Title: Agents, Drivers and Institutions of REDD+ in Cambodia

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Agents, Drivers and Institutions of REDD+ in Cambodia: Concept Note

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Why are tropical forests a global concern?

Over the past three decades, tropical forests have been the center of the world's attention with continuous meetings, technical reports, academic publications, demonstrations in the streets, and billions of dollars invested in forest related initiatives (Chomitz, Buys et al. 2007; UNFCCC 2011). The latest set of global negotiations on tropical forests was the United Nations Framework Convention on Climate Change's (UNFCCC) Conference of the Parties 17th annual meeting (COP17th) in Durban, South Africa, with participation of delegates from 195 countries (UNFCCC 2011). There are three major reasons for this global concern on forests. First, according to Chomitz et al. (2007), forests are important resources for the lives of many rural poor, with over 800 million people living in forests and woodlands in the tropics alone, relying on them for much of their fuel, food, and income – or chopping them down for agricultural activities. Second, not only has it convinced policy makers of the important linkages between forests and climate, The Stern's Review on the Economics of Climate Change argued that reducing deforestation is one of the most cost-effective ways to decrease emissions since the loss of natural forests around the world contributes more to global emissions each year than the fossil fuel-intensive global transportation sector (Stern 2007). For instance, a recent article in *Science* estimated that the world's established forests remove 2.4 billion tons of carbon per year from the atmosphere, while simultaneously deforestation is responsible for emitting 2.9 billion tons of carbon annually (Pan, Birdsey et al. 2011). Finally, in addition to the implications for poor populations' welfare and global climate change, forest destruction will result in the loss of globally irreplaceable biodiversity (Chomitz, Buys et al. 2007) and genetic diversity (Buschhacher 1986). While on the one hand, Anderson (1990) stated that between 40 and 50 per cent of the earth's species are found in the tropical moist forests, and thus widespread destruction of these habitats will inevitably result in large-scale extinctions. On

the other, Myer (1984) argued that such extinctions will eliminate a genetic heritage not only for inestimatable aesthetic value, but of current use in essential ecological services, and of future use in development of agricultral crops, pharmacutical products, and industrial materials.

Controlling Tropical Deforestation and Degradation

Although knowledge of the aggregate levels of deforestation have relatively been well known (NRC 1999) and concerns about the impacts of tropical deforestation and degradation are widely accepted, little progress has been made to control it. Grainger (1993) argued that this is because solutions have been hastily proposed without first identifying and understanding the complicated dynamics of the causes of these two phenomena in the given context. While a significant number of studies have been conducted in various forests in Asia, Africa, and Latin America, Gibson et al. (2000) stated that rarely does agreement exist among forest managers, policy makers, and scholars about the causes of deforestation and degradation. Contributing to this complication is the dearth of accurate forestry data at the national, regional, and local levels; the lack of time-series data; the lack of good instrumental data; and the disparate definitions and measurements employed in studies of deforestation (Kaimowitz and Angelsen 1998).

Before proceeding to the review of literatures on the proximate and underlying causes of deforestation and degradation, it is essential that this paper defines these two concepts. The Intergovernmental Panel on Climate Change's (IPCC) defined 'deforestation' as the permanent removal of forest cover and withdrawal of land from forest use, whether deliberately or circumstantially. Forest conversion to pasture, cropland, or other managed uses is considered the same as deforestation unless noted otherwise. The UNFCCC and IPCC employ a minimum crown cover criterion of 10 to 30 percent to differentiate between forests and non-forests. If crown cover is reduced below this threshold, deforestation has occurred (Trines and Hohne 2006). Forest degradation is the result of selective logging, grazing within forests, and under-story fires as well as over-cutting for fuelwood and

subsistence agriculture. Forest degradation causes the gradual thinning of forests and possibly lead to deforestation, as seen in studies from the Brazilian Amazon (Asner and Broadbent 2006). In the vicinity of roads and settlements, forest degradation may be at least as widespread as deforestation (Trines and Hohne 2006).

Several factors that affect the present level of tropical deforestation and degradation are often identified in the literature. Among these are population growth and population density (Allen and Barnes 1985; Rudel and Roper 1997), shifting cultivation and slash and burn farming practices (Myers 1994), timber harvesting and commercial logging (Capistrano 1994), national debt (Kahn and McDonald 1994), increased fuelwood demand, burning and grazing, construction of penetration roads, and weak forest protection institutions (Brown and Pearce 1994), and insecure tenure and property rights and ownership risk (Southgate 1998). In general, the causes of deforestation and degradation are divided into two broad categories: proximate and underlying (Angelsen and Kaimowitz 1999; Geist and Lambin 2002; Kanninen, Murdiyarso et al. 2007). According to Geist and Lambin (2002), proximate causes include human activities or immediate actions at the local level, such as agricultural expansion, that originate from intended land use and directly impact forest cover. Underlying driving forces are fundamental social processes, such as human population dynamics or agricultural policies, which underpin the proximate causes and either operate at the local level or have an indirect impact from the national or global level (Geist and Lambin 2002).

Proximate Causes of Deforestation and Degradation

There have been numerous studies on the proximate or dominant causes of deforestation and degradation in the tropics. For example, from their analysis of deforestation patterns in 152 countries, Geist and Lambin (2002) suggested three dominant sources which include agricultural expansion, wood extraction and infrastructure extension. The following section explores these three causes and others that have been identified in other studies.

Agricultural Expansion and Shifting Cultivation

According to Geist and Lambin (2002), the direct causes that stimulate the decision to convert forestland into agricultural activities include such factors as favorable environmental conditions (i.e. forests in areas with good drainage and soil fertility), high prices for agricultural outputs (i.e. more profitable production, and hence more clearing), low wages (i.e. smaller costs of forest clearing, and thus more deforestation), and demographic changes or population growth. Indeed, Kaimowitz and Angelsen (1998) concluded that agricultural expansion is the main source of deforestation, highlighting the Latin American cases of beef production in Central America and especially soybean production in Brazil.

One of the most controversial causes of deforestation and degradation related to agricultural practices is shifting, or slash-and-burn, cultivation. Various scholars have vehemently argued that growing populations need expanding food supplies, and thus forests are cleared by shifting cultivators for annual or permanent crops leading to degradation and deforestation (Mikesell 1960; Eckholm 1976; Allen and Barnes 1985). However, while not denying the role of population growth or poverty, Lambin et al. (2001) argued that this is a misconception because most case studies fail to confirm this simplification in lieu of other, more important and complex forces of tropical deforestation (Anderson 1996; Barraclough and Ghimire 1996; Fairhead and Leach 1996). The point is that tropical deforestation is driven largely by changing economic opportunities which are linked to yet other social, political, and infrastructural changes (Hecht 1985; Chomitz, Buys et al. 2007).

Wood Extraction and Logging

Kanninen et al. (2007) stated that wood extraction is the principal intra-sectoral cause of forest degradation, and can also lead to deforestation directly or indirectly. Through road construction, logging facilitates deforestation by promoting immigration and land colonization when these conditions coincide: road construction opens up new access to forestland; forest tenure and regulation of extractive activities are poorly enforced; forestlands possess some potential for agricultural conversion; and there is a large inflow of

immigrants, due to demographic and poverty-related factors in the migrant-sending areas (Kaimowitz, Byron et al. 1998). In addition, poor extraction practices further degrading the forests by leaving behind large volumes of combustible waste that make forests vulnerable to escaped fires that have been set to clear land for commercial or subsistence agriculture (Nepstad, Verissimo et al. 1999; Iskandar, Snook et al. 2006). Degraded forests may also be designated as eligible for conversion to other uses. For example, in Indonesia, there is evidence that healthy forests have been irregularly designated as "degraded" in order to allow unscrupulous investors to obtain plantation development permits, reap a windfall profit from harvesting the timber, and then abandon the land without developing the plantation (Barr 1998; Smith and Scherr 2003).

Infrastructure Development Schemes

Indirectly, road construction and improvement has by far been the infrastructure development that contributes most to deforestation and degradation (Chomitz, Buys et al. 2007). This occurs not through the direct space roads occupy, but through their reduction of transport costs, which in turn, enable productive activities to take place in remote areas. Such activities often promote frontier expansion and forest destruction, as illustrated by cycles of timber harvesting, charcoal extraction and subsequent conversion to agriculture and pastures. Ecuador is one example where road building has been a prime driver of deforestation (Wunder 2000). Another example of infrastructure development schemes that have resulted in the destruction of tropical forests is the construction of hydroelectric power dams that led to forest clearance or submersion in order to build the dams and reservoirs (Grainger 1993). The largest dam in the Brazilian Amazonia so far is at Tucurui on the Tocantins Rier, 300km south of the port of Belem. Completed in 1985 at a cost of over $4 billion it should ultimately generate 4,000 MW. The site was to have been totally deforested before flooding since hydrogen sulphide given off by decomposing vegetation is a human health risk and in previous projects made dam water so acidic that turbine parts corroded, requiring costly repairs (Caufield 1984; Bunyard 1987). But only part of the forest was cleared, and the remainder was treated with defoliant instead. The contractor involved went bankrupt, claiming there was too little commercial timber in the forest to

make clearing profitable. By way of compensation the state allowed the contractor to log over 90,000 hectares in two nearby Indian reserves (Pereira 1973; Barham and Caufield 1984).

Extractive Industry

Deforestation occurs when the rich mineral depositions of the humid tropics are exploited, though the extent of deforestation depends on whether opencast (strip) or underground (shaft) mining is used (Grainger 1993). According to McCloskey (1987; 1990) opencast coal mines were an important cause of deforestation in Latin America and Southeast Asia. The largest steam coal mine in the world was at El Cerrejon in Colombia. It and other nearby mines produced coal with a low sulphur content, attractive to industrialized countries since it was considered to alleviate acid precipitation and other environmental impacts caused by the emission of sulphur dioxide and other gases from coal-fired power stations (McCloskey 1987). In Indonesia, because of the low sulfur content in coal from Kalimantan, three opencast mines were developed in the early 1990s, as were ocean terminals to ship these coals all over the world (McCloskey 1990). Although the rate and amount of deforestation associated with each oil well is less than that for opencast mine, deforestation has been a significant issue in major petroleum and natural gas exporting countries such as Cameroon, Congo, Gabon, Nigeria, Indonesia, Malaysia, Ecuador and Venezuela due to the construction of roads, pipelines, and testing and well sites for oil exploration (Grainger 1993). For example, the oil industry is responsible for a considerable amount of deforestation in the north of the Ecuadorian Amazonia over the last 20 years, encroaching onto the lands of the Waorani people and the Cuyabena National Park, and led to oil spills and leakages that polluted rivers and lakes and harmed wildlife (Grainger 1993).

Underlying Causes of Deforestation and Degradation

Over the last three decades, the impacts of macroeconomic forces, weak governance, and other broader societal characteristics on deforestation and forest degradation have been

abundantly documented (Myer 1984; Jepma 1995; Agrawal and Yadama 1997; Gibson, McKean et al. 2000; Chomitz, Buys et al. 2007). The main underlying causes of deforestation are described below.

Macroeconomic Factors

First, as previously mentioned, the higher profitability of agricultural rent is the main economic factor underlying the conversion of forests to other uses (Wunder and Verbist 2003). Other macroeconomic factors that promote deforestation and degradation include factors such as currency devaluations that make agricultural expansion more profitable; austerity adjustment packages resulting in the curtail of urban economy, driving people back to the agricultural frontier; trade policies protecting land-extensive and timber sectors from imported substitutes, increasing pressure on forests to meet local demand; and fuel and transport subsidies facilitating remote timber extraction or make land development more profitable (Kaimowitz and Angelsen 1998; Wunder 2003). Another important consequence of economic development is the encroachment of the market economy into traditional rural subsistence societies still largely dependent on barter than cash as the medium of exchange. According to Pearce and Turner (1990) when cultures are degraded so too are these social controls on land use, the forests become more like open access resources and deforestation is thus enabled to spread.

Demographic Factors

Population growth leads to deforestation in two main ways. A rise in overall national population, in both rural and urban areas, increases demand for food, some of which is satisfied by the market system and some by subsistence farming (Grainger 1993). This link was supported by a statistical correlation between the rates of deforestation and population growth in the 1970s (Allen and Barnes 1985; Grainger 1986). Deforestation is also caused by local population increases, which may result from either inherent growth or immigration. In rural areas still highly dependent on subsistence food production much of the extra food needed to support higher populations has to be supplied by either greater cropping intensity or an expansion in farmland and hence deforestation (Grainger 1993). As

population growth is often viewed as the main cause of deforestation, Kanninen et al. (2007) stated that it is important to nuance this with the observation that most deforestation is from the conversion of forest to agricultural land with much of this is from industrialized rather than smallholder agriculture.

Technological Factors

Technological improvements can affect deforestation rates. The adoption of land-extensive technologies, for example, can result in the expansion of agriculture at the expense of forests. Likewise, a new technology that results in more intensive agriculture can pull resources out of extensive agriculture at the forest frontier, and thereby reduce deforestation (Angelsen and Kaimowitz 2001; Angelsen 2007; Chomitz, Buys et al. 2007). Generally, the role of improved agricultural technologies in terms of deforestation is ambiguous, and depends on the relative strengths of two opposing forces. First, new technologies will be adopted if they increase profitability, and higher agricultural profitability makes forest conversion more attractive. Second, the increased supply of products and demand for inputs like labor will change prices in a way that dampens, and possibly reverses, the increase in profitability (Angelsen and Kaimowitz 2001).

Governance and Institutional Factors

In her most celebrated book *Governing the Commons*, Ostrom (1990) argued that governance plays a major role in determining what happens to natural resources. For instance, deforestation and degradation can result from the combined effects of forest tenure and institutions, which in turn, determine the set of incentives that lead to overexploitation (Ostrom 1990). In terms of tenure, deforestation and degradation might occur as a result of inadequately defined property rights, including systems that incentivize deforestation with tenure establishment. Where property rights are ambiguous, overlapping or weak, incentives for investing in long term returns from natural resources are also weak (Agrawal and Ostrom 2001). Furthermore, secure property rights, while critical, are often insufficient for ensuring sustainable forest management. Where property rights are held in

common but local institutions specifying clear rights and responsibilities for forest management are absent, forest degradation can result (Ostrom 1990; 1999).

Non-transparent decision making regarding the allocation or conversion of state forest resources, and associated rent-seeking behavior, is a second significant factor that drives deforestation and degradation (Kanninen, Murdiyarso et al. 2007). As Barr (2001) stated, timber and wood-processing companies with close ties to government and military officials frequently are able to gain preferred access to valuable logging and plantation concessions and to capture a significant portion of the economic rents associated with these. This widespread prevalence of corruption at all levels in many forest-producing countries often allows powerful political and corporate actors to behave with minimal levels of public accountability (Baker, Clausen et al. 2003). Also affecting the fate of forests, a third set of governance factors involves inappropriate forest law and weak law enforcement capacity (Kanninen, Murdiyarso et al. 2007). Colchester et al. (2006) found that forestry laws tend to render forest-based sources of income for the poor technically illegal, while laws outside the forestry sector that protect communities' rights are often weak, ambiguous or ignored. At the same time, forestry laws have proven weak instruments for dealing with large scale forest crime. In Indonesia, attempts to pursue cases of illegal logging and burning against notorious individuals and companies have failed to result in successful prosecutions (Smith, Obidzinski et al. 2007). Finally, Bhattarai and Hammig (2001) argued that underlying institutional factors are relatively more important for explaining the tropical deforestation process than other frequently cited factors like population and macroeconomic conditions.

The Context of Sustainable Forests Governance

To reiterate, this paper does not claim to examine all the identified causes of deforestation and degradation in the literature, rather it is an attempt to review those frequently cited proximate and underlying factors. It should also be acknowledged that this review does not take into account the roles of natural disturbances (for example: fires, droughts, insect outbreaks, and volcanic eruptions…etc) in forest composition, structure and dynamics, a

theme that has dominated the literatures in forest ecology and conservation biology over the last four decades (Pickett and White 1985; White and Jentsch 2001; Kricher 2011). Nonetheless, the general statement about studies on causes of deforestation and degradation examined in this paper, thus far, reveals that intricate relationships among different sets of social, economic, and political realities exist behind the simple acts of forest use and conversion in varying geographical and historical contexts. Drawing from the review of 152 case studies, Geist and Lambin (2002) concluded that a detailed understanding of the complex set of proximate and underlying driving forces affecting forest cover changes in a given location is required prior to any policy intervention.

In addition, Agrawal and Yadama (1997) suggested that socio-economic forces are important in influencing resource management and the condition of renewable resources, but that their influence is usually mediated through community or local institutions. Hence, to assess the impacts of these variables on spatially situated users, it is essential to understand the nature and characteristics of those local institutions. Undeniably, the presumption that guides Gibson et al. (2000) analyses is that local institutions together with the incentives and behaviors they generate lay at the heart of explanations of forest use and conditions. While on the one hand, institutions refer to the aggregates of specific practices and rules that frame and guide user's behavior (North 1991). Over time, they are considered as the outcomes of the actions of users (Mahoney and Thelen 2011), just as resource management outcomes are an aggregate of the activities of people (Ostrom 1990). To say, therefore, that institutions are important in shaping resource management outcomes is inadequate. There is a greater need to specify the types of practices, sets of rules, and agencies that are essential in a given context. First, as Giddens (1979) argued, without knowledge of the contextual structure, of the history and politics within which user groups have emerged, it may not be possible even to identify which aspects of institutions are crucial, let alone assess the relative importance of different aspects. The second argument thus follows that without disaggregating different aspects of institutions and the forms of participation or practices that characterize user's behavior or activity, one is likely to fail in

any attempt to understand the links between various factors that affect the sustainability resource governance (Bourdieu 1977).

Drivers, Agents and Institutions in the Context of REDD+

While forests contain many environmental benefits, only two command a global constituency with potentially large willingness to pay (Linacre, Kossoy et al. 2011) for those benefits: carbon storage and conservation of globally significant biodiversity (Chomitz, Buys et al. 2007). These two concepts have been fused into a global policy intervention known as REDD+, which stands for Reducing Emissions from Deforestation and Degradation in developing countries, the role of conservation, sustainable management of forests and enhancement of forest carbon stocks (Harvey, Zerbock et al. 2010). The simple logic of REDD+ is that countries that are willing and able to reduce emissions from deforestation and degradation, either through the strengthening or establishing of new forest conservation policies, should be financially compensated for doing so (Scholz and Schmidt 2008). Some of the main observations and assertions for promoting REDD+ include (a) deforestation and degradation is the second largest source of anthropogenic carbon emissions after fossil fuel combustion (Rogner and Zhou 2007), (b) REDD+ is a relatively low cost mitigation option that would lower the economic costs of achieving global emissions reductions (Stern 2007), and (c) the carbon mitigation benefits of REDD+ over the short term exceed the benefits from afforestation and reforestation (Rogner and Zhou 2007). For example, in Latin America, dense tropical forest is often cleared to create pastures worth $200 – $500 hundred dollars a hectares, while releasing 500 tons of CO_2 equivalent per hectares (Chomitz, Buys et al. 2007). According to Linacre et al. (2011), the European Union members are currently paying about $20 per ton of CO_2 equivalent (though this price is volatile) through the global carbon market to tackle climate change. Assuming that 1 ton of CO_2 equivalent generated through REDD+ project costs $3, deforesters are hypothetically destroying a carbon storage asset worth $1,500 – $10,000 to create a pasture worth a few hundred dollars per hectare.

Attracted by the possibility of significant international transfers of funds under a post-Kyoto agreement to finance REDD+ (UNFCCC 2011), the attention from policy makers and the general public on the newly-appreciated role of forests in climate change mitigation and adaptation has been focused on understanding the drivers of deforestation and forest degradation. The consensus among the climate community is that the design of effective REDD+ regimes requires a clear understanding of the proximate and underlying causes of deforestation and degradation (Kanninen, Murdiyarso et al. 2007; Brockhaus, Di Gregorio et al. 2011; May, Millikan et al. 2011). And as this paper has demonstrated to understand these causes, one is required to understand the drivers, agents and institutions within a geographical and historical context of a given location. Therefore, the concluding section of this paper attempts to provide guidance to elaborate on an overview of these factors within the context of Cambodia. Note that the guidance built on arguments presented throughout this paper and is not all encompassing.

Component 1: Review of the main drivers of forest cover change in Cambodia

Drivers: What drives (proximate causes) the processes of deforestation and degradation?
Describe the main spatial differences in terms of conditions and drivers of deforestation and degradation (identify main geographical areas where deforestation and degradation have been particularly pronounced, identify areas where current threat of deforestation and degradation is highest, and focus the analysis of direct drivers of deforestation on these areas.

Agents: Who are the main actors involved in deforestation and degradation?
Identify main government, commodity sectors and social actors both national and international that are behind the main drivers of deforestation and degradation. Describe their activities and their main interests within high deforestation regions. Describe also what their main policy demands have been in the past and how they have tried to affect policies that facilitated their interests.

Root or underlying causes: What are the possible reasons explaining these drivers?

1. Macro-economic conditions
2. Policies and political-economy factors
3. National and international influences

Dynamics: Are there links among events and among agents that help explain the dynamics of deforestation and degradation?

1. Describe the typical sequence leading to deforestation/degradation
2. Do some of these causal factors typically operate "in tandem" (Lambin, Turner et al. 2001), that is, jointly pushing and explaining forest clearing (e.g. road building plus timber demand plus population growth)?

In terms of drivers of deforestation and degradation take into account amongst others:

a) Direct causes:

i. Commercial logging development (legal and illegal)
ii. Small-scale agricultural expansion and agricultural colonization of the forest frontier
iii. Large-scale tree and crop plantations and agro-businesses, driven by high prices of agricultural product.
iv. Infrastructure development (e.g. transportation, government-planned settlements etc…)
v. Employment opportunities and wages outside the forestry/agricultural sector
vi. Accessibility to roads

b) Indirect (root or underlying) causes:

i. Demographic factors: population growth and migration trends
ii. Income levels

iii. Technological factors (e.g. extensive agricultural and livestock management, technology affecting profitability of timber and other mineral resource extraction)
iv. Cultural factors: consumption patterns, use and values of forest resources beyond monetary values, local rules related to forest uses
v. Macro-economic fluctuating conditions, international factors, and national policies

Component 2: Institutional environment and governance of forest resources

For regions with high threat of deforestation and degradation, focus on the main sectors driving these processes, report on rules of law, corruptions, elite captures, and voices of civil society in land use decisions. Information to be gathered includes:

1. What is the current situation of logging and rule of law in land use planning, enforcement and monitoring?
    a. Comment on geographical focus of illegal logging– distinguishing by forest land use categories (production areas versus protection areas) – main causes of illegal logging, regulations and compliance with environmental and sustainability standards in other land uses (such as agriculture, livestock management…) in the areas at high threat of deforestation and degradation

2. What is the current situation of corruption and elite capture in relation to land use decisions in areas at high threat of deforestation and degradation (in regions where REDD+ schemes are or are likely to be implemented)?

3. What is the current situation in terms of civil society/ local participation in land use, decisions-making in regions of high deforestation and degradation?
    a. Comment on degree of self-organization and mobilization around land use decision and monitoring, and on the extent that participation is embedded on patron-client relationships as compared to deliberative democratic processes

4. To what degree are weak governance aspects due to the lack of governance capacity?
    a. What are the main weaknesses in capacity (human and material resources for strategic planning and regulatory improvements) in relations to governance of land uses in areas exposed to deforestation and degradation?

5. What is the degree of decentralization of decision-making in the sectors that most affect deforestation and degradation in the forest margins? How do legal decentralization provisions differ from actual local practices? Which administrative functions related to land use apply to which government and local government agency levels? Are these clearly defined?

6. What are the current legal provisions on benefit–sharing mechanisms from land use and land use revenues between different levels of government, and between government level and non-government entities?

Component 3: The political-economic context of deforestation and degradation

1. What are the political-economic processes at both national and international level that explain the deforestation and degradation trends in Cambodia?
    a. Investigate how the political-economic conditions related to national public policies have facilitated deforestation and degradation (for example: agricultural policies, infrastructure development, investments policies including subsidies, and appropriation by the state… etc).
    b. How have broader development strategies affected deforestation and degradation? To what extent are these policies justified by development objectives? Are there tensions between diverse state interests? How have the tensions been tackled to date?

2. To what extent are the speed of deforestation also linked to the state's inability to effectively implement existing policies or to the lack of compliance with existing environmental and sustainability standard?
    a. Is this due to weak governance structures, strong interests facilitating collusive behavior, entrenched bureaucratic interests and practices?
    b. Are patron-client network reducing the level of implementation of environmental standards?
    c. To what extent is the lack of enforcement due to lack of government capacity, including financial resources devoted to law enforcement?

3. To what extent has the opening of commodity and capital markets facilitated deforestation and degradation?
    a. How have domestic policies on foreign investments facilitated deforestation and degradation?
    b. What is the extent of deforestation and degradation triggered by national versus international demands and related political conditions, and how does this affect the ability of the country to counter deforestation drivers?

4. To what extent have the interventions of International Financial Institutions such as the World Bank and International Monetary Fund in the country affected incentives to deforest or degrade forest?

Personal Notes:

1. **Usefulness of this note for overall dissertation project**

I have taken this paper as an opportunity to first of all explore the most frequently cited drivers of deforestation and degradation in the broader literature. This I think complements the manuscript that I am working on with Dominik, where natural disturbance regimes (fires and such) are identified to be the main drivers of forest composition, structure, and dynamics – a theme that dominate Conservation Biology as well as Forest Ecology and Management literature for the last 40 years. Some observations are very evident in both papers. First, it makes no difference whether the focus is on the complex socio-economic (this paper) or biophysical drivers of deforestation and degradation, it always comes down to the geographical, historical, and institutional context of a given location. This gives me the legitimacy to contain my project to focus only on Cambodia, although I might be studying the different sites within the country. Drawing on the literatures that I have reviewed, both papers have in fact ended with some suggestions on what need to be done empirically in the different sites in Cambodia to gather these two sets of information. Significant amount of work (such as designing the interview questions, selecting the variables and forming my hypotheses…etc) is still required to prepare me for the empirical fieldworks.

Second, the justification to carry out my project within the context of REDD+, or to be informed about REDD+ regimes, is because undeniably this mechanism has commanded the global attention and directed it towards management of tropical forests for the last 10 years. Cambodia has in fact been considered as one of the most advanced countries in the Greater Mekong Region in terms of REDD+ development and implementation. To date, the country has FOUR fully established REDD+ projects and several others in the pipeline. It is important to point out that all REDD+ projects are still at its piloting stage and lessons are being learned from these pilots. Full-fledged implementation plan of REDD+ is still an issue for debates both in Cambodia and internationally. The general consensus within the REDD+ communities is that the design of an effective REDD+ project requires a clear understanding of the causes of deforestation and

degradation within a given location. Therefore, I think not only that my project will speaks to the general literature on sustainable governance and conservation of forests and its biodiversity, it will also provides empirical evidences that will contribute to the design of an effective REDD+ regimes – based on the environmental, historical and institutional context in Cambodia.

2. Interesting Theoretical Frameworks

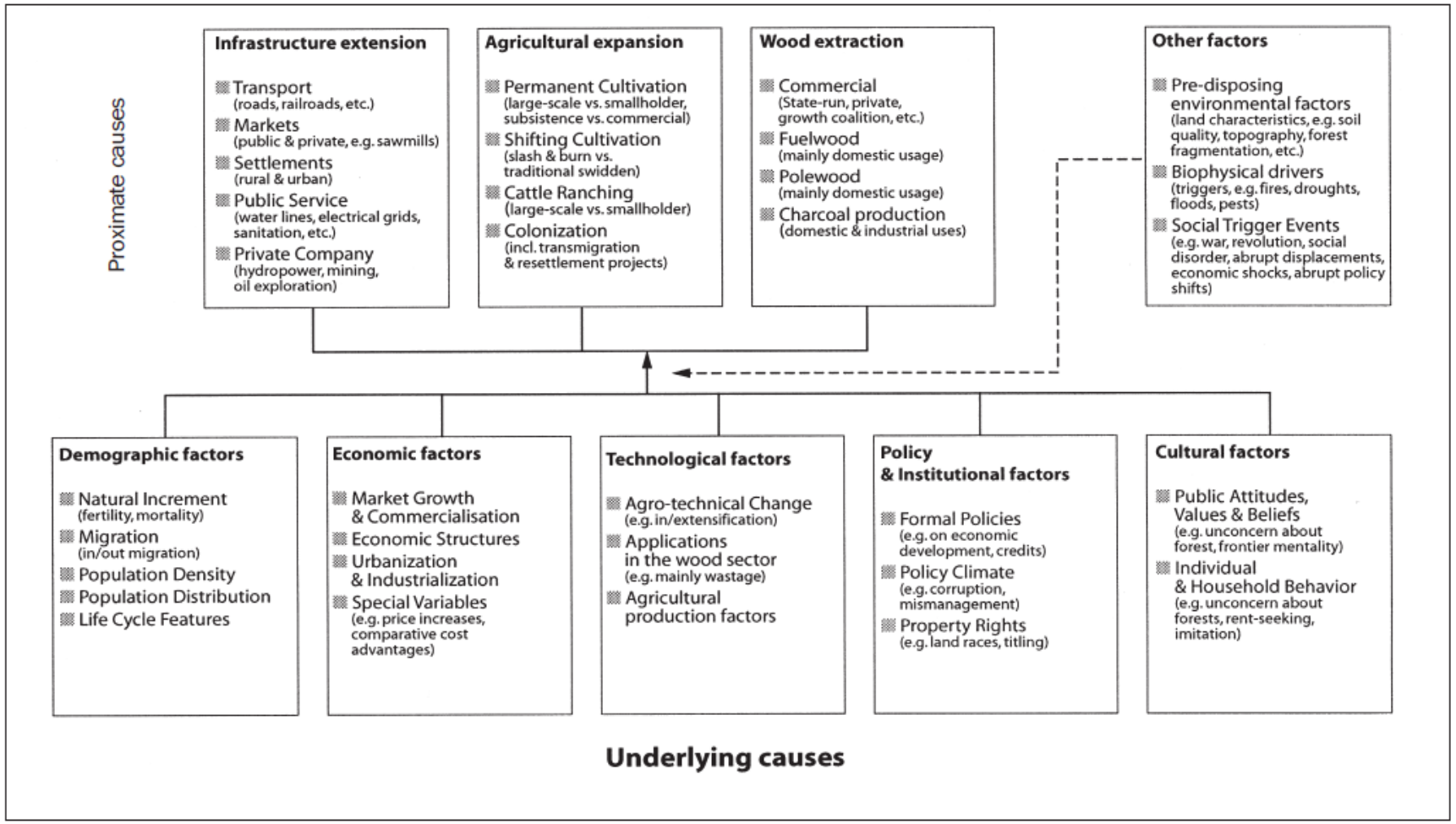

Figure 1: Causes of forest decline. Five broad clusters of underlying driving forces (or fundamental social processes) underpin the proximate causes of tropical deforestation, which are immediate human actions directly impacting forest cover (Source: Geist and Lambin. 2002. BioScience).

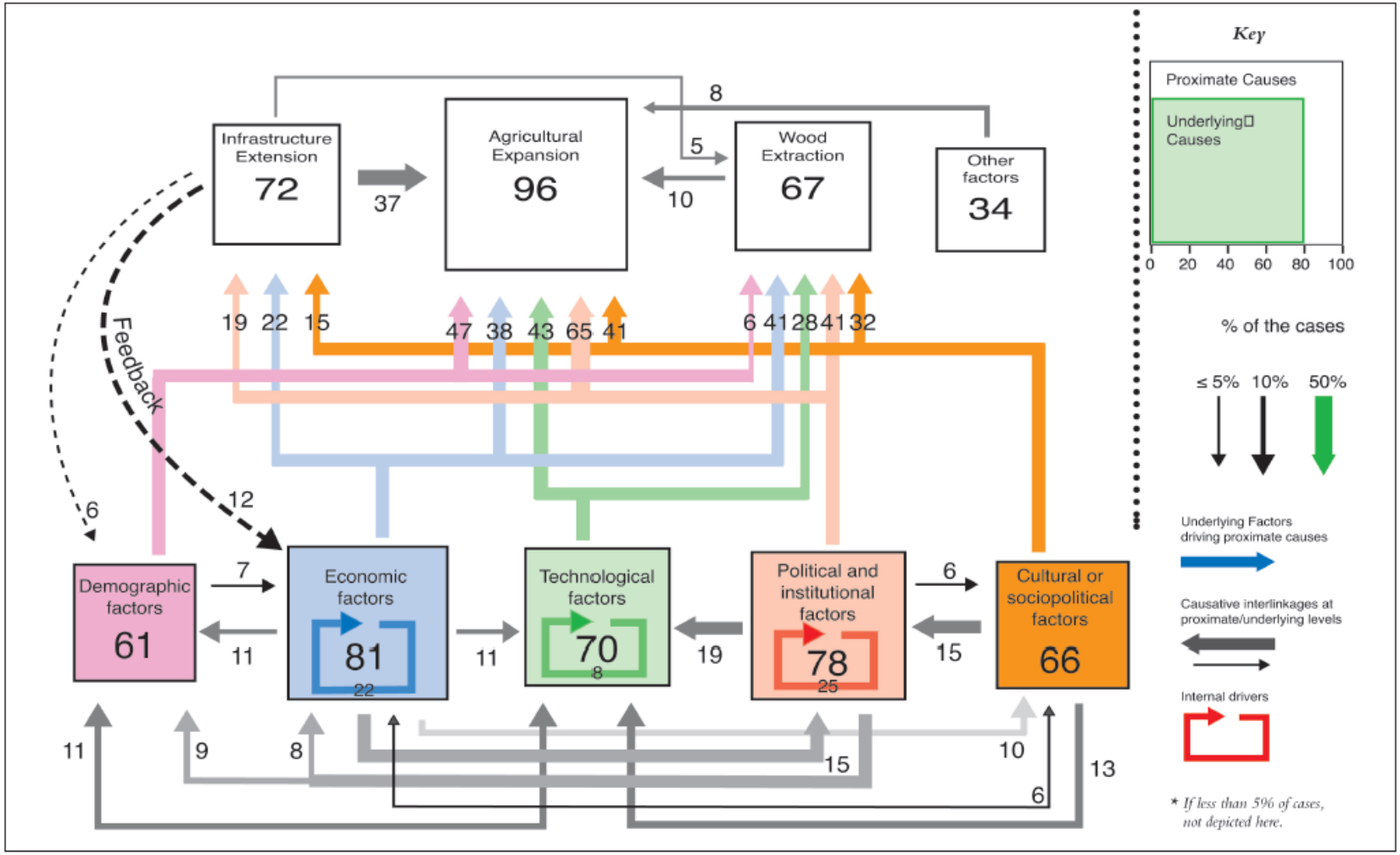

Figure 2: Causative pattern of tropical deforestation (n = 152 cases). Systems dynamics commonly lead to tropical deforestation. No single or key variable, such as population growth or shifting cultivation, unilaterally impacts forest cover change; synergies between proximate causes and underlying (social)

driving forces best explain tropical forest cover losses. A recurrent set of mainly economic, political, and institutional driving forces underpins proximate causes, such as agricultural expansion, infrastructure extension, and wood extraction, leading to deforestation. Though some investigators have claimed irreducible complexity is the explanation, distinct regional patterns exist (Source: Geist and Lambin. 2002. BioScience).

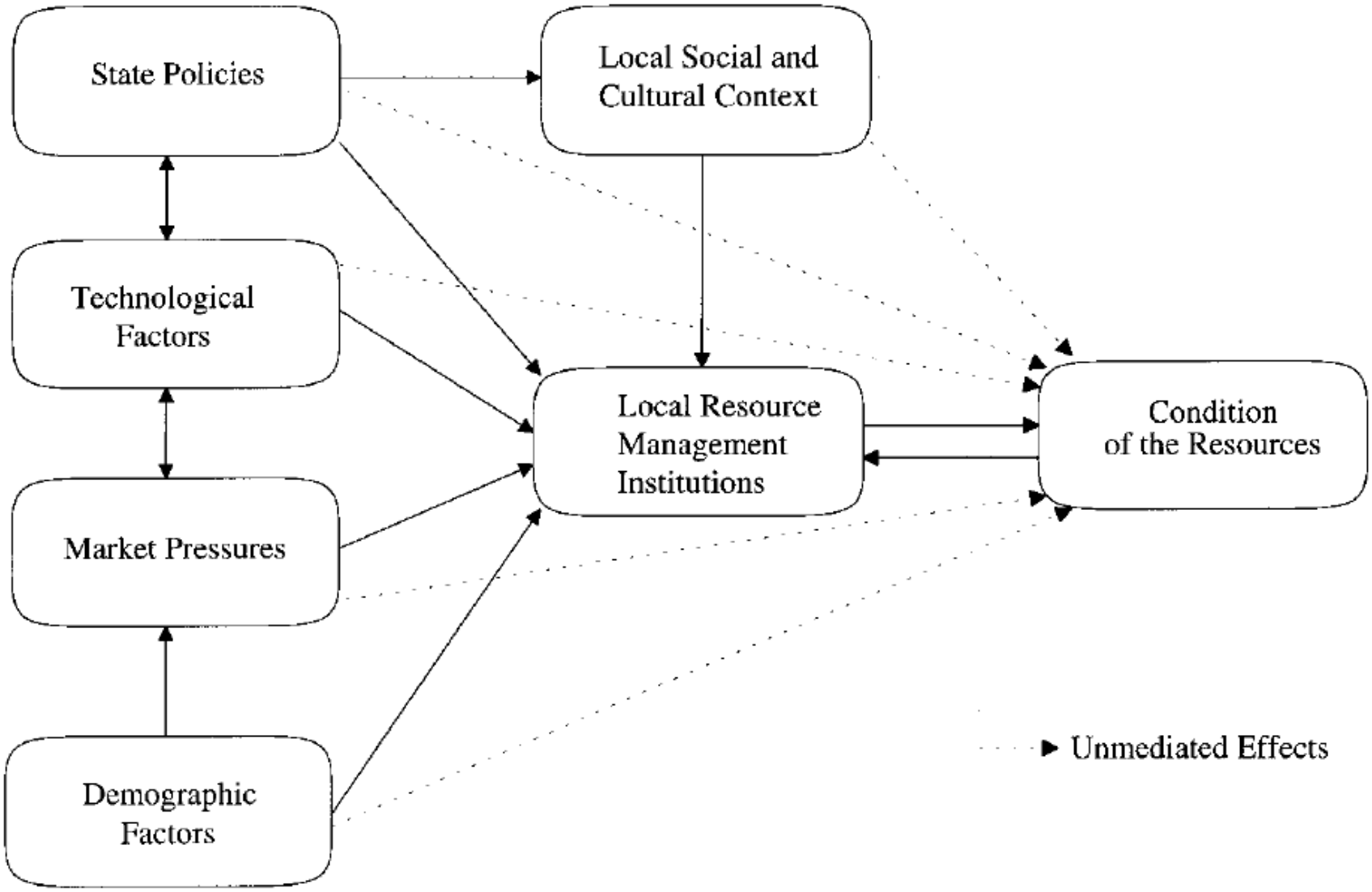

Figure 3: A Theoretical Framework of the Factors Affecting Resource Condition (Source: Agrawal and Yadama. 1997. Development and Change)

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