

Deforestation in Cambodia

A story of land concessions, migration and
resource exploitation

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INTRODUCTION

Since the turn of the century, 27,000 km² of land in Cambodia has been deforested. This is 14.8% of total land area in the country. It also represents 26.4% of forest cover as existed in 2000.

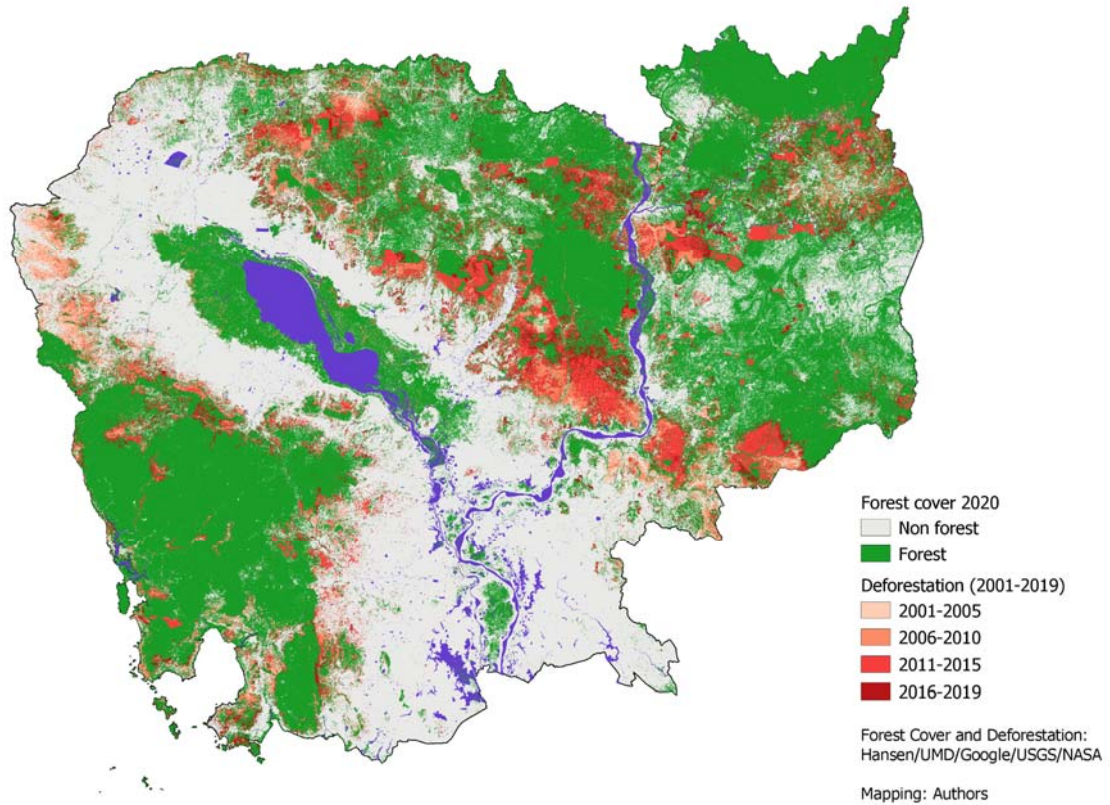


Figure 1. Deforestation (2001-2019) and the forest cover remaining in 2020

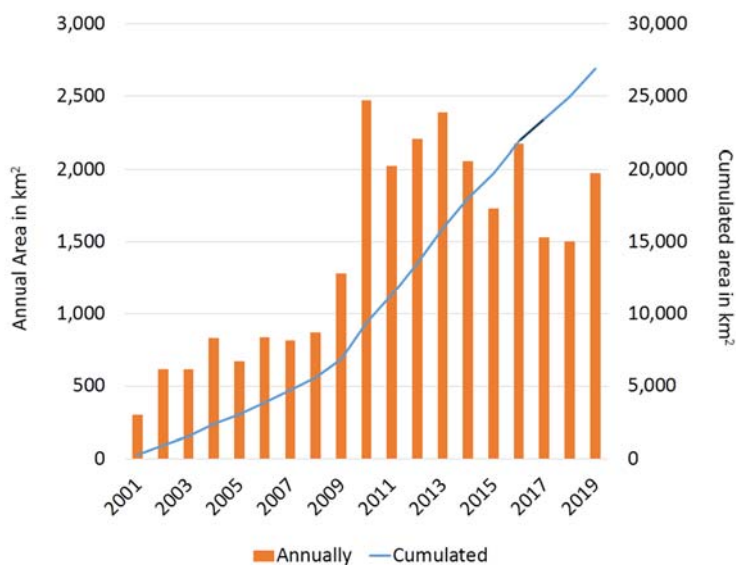


Figure 2. Total deforestation in Cambodia from 2001 to 2019, measured by annual rate and in accumulation

Data sourcing: The extent of the 2000 forest cover and 2001-2019 deforestation in Cambodia were computed by the authors using data made publically available by the Department of Geographical Sciences of the University of Maryland, see [here](#) for the data and related publication (Hansen et al., 2013).

Forest are defined here as land with canopy closure (tree crown cover) higher than 10% and with trees able to reach minimum height of 5m (FAO 2001). Deforestation is defined as a stand-replacement disturbance or a change from a forest to non-forest state during the period 2000–2019.

All computations were conducted by the authors in QGIS.

An acceleration in deforestation is seen from the early 2000s to 2010. For the land-grab aficionado, the trend runs parallel to the ‘global land rush’ and mirrors the evolution of agricultural commodities prices.

The aim of this story is to explore in more detail the convenience of this narrative. Is deforestation over the last twenty years in Cambodia mainly a product of large-scale acquisitions to secure land for commercial operations? If not, what are the other drivers impacting upon deforestation, and how do they relate to existing land tenure and land use regimes? The path we will follow does highlight the significant influence of economic land concessions as a key policy frame for land acquisition and investment.

However, this is not the whole story. Just as significant is the rural-to-rural migration of smallholders squeezed out of their land in lowland areas, and so seeking a new start in upland Cambodia. Illegal logging also remains important, with commercial operations continuing unabated after the onset of COVID-19.

The story therefore highlights three key drivers, which are separately addressed:

1. Large-scale acquisition of land for agro-industrial development
2. Agrarian expansion by smallholder farmers
3. Illegal logging

1. LARGE-SCALE ACQUISITION OF LAND FOR AGRO-INDUSTRIAL DEVELOPMENT

A BRIEF HISTORY

Large-scale commercial exploitation of land in Cambodia can be traced back to a period of colonial rule under a French protectorate, diminishing during post-independence unrest and turmoil, before returning as Cambodia thrust its economy into global markets. In general terms, it is a story common to many countries in mainland Southeast Asia.

Taking the incorporation of Cambodia into a French colony as a starting point, five historical phases can be highlighted, where distinctive periods of land tenure are weighed against commercial land exploitation.



Figure 3. Cambodia in the Mekong region (present-day)

1863-1953

Cambodia became a protectorate of France, administered as part of French Indochina (which covered what is today Cambodia, Vietnam, Lao PDR and the southern tip of China). Land concessions were an important tool of French colonisation, particularly in the timber and rubber sectors. On private land, land titling was introduced with the aim to grant alienable land ownership rights (*kamaset*) based on historical possession rights (*paukeas*) recognised by local authorities.

1953-1975

Cambodia gained independence from France as a constitutional monarchy. The concession system instituted during the French protectorate was maintained as well as the formal registration and titling of settlement and agricultural land. Landlessness was on the rise due to wealth-biased land markets, indebtedness but also due to a rural population fleeing the overspill of conflict from the Vietnam War.

1975-1979

The Khmer Rouge takes control and installs the Maoist Democratic Kampuchea. The existing land tenure system is eradicated, and all land records are destroyed. There is a major enforced movement of the population, particularly out of urban areas to work on collective farms.

1979-1993

Vietnamese troops intervened in Cambodia, establishing a pro-Soviet People's Republic of Kampuchea. A new form of agricultural collectivisation was put in motion under governmental control. This was organised through *Krom Samaki* or Solidarity Groups of 10-15 families who shared land, equipment and livestock. But the system was quickly dismantled, and by the end of the eighties, agricultural land was reallocated to each family within each *Krom Samaki*. Many Cambodians return to their home villages and try to reclaim their land.

1993 ONWARDS

Following the Paris Comprehensive Peace Settlement in 1991, and a two-year transition period under a UN protectorate (UNTAC), the monarchy was restored in Cambodia. The 1993 Constitution formalised a multi-party democratic system and power was placed in the hands of an elected government.

In 1997, army commander and foreign minister Hun Sen seized power in a *coup d'état*. He remains Prime Minister of Cambodia to this day.

In 2001 the Cambodian government promulgated a new Land Law that reinstated agricultural concessions. It also reintroduced the formalisation of land ownership rights (through land titling) but this is limited to land which was effectively possessed and under actual cultivation before 2001.

Amongst several reforms, the law introduced a new categorisation system namely state-public land (State ownership, public use), state-private land (State ownership but subject to concessions, particularly Economic Land Concessions (ELCs) for agro-industrial development), private-individual land (with possession and ownership right on land), and indigenous/communal land (for indigenous minorities who practice shifting cultivation).

THE ECONOMIC OPENING OF THE MEKONG REGION

At the same time that Cambodia was embracing a democratic system of governance, other countries in the Mekong region were starting to open their doors to foreign investment and free trade. From 1986 to 1988, socialist experiments in Vietnam, Lao PDR and Myanmar were tempered through the promotion of new economic reform packages under Bretton Woods organisations (International Monetary Fund and World bank). Cambodia followed a similar trajectory.

There has been an opportunistic association between the desire of these countries to attract foreign investment and the global rush for cheap land following food price spikes in 2007-8. The exploitation of land for commercial purposes in Cambodia is tied into this trend, particularly in the granting of Economic Land Concessions (ELCs) for agro-industrial development.

THE RETURN OF LAND CONCESSIONS

Economic Land Concessions (ELCs) include areas up to 10,000 hectares that are allocated to domestic or foreign companies, initially for up to 99 years but following the 2007 Civil Code (Article 247) for a maximum of 50 years. The legal framework for ELCs is through sub-decree No. 146 on Economic Land Concessions, confining allocations to state-private land.

By 2018, there were 227 ELCs covering an area of 1,225,254 hectares, which is 6.8% of total land area in Cambodia. To these ELCs, we should add 28 rubber plantations that were privatised from former State farms totalling 176,297 hectares. This makes a total is 255 large-scale agro-industrial plantations (which is the term to be used hereon), totalling 1,401,551 ha.

It is important to note that, starting in 2008, Economic Land Concessions for rubber production were granted in Protected Areas or Protection Forests, which are all now under the management of the Ministry of Environment (see overlaps in figure 4).

Using data from University of Maryland (see box on ‘data sourcing’ above), deforestation taking place within large-scale agro-industrial plantations (ELCs and privatised rubber estates) between 2001 and 2019 totals 8,313km². It grew sharply until 2013 and then diminished (figure 5). We can attribute the first part of this evolution to the sharp increase of ELCs granted by the government until it issued a moratorium on new concessions in 2012 (still effective). The post-2012 deforestation trend concern the loss of forest inside existing agro-industrial plantations.

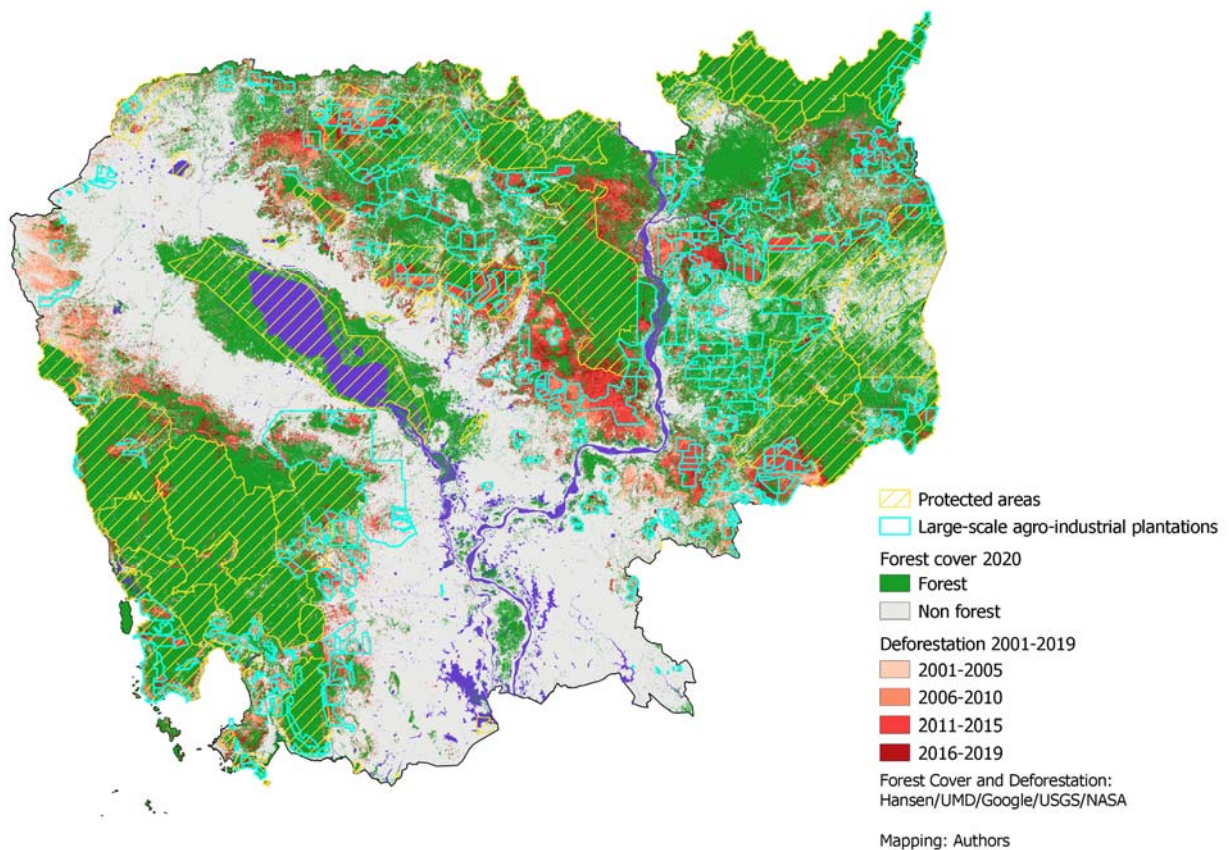


Figure 4. Deforestation in Cambodia from 2001 to 2019 and large-scale agro-industrial plantations

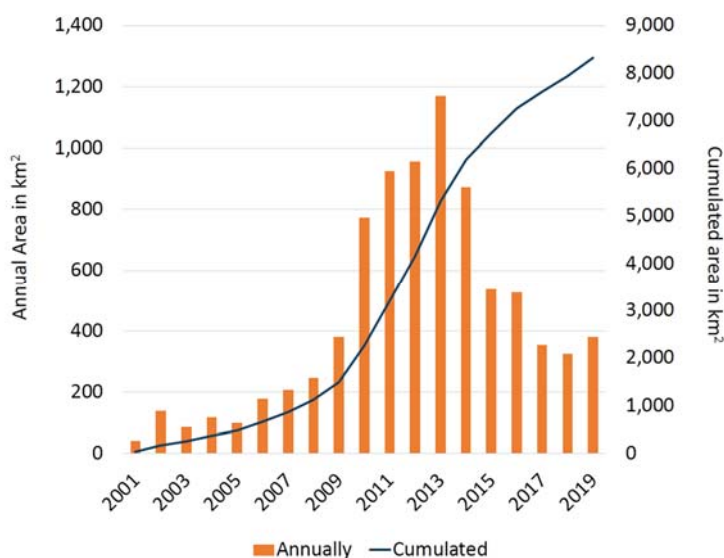


Figure 5. Deforestation in Cambodia within large-scale agro-industrial plantations from 2001 to 2019, measured by annual rate and accumulatively.

Key to understanding this pattern is the suspicion brought upon ELCs and their ability to generate state revenue, next to a reality of unused land and low levels of production. Firstly, many concessionary areas did not take up vacant, underutilised land, but included areas already under usage by smallholders and their communities. This created land disputes that would inhibit operationalisation of the investment venture. Furthermore, many agricultural projects were not successful in the aims, whether due to insufficient financing, the collapse of agricultural commodity prices, or tree plantations falling foul of inappropriate soil type or disease. This led to much land remaining unused.

As a result, in 2012, the Cambodian government issued Order 01, which included a moratorium on the granting of new ELCs alongside a review of existing concessions. This has resulted in the cancellation of several ELCs that have not been fulfilling their obligations. A further aim of Order 01 was to speed up titling for households with overlapping claims to ELCs. However, the resulting programme was dropped following national elections in 2013.

The amount of deforestation in large-scale agro-industrial plantations is only 30.9% of total deforestation from 2001-2019 (figure 6). This shows that such plantations are an important but not a sole driver for forest loss. Indeed, its annual contribution to total deforestation has diminished since the peak in 2013. To gain a clearer picture, there is a need to highlight two further drivers of deforestation.

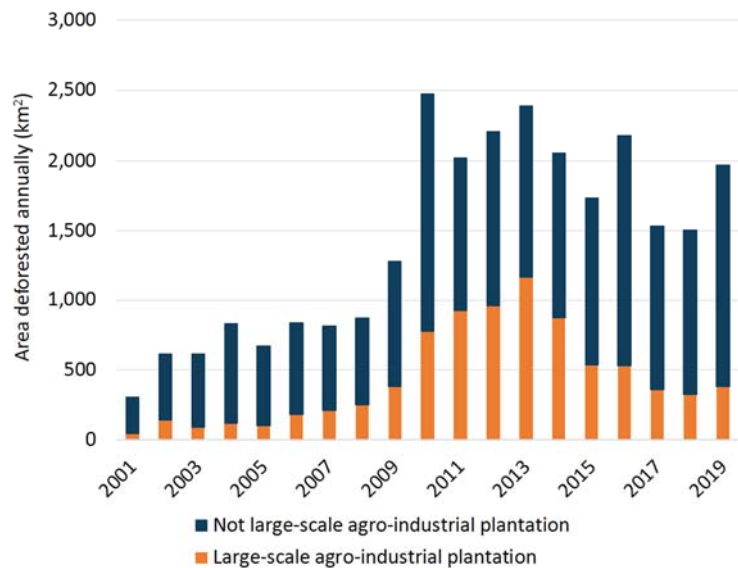


Figure 6. Deforestation in Cambodia from 2001 to 2019, measured by annual rate and in accumulation

2. AGRARIAN EXPANSION BY SMALLHOLDER FARMERS

Cambodia remains a predominantly rural society. The World Urbanisation Prospects 2018 Revision, which is compiled by the UN Population Division, estimates that in 2020 only 24.2% of Cambodians reside in urban areas, compared to 56.2% of the world’s population.

Internal migration movements from rural-to-urban areas are important in Cambodia and reflect the slow but steady process of urbanisation and industrialisation commonly associated with economic transitions in developing countries. According to national population censuses in 2008 and 2019, they represented respectively 27.5% and 34.0% of total internal migration streams in Cambodia. However, rural-to-rural migration movements are also highly significant. Up to the 2008 population census, they represented a large majority of movements (50.9% of the migrant population). This proportion has declined over the years, yet remains important (29.0% of total migration population according to 2019 population census).

Migration	2008	2019
Rural-to-Rural	50.9	29.0
Rural-to-Urban	27.5	34.0
Urban-to-Rural	6.5	7.0
Urban-to-Urban	15.1	30.0

Table 1. Percentage of lifetime internal migrants in total population (by migration streams).

Data source: National Institute of Statistics

This tendency matches together with the continuing importance of agriculture in Cambodia. According to World Bank data modelled through estimates by the International Labour Organisation, the proportion of the Cambodian workforce employed in agriculture has shrunk from 73.5% in 2000 to 34.5% in 2019 (figure 7). Despite the decrease, this is still well above the global figure of 26.8%. Meanwhile, the agriculture, forestry and fisheries sectors retain a significant contribution to national GDP, at 20.7% in 2019 compared to world average of 3.5%. Yet one should remember that this prevailing presence of agriculture fails to specify a radical shift at the household level from subsistence production into the cultivation of crops for a cash economy.

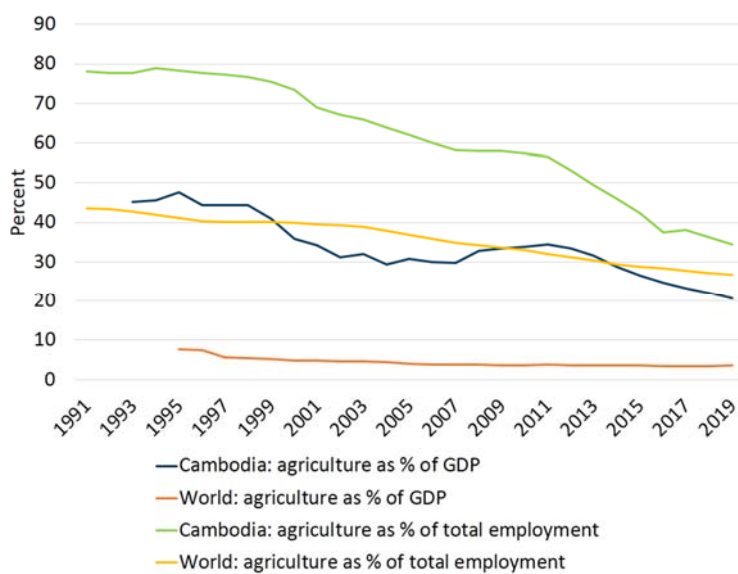


Figure 7. Participation of the workforce in agriculture and the sector contribution to GDP in Cambodia and the world
Data source: World Bank Open Data

So why the movement between rural areas?

To understand the dynamics at play, one must appreciate the shrinking availability of land in lowland areas of the country. Figure 8 shows land use in Cambodia from 2000, and acts as a useful topographical view, where areas of forest represent uplands and non-forest areas are the lowlands.

In the Central Plains, a gradual fragmentation of land holdings per household has led to sizes that cannot support local livelihoods. At the same time, an economic reform agenda has

stimulated an active land market for agricultural and non-agricultural accumulations. The market has capitalised on the economic vulnerability of these households.

In reaction to this land squeeze, a significant number of people have migrated to the cities in search of employment. Nevertheless, the transfer of unskilled labour from agriculture to industry and the tertiary sector lags behind the increase in the active rural population because total job creation in the non-agricultural sectors remains limited.

A study conducted by one of the authors suggests that by 2030 the annual increase in the rural labour force will be approximately 140,000 people, while it estimated that 40,000 unskilled jobs were created each year between 2008 and 2014 in both the industry and service sectors.

The combination of landlessness, land poverty and the uneven transition of the economy from agriculture to industries and services pushes lowland farming households to migrate to upland areas, where it is perceived that there is a land abundance to set up a new agricultural landholding. Figure 9 highlights migrant movements to upland areas for the period 2003-2008, based on 2008 population census figures (with disaggregated data from 2019 census unavailable at the time of writing).

The aforementioned report calculated the need for land by smallholder farmers from 2015 to 2030, based on the projected demographic increase in the active rural population since 2009.

The projections envisage two sets of scenarios: one relating to the labour transfer to the non-farm sector (secondary and industrial sectors) in rural or urban areas and the second relating to the amount of land 'allocated' to smallholder farmers.

Projections for three different time periods are presented in table 2. For the period 2009-2019, the land projections suggest that an area between 480,200 and 1,400,000 hectares of land will be needed by smallholders. In comparison, we have seen that the area deforested outside large-scale agro-industrial plantations over the same period is 1,416,462 ha.



Credit: JC Diepart

Figure 8. Forest Cover in Cambodia in 2000 (where non-forest areas correlate with lowlands)

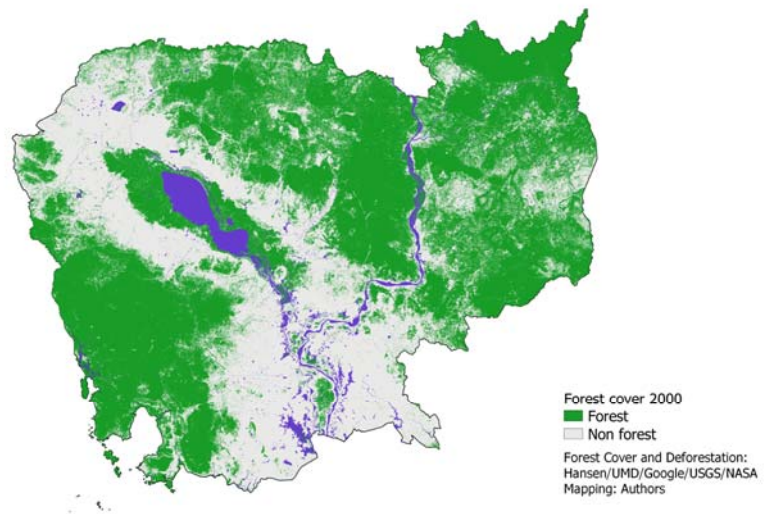


Figure 9. Net migration rate in Cambodia by district for the period 2003-2008

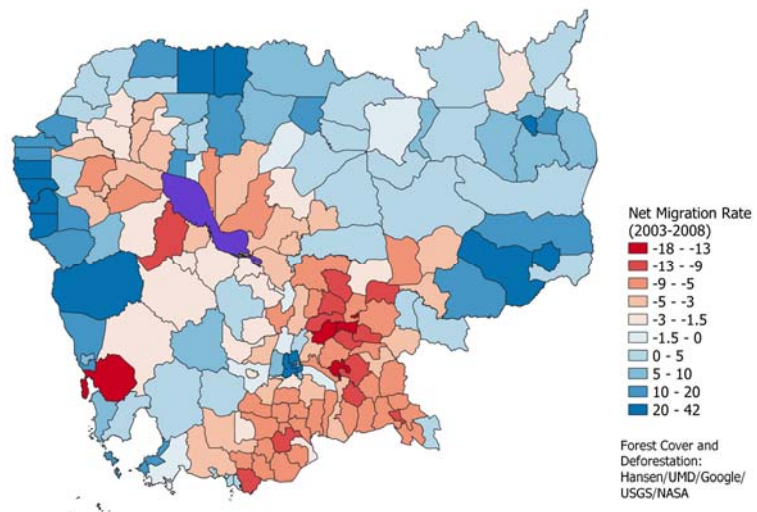
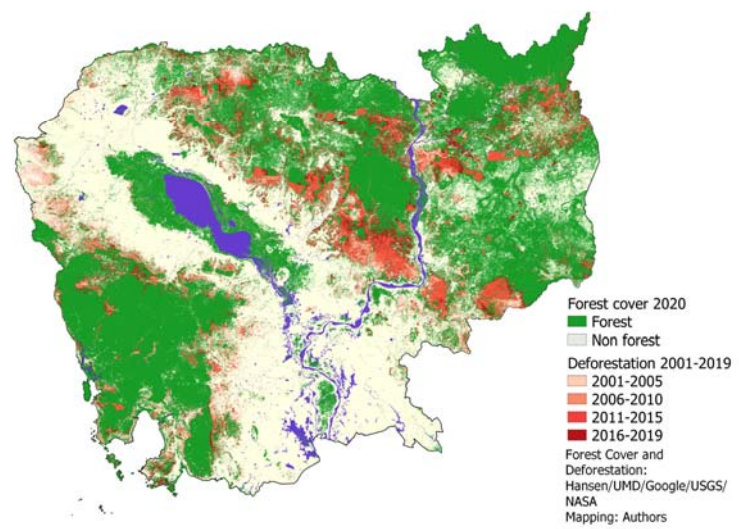


Figure 10. Forest cover in Cambodia in 2020 and deforestation from 2001-2019



Although this does not act as a scientific proof, the similarity between the top-end projection and the level of deforestation is notable, and suggestive of a correlation between the two trends. Therefore, a significant area of deforestation can be attributed to agrarian expansion by smallholder farmers (figure 10).

This implies an inability to implement inclusive land tenure programmes for smallholder farmers, who are forced to scabble for a plot, which leads to forest clearances. Meanwhile, a small part can be attributed to the enlargement of infrastructure and built-up area. A further driver of timber logging takes up the following section.

	Low level need for land	High level need for land
2015-2030	811,198	1,962,396
2009-2030	1,090,590	2,621,180
2009-2019	480,200	1,400,400

Table 2: Area of land needed by smallholder farmers for different time spans, under different scenario of land allocation and job creation in non-agricultural sector of the economy. Source: Adapted from Diepart 2016

(Note: Low level need for land: 0.5 ha/active and 60,000 jobs created in non-agricultural sector; High level need for land: 1 ha/active and 20,000 jobs created in non-agricultural sector)

3. ILLEGAL LOGGING

Logging has a strong place in the recent political history of Cambodia. Timber has been a key resource of income-generation for conflict groups such as lingering military factions of the Khmer Rouge. However, so lucrative is the trade of luxury timber that it is tied to a capitalist monopoly of business, government, military, and police elites.

While ELCs have provided timber for trade, there is much evidence of plunder from around concessions, frequently located in protected areas that are plagued by weak law enforcement. Unfortunately, our story here fails as a 'data story' since there is no clear sense of how much deforestation results from illegal logging. There is also an overlap with agrarian expansion as both smallholder farmers and agricultural entrepreneurs take advantage of these clearances, the latter group buying logged land. Yet despite the dearth of clear data, the driver of illegal logging in Cambodia cannot be ignored.

Timber is commonly traded across the Vietnamese border. Much of it heads for the Chinese market, where there is a particular demand for luxury rosewood, among other wood types. The Vietnamese border has been officially closed to timber exports from Cambodia since 2016. Yet a 2018 report by the INGO Environmental Investigation Agency shows that the cross-border trade of timber continues undiminished.



Credit: Bangkok Post

In a statement issued on 17 June 2021, the US Embassy in Phnom Penh announced that it would be cutting aid to Cambodian government environmental and wildlife programmes, due to the failure to ensure the security of protected areas against illegal logging. In particular, attention was placed on violations within Prey Lang Wildlife Sanctuary, where USAID has invested \$100 million to combat deforestation.

As an indicator of the continuing issue, there is extensive media reporting of suspected instances of illegal logging. A few of the latest reports are shown in the accompanying map. (figure 11).

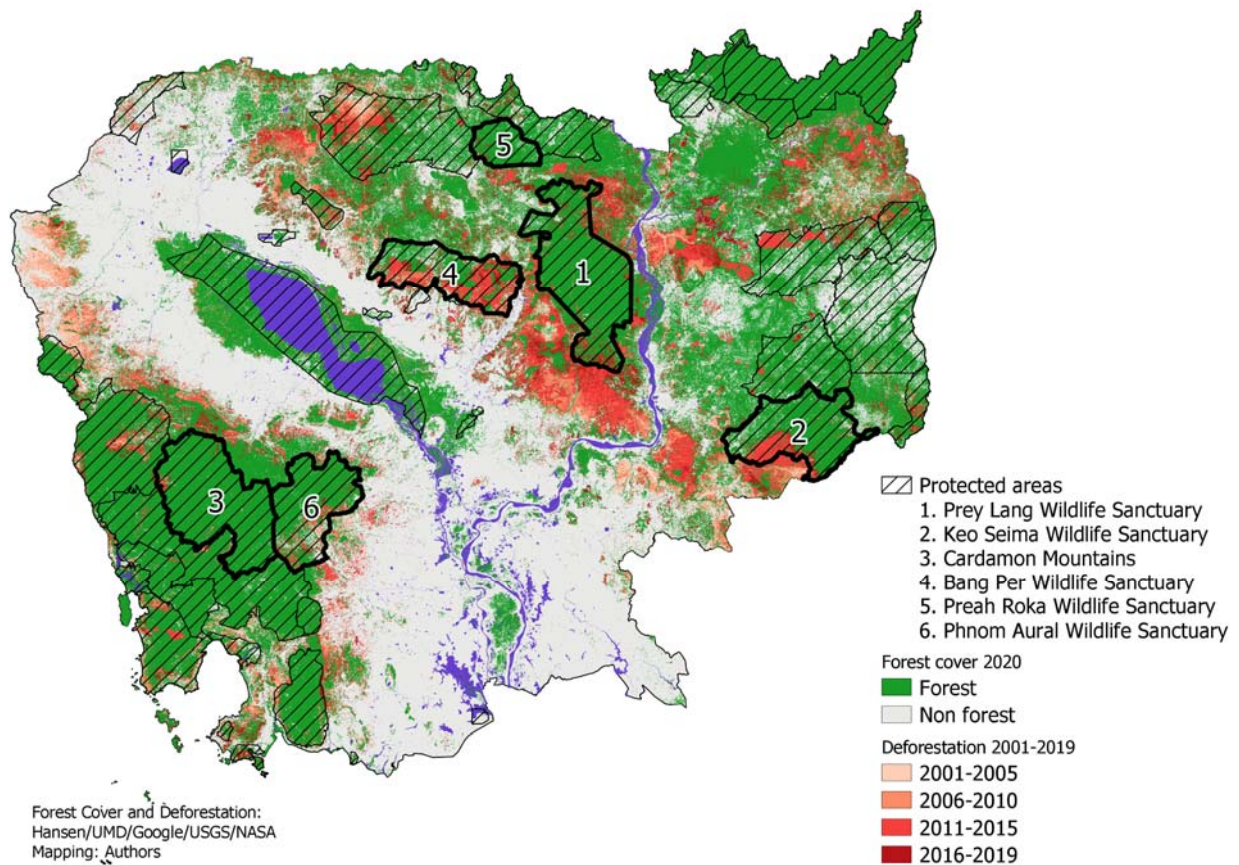


Figure 11. Protected areas in Cambodia

Prey Lang Wildlife Sanctuary

Recent analysis of satellite data by Amnesty International shows new forest clearances in Prey Lang in 2020 and early 2021, with new roads constructed to transport logs out of the area. In a further report from 2021 by Global Initiative Against Transnational Organised Crime, many illegal operations are linked to companies operating in local Economic Land Concessions. These claims have been rejected by the Cambodian government.



Credit: RFA

There is also much reporting that highlights harassment of indigenous environmental activists in the area. Activists from the Prey Land Community Network (PLCN) have been arrested for attempting to carry out community patrols and deter illegal loggers. Local communities have also been refused permission by forestry authorities for their annual tree blessing ceremony.

For more information, go to:

[Widespread illegal logging in Prey Lang rainforest amid ban on community patrols](#) (Amnesty International, 25 February 2021)

[Forest Crimes in Cambodia: Rings of illegality in Prey Lang Wildlife Sanctuary](#) (Global Initiative Against Transnational Organized Crime, March 2021)

[Forest defenders under fire in Cambodia](#) (Cambodia Daily, 16 February 2021)

[Threats against Cambodian forest defenders escalate amid COVID-19](#) (Global Witness, 21 May 2020)

[Cambodian government rejects logging claims](#) (Phnom Penh Post, 28 February 2020)

Keo Seima Wildlife Sanctuary

In 2020 and 2021, high levels of deforestation are reported in the sanctuary, primarily driven by illegal logging. Logged trees are transported to the Vietnamese timber market, while the cleared land is often used for agricultural plantations. A report by Mongabay highlights how titling campaigns for local indigenous communities are often hijacked by loggers to make legally legitimate claims to protected land.



Credit: WCS

For more information, go to: [Deforestation ramps up in Cambodia's Keo Seima Wildlife Sanctuary](#) (Mongabay, 26 April 2021)

Cardamon Mountains

Through 2020, satellite data highlights increased deforestation in protected areas of the Cardamom Mountains, southwest Cambodia. The timber subsequently finds its way to Vietnam and China.

For more information, go to: [Alleged gov't-linked land grabs threaten Cambodia's Cardamom Mountains](#) (Mongabay, 1 December 2020)



MONGABAY

© mapbox Basemap images from June 2020, Basemap by Planet, Powered by Resource Watch, © Mapbox, © OpenStreetMap

Credit: Mongabay

Bang Per Wildlife Sanctuary

Since it was established in 1993, 60% of the forest in Beng Per Wildlife Sanctuary has been lost. Land was allocated for ELCs in 2011. However, since the moratorium on new concession areas in 2012, illegal logging has continued unabated. Just between January and April 2019, The Global Land Analysis and Discovery lab at the University of Maryland received more than 27,000 deforestation alerts from the area.



Credit: JC Diepart

For more information, go to: [Illegal logging poised to wipe Cambodian wildlife sanctuary off the map](#) (Mongabay, 2 May 2019)

Preah Roka Wildlife Sanctuary

The Cambodian Youth Network (CYN) patrolled Preah Roka Wildlife Sanctuary, Kratie Province, and reported 100 cases of illegal logging over a three-day period in March 19-21, 2021.



Credit: JRFA

For more information, go to: [Green Group Records 100 Cases of Illegal Logging in Protected Cambodian Forest in Three Days](#) (RFA, 2 April 2021)

Phnom Aural Wildlife Sanctuary

In April 2020, Kampong Speu provincial Forestry Administration and environmental watchdog ACNCIPO attempted to seize 20 trucks that were transporting 20m³ of timber out of Phnom Aural Wildlife Sanctuary. However, they were confronted by a group of 100 people to aid the illegal extraction of timber.



Credit: Phnom Penh Post

For more information, go to: [Kampong Speu authorities, NGO confronted in timber truck raid](#) (PPP, 5 April 2020)

CONCLUSION: REFRAMING A NARRATIVE ON DEFORESTATION

If we look back at our deforestation data, we can place forest loss from large-scale agro-industrial plantations next to other drivers of agrarian transformation and illegal logging. Such is the illicit nature of much deforestation, there is little clarity on data on these latter two drivers. In particular, they are not mutually exclusive as illegal logging of timber makes space for new agricultural landholdings. However, it is telling that the additional deforestation here correlates closely to projections on smallholder farmers needs for land.

What is clear is that while the clearing of forest for large-scale agro-industrial plantations has an important role over the last twenty years, this role has diminished somewhat since a peak in 2013. Instead, we must look to the role of smallholders left to their own devices to clear new land for agricultural production, as well as the continuing problem of illegal logging, which continues unabated despite formal controls on cross-border trade of timber.

So what to do? There has been some support for rural households, for example through the Order 01 titling programme. But this has been all too fleeting, and there has been no sustained campaign to improve the land rights for smallholders in upland regions. This becomes compounded through the influx of migrants into the uplands as the squeeze for land in lowland areas bites.

There is a need to radically rethink the position of the smallholder in Cambodia and their role in the national economy, for national security, and in the protection of the environment. The trend of upland migration needs to be acknowledged, and careful management can help source land for smallholder farmers so that they do not have to encroach on protected forest areas. This could be realized through a pro-smallholder redistribution of cancelled ELC areas and, more widely, through farmer-centred spatial planning. This provision of land needs to be backed up with secure land tenure and access to agricultural extension services. In this way, smallholders become a vital cog in agricultural production, rather than a side-lined act beneath large-scale agribusiness.

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