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Drivers Affecting Forest Change in the Greater Mekong Subregion (GMS): An Overview

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Key policy messages

1. Negative and positive drivers affecting forests in the GMS co-exist. Negative drivers result in deforestation and forest degradation, and positive drivers promote sustainable forest management (SFM), forest conservation, afforestation and reforestation. Negative drivers are still more dominant than positive ones. Nevertheless, growing signs of positive drivers are starting to emerge in the GMS countries. Policy makers, forest managers and practitioners need to be aware of these drivers and find ways to enhance the positive ones, while reducing the negative ones.
2. In order to promote SFM and address deforestation and forest degradation, the GMS countries need to foster integrated land-use planning and management at all levels. At the same time, efforts to improve governance, build political consensus, and promote integrated research and capacity building need to be strengthened.
3. As the GMS countries are becoming more integrated, and the flow of forest products and services among them is increasing, there is a need to enhance regional cooperation through existing mechanisms. Addressing deforestation and forest degradation should not be seen as a country-specific task, constrained within individual national boundaries, given that drivers affect forest change across national borders.

BACKGROUND

Discourse over REDD (and subsequently REDD+) as a way to tackle climate change in the last decade has brought international attention to forests as never before (Angelsen *et al*., 2012; Buizer *et al*., 2014). The discourse has triggered unprecedented international initiatives to prepare and support countries in curbing greenhouse gas (GHG) emissions from deforestation and forest degradation (Wertz-Kanounnikoff and Kongphan-apirak, 2009). One important element involved is to understand drivers of deforestation and forest degradation. Myriad studies have been commissioned on the subject, and this has led to a renewed understanding (Achard *et al*., 2002; Miettinen *et al*., 2011).

While national-level studies on drivers of deforestation and forest degradation (in this brief called "negative drivers") have helped countries prepare national REDD+ strategies and action plans what is lacking has been an understanding of the so-called "positive drivers" – those that promote sustainable forest management, forest conservation, afforestation and reforestation. Against this background, this particular study, commissioned jointly by the Food and Agriculture Organization of the United Nations (FAO) and USAID's Lowering Emissions in Asia's Forests Programme (USAID LEAF), examines both positive and negative drivers affecting forest change in the GMS countries: Cambodia, Lao PDR, Myanmar, Thailand and Viet Nam.

The GMS is an important and dynamic region from many perspectives. It is characterized by rapid economic and infrastructure development, population growth, urbanization, technological advancement, etc. At the same time, the region is also facing serious issues with regard to the loss and degradation of natural capital including forests, land and water.

Figure 1.

Participants attending the regional workshop in Bangkok

OBJECTIVES AND METHODOLOGIES

The study had two main thrusts:

1. To assess the positive and negative drivers affecting forests in the GMS
2. To propose a regional action plan to tackle the negative drivers and enhance positive ones.

Disclaimer

The views expressed in this policy brief are those of the authors and do not necessarily reflect the views of the Food and Agriculture Organization of the United Nations (FAO) or of its collaborating organizations: USAID and LEAF. All responsibility for errors in the brief rests with the authors.

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Studies were commissioned for each of the five GMS countries mentioned above to assess positive and negative drivers. In addition, a comprehensive desk review was drafted based on available data and information at the international, regional and national levels. Initial findings were presented at a regional workshop held in Bangkok on 20 January 2015. This brief presents some of the key findings from the study.

FORESTS AND FORESTRY IN THE GMS

GMS forests have witnessed dramatic changes over the past few decades due to a range of factors. These include rapid economic growth, the conversion of forests to cash crops and plantations, logging, as well as mining and infrastructure development. Although estimates on the extent of forest loss and change vary among studies, the overall picture is one of rapid deforestation across most countries, with a few areas experiencing forest regeneration. Total forest coverage for the five GMS countries was estimated at 90.4 million ha in 2010, equivalent to 48 percent of the region's total land area (FAO, 2011).

Myanmar has the greatest total remaining forest area but has also seen the greatest total forest loss among the Mekong countries in recent years. All countries except Viet Nam have reported decreases in their forest area, with Cambodia and Myanmar reporting the highest rates of deforestation. Most of the decrease has been in secondary forests (denominated "Other Naturally Regenerated Forests"), with a much smaller portion of deforestation being reported in primary forests. Viet Nam (since 1990) and Thailand (since 2005) have reported forest cover increases as a result of expanding reforestation programmes.

Between 1990 and 2010, a total of 8 million hectares of forest are estimated to have been lost (4.2 percent of the total land area), with an average decrease in forest cover of 0.4 percent annually since 1990 (see Figure 2).

Table 1. Forest cover and forest cover change in the GMS (FAO, 2010)

Country	Forest area 2010 (sq km)	Forest area (% of land area) 2011	Annual change in forest area (%)		
			1990-2000	2000-2005	2005-2010
Cambodia	100,940	57%	-1.1	-1.5	-1.2
Lao PDR	157,510	68%	-0.5	-0.5	-0.5
Myanmar	317,730	48%	-1.2	-0.9	-1.0
Thailand	189,720	37%	-0.3	-0.1	+0.1
Viet Nam	137,970	45%	+2.3	+2.2	+1.1
Greater Mekong Subregion	903,870	48%	-0.5	-0.3	-0.4

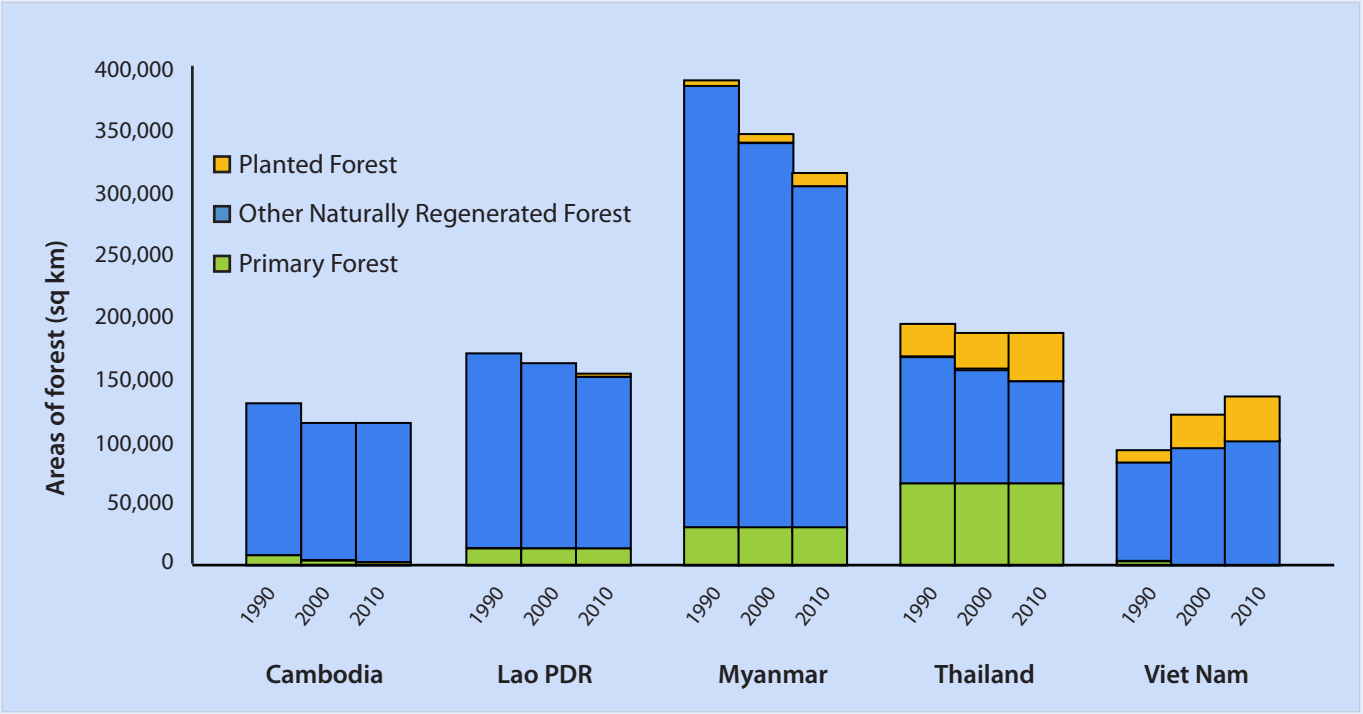

Figure 2. Changes in forest types in the GMS countries since 1990

In all countries except Cambodia, the area of planted forests has increased since 1990. Thailand and Viet Nam have reported the largest increases, and account for 80 percent of all forest plantations in the GMS countries. Reported areas of primary forests, which are typically of greatest concern for biodiversity conservation, have exhibited little to no change since 1990 according to the FAO data. [1]

NEGATIVE DRIVERS AFFECTING FOREST CHANGE

Two types of negative drivers of deforestation and forest degradation can be distinguished: direct and indirect drivers. Direct drivers concern human activities that directly alter forest cover and deplete carbon stocks. Indirect drivers occur at multiple scales and concern the complex interactions of social, economic, political, cultural and technological processes that affect direct drivers. Indirect drivers include processes such as changing markets and commodity prices, population growth, national policies and governance, and dynamics of subsistence and poverty (Kissinger, *et al*., 2012).

Six direct negative drivers were commonly found in the GMS countries, namely:

1. Expansion of agriculture and plantation estates such as cash crops, cacao, coffee, rubber and oil palm
2. Development of infrastructure and roads allowing access to previously inaccessible areas
3. Mineral and gas exploitation
4. Dam and water infrastructure development along the Mekong river and its tributaries
5. Illegal and unsustainable logging
6. Forest fires.

Some of the above direct drivers are common in all GMS countries. For example, rubber plantation establishment has resulted in massive conversion of forestland in all Mekong countries. A significant spike in rubber plantation establishment was observed in Lao PDR due to growing demand for rubber in China. Although rubber plantations are concentrated in Thailand, increases in rubber prices between 2000 until recently and development of clonal material suitable for cooler climates have led to forest conversion in Viet Nam, Lao PDR and Myanmar.

Other drivers have different intensity or prevalence. For example, Thailand serves as a stark example of agriculture land expansion. The country lost

[1] It is important to note that the data presented above are solely based on the Forest Resource Assessment data (FAO, 2010). An update on the FRA will soon be available in September 2015, which will shed more light on the forest cover change in GMS.

Figure 3.

Expansion of agriculture area in Northwest Viet Nam. *Photo by Yurdi Yasmi.*

28 percent of its forestland between 1976 and 1989. Between 1961 and 1989, Thailand's agricultural land increased by 13.12 million ha, while its forest area fell by 13.6 million ha (Cropper *et al*., 1999). In some GMS countries agricultural expansion has been aided by government allocations of large concessions to foreign investors. Meanwhile, challenges in establishing plantations have exacerbated conversion of natural forest areas in Myanmar.

Among the indirect negative drivers of deforestation and forest degradation affecting forests in the GMS are the following:

1. Demographic change, e.g. high population growth and high population density
2. Economic change, e.g. increase in domestic and foreign investment and transboundary trade
3. Governance, e.g. corruption and weak law enforcement.

Overall, GMS countries have relatively weak governance having low ratings with respect to control of corruption, the rule of law, and government effectiveness. Of the GMS countries, only Thailand and Viet Nam have demonstrated relatively consistent middle-tier governance scores although much improvement is still required (World Bank, 2014). In this context, population increases mean more demand on forest products and services. Likewise, increasing investment in agriculture and other sectors also often results in conversion and degradation of forest land.

POSITIVE DRIVERS AFFECTING FOREST CHANGE

Positive drivers are those that promote SFM, forest conservation, afforestation and reforestation. Like the case of negative drivers there are two types of positive drivers: direct and indirect.

Addressing forest crimes and illegal logging

The first East Asia-Pacific Ministerial Conference on FLEG resulted in the adoption of the Bali Declaration, where participating countries committed themselves to intensify national efforts and strengthen bilateral, regional and multilateral collaboration to address forest crime and violations of forest law. In the case of ASEAN country members of the East Asia-Pacific Conference, a FLEG Working Group and a FLEG Work Plan 2008-2015 have been put in place, which provides the basis for deepening cooperation and implementing joint actions, as well as identifying potential partners for collaboration in strengthening FLEG in ASEAN. Within this context, private companies have started to switch to more responsible production forestry practices, while at the same time buyers have started to implement traceability schemes. In fact, the FLEG process has led to a growth in sustainable forest management initiatives in GMS countries, especially because G8 countries are the destination for more than 80 percent of Viet Nam's exports and nearly 50 percent of Thailand's exports of furniture and other wood products. The regional significance of these exports and the FLEG process is underscored by the fact that Lao PDR, Myanmar, and Cambodia export most of their wood products (almost exclusively raw wood materials) to Viet Nam and Thailand, who in turn transform them into products exported to G8 countries.

Below are the direct positive drivers affecting forests in GMS countries:

1. Planting new forests to meet society's demand for timber and efforts that promote natural regeneration
2. Participatory forest management that has contributed to slowing down deforestation and enhance conservation of remaining forests
3. Public awareness campaigns to tackle illegal logging and enhance SFM and forest conservation
4. Increased demand from society for "green" products and legal timber
5. Establishment of protected areas, nature reserves, national parks and other types of forest protection and conservation.

Furthermore, the following indirect positive drivers were identified to contribute to the promotion of better practice of forest management, forest conservation, afforestation and reforestation:

1. Cultural and technological development in support of forest protection
2. Growing opportunity for SFM and new incentives for forest conservation such as PES
3. Growing investments from international programmes such as GEF, REDD+, the Green Climate Fund (GCF), and strengthened legal requirements resulting from implementation of the US Lacey Act and the EU FLEGT/VPA process
4. Others include pressure on international supply chains for sustainability, urbanization and outmigration, (which reduce pressure on forests); rising "environmentalism" (e.g., in Thailand).

While there is recognition of the positive contribution of these drivers, quantification is very challenging as data are often lacking or non-existence for the GMS countries. Nevertheless, there are a good signs that countries are now beginning to document positive drivers.

CONCLUSIONS

Overall, Mekong forests have undergone significant deforestation in the last decades. The GMS lost a third of its forest cover between 1973 and 2009. Worse, the GMS is expected to lose another third of its forest cover by 2030. Though some countries such as Viet Nam have regained considerable forest cover, much of this has been in the form of monoculture, non-native plantations, rather than the natural forests that are the GMS heritage. Various forces driving forest loss threaten to erase these areas unless GMS countries take swift action. Fortunately, all is not lost: half of the GMS is still covered by some of the world's oldest, most culturally and biologically diverse natural forests. However, their very existence is also threatened.

Forest loss is driven largely by demand for land and modernization in the region. Above all, demand for commercial agriculture (spurred by rising commodity prices) has lead to increased conversion of GMS forests. Rubber has seen especially large investment. Other forces driving forest loss across the GMS include construction of roads and hydropower infrastructure, and illegal and unsustainable logging. Underlying these direct drivers of forest loss are a number of pervasive conditions, including urbanization, regional transboundary trade, and weak forest governance.

Opportunities also exist to save and restore GMS forests. In particular, cultural and economic forces could be harnessed to incentivize SFM and forest conservation and regrowth in the GMS. Traditionally, demand for timber and forest products has helped drive significant forest regrowth although in Viet Nam this has been almost entirely in the form of monoculture plantations. More recently, growing demand for sustainable forest and agriculture products has helped promote protection and management of remaining forests by ensuring such products do not come from conversion of existing forests. Growing middle classes in GMS countries has bolstered environmental awareness and consequently civil society's ability to push for environmental and natural resource protection. New technologies also promise to help protect forests, such as programmes that allow discarded cellphones to listen for chainsaws in remote forest areas and enhanced remote sensing.

GMS governments have scaled up sustainable forestry initiatives in recent years but more need to be done. These efforts include programmes for providing financial and other incentives to villagers (e.g., payments for ecosystem services, or PES), and

allocating forestland to villagers in exchange for their sustainable forest management. Viet Nam has led its GMS neighbors in PES and land allocation programmes to promote local populations' sustainable management and protection of forests, with its neighbors such as Lao PDR and Cambodia following suit. GMS governments have also made strides in improved land-use planning and management. Protected areas often suffer from a lack of effective prioritization and resources are insufficient to protect them from encroachment.

Despite government efforts, GMS forest law enforcement and governance requires a comprehensive transformation. Challenges to GMS forest governance include both traditional problems of illegal logging and corruption, and new demographic, economic, and cultural challenges. Despite increased incidence of illegal and unsustainable logging, many GMS countries' forest law enforcement efforts continue to target poor local landholders for shifting cultivation or petty forest activities instead of targeting ringleaders. Similarly, logging and timber export bans enacted in response to high levels of illegal logging often backfire in GMS countries by creating increased timber demand and degradation in neighboring countries. Forestry agencies are often impeded in their law enforcement and governance tasks by poorly defined institutional functions, making government coordination difficult.

RECOMMENDATIONS AND WAYS FORWARD

Forests in the GMS countries continue to be threatened by various drivers, many of which are largely outside the forestry sector. Wider economic development, demographic change, technological innovation and weak governance are important drivers affecting forests in the region. This means that ***fostering inter-sectoral coordination*** at country and regional levels is crucial in addressing the challenge. New approaches and modalities provide opportunities for such coordination to take place in practice (e.g., landscape level planning, integrated watershed management, integrated and participatory land-use planning, decentralization, etc.). To make real impact ***political will*** is a prerequisite for the success of these approaches. Governments need to enhance their roles as facilitators in encouraging all sectors and stakeholders to proactively participate in broader resource management. ***Enabling policy and regulatory frameworks*** are keys to achieving positive results.

There is an immediate need to ***tackle negative drivers*** resulting in deforestation and forest degradation and at the same time, concerted efforts are needed to systematically ***bolster positive drivers***. This is easier said than done and incremental progress can only be achieved with ***a clear roadmap***. Such a roadmap would need to be developed through a participatory multi-stakeholder process respecting the rights of local and indigenous people and taking into consideration the various commitments of GMS countries to international and regional conventions and agreements. In order to make progress consideration of the following actions is recommended. Many will require a continuous and integrated approach rather than serving as one-off activities:

- Tackling negative drivers by promoting ***integrated land-use planning and management*** at all levels. At the national level, this requires a concerted interdepartmental coordination. At the regional level existing mechanisms within the GMS can be used as a venue to ***build political consensus*** and reach mutual agreement on how to promote SFM and tackle deforestation and forest degradation.
- Putting in place ***incentives for SFM***, forest conservation, reforestation and afforestation is necessary. The main challenge faced is that incentives for SFM do not match those for unsustainable practices. For example, legality verification and/or certification do not guarantee a price premium. The whole question of how to reward sustainable practices therefore needs serious attention.
- Promoting ***good governance*** is essential as poor governance is closely related to deforestation. Programmes and projects that support good governance and contribute to addressing illegal activities need to be enhanced.

- Putting in place ***policies that work*** and avoiding policies that face implementation difficulties is necessary. This means not only a focus on policies on paper but also building policy-related capacities and modalities for effective formulation and implementation. This requires careful assessment of human and financial resource needs, implementation mechanisms and monitoring and evaluation.
- Working more closely with the ***private sector*** to tackle deforestation and forest degradation and at the same time actively engaging private actors to promote SFM, forest conservation, reforestation and afforestation.
- Promoting ***integrated research and capacity building*** on an ongoing basis**.** Research may focus on new technologies to track illegal activities, activities that induce negative drivers and factors that trigger positive ones, institutional capacity for SFM, forest conservation and reforestation and afforestation. Research results should inform capacity development needs.

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