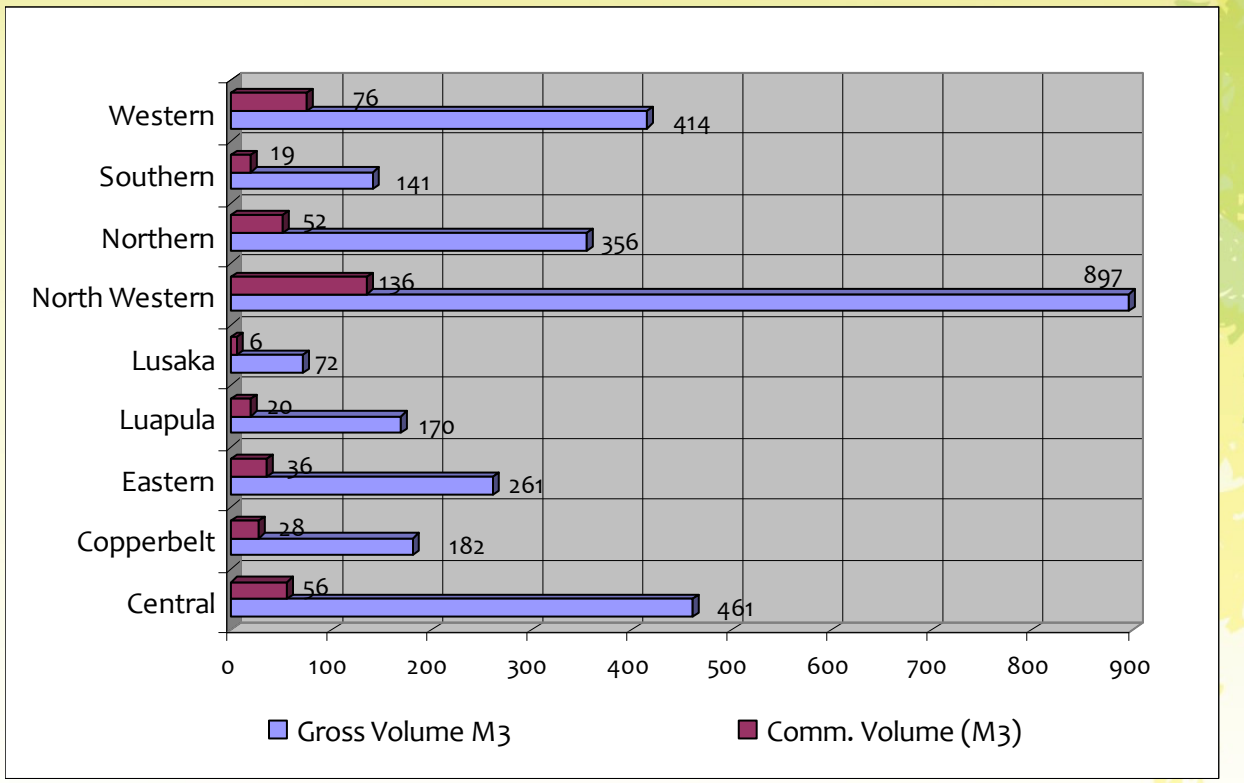
Volume/Province/Zambia



Forestry Contribution to GDP/Zambia

	Value added		% of GDP
	ZMK mill	**USD mill**	**%**
Total country GDP	25,704,400	?	100
Of which			
Total forestry and forest industries	942,268	208.9	3.7
Sub-sector contributions			
- Fuelwood production	209,123	46.5	0.8
- Charcoal production	569,315	126.5	2.2
- Household production of timber	83,738	18.6	0.3
- Non-timber forest products*	246	0.1	-
- Primary industrial processing*	58,274	12.5	0.2
- Secondary industrial processing*	21,573	4.8	0.1

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Forest contribution/Zambia

- 20% of total household income,
- high dependence (40% and 10% transitory and permanent dependence in rural areas)
- 3.7 % contribution to GDP (understated)
- Gross value of Forest Products harvested by rural households alone estimated at 2.24% of GDP(2007) or K899 billion per year
- There is great potential for carbon
- Great contribution to biodiversity
- **What forest mgt regime is optimal, given land tenure system?**
- **How can we attract investment and increase forest sector contribution to GDP growth, welfare and poverty reduction?**

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Benefits

- Responds to national needs
- Economic – additional costs low
- High variability captured: (n>5000 households)
- Explanatory power for drivers
- Allows for robust sub-national policy analysis
- Basis for monitoring of governance of forests and REDD+ policies

Drawbacks

- Rare, but potentially influential users are under-sampled (e.g. rich users)
- Transparency
  - Data collection
  - Processing
  - **Analysis**
- Will need modification to respond to monitoring of REDD+ program governance

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Dicussion

- Cancun, COP16 emphasizes MRV and informing on safeguards (governance, NFP, indigenous people, biodiversity etc.
- How well does the NFMA/NAFORMA socio-economic and governance data describe underpinning drivers, root causes and consequences of forest changes?
- We have to be very selective and proritize the collected data: what are the key indicators needed for various purposes (policies, REDD+ MRV etc.)
- Improving forest policy outcomes requires learning about causes of forest change and the effects of past experiences
- How to link biophysical information with socio-economic and governance data and produce policy relevant key information?