Deforestation Driver Analysis

to Assist with Project Baselines and Leakage Calculations

What is a system of Deforestation and how does the understanding of the system influence a project baseline ?

Es la interacción de factores espacializables y no espacializables de forma directa e indirecta que permiten describir los procesos de deforestación actual y futura en un área específica (FDN, 2010).

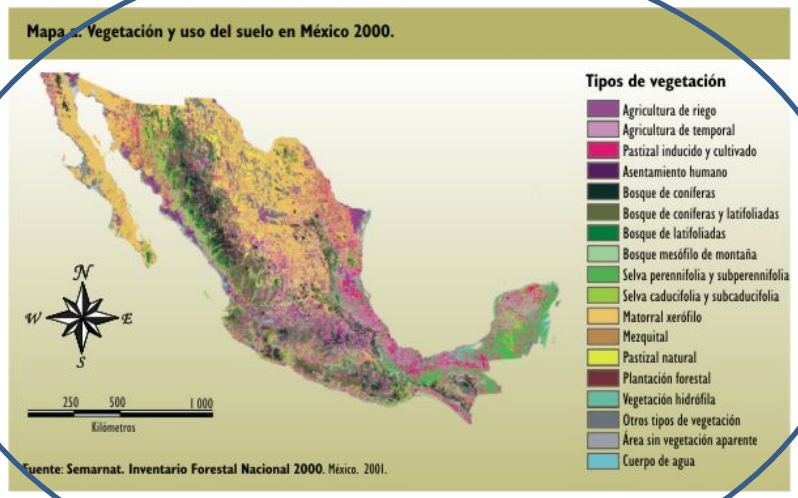
An Avoided Deforestation project must incorporate these concepts into its baseline in order to define it.

Mexico's National Deforestation Risk Model addressed many of these issues and the CAR Workgroup is considering how it can be used to develop a standardized baseline for Avoided Deforestation Projects. **This will require additional steps**.

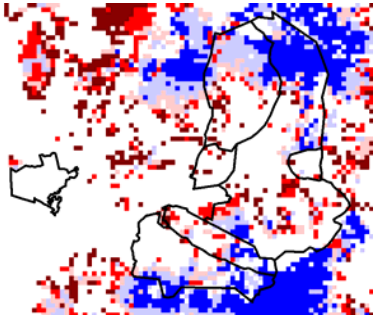
Need for Deforestation Driver Analysis

INE's Deforestation Risk Model designed to produce estimates at a national level

Use of the model at the local (project) level will require a sound analysis of which local spatial variables are needed



Model of Deforestation Risk



?

Results of Model at Project Scale

Need for Analysis of Deforestation Drivers at Localized Area to calibrate deforestation model and improve leakage estimates

Step 1- Identify All Possible Drivers of Deforestation in Mexico

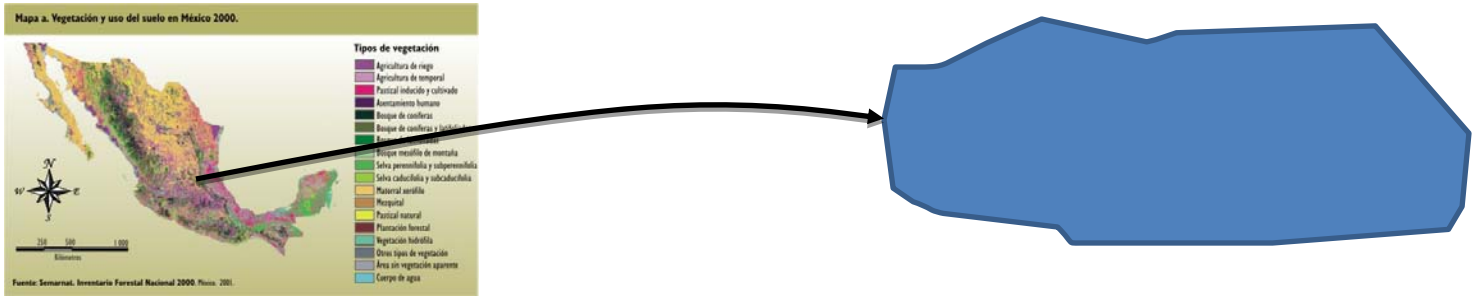
Examples

Sector	Name of Driver
Agricultural expansion	Traditional shifting cultivation
	Shifting cultivation by colonists
	Permanent subsistence cultivation
	Permanent commercial cultivation (palm, avocado, rubber,...)
	Permanent cultivation for agricultural rural development projects
	Smallholder cattle ranching
	Large scale cattle ranching
	Spontaneous transmigration
	Local transmigration (resettlement)
Wood extraction	State-run wood extraction (clearcutting, selective harvesting)
	Commercial wood extraction (clearcutting, selective harvesting)
	Growth coalition-led wood extraction (clearcutting, selective harvesting)
	Illegal (illicit, undeclared) wood extraction (clearcutting, selective harvesting)
	Commercial wood extraction (clearcutting, selective harvesting)
	Fuelwood extraction for domestic use
	Fuelwood extraction for industrial use
	Polewood extraction for domestic use
	Polewood extraction for industrial use
	Charcoal production for domestic use
	Charcoal production for industrial use
Infrastructure extension	Expansion of transport infrastructure
	Expansion of market infrastructure (food markets, storage, etc.)
	Expansion of private infrastructure (sawmills, food markets, etc.)
	Expansion of public services (e.g., water & sanitation facilities)
	(Semi-)urban settlement expansion
	Rural settlement expansion
	Expansion of military defense villages
	Private enterprise infrastructure - hydropower development

Step 1a: Identify and Describe Relationships and Sequences

Step 1b: Develop a survey methodology to identify how these drivers can be identified within defined geographic areas (states/projects for example)

Step 2- Define the Geographic Boundary in Which the Project Operates



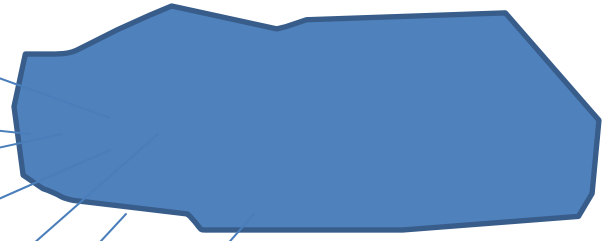
✓ The geographic boundary forms the context for defining the project's baseline and leakage monitoring.

✓ For simplicity, this could be a coincident with state boundaries due to jurisdictional issues. However, may be combined states where ecosystems, economies, forest policies, and high-risk of leakage are shared.

Step 3- Using the Product of Step 1, Identify the Suite of Deforestation Drivers Within Defined Boundary

Examples

Sector	Name of Driver
Agricultural expansion	Traditional shifting cultivation
	Shifting cultivation by colonists
	Permanent subsistence cultivation
	Permanent commercial cultivation (palm, avocado, rubber,...)
	Permanent cultivation for agricultural rural development projects
	Smallholder cattle ranching
	Large scale cattle ranching
	Spontaneous transmigration
	Local transmigration (resettlement)
Wood extraction	State-run wood extraction (clearcutting, selective harvesting)
	Commercial wood extraction (clearcutting, selective harvesting)
	Growth coalition-led wood extraction (clearcutting, selective harvesting)
	Illegal (illicit, undeclared) wood extraction (clearcutting, selective harvesting)
	Commercial wood extraction (clearcutting, selective harvesting)
	Fuelwood extraction for domestic use
	Fuelwood extraction for industrial use
	Polewood extraction for domestic use
	Polewood extraction for industrial use
	Charcoal production for domestic use
	Charcoal production for industrial use
Infrastructure extension	Expansion of transport infrastructure
	Expansion of market infrastructure (food markets, storage, etc.)
	Expansion of private infrastructure (sawmills, food markets, etc.)
	Expansion of public services (e.g., water & sanitation facilities)
	(Semi-)urban settlement expansion
	Rural settlement expansion
	Expansion of military defense villages
	Private enterprise infrastructure - hydropower development



Deforestation Drivers Within Jurisdiction 'X"

Sector	Name of Driver
Agricultural expansion	Traditional shifting cultivation
	Permanent cultivation for agricultural rural development projects
	Spontaneous transmigration
	Local transmigration (resettlement)
Wood extraction	Commercial wood extraction (clearcutting, selective harvesting)
	Fuelwood extraction for industrial use
	Charcoal production for industrial use
Infrastructure extension	Expansion of military defense villages

Step 4 - Identify/Develop Data to Quantify the Relative Contribution of Each of the Potential Drivers Within the Jurisdiction

✓If no data exists, a survey must be developed and implemented to quantify the contributions

Example

Sector	Name of Driver	Available Data (example)
Agricultural expansion	Traditional shifting cultivation	FAO-1989, SEMARNAT -2008
	Permanent cultivation for agricultural rural development projects	FAO-1989, SEMARNAT -2008
	Spontaneous transmigration	CONAFOR-2010, SEMARNAT -2008
	Local transmigration (resettlement)	CONAFOR-2010, SEMARNAT -2009
Wood extraction	Commercial wood extraction (clearcutting, selective harvesting)	FAO-1989, SEMARNAT -2008
	Fuelwood extraction for industrial use	CONAFOR-2010, SEMARNAT -2008
	Charcoal production for industrial use	FAO-1989, SEMARNAT -2008
Infrastructure extension	Expansion of military defense villages	CONAFOR-2010, SEMARNAT -2008

Step 5 - Quantify the Relative Contribution of Each of the Potential Drivers Within the Jurisdiction

- ✓Perform causal analysis of deforestation drivers:
  - ✓To assist in identifying deforestation sequencing

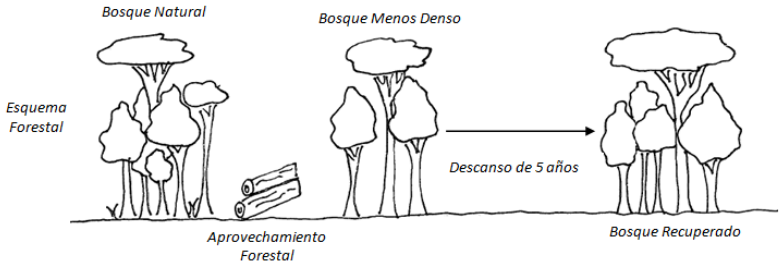
Example

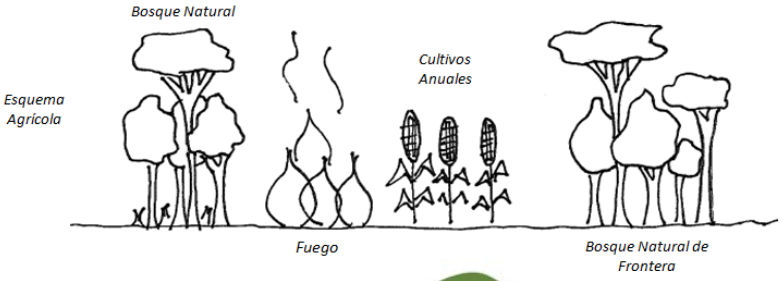
Sector	Name of Driver	Relative Contribution of Driver to Area Deforested
Agricultural expansion	Traditional shifting cultivation	5%
	Permanent cultivation for agricultural rural development projects	5%
	Spontaneous transmigration	15%
	Local transmigration (resettlement)	45%
Wood extraction	Commercial wood extraction (clearcutting, selective harvesting)	20%
	Fuelwood extraction for industrial use	3%
	Charcoal production for industrial use	2%
Infrastructure extension	Expansion of military defense villages	5%

Step 5 - Quantify the Relative Contribution of Each of the Potential Drivers Within the Jurisdiction

- ✓Perform causal analysis of deforestation drivers:
  - ✓To assist in identifying relationships of drivers and sequencing

- ✓Describe each driver in terms of:
  - ✓Who is doing the deforestation.
  - ✓Why they are doing the deforestation.
  - ✓Where are they doing the deforestation.
  - ✓For whom are they doing the deforestation.
  - ✓Spatial scale of driver.
  - ✓Direct and indirect impacts of driver.
  - ✓Potential for leakage.
  - ✓Prevention/mitigation opportunities for driver.

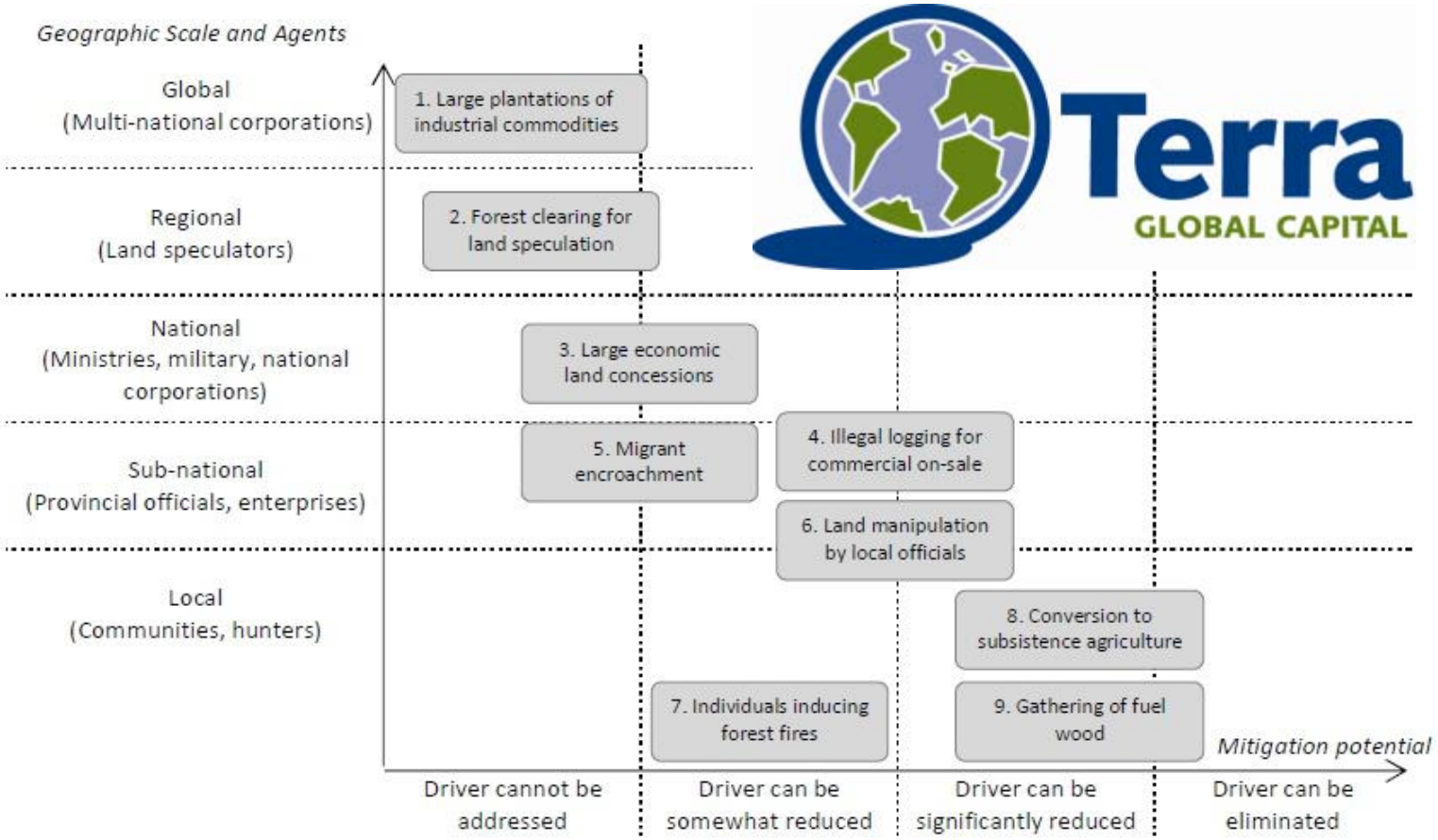




- ✓Identify the leakage potential of each driver

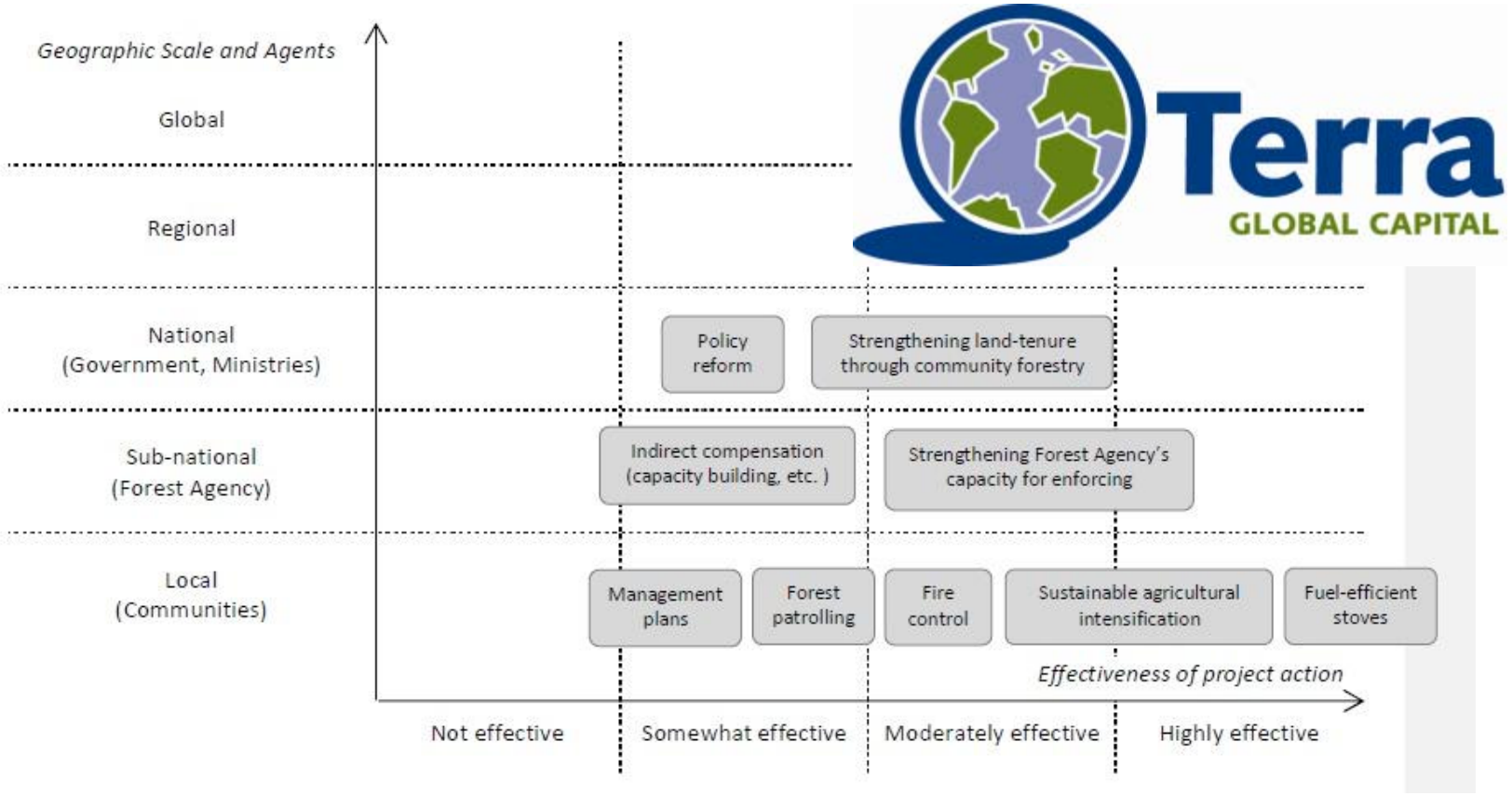
Fundación Defensores de la Naturaleza

Step 6 – Analyze the Spatial Restrictions and Mobility of Each of the Drivers



Step 7- Identify How the Project Addresses Deforestation Drivers

✓Combined with the leakage analysis, a leakage risk for each project can be assigned.



Step 8 – With Spatial Drivers Identified, Local Variables can be Used to Calibrate INE's Deforestation Risk Within the Geographic Boundary and Extrapolated to the Project Level as a Predictor of Deforestation Rates Into the Future