MODELING THE MUTATION OF SOCIO–ECOSYSTEMS IN CENTRAL AFRICA
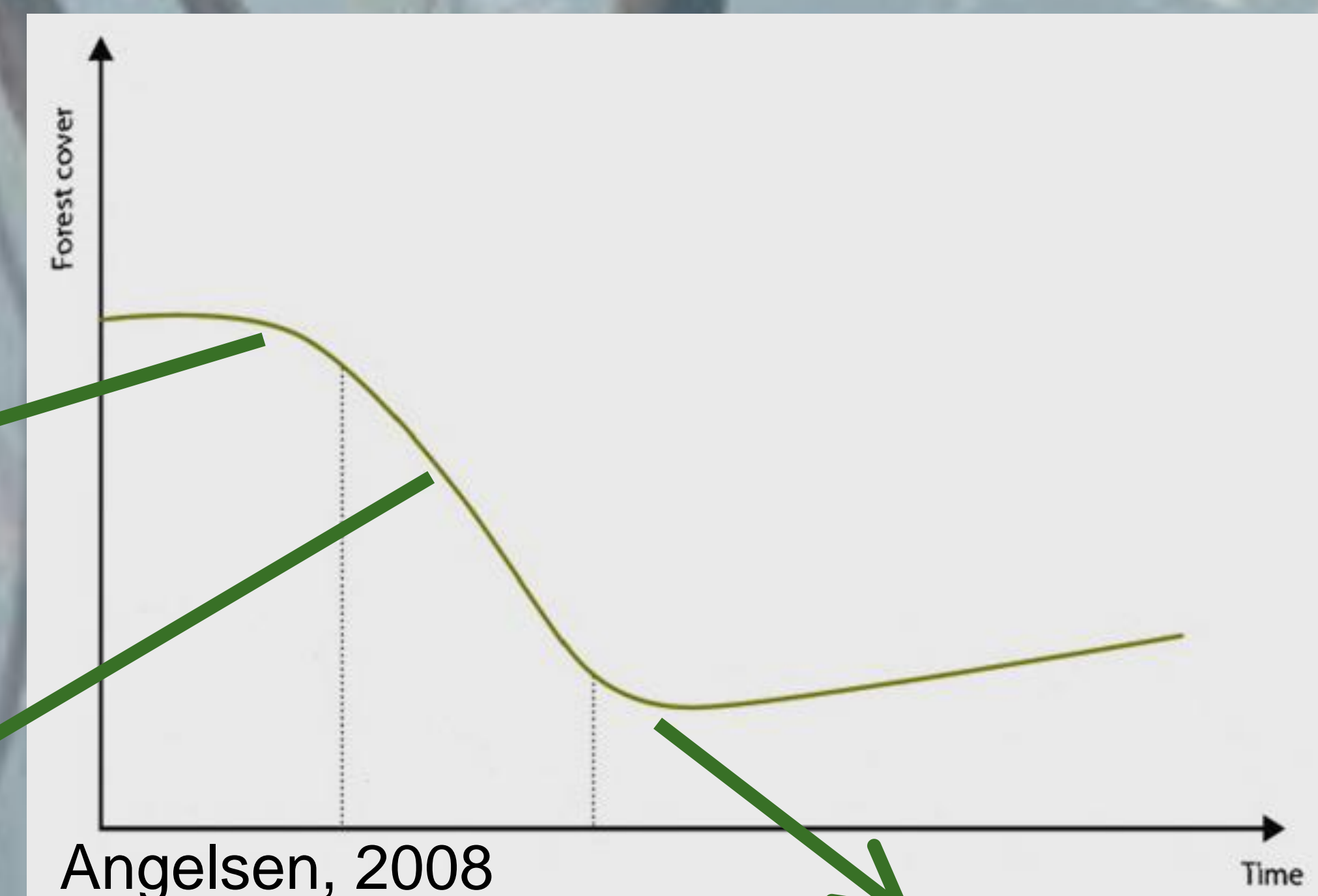
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CONTEXT AND OBJECTIVES

The CoForTips project was developed in order to promote better management of the forest of the Congo Basin by presenting to the policy makers plausible scenarios of socio-ecosystem evolution. This objective will pass by mapping the **resilience** of biodiversity, by identifying **tipping points**, **drivers** and potential **impacts of policy makers decisions** on the capacity of socio-ecosystem to provide ecosystem services. The integration of social, economical, environmental and geophysical processes to construct scenarios will simulate regional development and encourage innovation in forest policy at regional and national scale.
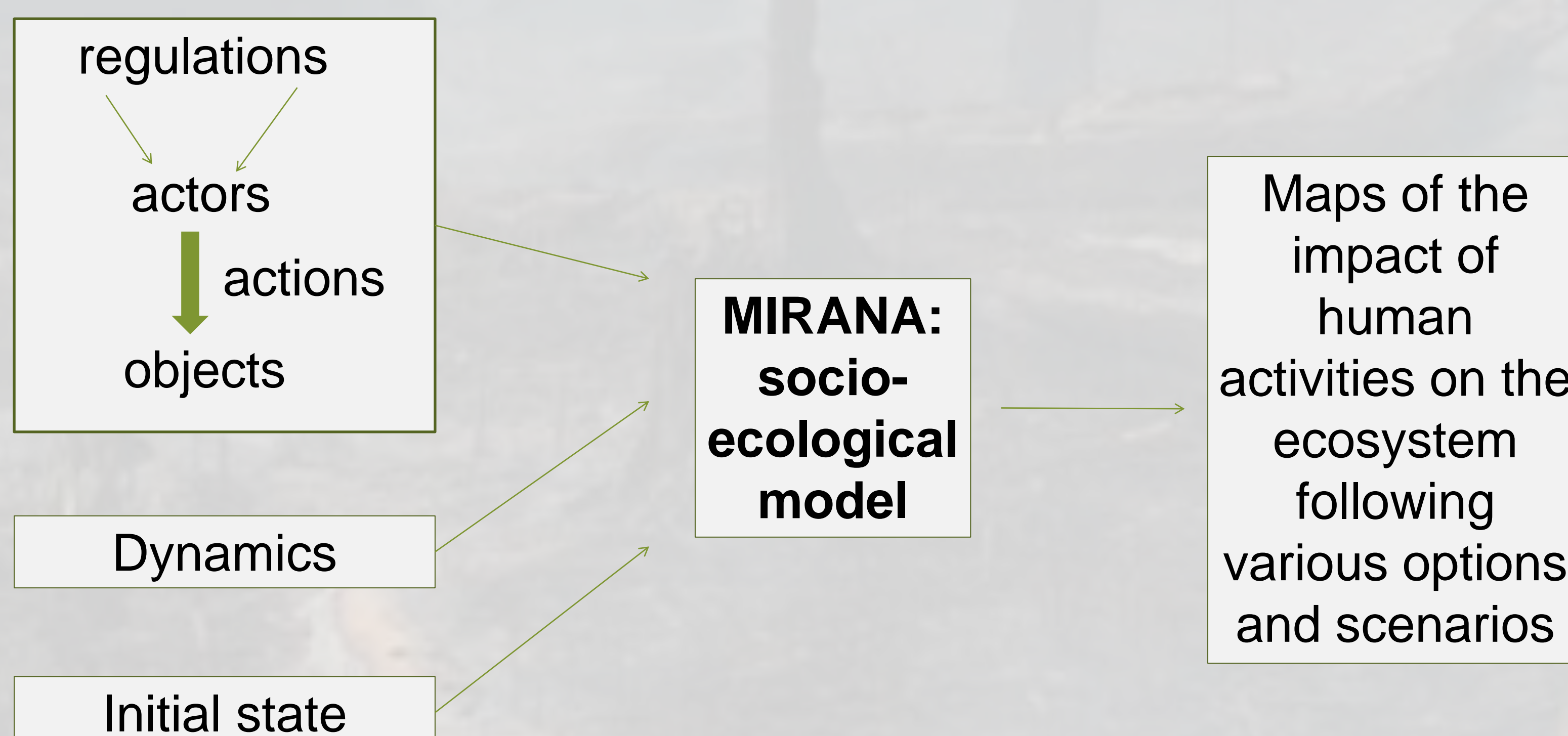
STUDY SITES

The three study sites chosen are representative of the steps of a forest degradation gradient.

Angelsen, 2008

Little disturbed forests

Forest in degradation

Advanced status of deforestation

METHOD

Modeling will be processed using MIRANA (Aubert *et al.,*2010) a socio-ecological model which enable the integration of ecological processes, their regulation and the resulting inhabitants behavior to explore and discuss the impact of human activities on socio-ecosystem scenarios. The input and output informations are explained in the schema below.

regulations

actors

actions

objects

Dynamics

Initial state

MIRANA: socio-ecological model

Maps of the impact of human activities on the ecosystem following various options and scenarios

DRIVERS OF CHANGE AT SUB-GLOBAL AND LOCAL SCALES

This thesis will look for empirical data on the link between components of the biodiversity and the provision of ecosystem services. It will be divided in three tasks:

- Analyzing the landscape, using signs of current and past activities and identifying the activities based on ecosystem services and products and the stakeholders of these ecosystems.

- Analyzing the drivers of land use change by the human pressures and the actors involved at different scales.

- Conceptualizing socio-ecosystems using decision-making powers of the different actors in order to evaluate their effect on biodiversity management using **MIRANA**.

References:
Angelsen A. (ed.) 2008. *Moving Ahead with REDD: Issues, options and Implications.* CIFOR, Bogor, Indonesia

Aubert, S., Müller, J.-P., & Ralihalizara, J. (2010). MIRANA : a socio-ecological model for assessing sustainability of community-based regulations. *International Congress on Environmental Modeling and Software modeling for environment's Sake*. Ottawa, Canada.