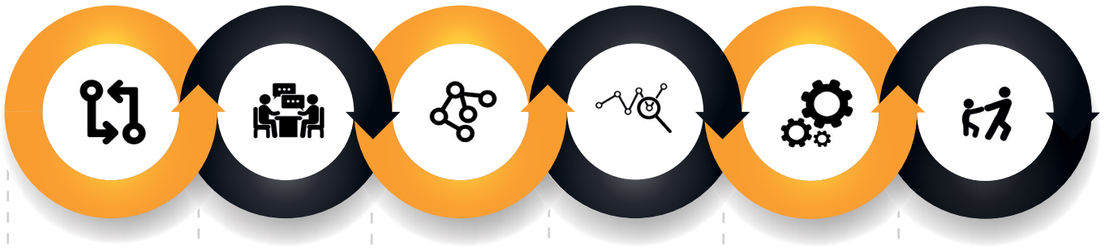
BACKGROUND & OBJECTIVES

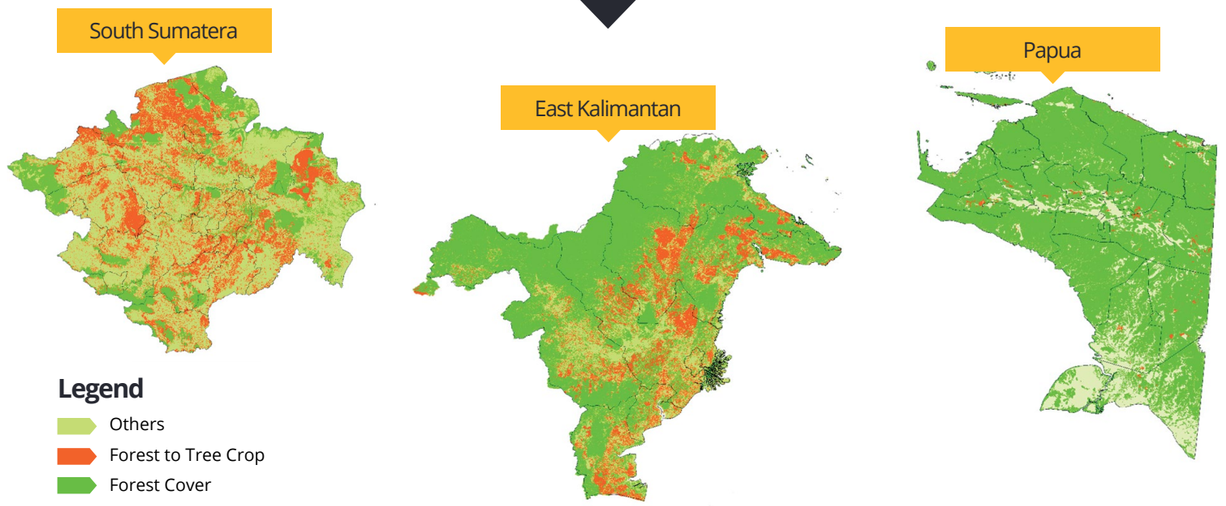
Forest conversion in Indonesia is always considered as one of the most important source of environmental services degradation. Although a lot of effort has been conducted, ineffective action is often occurred because of the failure to understand the right drivers of forest conversion. We use the Driver–Pressure–State–Impact–Response (DPSIR) framework in a multistakeholder-participatory processes to identify the most suitable responses to address forest conversion in three provinces of Indonesia: South Sumatra (SS), East Kalimantan (EK) and Papua.

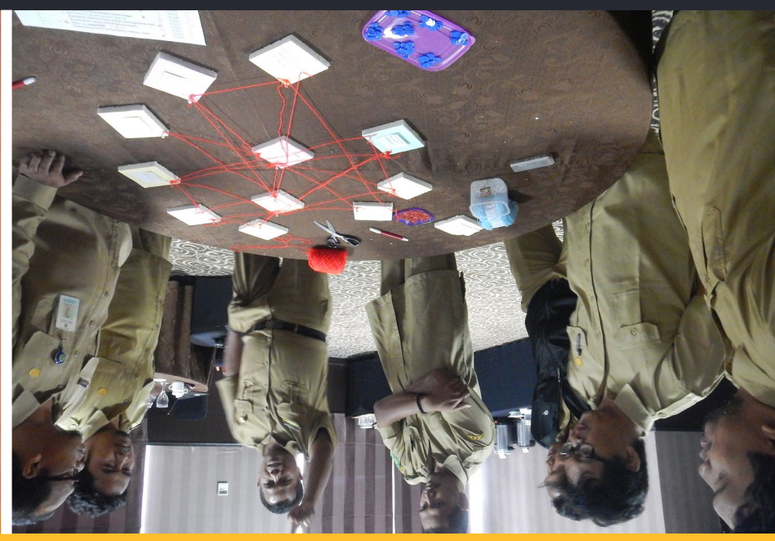
The processes consist of several key steps:

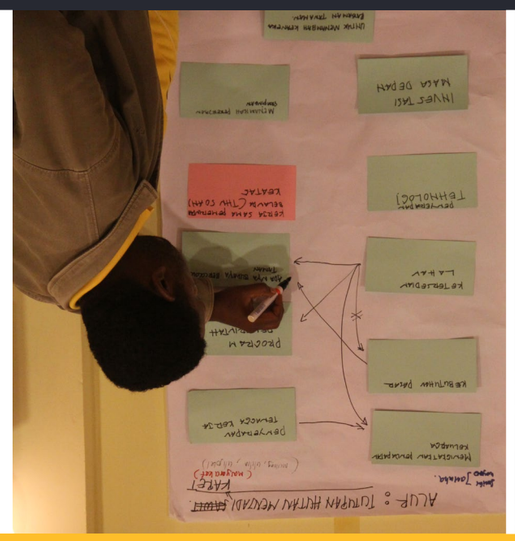


ANALYSIS OF LAND USE/ COVER CHANGE

This step quantifies historical land use/cover change patterns to find the major trajectories and identifies the hotspots. Land cover data is used from 1990 to 2015 (except Papua in 2000-2011). South Sumatera and East Kalimantan were dominated by Forest Conversion to Tree cropping. Changes to tree cropping cover up to 64% of total area of South Sumatera and 53% of East Kalimantan. In other words, it is more than half of each respective provinces. While Papua is still dominated by degradation--from primary to secondary forest.







Identifying Land-Forestry Policy Levers from Participatory Understanding of Drivers of Forest Conversion

Case Study from Three Provinces of Indonesia

Drivers to Levers (D2L) aims to synthesize causal processes of land use/cover change in a landscape by capturing multiple views from multi-stakeholder in order to identify policy levers which strengthens decision making factors on land use changes that should happen, or in the contrary, remove factors which can promote land use change that should not happen.

For more information about Drivers to Levers (D2L)

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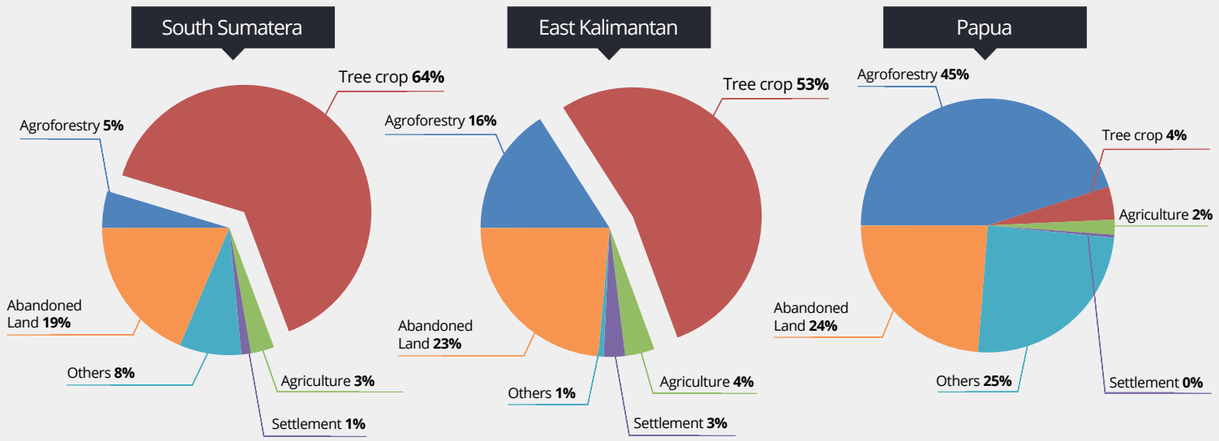
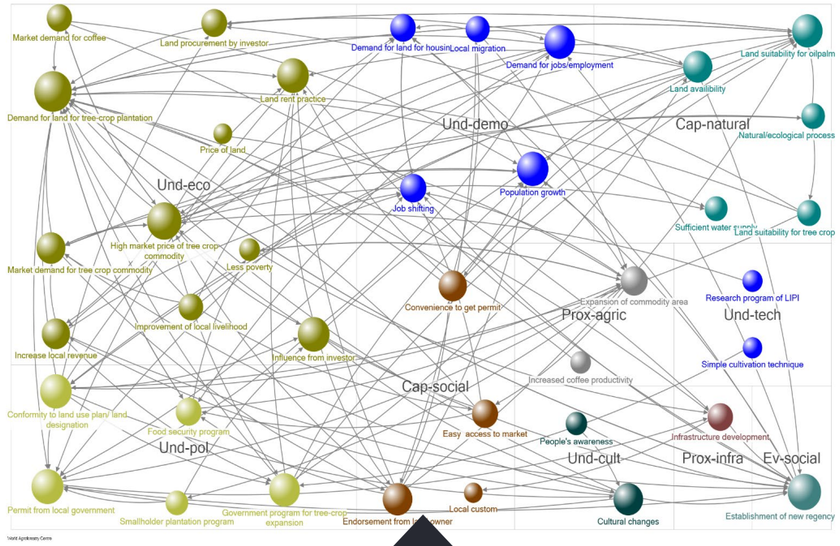


DOMINANT PATTERN OF LAND USE/COVER CHANGE

In this step, local knowledge on the causal processes of land use change and trajectories in an area or particular hotspots are captured. Proximate and underlying drivers of land use trajectories as well as the linkages among drivers are described. Key stakeholders/informants experienced in land based sectors are representative of Local government, Academics, Practitioners, NGO, and Local Communities. Data are collected by conducting series of FGD and interview.

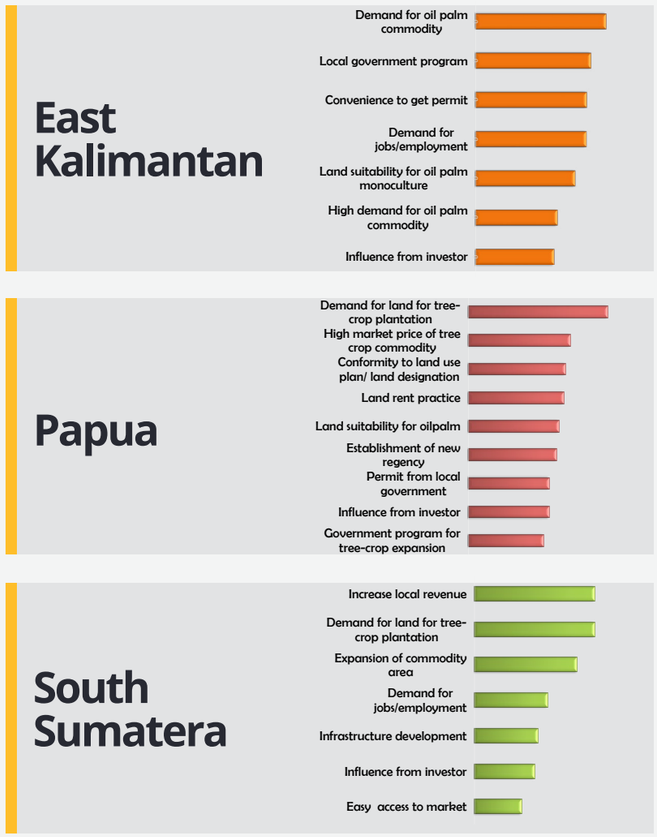


NETWORK OF DRIVING FACTORS

Network of proximate and underlying drivers and their causal linkages using network analysis of forest conversion to tree crop. The outputs were a complex system of one trajectory. The circle's size means the strength influence of a drivers in a system. When it gets cut, it will affect others drivers. SS most influenced driver was Increase Local Revenues, EK's was Demand for Land for Oil Palm and Papua was Demand for Land of Tree Crop Plantation.

INFLUENCES OF DRIVING FACTORS

Network analysis results in a set of metrics to pinpoint the most influential factors and examine network dynamics. Such metrics are included in equity degree and eigenvalues of centrality. The output is an estimated measure of influence of a factor in driving a particular trajectory. Factor systematic grouping adopts hierarchical structure of driver analysis developed by Lambin and Geist (2002). The result shows those 3 provinces was set to Underlying – Economics. For SS, factor comes internally like the needs to be fulfilled. Unlike EK and Papua which the factor comes externally, in this case investor/market attracts by these provinces to conversion forest to tree crop.



IDENTIFYING POTENTIAL POLICY LEVERS

The preliminary results were disseminated and discussed through series of stakeholder discussion to identify policy levers at multiple levels. This process aims to formulate scenario and recommendation of land use changes in 3 provinces within the landscape. This process includes several analysis to predict the outcome of scenario using LUMENS (Land Use Planning for Multiple Enviromental Services) software.

POLICY LEVER TO ADDRESS LAND USE/COVER CHANGES

PLANNING UNIT	LAND USE SCENARIO	PROVINCES
Production Forest	Enrichment with local species for multipurpose tree species (MPTS) and non timber forest products in Production forest	South Sumatera
Estate Area (palm)	Enrichment tree species to be mixed with palm tree	
Production Forest	Maximize forest partnership in river border area	East Kalimantan
Limited Production Forest	Encourage sustainably forest production management (Hutan Produksi Lestari - PHPL)	
Convertible forest area	Ironwood and Kopercus Plantation (15% from total zoning area to restore land cover become secondary forest)	Papua
Convertible forest area	Coffee agroforestry in abandoned land (15% from total area)	