



Forest-Land Conversion and Conversion Timber Estimates:
Cambodia Case Study



Acknowledgements

Prepared by NEPCon on behalf of Forest Trends

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Acronyms

ABC	Annual Bidding Coupes
ADHOC	Cambodian Human Rights and Development Association
CDM	Clean Development Mechanism
CF	Community Forestry
CSO	Civil Society Organisation
DANIDA	Danish International Development Agency
EIA	Environmental Impact Assessment
ELC	Economic Land Concession
FA	Forestry Administration (Government authority under the Ministry of Agriculture, Forestry and Fisheries of Cambodia)
FAO	United Nations Food and Agriculture Programme
FAOSTAT	Food and Agriculture Organization Corporate Statistical Database
FLEG	Forest Law Enforcement and Governance
FLEGT	Forest Law Enforcement, Governance and Trade
GDANCP	General Department of Administration for Nature Conservation and Protection, Ministry of Environment of Cambodia
GDP	Gross Domestic Product
ILO	International Labour Organisation
IPCC AFOLU	Intergovernmental Panel on Climate Change - Agriculture, Forestry and Other Land Use
ITTO	International Tropical Timber Organization
LANDSAT	Landsat program
Landsat ETM+	Enhanced Thematic Mapper Plus (an instrument on board the Landsat 7 satellite)
LICADHO	Cambodian League for the Promotion and Defense of Human Rights
MAFF	Ministry of Agriculture, Forestry and Fisheries of Cambodia
MoE	Ministry of Environment of Cambodia
NFP	National Forestry Programme of Cambodia
NGO	Non-Governmental Organisation
NPCA	Nature Protection and Conservation Administration (Ministry of Environment of Cambodia)
NTFP	Non-timber Forest Product
PA	Protected Area
REDD+	Reduced Emissions from Deforestation and Degradation
RGC	Royal Government of Cambodia
R-PP	Readiness Preparation Proposal for Cambodia
RWE	Round wood Equivalent volume
SFMP	Strategic Forest Management Plans
SLC	Social Land Concession
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation
VPA	Voluntary Partnership Agreement

1. Executive Summary

The goal of this study is to achieve a better understanding of forest-land conversion in Cambodia, leading to production of conversion timber and other commodities. The study also aims to identify the sources of timber including domestic production and imports into the country. Policy relevance and prioritisation in relation to land conversion, tenure arrangement and conversion timber have also been analysed to develop strategies to tackle illegal land conversion and the resulting production of illegal conversion timber.

1.1. Key findings

There are a number of drivers which have influenced and contributed to conversion of forest-land to non-forest uses in Cambodia. Currently, natural forest clearance and conversion to other land uses is being driven by eight key factors:

1. Conversion to Economic Land Concessions (ELCs) for agri-industrial crops
2. Conversion to Social Land Concessions (SLCs)
3. Clearance for Hydropower dam construction, developmental and infrastructure purposes
4. Mining development
5. Annual bidding coupes
6. Plantation development
7. Illegal logging
8. Migrant encroachment / Conversion to settlement and small-scale farming

Of these, the key driver of conversion of forest land in Cambodia are Economic Land Concessions (ELC), the main tool used for investment in agricultural and plantation crops on an industrial scale (IGES, 2013). ELCs are large scale land concessions, issued in accordance with the Land Law 2001 (Land Law) and in some cases the Protected Area Law 2008 (Protected Area Law). The Protected Area Law was, in principle, formulated to govern protected areas, which total 2.2 million ha or 18 percent of the total land area of Cambodia. However, the Protected Area Law contains a significant avenue through which the Ministry of Environment (MoE) issues ELCs for agricultural development within protected areas, leading to the conversion of this land.

Government figures for ELCs in Cambodia are largely unattainable, but those that are available state that ELCs issued by the Ministry of Agriculture Forestry and Fisheries (MAFF) cover 1.2 million ha, plus approximately 650,000 ha issued by MoE. Many independent reports question and contradict the government figures, citing that the coverage of ELCs is actually anywhere between 1.9 mill ha and 3 million ha. While the allocation process for ELCs is legally comprehensive, the lack of transparency in the allocation of ELCs, other concessions and other land use-rights, has been well documented (Chao, 2013).

Discrepancies between the number of ELC allocations reported by MAFF, and those reported by independent sources including NGOs, may result from confusion and disagreement around the recording of cancelled ELC contracts. Independent sources consider that MAFF data is inaccurate because the most recent data provided in 2012 omitted many well-known concessions and included a number of concessions that were thought to have been cancelled (OpenDevelopmentCambodia, 2014). The lack of trust in the government data is compounded by the fact that the data currently available is more than two years old, and does not include concessions below 1,000 hectares (Subedi, 2012).

Critical findings in this study relevant to forest-land conversion and conversion timber within Cambodia can be summarised as follows:

- A number of factors are responsible for forest clearance and conversion to agriculture and other land uses. Of these, the allocation of Economic Land Concessions (ELCs) for agri-industrial crops is particularly problematic.
- Other drivers of forest conversion include concession allocations for a wide range of developmental and infrastructural objectives: construction of hydropower dams and other infrastructure; mining; and Social Land Concessions (SLCs)
- There are a number of well-intentioned forest and natural resource laws, directives, strategic plans (such as the National Forestry Programme) and socially-oriented initiatives (granting of SLCs). Even ELCs are theoretically a niche within the matrix of tools available to support Cambodia's developmental needs. The reality, however, is that these mechanisms are falling short of their objectives for implementation and intended beneficiaries. Worse still, there are serious indications of

their misuse in ways which encourage forest clearance and conversion on an un-intended scale - which is harming both Cambodian society and its natural forest resource.

- As much as 90 percent of Cambodian timber production originates from forest conversion. Principle conversion-timber sources in Cambodia include ELC's and infrastructure developmental projects, as well as illegal logging related to conversion projects. The contribution of migrant encroachment and clearance is unclear. Considering that significant areas of forest have been signed off under ELC agreements, but have not yet been cleared, timber production (and the resulting deforestation) from ELCs is expected to increase further in the coming years.
- The large scale licensing of land for investment purposes carries a serious social dimension, as concession areas often overlap with local and customary land tenure. Though human rights, including land tenure, have not been the primary focus of this study, it is clearly the case that this is an area of serious concern in Cambodia.

This study seeks to highlight some key themes to be considered in the development of strategic policy options to address large-scale forest conversion and contraction of the forest resource in Cambodia:

- *Information and Data* - There is a dearth of consistent and robust (government and independent) information regarding the scale of forest conversion and its drivers. This information gap includes the certainty of laws and processes, and any records of non-compliance with these requirements. Engagement with the Royal Government of Cambodia (RGC) at various levels is vital. Other technological and civil society initiatives should seek to support and improve the supply of more reliable data.
- *Engagement with the Cambodian Forest Industry* - Civil society, government and other stakeholders should engage with the forest and agricultural sectors in order to define common goals and build compatible and mutually-beneficial alternatives to the current situation
- *Engagement with Agri-industrial investors, financial institutions and consumer markets* - Engagement with these organisations needs to occur in order to promote and incentivise the strengthening of due-diligence processes, the rejection of corrupt and illegal or poor concession allocation processes; and for these private institutions to respect the laws of Cambodia.

2. Forest resources

2.1. Background and historical land cover changes

Cambodia covers an area of 181,035 m². According to the Cambodian Forestry Administration (FA), the total area of forest cover in 2011 was 10,363,789 ha, which corresponds to 57.07 percent of the total land area (FA, 2011). According to the FA forest cover in Cambodia decreased from 61.15 percent in 2002 to 59.09 percent in 2006 and 57.07 percent in 2010. The annual deforestation rate in Cambodia from 2002 to 2010 has been estimated at 0.5 percent by the government.

Table 1: Forest types and area in Cambodia (Source: FA 2011).

Forest Type	Area	Percentage of total land area
Evergreen forest	3,499,185 ha	19.3%
Semi-evergreen forests	1,274,789 ha	7%
Deciduous forests	4,481,214 ha	24.7%
Other forests	1,108,600 ha	6%

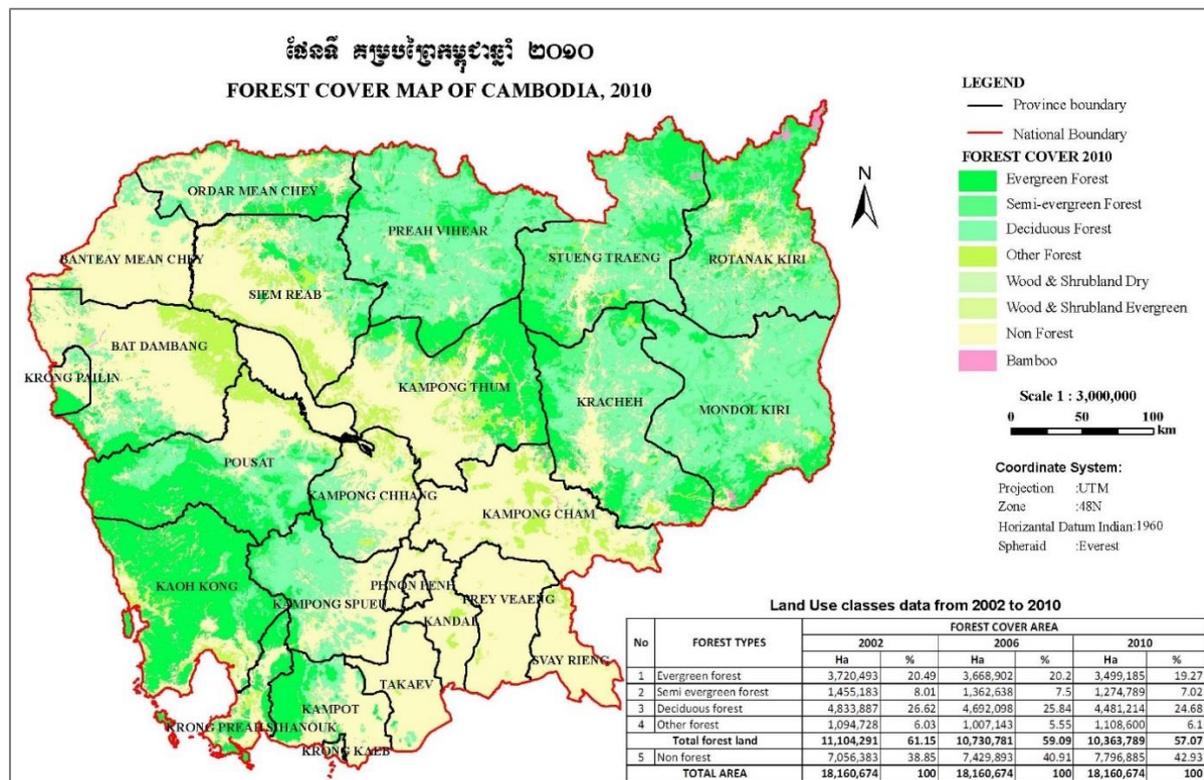


Figure 1: Forest Cover map 2010 (Source: FA 2011)

Figure 2 illustrates the geographical distribution of land cover changes between 2002 and 2010 according to the Forestry Administration. The current and future rate of deterioration of forest cover, however, may be even more alarming than is presented above, given that many recently approved concessions in forest areas may still be in process of clearance or with forest clearance yet to begin.

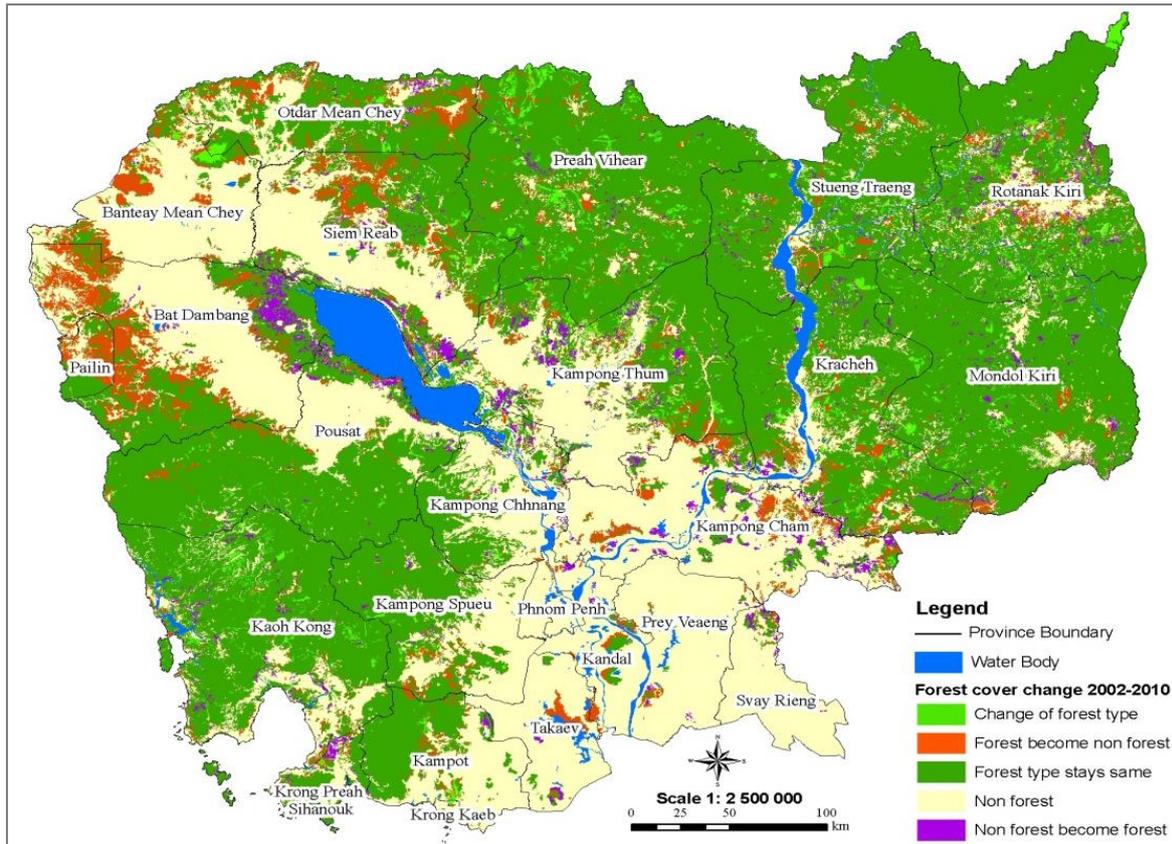


Figure 2: Forest Cover Change map 2010 (Source: FA 2011).

These government figures are challenged by a large body of independent data such as that of OpenDevelopmentCambodia which, using analysis of satellite images since 1973, suggest that forest cover - including tree plantations - is as low as 46% (OpenDevelopmentCambodia. 2014)

The University of Maryland Global Forest Change study provides images of very significant forest loss in Cambodia for the period for the period 2001-2012. It reports that there was approximately 1.2 million ha of forest loss in Cambodia, compared to approximately 100,000ha of forest gain for the same period. The University of Maryland study measures tree cover and includes a different definition of 'forest' as 'a landscape with a high density of trees and value for biodiversity, carbon storage, and human use.' Although the University of Maryland figures are not truly comparable because of the definitional and methodological differences in their study, it does provide insight into the land use change in Cambodia over the last decade.

The category "Change of forest type" in Figure 2 may mask what is actually being processed for clearance of natural forestland to plantations. As an example of what appears to be a very recent (since 2010) acceleration of the rate of deforestation in Cambodia, the study provides alarming images of very significant forest loss as late as 2012 (University of Maryland). This is shown in Figure 4. Global Forest Watch reports that for the period 2001-2012 there was approximately 1.2 million ha of forest loss in Cambodia, compared to approximately 100,000ha of forest gain for the same period.

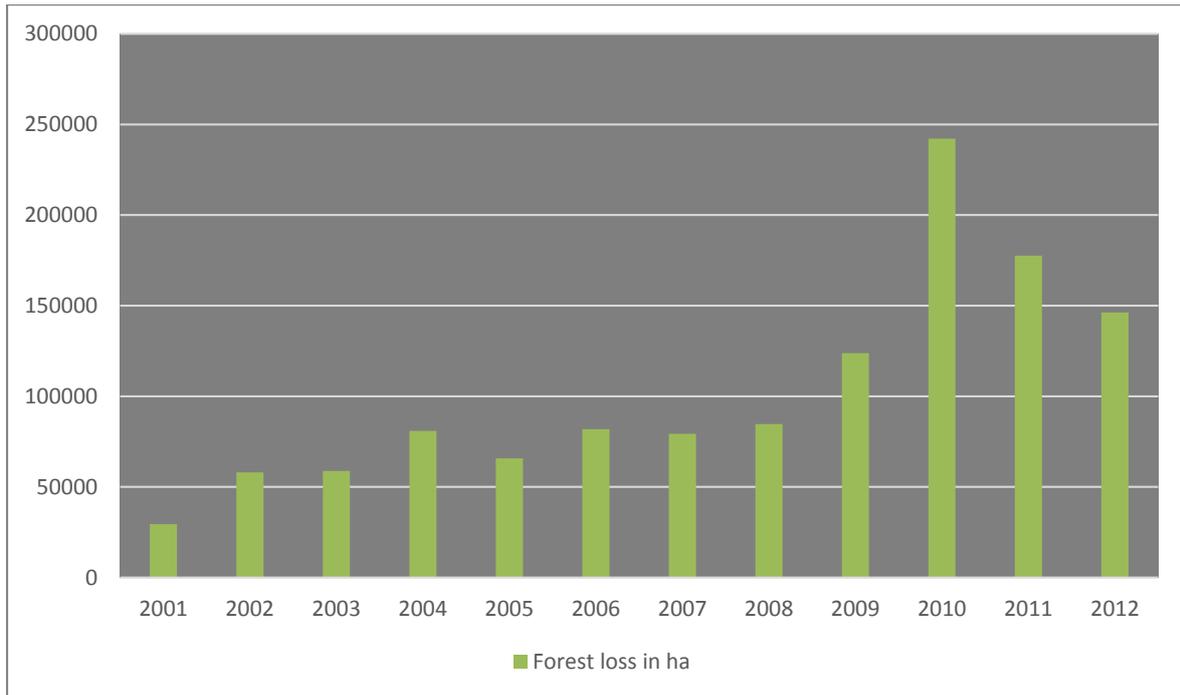


Figure 3: Forest Loss in Cambodia 2001-2012 (Source: Global Forest Watch, 2014)

Forests are still being converted, mainly through allocation of forest land to development activities, or other land uses, as well as population growth and related increased demand for agricultural land.

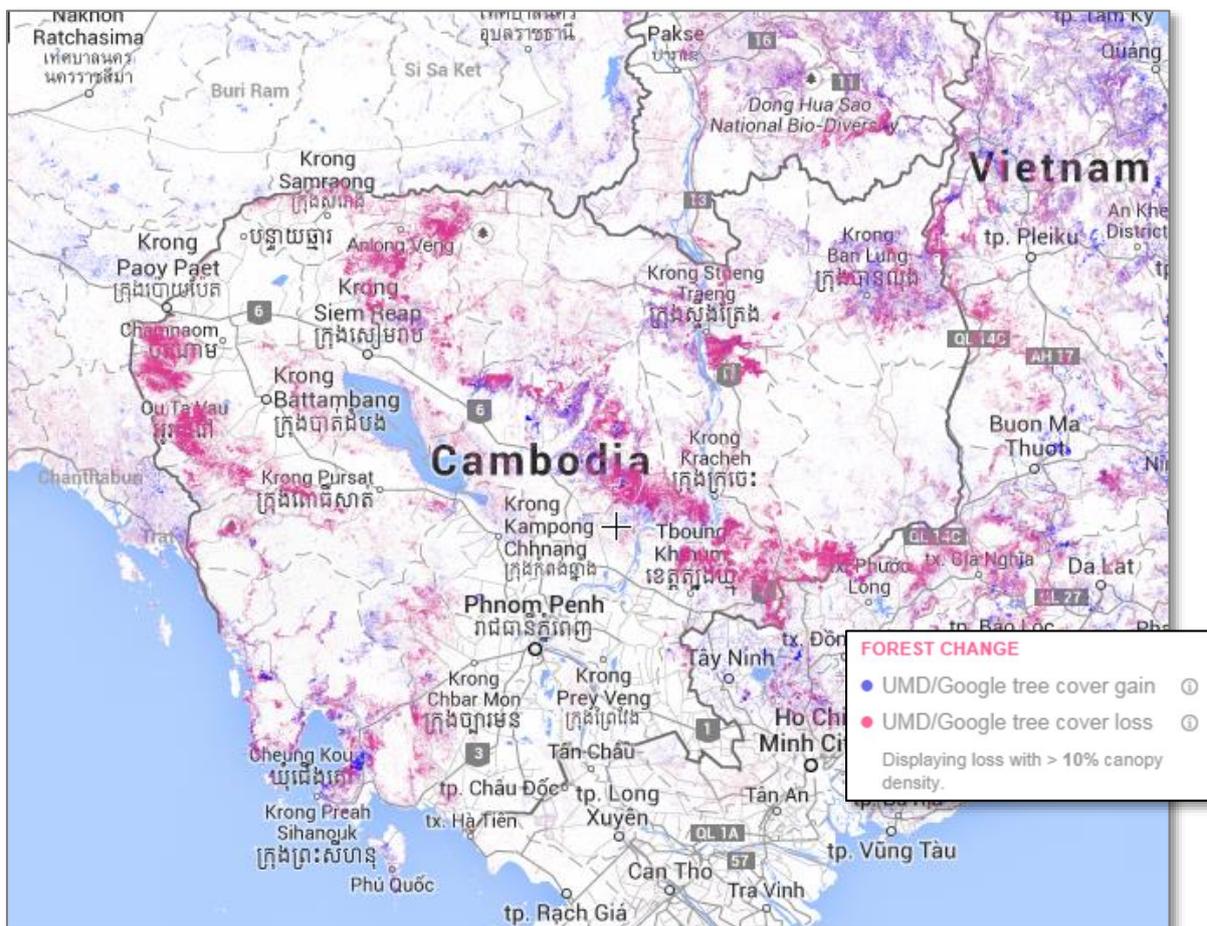


Figure 2: Forest loss and forest gain 2001 to 2012 (Source: Global Forest Watch, 2014)

The 2010 Readiness Preparation Proposal (R-PP) for Cambodia REDD+ notes that Cambodia has substantial amounts of data on forest land uses and land use changes (UN REDD+ 2010). It states that Cambodia has one of the highest levels of forest coverage in South East Asia, with approximately 10.7 million hectares, representing roughly 60 percent of the national territory (Forestry Administration 2007). It notes that Cambodian forests are in a state of significant decline due to land use change, forest degradation through logging, forest fires, land-grabbing and encroachment agriculture. The R-PP claims that land use change is relatively high, with 379,485 hectares of forest cleared between 2002 and 2005/6, and equivalent deforestation rate of 0.8 percent per year. Accordingly, Cambodia is considered a “high forest cover, high deforestation country for the purposes of REDD” (Griscomb et. al, 2009).

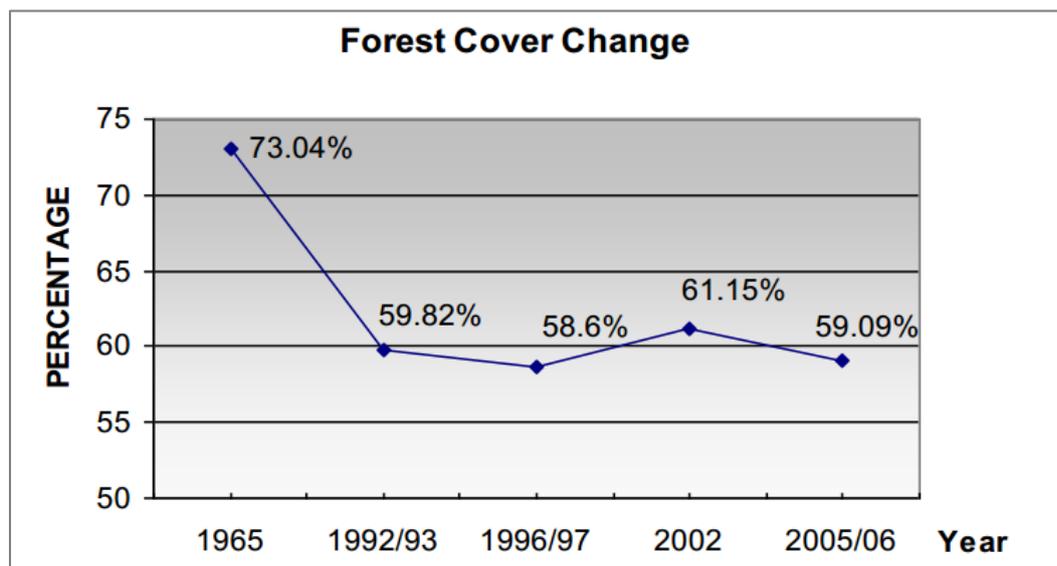


Figure 3: Change in forest cover from 1965-2006 (Forestry Administration 2007).

Figure 5 shows the available data on forest cover from national assessments since 1965 assessed in the R-PP. The figure suggests that forest cover has fluctuated between 58 and 61 percent since 1992/3. However, the differences in the estimates for various years is mainly because of different analysis methods that were used:

- The 1988/1989 dataset, produced by the Mekong Secretariat, is based on visual interpretation of LANDSAT satellite image hardcopies and identified 20 land use classes (where 9 classes depict various forest cover) at a scale of 1:250 000, and a minimum mapping unit of 1 km² (4 x 4 mm at map scale).
- The 1992/3 and 1996/7 datasets were produced by the Forest Cover Monitoring Project, a Mekong River Commission initiative executed by the GTZ. The two land cover datasets are based on the visual interpretation of 1992/1993 and 1996/1997 LANDSAT satellite image hardcopies, at a scale of 1:250 000 with a minimum mapping unit of 1 km². The Land use cover analysis for 1996/1997 results in a classification in 30 land cover classes (with 15 ‘forest’ classes).
- The 2002 and 2005/6 analyses were produced by the Forestry Administration’s GIS/RS Unit with the support of the DANIDA. The results of this analysis have been recently published in English and Khmer. These country-wide analyses have been based on manual on-screen visual interpretation of Landsat ETM+ imagery.

2.2. Land and forest classification

In order to understand forest conversion in Cambodia it is necessary to understand the complex nature of land classification and types applied to the country. A number of factors, including differing objectives, time/scales and resources constraints, contribute to the relatively complex classification systems and methodologies used for mapping and monitoring forest cover in Cambodia. For example, some maps produced by FAO have applied 27 different land classification types.

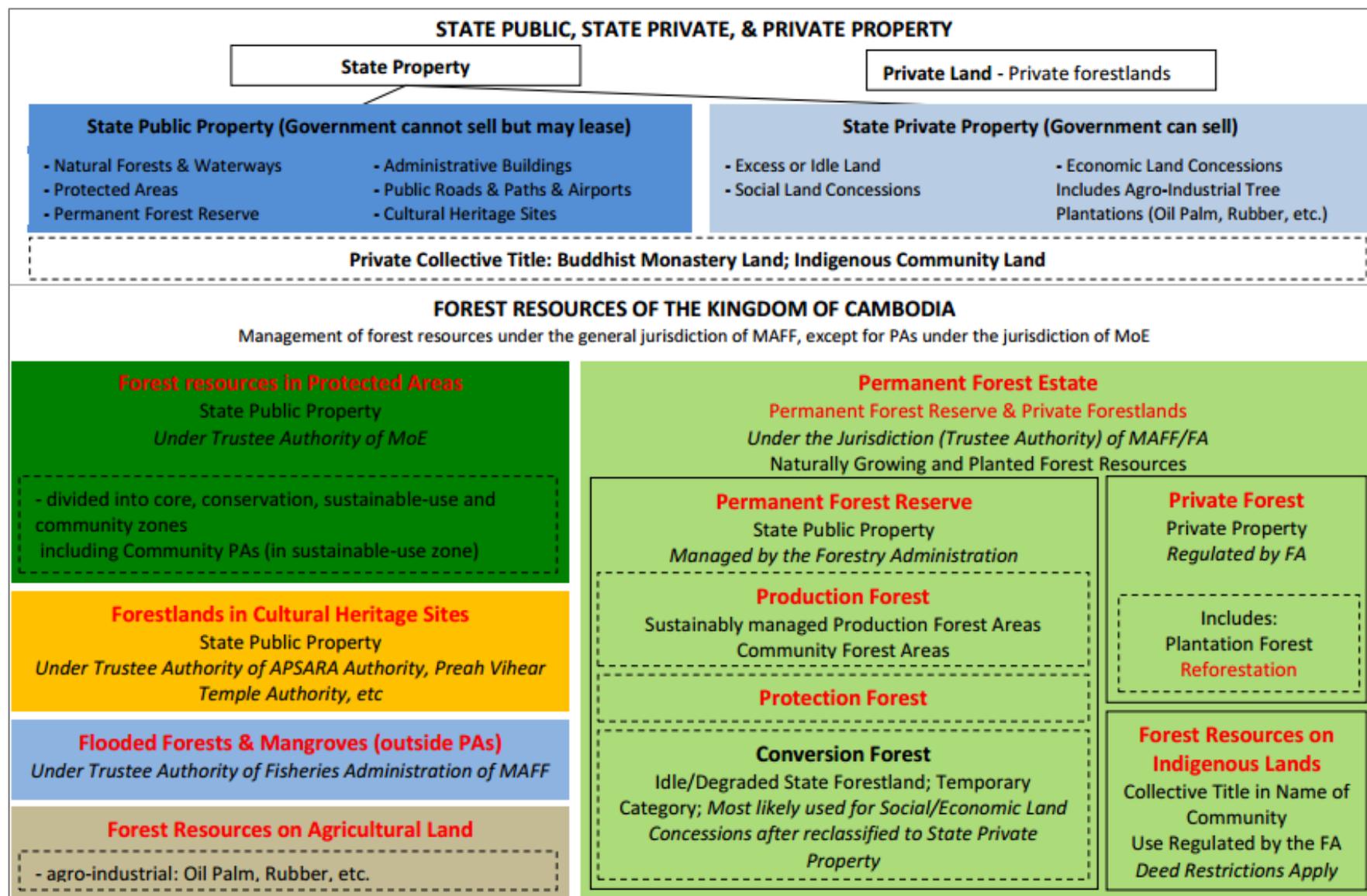


Figure 5: Land Classification - Forestland Management in Cambodia (Source: UN REDD+ 2010).

2.3. The 2002 Moratorium on Harvesting and forest policy reform

In December 2002, the Royal Government of Cambodia (RGC) enacted a moratorium on timber harvesting in forest concessions in Cambodia, awaiting a revision of the comprehensive sustainable master plans by the timber concessionaires; a situation which technically remains unresolved to this day. However, the timber concession system is widely considered no longer applicable by many civil society stakeholders and land-use patterns and trends have shifted since then (Marcus Hardtke, personal communication July 2014). Despite the moratorium on timber harvesting, there is still a significant amount of conversion timber being exported from Cambodia, mainly into neighbouring Mekong countries and China (Forest Trends 2011).

In line with the forestry reform process, the RGC outlined its new forest policy in 2002 (RGC 2002 N^o: 57 sCN). The objectives of these initiatives within the set of national goals regarding forest resources were:

1. “The conservation and the sustainable management of the country’s forest resources shall provide a maximum contribution to the sustainable socio-economic development of the Kingdom of Cambodia.
2. The remaining forest resources of the country shall be considered as Permanent Forest Estate and managed by exclusively promoting conservation and sustainable forest management initiatives that directly contribute to the rehabilitation and conservation of a maximum stock of forested land and forest resources.
3. Within the context of conservation and sustainable forest management initiatives, a maximum involvement of the private sector and participation of the local population shall be achieved in order to ensure food security, poverty reduction and socio-economic development.
4. A wide range of coordinated multi-stakeholder processes shall be implemented to enable the harmonisation of the different perceptions, interests and objectives of the various forest interest groups at all levels.
5. To continue to support forestation of arable land and to protect those trees for the development of forest resources.”

In 2008 and 2009, the FA, together with other stakeholders in the forest sector developed the National Forest Programme (NFP) as a strategic framework, designed to guide the implementation of the policy reforms. The National Forestry Programme, formally approved in late 2010, sets out a plan for long-term management of Cambodia’s forestry estate. Targets set under the NFP include:

1. 2 million hectares of Community Forests (up from app. 400,000 hectares currently); a significant proportion of the new CF sites would probably be gazetted from old logging concession areas- and thus be located in degraded forest land
2. 3 million hectares of Protection Forests (up from app. 1.5 million hectares currently), again through re-gazetting production forestry areas.
3. 2.6 million hectares of Production Forests under Sustainable Forestry Management (including certification).
4. Maintaining 3 million hectares of Protected Areas managed by GDANCP/MoE.

If realised, these NFP targets would represent a significant shift in forestry management practices, resulting in more than 3 million hectares of production forests, which are currently unmanaged, being re-gazetted either for community management or protection of ecosystem services. As an example, former timber concession areas, especially in the Southwest and the East, have been designated as Protected Forests under the Forestry Law in recent years (Marcus Hardtke, personal communication July 2014).

The NFP recognises conversion of forestland for agriculture as a threat. However, neither the government’s stated forest policy nor the NFP contains reference specifically to conversion timber nor considers it a management option for the country’s forest resource. Additionally, civil-society concern centres on the lack of provision within the Land Law, Forestry Law and Protected Areas Law to regulate large-scale conversion of state forest land for agricultural development. The issue of conversion timber does not appear to be part of the envisioned management regime and is not adequately addressed in the legal frameworks.

A statement released on 13 October 2014 by the Ministry of Land Management, Urban Planning and Construction claimed that more than 1 million hectares of forest terrain and land leased by private companies has been put under government control since the 2012 moratorium. The statement also states that 3.6 million land titles have been issued since the May 2012 order began a process of land demarcation. This statement has been rejected by independent sources, including Chan Soveth, senior investigator at rights group Adhoc, who said that the land titling program had tended to ignore areas where communities were in disputes with ELC firms. (Pnomn Penh Post, 2014).

3. Forest conversion drivers

There are a number of drivers which have influenced and contributed to conversion of forest-land to non-forest uses in Cambodia. Currently, natural forest clearance and conversion to other land uses is being driven by eight key factors:

1. Conversion to Economic Land Concessions (ELCs) for agri-industrial crops
2. Conversion to Social Land Concessions (SLCs)
3. Clearance for Hydropower dam construction, developmental and infrastructure purposes
4. Mining development
5. Annual bidding coupes
6. Plantation development
7. Illegal logging
8. Migrant encroachment / Conversion to settlement and small-scale farming

The following sections take a closer look at these drivers of forest conversion and examine the process and scale of their implementation.

3.1. Driver: Economic Land Concessions for agri-industrial crops

The key driver of conversion of forest land in Cambodia are Economic Land Concessions (ELC), the main tool used for investment in agricultural and plantation crops on an industrial scale (IGES, 2013). The UN REDD+ National Program Document states that production of rubber, sugar cane and more recently biofuel crops has been a major cause of forest conversion (UN REDD+ 2010).

It is estimated that 3.9 million ha of arable land in Cambodia (equivalent to 22.1 percent of the country's total land area) has been handed over to private investment (Chao, 2013), but data is scattered and unofficial.

3.1.1 Legal authority for ELCs - Land Law 2001 and the Protected Area Law 2008

ELCs are large scale land concessions, issued in accordance with the Land Law 2001 (Land Law). They provide a concessionaire with the right to an area of up to 10,000 ha for a period up to 99 years. They are granted within production forest authorised by the Ministry for Agriculture Fisheries and Forestry (MAFF) and within the sustainable use and community zones of protected areas, in accordance with the Protected Area Law 2008 (Protected Area Law) authorised by the Ministry of Environment (MoE). However, there is a lack of clarity regarding the regulatory framework authorising the placing of ELC in state forests.

The Land Law requires that land concessions respond to social and economic purposes:

- Land concessions responding to a social purpose allow beneficiaries to build residential constructions and/or to cultivate lands belonging to the state for their subsistence.
- Land concessions responding to an economic purpose allow the beneficiaries to use the land for industrial agricultural exploitation of land.

The Land Law also states that ELCs cannot be granted in several locations, jointly exceeding the 10,000 hectare size limit, in favour of the same person(s) or different legal entities controlled by the same person(s) (Article 59) and must be exploited within 12 months of being granted, or will be considered cancelled (Article 62). The *Sub-Decree No. 146 on Economic Land Concessions* sets out the criteria, procedures, mechanisms and institutional arrangements for initiating and granting new economic land concessions. The detailed process of granting ELCs under the Land Law is summarised in Annex 1. The sub-decree does not include mention of conversion timber (RGC 2005).

The Protected Area Law 2008 was formulated to govern Protected Areas, which total 2.2 million ha or 18 percent of the total land area of Cambodia.

The Protected Area Law divides the protected area into four zones:

1. *Core zone*: management - area(s) of high conservation value containing threatened and critically endangered species, and fragile ecosystems;
2. *Conservation zone* - area(s) of high conservation values containing natural resources, ecosystems, watershed areas, and natural landscape located adjacent to the core zone;

3. *Sustainable use zone* - management area(s) of high economic values for national economic development and management, and conservation of the protected area(s) itself thus contributing to the local community, and indigenous ethnic minorities' livelihood improvement; and.
4. *Community zone* - management area(s) for socio-economic development of the local communities and indigenous ethnic minorities and may contain existing residential lands, paddy field and field garden or swidden agriculture.

According to the annex of the Protected Area law, the *sustainable use zone* contains the following types of sites (RGC 2008):

- National cultural and heritage sites
- Ecotourism
- Wildlife conservation and recreational services
- Biological rehabilitation
- Community protected area
- Botanical garden
- Infrastructure development incl. irrigation, reservoir, hydro-electricity, electric networks
- Mining
- Environment-friendly (tree) resin exploitation (referring to from natural forests by local communities) in the protected area and surroundings

Thus, the Protected Area Law does allow limited economic development within the sustainable use zone. However, the same law also states that, after consultation with relevant ministries and institutions, local authorities, and local communities in accordance with relevant laws and procedures, the RGC may permit development and investment activities in the Sustainable Use zone in accordance with a request from the Ministry of Environment (RGC 2008). This provides an important avenue through which the MoE issue ELCs for agricultural development within protected areas, leading to the conversion of this land.

Annex 2 sets out the list of current holders of ELCs issued by MAFF, and Annex 3 sets out the protected areas currently under ELCs issued by the MoE.

3.1.2 Land use under ELCs

ELCs have been granted primarily for five agricultural and plantation crop types: soy bean, mung bean, cassava, maize and rubber. According to MAFF (2014), the area of ELC allocation has increased from around 64,000 ha in 2009 to around 1,100,000 ha in 2013. The distribution between these four main crop types is shown in Figure 6.

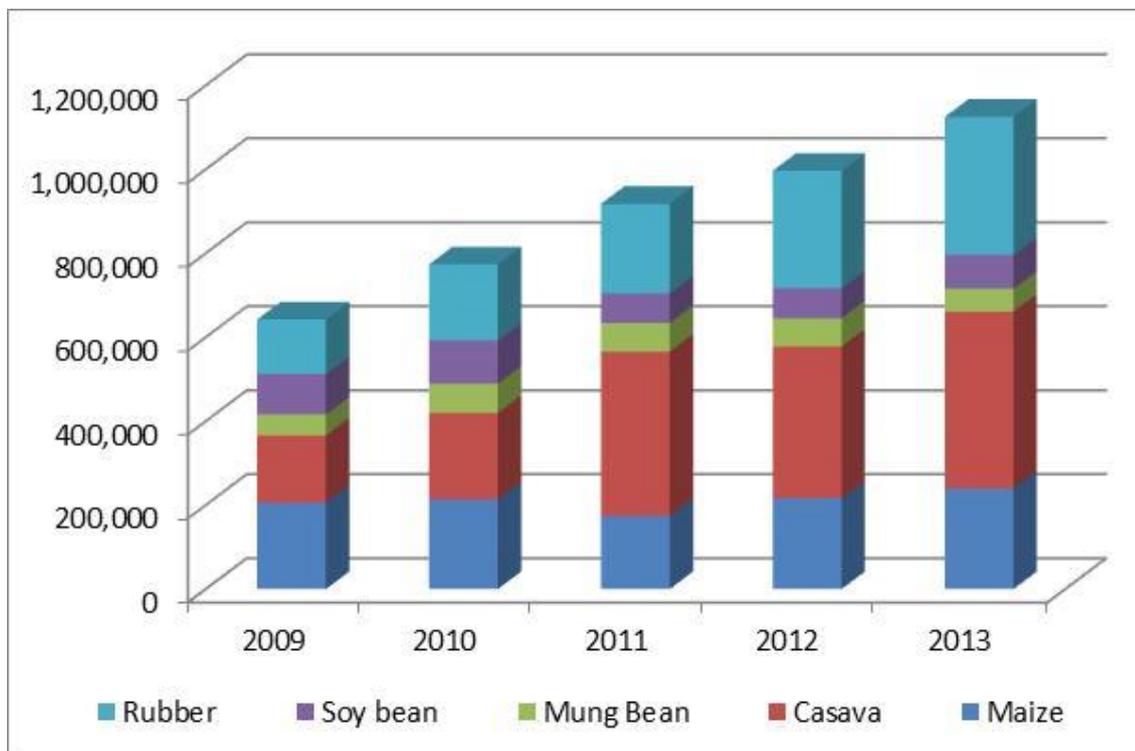


Figure 6: Cultivated area of four main crops and rubber from 2009 to 2013 (Source: MAFF, 2014)

The surge in land area used for crop plantation has been contributed to mainly by the increase in cassava and rubber plantations. Cassava plantations increased from around 160,000 ha in 2009 to around 421,000 ha in 2013, a growth of 250 percent in just four years. Factors cited as driving cassava production include rising international commodity prices, improved processing facilities within Cambodia and the expansion of cassava production to better soils to improve yield (Cambodia Ministry of Commerce, 2013). Rubber plantations increased from around 129,000 ha in 2009 to around 326,000 ha in 2013 (up 16 percent on the 2012 figure of 280,350 hectares). The Cambodian ministry of agriculture recently predicted that rubber plantations would reach 450,000 by 2020 (Xinhuanet News, 2014). However, it should be noted that not all rubber production derives from ELCs. In fact ELCs are the very much the newcomer to the industry, with Privately-owned and Smallholder plantations making up two thirds of plantation cover and most of the rubber production, given the younger age of ELC rubber plantations (Ministry of Commerce, Cambodia, 2012).

While the cultivation area for cassava and rubber has increased, it has not yet peaked as a number of harvesting blocks within ELCs have not yet been converted to plantations. The UN REDD+ National Programme Document states that only 10% of concessions are in active production (UN REDD+ 2010).

While the primary acceleration in the allocation of ELCs has resulted from inward investment by the agro-industry in Cambodia, investment from China and Vietnam has also increased. There is also growing interest from south-east Asian groups and other countries such as South Korea, USA, France and Israel - a trend that is likely to further increase the push to convert forests (Forest Trends, 2014).

3.1.3 Scale of land conversion in Cambodia through ELCs - data inconsistencies

Government figures for ELCs in Cambodia are largely unattainable, but those that are available state that ELCs cover 1.2 million ha issued by MAFF, plus approximately 650,000 ha issued by MOE. However, NGOs report that the coverage of ELCs is anywhere between 1.9 mill ha and 3 million ha. While the allocation process for ELCs is legally comprehensive, the lack of transparency in the allocation of ELCs, other concessions and use-rights, has been well documented (Chao, 2013). The lack of transparency poses a significant obstacle to obtaining data about the actual coverage of ELCs and real figures of land converted under them. This limits the depth of any quantitative analysis and provides a serious barrier to any evaluation of the impact of ELCs.

For the purpose of evaluating the scale of the forest land conversion (and conversion timber) in Cambodia, the following analysis considers available government data from MAFF and MoE, comparing this data with a larger body of independent data, developed mostly by CSOs to attempt to fill the data vacuum.

3.1.4 Government ELC Data: Ministry of Agriculture Fisheries and Forestry

Annex 2 provides a list of ELCs issued by MAFF up to 08 June 2012, according to their own data. ELCs issued by MAFF cover an area of approximately **1.2 million ha**. While it may be assumed that ELCs issued by MAFF cover forested land within the Permanent Forest Estate, it is also assumed that all ELCs have been allocated on MAFF land will eventually be converted from natural forest to non-forest or plantations. Many ELCs have been allocated within Production forest as well as Protection forest.

Table 3: ELCs issued by MAFF since 1996. Source: www.elc.maff.gov.kh / FA 2012

	Number of ELCs issued by MAFF	Ha
1996 - 1999	7	44,124
2000 - 2001	6	408,404
2004	2	6,100
2005	8	67,580
2006	16	136,360
2007	05	32,185
2008	15	99,968
2009	16	117,785
2010	15	117,785
2011	24	185,576
2012	04	16,607
TOTALS	118	1,232,474

Although now more than 2 years old, the information published on the MAFF website provides the most up to date available official information.

Of the four companies who signed an ELC in 2012, one of these signed after the 7 May 2012 ELC directive to halt the granting of economic land concessions. According to sub-decrees published in the Council of Minister's Royal Gazette, it also appears that additional concessions were allocated to companies on 7 June 2012. These all appear to have been allocated in Protected Areas under the jurisdiction of the MoE. (Surya P. Subedi, 2012).

3.1.5 Government ELC Data: Ministry of the Environment

MoE is known to grant ELCs within protected areas, however, a list of ELCs issued under MoE is not available. Some data has been made available by Subedi and others (see Subedi, 2013). Also, Annex 3 also sets out the allocations of Protected Areas to Land Concessions according to Forest Trends. 2011 government data shows land concessions have been granted to at least 109 companies in 16 of the 23 protected areas established by the 1993 Royal Decree. MoE affirms that these are allocated only in sustainable use or buffer zones.

Table 4: ELC allocations in protected areas. Source: An analysis of sub-decrees and other information obtained from MoE including Subedi, 2012

Allocation	Area
Rubber Plantations	322,113ha
Other agro-industrial crops	172,731ha
Tourism	89,359ha
Mining exploration	38,831ha
Hydro-power dams	4,593ha
Total allocations	627,627ha (approximately 20 percent)
Total protected land-surface area	3,143,763 ha

3.1.6 Independent data

Data from the non-governmental sector states that ELCs cover from 1.9 million ha of land (OpenDevelopmentCambodia, 2014), to 2.3 million ha (NGO Forum on Cambodia, s.f.) and 2.65 million ha (ADHOC, 2013a). All of these estimates provide for a significantly larger area than the MAFF figures.

LICADHO and other civil society organisations have documented 272 land concession agreements covering 14 percent of the Cambodian nation (2,539,690 ha), of which 546,971 ha have been allocated within protected areas by MoE or protected forest by MAFF. While these figures are, for the most part, ELCs designated for agri-industrial crop plantation, they include smaller areas allocated to Social Land Concessions, special economic and tourist zones and some infrastructure development. Average concession size is 9,584 hectares (Forest Trends, 2014).

With the Prime Minister's directive 001 (suspension of issuing new ELCs), issued 7 May 2012, it appears that no ELCs were issued in 2013 and some ELC area (as much as 330,000ha) may have been removed for issuing as SLC. There is, however, civil society concern regarding flexibility in the wording of the directive as it appears the suspension of new ELCS is considered temporary and reversible (ADHOC Cambodia, 2013). Furthermore, the suspension appears to have taken some time to be implemented with in-process concession allocations being allowed to continue. There are reports that a significant number of ELCs were issued later in 2012: LICADHO identified at least 16 newly granted ELCs, amounting to an additional 80,000ha. Other data by ADHOC shows that 33 ELCs were granted after 7 May 2012, covering a total of 208,805ha. These are listed in its report on the subject (ADHOC, 2013). However, only four new ELCs were allocated between September and December of 2012. The promised review of existing ELCs, which formed part of the directive, has not progressed in any meaningful way (LICADHO, 2014).

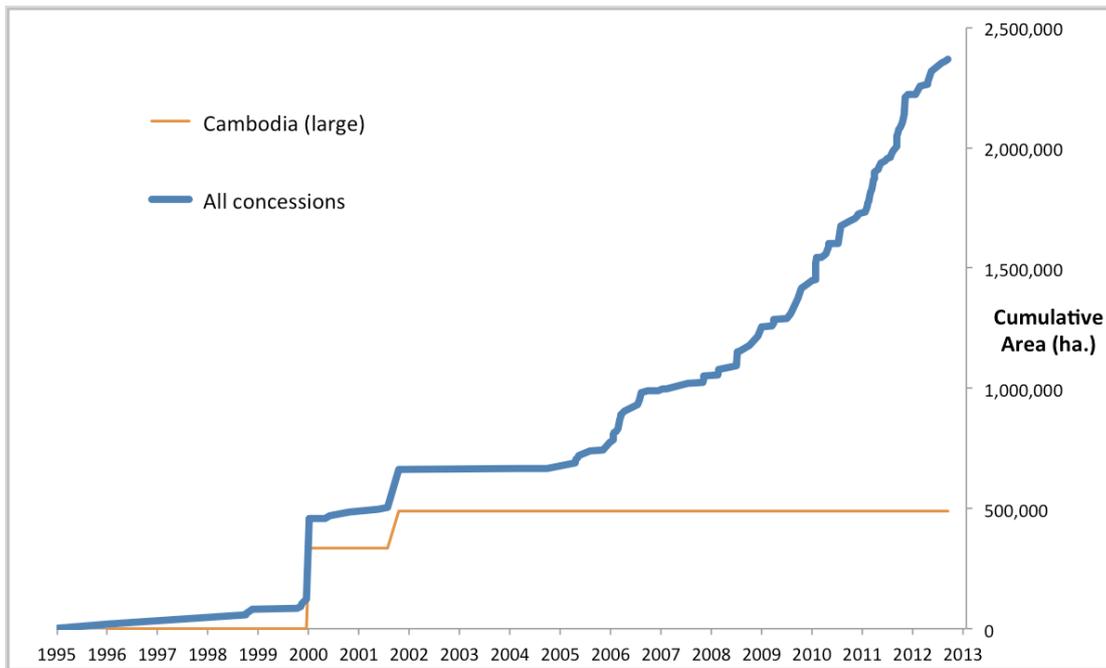


Figure 7: Rate at which concession agreements have been awarded over time. (Source: Forest Trends 2014).

Figure 9 provides an illustration of the rate at which concession agreements have been awarded over time. Allocations of land to concession agreements commenced in 1995 with two large concessions amounting to almost half a million ha awarded to the Cambodian companies Pheapimex and Mong Rethy between 2000 and 2002.

Figure 10 shows the distribution of ELCs in Cambodia by category according to independent NGO data.

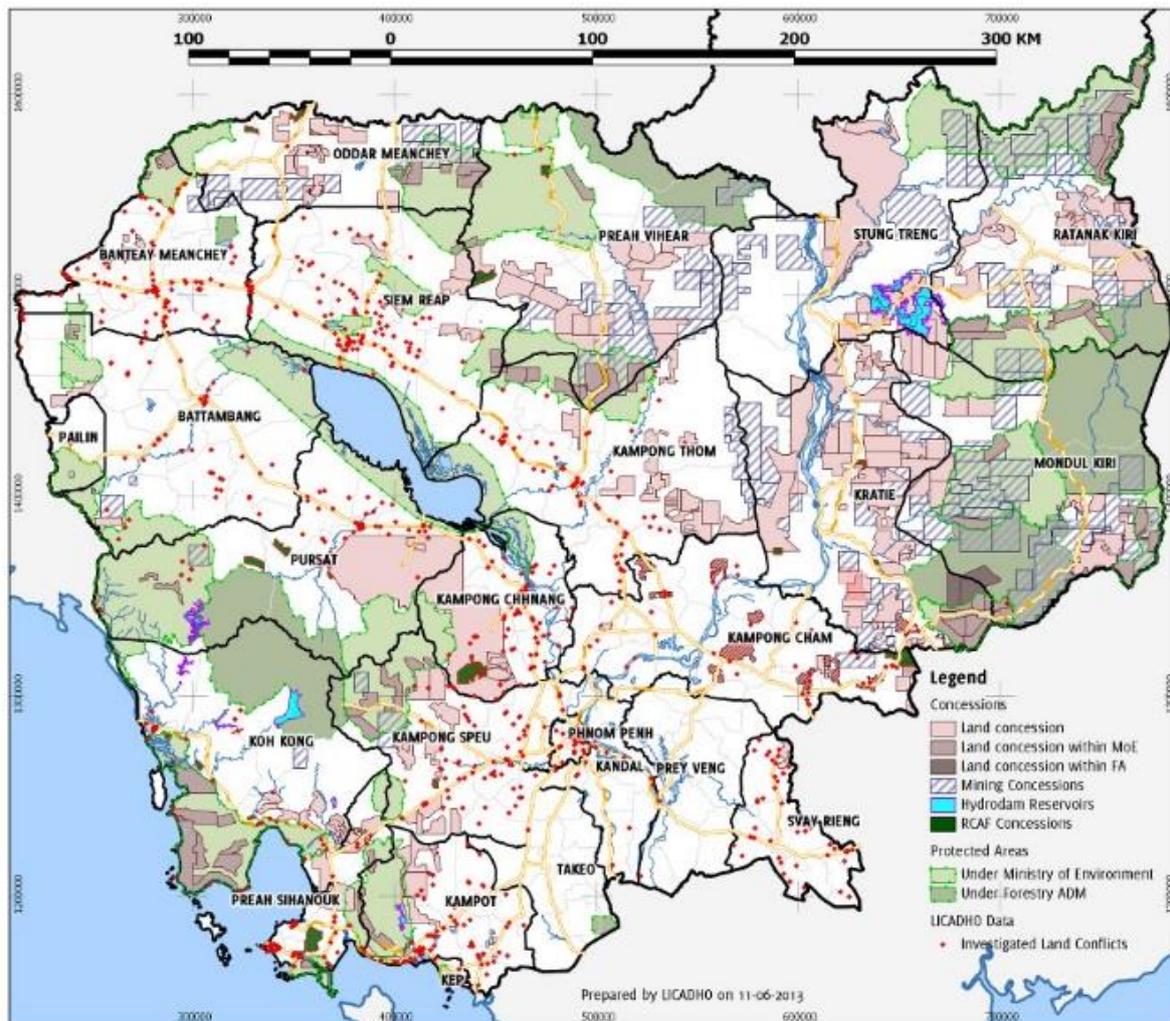


Figure 8: Location, size and type of land concessions (June 2013). Source: LICADHO

3.1.7 Differences in data claims

Discrepancies between the number of ELC allocations reported by MAFF, and those alleged by NGOs may result in part from confusion and disagreement around the recording of cancelled ELC contracts. Up to April 2010, MAFF proposed the cancellation of concession contracts with a total area of 379,034 ha (Prachvuthy, 2011). These cancellations were justified by MAFF as either the result of a failure to exploit ELC contracts longer than 12 months, without proper justification; or due to a failure by the concessionaire to fulfil other conditions attached to the concession contract. NGOs argue that MAFF data is inaccurate because the most recent data provided in 2012 omitted many well-known concessions and included a number of concessions that were thought to have been cancelled (OpenDevelopmentCambodia, 2014).

Many NGOs and CSO also question the data which they compare with what they are witnessing on the ground as well as satellite imagery and independent mapping. The lack of trust in government data is compounded by the fact that it is more than 2 years old and does not include concessions below 1,000 hectares (Subedi, 2012).

3.1.8 Illegality in the allocation of concessions

There are various examples of how misuse and abuse of the ELC allocation process is leading to increased land conversion. Also, at a general level, fraudulent allocation processes are affecting the legality of timber originating from the conversion. A legally issued license to use an area is a prerequisite for the timber originating from that area to be legal. In principle, ELCs granted on a basis that violates the law should not be considered a legal source of timber. Considering that the legal and government policy framework does not broadly support timber-rich natural forest clearance to non-forest industrial agricultural uses, it is possible that much of the timber resources derived from ELCs in Cambodia may be considered as of dubious legality.

In May 2014, MAFF and MoE issued a joint declaration to increase their oversight of ELC operations and strengthen the implementation of related regulations (RGC 2014 & Cambodia Daily 2014).

Allocations in excess of 10,000ha

MAFF communications are clear on the size limit of 10,000ha for ELCs. In many cases, it appears that this limit has been respected. However, in violation of article 59 of the Land Law, there appear to be a number of permits that have been allocated to multiple legal entities within a single group or ownership structure or the allocation of adjacent concessions to different entities or contract signers, in what appears to be a common single project. The United Nations (Subedi, 2012) and other CSOs have raised this issue, providing examples of such cases. Figure 11 illustrates an example of this phenomenon.

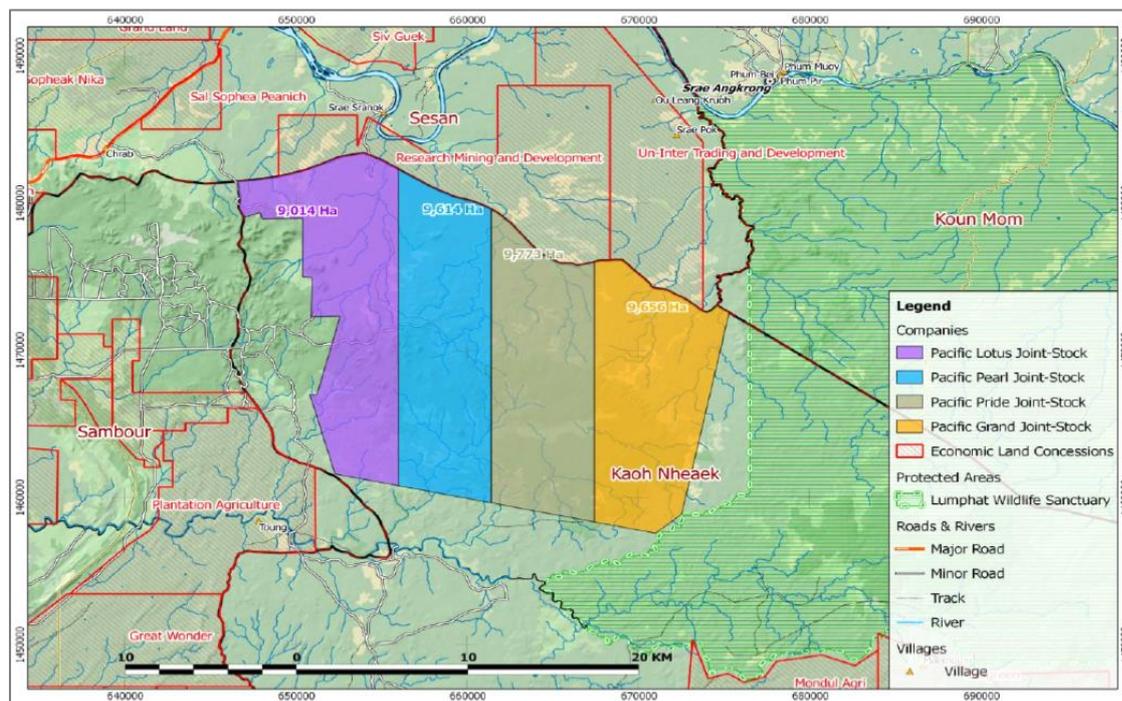


Figure 9: Contiguous concessions for acacia and sugar cane plantations granted to five affiliated companies in Preah Vihear Province. Source: A/HRC/21/63/Add.1

Reclassification of land to allow for ELC allocation

Forests are considered state public land, therefore it is illegal to grant ELCs in forested areas. However, state public land can be reclassified as state private land if it can be demonstrated to have lost “public interest” (*Land Law*, Article 16). Within Protected Areas, forests are being re-classified as “sustainable-use zones” in order to permit the allocation of an ELC. It appears that on many occasions zoning of protected areas only takes place at the same time as, and in the context of, an ELC allocation process.

In 2013, 86 decrees seeking to reclassify protected areas as state private land were issued for ‘provision of right of ownership to citizens’, amounting to 93,143ha. In the same year, 26,893ha of the Phnom Oral Wildlife Sanctuary were reclassified (ADHOC Cambodia, 2013). The UNHCR developed a list of Land Concessions granted within Protected Areas established by Royal Decree 1 November 1993 (Subedi, 2012). Even the RGC has recognised that some Protected Areas have been allowed to be converted to non-forest uses, inappropriately through economic land concession, and for agricultural purposes (Royal Government of Cambodia, 2010). Up to 90% of some protected natural forest areas have been converted to rubber plantations. However, in many cases, the MoE has not de-gazetted these areas from the protected area system and officially maintains the original boundaries (Marcus Hardtke, personal communication July 2014).

Overlapping claims and allocation of ELCS on indigenous peoples ‘land’.

The RGC recognises that competitive sector planning has resulted in overlapping claims on forest land (RGC, 2010). The same concerns are echoed by civil society. A study of ELC locations confirms that they are often

granted on land with existing claims, for example by local peoples or indigenous groups. This problem is perhaps a consequence of inadequate or non-existing stakeholder and public consultation processes (NGO Forum on Cambodia, 2012). The Munden Project, carried out by the Rights and Resources Initiative examined the overlap of industrial concessions and community/indigenous lands using Cambodia as one of the case studies. That project identified significant overlap in the allocation of oil palm and rubber plantations (Rights and Resources Initiative, 2013).

Lack of public consultations and environmental and social impact assessments

Prachvuthy (2011) reported, that most of concessions that have been granted have no proper Environmental Impact Assessment and that there is usually little or no public consultations surrounding the allocation of ELCs in Cambodia. Similarly, social and environmental impact assessments are not-conducted, weak in content or intent, or are implemented post contract signing, rather than as a pre-requisite. In fact it is unclear whether any EIAs have been conducted for any ELCs issued by MAFF since 2007 (Surya P. Subedi, 2012). Many CSOs and NGO also report that communities feel ‘tricked’ into signing agreements for ELCs that end up clearing their forests. This is in part because few communities have statutory tenure rights in Cambodia, and those that do lack exclusion rights (the right to prevent outsiders from encroaching on land). Therefore lack of consultation and encroachment is technically legal though probably in violation of any Social or Environmental Impact Assessment that may be conducted (Workshop comments, 2014). These sentiments are further supported by a 2007 report by the UN found that concessions have been granted in forested areas and in former forest concessions contrary to the forestry law and forestry regulations (UN, 2007).

3.2 Driver: Social Land Concessions (SLCs)

In 2013, 485 Social Land Concessions (SLCs) were granted for a total of 626,824ha. This represents an almost six-fold increase in area against the 38 SLCs totalling 100,790ha issued in 2012 (ADHOC Cambodia, 2013). It is questionable whether this suggests a change in policy on the part of Cambodian authorities (ADHOC Cambodia, 2013).

Table 5: Growth of SLCs being granted. (Source: ADHOC).

Year	Number of SLCs granted	Amount in hectares
2011	No data	44,897
2012	38	100,790
2013	485	626,824

Social Land Concessions are granted with different objectives to ELCs, with the principal intention to support poor or landless families for farming and residential needs, as well as to support armed-forces veterans. SLCs are administered according to the Sub-Decree on Social Land Concessions. (Surya P. Subedi, 2012). However, the allocation of SLCs is not occurring without controversy as recent media interest has highlighted (Worrel, 2014). Civil Society Organisations suggest that SLCs can, under the guise of a poverty reduction tool, facilitate displacement of the poor in favour of development projects (LICADHO, 2009). Of the 38 new SLCs granted in 2012, 13 gave rise to conflicts. Corruption, poor management and abuse of the SLC granting process has been documented (ADHOC, 2013).

Besides the 330,000ha removed from ELC for issuance as SLC, the RGC claims to have increased citizen ownership by 210,000ha (removed from forest concessions) and by 480,000ha of state and forest land appropriated by provincial order (ADHOC Cambodia, 2013).

3.3 Driver: Clearance for hydropower, developmental and infrastructure purposes

Electricity is expensive in Cambodia, and largely unavailable to the greater population, with only 30 percent of the country having access to electricity. The Energy sector in Cambodia is considered underdeveloped and unable to meet domestic power demands (OpenDevelopment Cambodia, 2011). Almost all electricity generated within

the country is via imported diesel fuel, with the difference coming from imported electricity from Thailand and Vietnam.

The 2007 Law on Concessions expands the scope of concessions available beyond the ELCs provided for in the 2002 Land Law. These other concession types provide for infrastructure development, mining, energy generation and distribution - including hydro-power and economic zones. Energy development (hydropower in particular) formed a key part of the country's National Strategic Development Plan for 2009-2013. There is foreign investment interest for development of the hydropower sector in Cambodia, with a number of projects in various stages of development, from initial feasibility studies to initiated works.

As of 2012, there four major hydropower dams operating in Cambodia, as shown in Table 6, although as many 14 appear to be in the pipeline, either as large-scale schemes in development or as projects in the process of design and development (Subedi, 2012). The FA data has been heavily criticised and hydro-power dams have been accused of fronting massive timber money laundering schemes (Boyle and Titthara, 2012). More recent data suggests that the number of major dams in the pipeline may be as high as 19, with another 47 small and medium-scale dams anywhere between the feasibility study stage to being in full planning process (OpenDevelopment Cambodia, 2011). These hydropower development sites contribute considerably to land conversion, and represent an important potential source of timber for the Cambodian market.

Concerns have been raised surrounding the abuse of reservoir clearing permits, such as in all three recent hydropower development projects in southwest Cambodia (Marcus Hardtke, personal communication July 2014). As the hydropower sector in Cambodia is still in the early stages of development it is still unclear if, and how, the benefits will be realised and whether the negative impacts will be adequately mitigated. It is clear that many of these large hydropower projects will flood large areas of land, for example, the Lower Sesan 2 will flood more than 340 km². Many of the proposed sites are in forested areas with rich biodiversity and sensitive eco-systems, which stand to be severely impacted by this type of development. There is already evidence of the negative effects of dams on biodiversity, for example the Atai Dam in the Cardamom Mountains (Milne, 2012).

Table 6: timber volumes from selected dam projects. Source: Forestry Administration Annual reports for 2011 & 2012

Dam name	Province	Volume (m ³) 2011	Volume (m ³) 2012
Stung Ahtai	Pursat	5,679	8,179
Stung Tah Tai	Koh Kong	n.a	217
RusseiChromKraum	Koh Kong	1,189	n.a
Kirirom 3	Koh Kong	913	n.a
Totals		7,781	8,396

3.4 Driver: Annual bidding coupes

Annual Bidding Coupes (ABCs) are regulated under the Forestry Law. In theory, ABCs are implemented in order to assure that local wood demand can be met, in practice, limited supply is available. Once allocated, ABCs include management planning and forest management requirements, but do not allow for direct conversion of forest.

Under the ABC system, divisions of the Forest Administration conduct inventories, tree-marking and social and environmental impact assessments for annual coupes and prepare one-year management plans. As of 2009 the Forest Administration had issued three bidding coupe management plans to three separate companies covering, in total, 5000 hectares.

MAFF has created the Cambodian Forestry Stamp in order to:

- Mark legal logs prior to their removal from first log landing.
- Mark illegal logs that are evidence of forest offences.

All trees in the coupe that are allowed to be felled should be marked with the Cambodian Forestry Stamp. A Forest Administration official assesses the quality and quantity of the harvested forest products and records the information. After the payment of royalties and premiums to the government, logs are given four marks with the Cambodian Forestry Stamp on both cutting ends prior to transport from the first landing. A transport permit is issued to allow the transportation of the log to its final destination. Timber from bidding coupes should therefore be discernible from other sources of timber (such as conversion timber) through application of the forestry stamp.

ABC's may play a role in relation to forest conversion in paving the way for forest degradation since the FA is not considered to have the necessary capacity or resources to properly assure that bidding coupes are managed according to regulations (Forestry Administration, 2008).

3.5 Driver: Mining

The mining sector is considered by RGC to be small-scale and under-developed compared to neighbouring countries. Although there has been no large industrial-scale extraction of precious minerals to date, RGC is actively promoting investment in the sector and a large number of exploration licenses have been granted to both local and international companies. Many believe Cambodia will witness a major expansion of its mining industry in the short term (OpenDevelopment Cambodia, 2011). Such a rapid expansion would act as a considerable driver for land conversion in Cambodia as many mining concessionaires located within areas with significant forest cover.

Annex 5 sets out a comparison between government-reported levels of allocated mining concessions and levels of allocation from other sources for Cambodia as at 1 July 2014. Comparisons between current government data and independent data sources indicates that the government data under-reports the area under mining concessions, assuming the data from secondary sources is correct. Various CSOs estimated that as of 2012 as much as 1.9million ha has been allocated in mining concessions by the RGC (LICADHO, s.f.). Although little mineral exploitation has taken place to date, exploitation is expected to increase dramatically in the short to medium-term (The Cambodia Daily Weekend, 2012). Whichever levels are correct, the area under concession is substantial and for most parts located in areas with significant forest cover. The Cambodian government reports that since 2006, Cambodia has issued 104 licenses to 20 local and international mining companies. As of June 2012, 87 mining concession licences had been issued, mostly for exploration purposes (Subedi, 2012). The discrepancies between government and independent data is clearly illustrated in the maps in Annex 4.

Under the Cambodian mining law there are six types of mining license and it is an offense to conduct commercial mining operations without a license, which is punishable by fine and/or time in jail. The six types of mining license listed in the mining law are: Artisanal Mining License; Pits and Quarries Mining License; Gem Stone Mining License; Mineral Transforming License; Exploration License; and, Industrial Mining License. The *Forestry Law* allows mining within the Permanent Forest Estate, however, any proposed mining operation, in addition to following other relevant laws, must be the subject of a "prior study-evaluation" by MAFF. The *Protected Areas Law* states that mining within Core and Conservation zones is not allowed, however, mining may be permitted in Sustainable Use Zones.

There is a lack of clarity with regards to the legality of mining concessions granted on lands traditionally managed by indigenous people. The Land Law allows indigenous communities to register the collective ownership of their land and, in the meantime, they may assert certain proprietary claims over it. Mining concessions have been allocated in these areas and therefore may be in breach of the Land Law (OpenDevelopment Cambodia, 2011).

Little information is available about the timber that may be harvested from mining concessions, and there is general concern about the legality and process of granting rights in mining.

3.6 Driver: Tree plantation development.

Forest plantation cover has been increasing significantly in recent years. However, the newly established plantations have not yet reached harvesting age. Therefore, the timber supply from this source is very limited. Under the 2010 National Forest Program, a target was set of 0.5 million hectares of plantations, although whether this will come to pass remains to be seen. As can be seen from below table, plantation is still not a major driver for forest conversion.

Table 7: Annual forest plantations established by various stakeholders in Cambodia from 1985 to 2011 (Forestry Authority statistics of Cambodia 2011, 2012.)

Year	FA (ha)	Army (ha)	NGOs /Family (ha)	Arbour Day (ha)	Private sector (ha)	Total (ha)
1985	289	0	0	0	0	289
1986	435	0	0	0	0	435
1987	601	0	0	0	0	601
1988	576	0	0	0	0	576
1989	837	0	0	30	0	867
1990	502	0	0	2	0	504
1991	176	0	50	0	0	226
1992	839	0	50	20	0	909
1993	662	0	50	20	0	732
1994	533	0	102	218	0	853
1995	514	0	57	106	0	677
1996	513	0	0	98	0	611
1997	387	0	0	98	0	485
1998	0	0	0	2	0	2
1999	486	0	0	16	0	502
2000	865	0	0	119	0	984
2001	810	0	0	59	0	869
2002	976	295	0	32	0	1,303
2003	1,525	340	0	48	100	2,013
2004	250	752	0	64	350	1,416
2005	1,250	527	0	83	10,000	11,860
2006	700	300	0	96	3,670	4,766
2007	1,000	200	0	75.5	7,944	9,220
2008	900	200	0	50.65	7,436	8,587
2009	100	100	0	69	17,924	18,093
2010	920	150	100	66	n.a	1,086
2011	530	50	0	68	3,590	598
2012	488	n.a	2,793	84	13,400	16,765
Total	17,664	2,914	3,202	1,524	64,414	85,829

3.7 Driver: Illegal logging

The Independent Forest Sector Review of 2004 concluded multiple factors driving illegal logging in Cambodia. These included overcapacity of primary processing industries, insufficient detection of criminal activities and weak penalties and poverty (Royal Government of Cambodia , 2010).

The allocation of ELCs appears to provide a cover for some illegal logging activity. Never very transparent, the process of harvesting timber from ELCs shows signs of clandestine activity, including such practices as the laundering of illegally harvested material from surrounding non-ELC areas within ELC-located sawmills. Observers comment on a form of “timber rush” on the allocation of a new ELC, involving various actors including local government officials, military and police authorities as well as local populations which compete to obtain

access timber resources. Some action is taken by the Forest Authority and other policing bodies, although this appears not to play any major role in influencing larger-scale operations or deterring illegal logging to any significant extent (Forest Trends, 2014).

Timber confiscated from illegal activities by the Forest Administration can be sold onto the Cambodian market. To do so, logs impounded or detained by the Forest Administration are given three marks of the Cambodian Forestry Stamp in a triangular shape on both cutting sides and in the middle and can therefore be discerned from other sources of timber, such as timber from conversion (ELCs).

3.8 Driver: Migrant encroachment

Social norms have also contributed to conversion of forest land in Cambodia because forest land not currently under management is traditionally seen as an open-access resource that can be claimed by whoever clears the forest. The Land Law converted possession into ownership in certain cases, but it also restricted legal possession of other lands, most notably state public land (UN REDD+, 2010). In various provinces in-migration has been encouraged in past years with the opportunity for secure land being offered.

In many forested areas in Cambodia, in-migration is having major impacts on demand for land and resources and is driving deforestation and degradation. In some provinces, in-migration has been encouraged in past years with the opportunity for secure land being offered. Migrants generally clear farm land for themselves and may also open forest land to sell on. In-migration has primarily involved demobilised military and others from land poor provinces including Svay Rieng and Takeo (UN REDD+, 2010). Migrant populations may have less interest in sustainability and maintaining forest resources for livelihoods benefits and are more interested in financial gain or rapidly securing farmland. Furthermore, because migrants occupy land illegally, discussing land tenure and land-use planning are made more difficult. Also, because migrants often arrive rapidly, existing land-use plans can be destabilised. Migrants may also be well-connected to traders or other potential in-migrants in other provinces, potentially increasing pressure on land even further (UN REDD+, 2011).

Migration rates seem to have been falling since 2008, possibly due to the global economic slowdown and resulting reduction in demand.

4 Sources of timber and timber trade flows in Cambodia

The Cambodian Government banned log exports in 1996 and suspended all harvesting in logging concession areas in 2002. Since then the main source of timber has been ELCs and limited amounts from plantation areas.

Given that the vast majority of timber plantations are in early stages of development, it can be considered that there are essentially four principle timber sources in Cambodia. Timber deriving from:

- 1- ELCs
- 2- Annual Bidding Coupes
- 3- Infrastructure development, and
- 4- Confiscated timber

Figure 12 summarises the contribution of timber from different main timber supply sources in Cambodia from 2007 to 2012. It is observed that from 2007 to 2012 timber supply from ELC accounts for the main supply source at around 81 percent while annual bidding coupes come second as the main source of timber supply which accounted to 10 percent annually.

Since it is assumed that all of the main sources of timber, except for Annual Bidding Coupes, produces timber primarily by conversion. Thus, it is estimated that as much as 90 percent of the Cambodian timber production originates from forest conversion.

Recorded wood production in Cambodia fell when forest concessions were suspended; industrial log production was estimated to have been constant at app. 118,000 m³ per year in the period 2005-09, compared to 130,000 m³ in 2004 and 291,000 m³ in 1999 (ITTO, 2011). The recorded timber is obtained from government-approved land conversion activities and from annual bidding coupes. In addition it should be considered that illegal logging has been reported to be significant, at least in the mid-2000s (ITTO, 2011).

It is likely that a large timber shadow economy exists in Cambodia. NGOs estimate that the likely revenue from clearing evergreen forest is \$100,000/ha. There are over two million hectares of ELCs, many of which appear to overlap with evergreen forest (especially the Vietnamese rubber concessions). ILO data on estimated public losses to corruption in Cambodia places it at approximately 10% of the GDP.

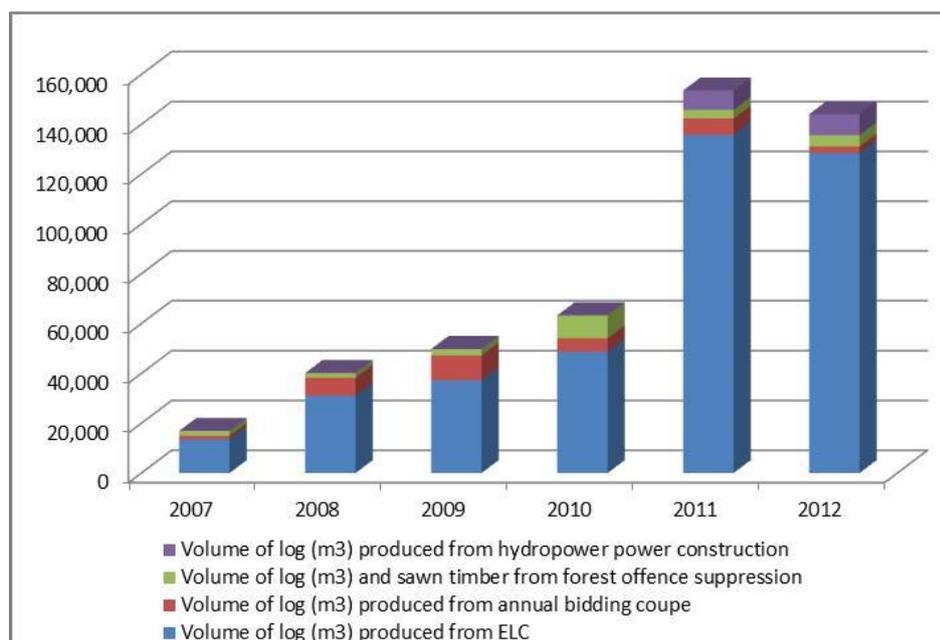


Figure 10: Volume and relative contribution of timber from different sources Note: The volume of logs from hydropower construction or mining 2007 to 2010 are not available. Sources: FA, 2012a; FA, 2013.

4.1 Imported material

According to available statistics, the import of timber to Cambodia is very limited. However it is clear that data are ambiguous and may not give a full picture of the situation. It is an indication that the timber processing industry in Cambodia is still relatively un-developed or has retrogressed: several major sawmills and plywood facilities connected to timber concessionaires were dismantled following the moratorium on industrial logging operations in 2002 (Marcus Hardtke, personal communication July 2014).

4.2 Exports

Trade data for Cambodia is hard to obtain. The main trading partners for Cambodian timber are China and Vietnam (Forest Trends, 2011). Figure 13 outlines estimates of timber export statistics (RWE and value) from Cambodian data bases compared to import statistics from key import countries. Although these numbers are only indicative they do provide a picture of the level of unreported export of timber from Cambodia.

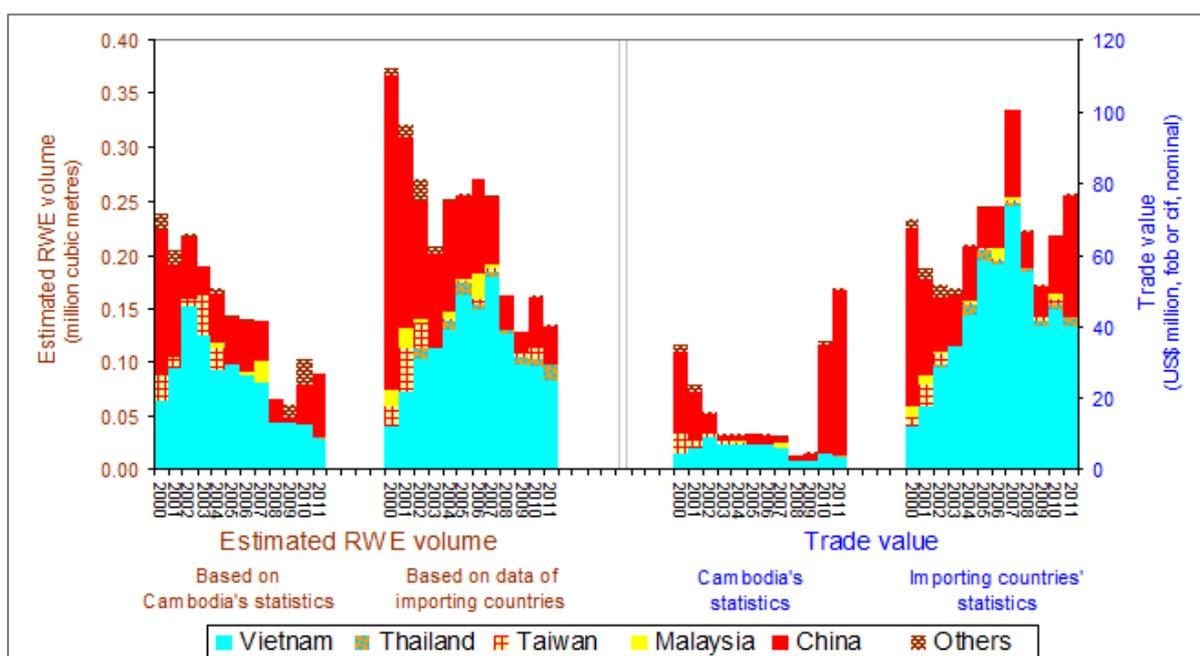


Figure 11: Timber export statistics for Cambodia until 2011. Source: <http://www.duediligencetimber.eu/Cambodia.htm>.

According to the data in Figure 13, exports of timber in 2011 was between 100.000 and 150.000 m³

There are significant differences in the price of timber used domestically in Cambodia, and the price for exported timber. For example, construction wood used domestically is worth approximately \$500 per cubic metre, but can reach as high as \$8000 per cubic metre in the case of Rosewood species at point of export (i.e. sale to Vietnam at border). Luxury wood, in particular rosewood, has generated massive illicit revenues for key elite actors, often this is laundered through projects like dams, roads, ELCs, and FA confiscation practice (Milne, 2012).

4.3 Domestic demand

It was reported that that national demand for timber was estimated at 400,000 ton/year (around 670,000m³) (RGC& UNDP. 2011). Table 8 shows the national wood demand.

Table 8: Domestic wood demand in Cambodia (Source: RGC & UNDP. 2011)

Domestic wood demand	Tons	Percentage
Timber	400,000	6

Industrial fuel wood (garment and brick industry around Phnom Penh)	1,000,000	14
Rural fuel wood	5,000,000	70
Fuel wood and charcoal in Phnom Penh	700,000	10
TOTAL	7,100,000	100

Comparing the estimated domestic demand for fuel wood and timber it is clear that only a small fraction of the production from forests are used for timber, and even less exported. It seems that the demand for timber for domestic use and export lies above the production data. This may indicate an informal trade in timber and timber products or it is simply a result of the lack of or low quality of data. It is assumed that much of the informal trade in timber originates from areas converted to agriculture.

5 Land conversion within the national REDD process

Cambodia received funding for a full UN-REDD Country Programme in 2011. Prior to this, the country had already prepared a REDD+ Readiness Roadmap. The Cambodia REDD+ Taskforce has been officially established on 26 February 2013 by MAFF decision letter (UN REDD+ 2014). Though the RGC has signed the REDD programme there is concern about the widespread conversion of forest, and apparent lack of control with the conversion process. The Forest Administration, as the lead agency on REDD+, may be reluctant to address conversion timber in the context of REDD+. In the general discussion, FA officials name MAFF as the responsible agency for ELC development and therefore argue the issue is not under the jurisdiction of the Forestry Administration (Marcus Hardtke, personal communication July 2014).

The Cambodia country programme recognises: Although equivocal in relation to future deforestation and forest degradation, the situation suggests a need to:

- increase wood fuel supply, or at least sustainable supply,
- reduce demand by increasing efficiency of current use or switching to other fuels, or
- continue to use wood fuel while improving access to alternative fuels and protecting valuable forest resources

The UN REDD+ Program Document does not provide a total estimate of the extent of land conversion to date. It does state that "the total area of rubber plantations has increased in recent years from around 51,000 hectares in 1985 to 69,000 hectares in 2001" (UN REDD+, 2010). The R-PP asserts that the main legal direct drivers of deforestation are commercial agriculture (rubber, sugar cane, and more recently biofuel) and infrastructure, it does not distinguish between legal and illegal land conversion. There is also a discussion of the legality of the concession process, and it is noted that concessions have been granted in forested areas and in former forest concessions contrary to the forestry law and forestry regulations (UN, 2007). The discussion of the indirect drivers of land conversion in Cambodia are also discussed at length, with reference given to poor ESIA regulations and lack of implementation, weak forestland tenure, weak law enforcement, limited implementation of land registration (private and state) and overlapping/unclear jurisdictions highlighted as key contributors.

5.1 Strategies for control of deforestation and illegal land conversion

The R-PP highlights a number of options to reduce deforestation and land conversion, including:

- a review of the regulations for land concessions, including the planning processes and whether concessionaires could choose to avoid forest clearance under a REDD+ mechanism;
- revision of the Environmental and Social Impact Assessment (ESIA) regulations;
- determining and resolving the conflicts & synergies in existing agricultural development policies;
- link Land Use Planning at national and sub-national levels;
- Implement laws relating to large-scale development, including ELC contracts and the requirements for EIAs; and
- Improving Forest Law Enforcement and Governance (FLEG) including potential linkages with the EU FLEGT programme.

The R-PP states that Cambodia's REDD+ strategy should support the implementation of three key long-term management plans of the RGC:

1. Cambodia's National Forest Programme (NFP, 2010), which is a 20-year the long-term national forest management plan for the sector (2010-2030).
2. The planned National Protected Areas Strategic Management Plan for the 3.1 million hectares of PAs, which is to be based on the 2008 Protected Areas Law.
3. The Strategic Planning Framework for Fisheries (2010-2019) and the 3-year Fishery Development Action Plan for the fishery domain, which is based on the 2006 Fisheries Law and subsidiary legislation

Agricultural conversion is not key to the national REDD+ strategy despite it clearly being the greatest driver of deforestation by some distance. The R-PP presented to the FCPF/UN-REDD by Cambodia in 2012 failed to recognize the impact of the economic land concession system on the country's forest or to address the conversion timber issue (Marcus Hardtke, personal communication July 2014). Similar concerns were raised at a FCPF meeting in 2014 regarding Cambodia's concession system (FCPF Carbon Fund C10 meeting, 2014). The most recent National Programme Semi-Annual Update Cambodia UN-REDD Programme from 25 August 2013 states that no progress has been made on the development or implementation of safeguards in Cambodia (REDD+, 2013).

6 Conclusions and Recommendations

Deforestation continues in Cambodia at an alarming rate. Cambodia is at a crossroads where new courses of action need to be taken if the country is to secure the survival of its considerable natural forest resource.

Perhaps one of the key lessons to be learned from Cambodia's recent trajectory of exploiting its forest resources can be found in the fact that the suspension of forest concessions - implemented to halt deforestation and usher in a new era of more responsible forest management - has removed one challenge, only to replace it with a new, even more destructive, *modus operandi*. Now, the *de facto* realities of a governance regime that supports elite accumulation of wealth through law-making, law enforcement, map making and corruption alongside the aspirations and development needs of Cambodia, are placing huge pressure on its forests.

While poverty and economic pressures are contributing to land conversion in Cambodia, entrenched elite accumulation, party dominance, and the abuse of state power to enable this is also leading to extensive forest loss. The widespread and systemic corruption in Cambodia also makes distinguishing legal and illegal land conversion, as well as legal and illegal timber itself very difficult. Many laws conflict in Cambodia, legality can be arbitrary and what is ultimately considered 'legal' can be very subjective.

Blurred and opaque implementation and circumvention of the legal framework and stated RGC policy is resulting in the effective mining of natural forests - with conversion for the development of industrial agriculture as an explicit end goal. It is strongly argued that this development is not only undermining the general rule of law and sound management practices introduced with the 2002 forestry reform, it is also leading to the deterioration of the national protected area system by blurring all lines between protected and non-protected forest areas.

The speed of growth and development of industrial-scale commodity agriculture at a global level is such that it appears to have outpaced - at least until recently - widespread recognition and concern regarding its scale and potentially negative effects. This is not the case in Cambodia where civil society is well aware of the issues. However, even in Cambodia, the complexity of interactions, drivers and dynamics of conversion agriculture is less understood, having been so little-studied.

The economic pressures driving forest-land conversion for agriculture, appear to place huge stress on already weak governance systems with pre-existing problematic challenges of governance and transparency. It is a measure of the scale and impact of forest-land conversion in Cambodia that civil society concerns are spearheaded in great part by human rights organisations and not the environmental NGO community. Many of the major ENGOs, particularly those involved in any kind of site management, are in partnership with government to do so. There is a real risk for these organisations that if they criticise the government, they will lose these partnership agreements (Workshop comments). This situation has meant that many ENGOs have taken a conservative and uncritical line, forced by circumstance to leave the advocacy work to Human Rights NGOs (Workshop comments).

Cambodia has not yet entered into a formal VPA negotiation process with the European Union, unlike many of its Mekong neighbours. However, Cambodia is in the initial phase of 'preparing to negotiate.' And the conclusions and recommendations of this report might serve to inform a VPA process. Given the extensive and entrenched issues highlighted in the agricultural and forestry sectors in Cambodia, a VPA process - with the opportunity for comprehensive law reform - could provide real hope for impactful or meaningful change across the forest and agricultural sector in Cambodia. In addition, a VPA process in Cambodia would also have huge benefits for the other countries in the region, in particular Vietnam and China as destinations for logs and primary-processed raw material; both countries are increasingly needing to demonstrate legal sourcing of raw materials.

Critical findings in this study relevant to forest-land conversion and conversion timber within Cambodia can be summarised as follows:

- There are a number of well-intentioned forest and natural resource laws, directives, strategic plans (such as the National Forestry Programme) and socially-oriented initiatives (granting of SLCs). Even ELCs theoretically occupy a niche within the matrix of tools available to support Cambodia's developmental needs. The reality, however, is that these mechanisms are falling short of their objectives for implementation and intended beneficiaries. Worse still, there are serious indications of their misuse in ways which encourage forest clearance and conversion on an un-intended scale - which is harming both Cambodian society and its natural forest resource.
- A number of factors are responsible for forest clearance and conversion to agriculture and other land uses. Of these, the allocation of Economic Land Concessions (ELCs) for agri-industrial crops appears to stand out as being particularly problematic.

- Other drivers of forest conversion include concession allocations for a wide range of developmental and infrastructural objectives: construction of hydropower dams and other infrastructure; mining; and Social Land Concessions (SLCs)
- As much as 90 percent of Cambodian timber production originates from forest conversion. Principle conversion-timber sources in Cambodia include ELC's and infrastructure developmental projects, as well as illegal logging related to conversion projects. The contribution of migrant encroachment and clearance is unclear. Considering that significant areas of forest have been signed off under ELC agreements, but have not yet been cleared, timber production (and the resulting deforestation) from ELCs is expected to increase further.
- The large scale licensing of land for investment purposes carries a serious social dimension, as concession areas often overlap with local and customary rights of local people. Though civil rights have not been part of the focus of this study, it should be highlighted here as a serious concern for the current situation in Cambodia.

While local and international civil society concerns go unheeded by many foreign investor and (financial) institutions in Cambodia, it is expected that forest land conversion in Cambodia will continue unabated. However, the Prime Minister's directive 001 issued mid-2012 and what appears at least to be some level of reduction in the allocation of ELCS in 2013, perhaps demonstrates that the RGC and other actors are not entirely invulnerable nor unresponsive to civil society apprehensions and conflicts. The challenges facing CSOs in relation to engagement with RGC and the agro/forest industry are in part due to entrenched economic and political interests and the deluge of ELCs. The problem is not of necessarily one of weak governance, but of a controlled, informal system with clear, unwritten rules on how timber is harvested/exported and the degree to which both civil society and low- to mid-level government workers can object to the status quo.

As a result, this study seeks to highlight key themes for reflection in the development of strategic options that would meaningfully address such large-scale forest conversion and contraction of the forest resource in Cambodia:

6.1 Information and Data

There is a dearth of consistent and robust (government and independent) information regarding the scale of forest conversion and its drivers. Engagement with the Royal RGC at various levels is vital. Other (technological and civil society) initiatives should seek to support and improve the supply of more reliable data. Prioritisation of information needs is required. This study highlights the following gaps/areas of poor data availability:

- Up-to-date information on allocated ELCs, SLCs and other concessions relating to special economic zones, infrastructure projects. Data should include: date of allocation; size; location; updated information on state of forest-clearance and conversion to agriculture; intended crop. Concession title and ownership issues should be clear. Cancelled concessions should be made public, including date of cancellation and reasons.
- Improved data and information on the nature and scale of illegality within concession allocation processes.
- Information on how MoE protected areas have been zoned.
- Information regarding land for which indigenous groups and communities hold use and tenure rights.
- Nature and scale of illegal logging and encroachment.
- Improved data on import/export trade flows for conversion timber and products, including internal demand and consumption data as well as production data from the forest-industry sector.
- Improved data on internal demand/consumption and export (and final-consumer) markets for agro-industrial commodity crops.

6.2 Engagement with the Cambodian Forest Industry

Civil society, government and stakeholders should engage with the forest industries sector in order to, where possible, define common goals and build compatible and mutually-beneficial alternatives to the current situation. Meaningful solutions require that the sector embraces a strategy in which conversion for agriculture is not the primary source of timber supply. As the supply of conversion timber is inherently unsustainable, development of a processing industry around conversion timber is also unsustainable in the long term. This should be a key consideration in any discussion or planning of conversion timber, long-term timber supply or forest sector planning more generally.

6.3 Engagement with agri-industrial investors, financial institutions and consumer markets

Engagement with agri-industrial investors, financial institutions and consumer markets needs to occur in order to promote and incentivise the strengthening of due-diligence processes, the rejection of corrupt and illegal or poor concession allocation processes; and for these private institutions to respect the laws of Cambodia. Pressure can be applied by these organisations on the RGC to reduce social and environmental risks, and encourage greater levels of transparency. While a large proportion of investors and financial institutions with interests in Cambodia are not based in countries or regions with demanding consumer markets (with regards to environmental and social issues), perhaps export and consumer markets for final products may offer opportunities to leverage options for change.

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Annex 1: Application process for ELCs

The Sub-Decree No. 146 on Economic Land Concessions sets out the criteria, procedures, mechanisms and institutional arrangements for initiating and granting new economic land concessions.

Article 3 of the Sub-Decree stated that Economic land concessions may be granted to achieve the following purposes:

- To develop intensive agricultural and industrial-agricultural activities that requires a high rate and appropriate level of initial capital investment.
- To achieve a specific set of agreements from the investor for developing the land in an appropriate and perpetual manner based on a land use plan for the area.
- To increase employment in rural areas within a framework of intensification and diversification of livelihood opportunities and within a framework of natural resource management based on appropriate ecological system,
- To encourage small as well as large investments in economic land concession projects, and
- To generate state revenues or the provincial or communal revenues through economic land use fees, taxation and related services charges.

An economic land concession may be granted only on a land that meets all of the following five criteria:

1. The land has been registered and classified as state private land in accordance with the Sub decree on State Land Management and the Sub decree on Procedures for Establishing Cadastral Maps and Land Register or the Sub decree on Sporadic Registration.
2. Land use plan for the land has been adopted by the Provincial-Municipal State Land Management Committee and the land use is consistent with the plan.
3. Environmental and social impact assessments have been completed with respect to the land use and development plan for economic land concession projects.
4. Land that has solutions for resettlement issues, in accordance with the existing legal framework and procedures. The Contracting Authority shall ensure that there will not be involuntary resettlement by lawful land holders and that access to private land shall be respected.
5. Land for which there have been public consultations, with regard to economic land concession projects or proposals, with territorial authorities and residents of the locality.

Article 6 of the sub-decree sets out the detailed process of granting ELC for which there are two ways to initiate an ELC project, as follows:

- Solicited proposal, where a Contracting Authority proposes a project for solicitation of proposals from investors.
- Unsolicited proposal, where an investor proposes a project proposal to the state for approval.

The contracting authority should prepare solicited proposal and make announcement to the public for submitting proposal in a closed envelop to the technical secretariat. According to sub-decree on economic land concession, the criteria for ranking and evaluating solicited proposals shall include the following:

- Technical soundness for the land use and development, including land suitability;
- Compliance with national environmental standards and provision of sound preventive or reduction measures for adverse environmental and social impacts;
- Operational feasibility of the proposal based on factors such as labour demand and supply requirements; financing sources; and market strategy of the business plan;
- Feasibility of employment creation and promotion of living standards of the people;
- Processing of raw materials or domestic harvests, to be specified in the concession contract;
- Feasibility of linkages and mutual support between social land concessions and economic land concessions;
- The amount and manner of payment of the fee offered by the proposer for the use of the land.

The Technical Secretariat shall develop and publish the scoring for ranking each proposal based on the criteria above.

The granting of ELC through solicited proposal is prioritised. However, unsolicited proposal is also considered where the proposer promises to provide exceptional advantages to achieving the purposes of economic land concessions in situations such as below:

- The introduction of new technology

- Exceptional linkages between social land concessions and economic land concessions
- Exceptional access to processing or export markets

The Technical Secretariat shall develop an Application Form for Unsolicited Proposal that shall include a brief description of the proposer's business and financial background, the economic land concession investment concepts, and information related to land size and location.

The proposer may submit the application at either the Council for the Development of Cambodia or at the Provincial/Municipal Investment Sub-Committee or at the Contracting Authority. If an application is submitted at the Council for the Development of Cambodia or the Provincial/Municipal Investment Sub-Committee, the Council for the Development of Cambodia or the Provincial/Municipal Investment Sub-Committee shall, within 7 (seven) working days from the receipt of the application, send the application to the Contracting Authority. If the Contracting Authority chooses to consider the unsolicited proposal, the Contracting Authority shall conduct consultations with relevant provincial land use and allocation committee and regulatory institution regarding the economic land concession project. Then the Contracting Authority shall arrange to meet the criteria for selection of land for concession.

After receiving an unsolicited proposal, the contracting agency shall do the following:

- The Contracting Authority shall send a copy of the detailed unsolicited proposal to the Technical Secretariat or to the Provincial-Municipal State Land Management Committee for review and recommendations.
- The Technical Secretariat or the Provincial-Municipal State Land Management Committee shall make recommendation to the Contracting Authority on whether to accept the proposal for Concession Contract negotiation.

Article 23 of sub-decree on economic land concession stated that Prior to signing an economic land concession contract, the proposer shall register in the commercial register in compliance with the law on Commercial Rules and Commercial Register of the Kingdom of Cambodia.

Annex 2: Economic Land Concessions under MAFF

(MAFF data only and concessions which are still valid and have not been cancelled)

(Source: MAFF: <http://www.elc.maff.gov.kh/index.php/news/2-2013-11-08-07-38-24>)

No.	Company	Province	Date	Area (ha)	Purpose
1	Agro-Star	Kompong Cham	9-Jan-96	2,400	Cashew nut
2	Mong Reththy Investment Cambodia Oil Palm Co., Ltd	Sihanukville	9-Jan-96	7,000	Oil palm
3	The Green rich Co., Ltd	Koh Kong	25-Nov-98	10,000	oil palm and acacia
4	Sachi-va-kam CG Cambodia Co., Ltd	Kampong Spoeu	15-Nov-99	3,000	Casava
5	Sachi-va-kam CG Cambodia Co., Ltd	Kampong Spoeu	20-Apr-01	5,000	Casava
6	Men Sarun and Rama Khmer	Ratanakiri	21-Dec-99	6,324	Oil palm
7	Casava starch production Co., Ltd	StoengTreng	13-Nov-99	7,400	Teak
8	RatanaVisal Development Co., Ltd	Pursat	15-Oct-99	3,000	Cashew nut
9	Mong Reththy Investment on Casava Cambodia	Prahsihanuk	18-Mar-00	1,800	Casava
10	PheaPimex Co., Ltd	Pursat and Kampong Chhnang	8-Jan-00	315,028	tree plantation
11	TTY	Kampong Cham	2-May-00	1,070	Rubber
12	OukKhun Industrial crop development	Kampong Spoeu	25-Jan-01	12,506	Cashew nut
13	Green Sea Industry Co., Ltd (renamed as Green Sea Agricultural Co. Ltd	StoengTreng	23-Oct-01	70,000	teak
14	Golden land development Co., Ltd	Kampong Spoeu	5-Mar-04	4,900	agro-industry
15	VANNAMA import export Co., Ltd	Kampong Cham	29-Sep-04	1,200	Casava
16	First biotech agricultural (Cambodia) Co.,Ltd	Kampot	21-Apr-05	10,000	corn, bean, casava, and acacia
17	Worldtristar entertainment (Cambodia) Co., Ltd	Kampot	21-Apr-05	9,800	corn, bean, casava, and acacia
18	Anmardy Group (Renamed as Kolveasna Investment Co., Ltd	Kampong Thom	9-May-05	9,863	Acacia
19	GG world group (Cambodia) Development, Ltd	StoengTreng	18-May-05	5,000	teak
20	SopheakNika Investment agro-industrial plants Co., Ltd	StoengTreng	9-Aug-05	10,000	Ruber, acacia
21	Sal SopheaPeanich Co., Ltd	StoengTreng	8-Aug-05	9,917	Acacia, rubber, teak
22	Meang Ly Heng investment	Kampong Cham	8-Nov-05	3,000	Rubber
23	Wuzhishan LS group Co., Ltd	MondulKiri	30-Dec-05	10,000	Pine
24	Grand land agriculture development (Cambodia) Co., Ltd	StoengTreng	23-Jan-06	9,854	Teak
25	SivGech investment	StoengTreng	24-Jan-06	10,000	Teak
26	PhuMady investment group	StoengTreng	24-Jan-06	9,854	teak
27	SokhHeng company limited	StoengTreng	27-Jan-06	7,172	teak, acacia
28	Men Sarun import export	Kampong Cham	10-Feb-06	4,400	Rubber, casava
29	Asia wold agricultural development (Cambodia) Co., Ltd	Kratie	15-Mar-06	10,000	teak

30	Green Island agricultural development (Cambodia) Co., Ltd	Kratie	15-Mar-06	9,583	teak
31	HMH Co., Ltd	Kampong Thom	17-Mar-06	5,914	Acacia
32	Mean Rethy Co., Ltd (renamed as Phukva Rubber Kampong Thom development)	Kampong Thom	16-Mar-06	9,784	Rubber, acacia
33	Samrong Rubber industry Co., Ltd	Siem Reap	12-May-06	9,658	Rubber
34	Koh Kong plantation company limited	Koh Kong	2-Aug-06	9,700	sugar cane
35	Koh Kong sugar industry company limited	Kohkong	2-Aug-06	9,400	sugar cane
36	Great asset agricultural development (Cambodia) limited	Kratie	11-Aug-06	8,985	tree
37	Great wonder agricultural development (Cambodia) limited	Kratie	11-Aug-06	9,231	Rubber
38	Khen limited	Siem Reap	29-Sep-06	4,535	agro-industry
39	SophoinThearypeanich Co., Ltd	Siem Reap	29-Sep-06	5,042	Casava, rubber, and cashew nut
40	Camagra investment Co., Ltd	Siem Reap	17-Jan-07	5,525	agro-industry
41	Tanbean Kampong Thom rubber development	Kampong Thom	18-Jul-07	8,100	Casava, rubber, and cashew nut
42	Doty saygon-BinhPheuk (SBK)	Kratie	18-Jul-07	6,436	Casava, rubber, and cashew nut
43	Cheachanrith Development	Ratanakiri	12-Nov-07	5,124	Rubber
44	Gold fashion (Cambodia) A/C import export and construction	Kampong Thom	13-Nov-07	7,000	Acacia
45	Tong Min Group engineering	Kratie	8-Dec-08	7,465	Acacia, rubber, casava
46	Angkor Sugar	OdorMeanchey	24-Feb-08	6,523	sugar cane
47	River sugar cane	OdorMeanchey	24-Feb-08	6,618	sugar cane
48	Cane and sugar	OdorMeanchey	24-Feb-08	6,595	sugar cane
49	Koviphama Co., Ltd	MondulKiri	17-Feb-08	5,345	Rubber
50	Growest building trading	Kratie	17-Feb-08	9,996	Rubber, teak, and acacia
51	PhuReangKratie rubber development	Kratie	4-Jul-08	7,090	Rubber
52	Dong PhuKratie rubber development	Kratie	4-Jul-08	9,194	Rubber
53	DakLakMondulKiri rubber development	MondulKiri	4-Jul-08	4,162	Rubber
54	Khov Chili development (KCD)	MondulKiri	8-Oct-08	2,346	Rubber
55	Seang Long greenland investment (Cambodia) Co., Ltd	MondulKiri	8-Dec-08	7,000	Rubber and acacia
56	Land & Development (Cambodia)	MondulKiri	8-Dec-08	7,000	Rubber and acacia
57	Agri-industry group development (Cambodia)	Kratie	8-Dec-08	7,000	Rubber and acacia
58	Crop & land development (Cambodia)	Kratie	8-Dec-08	7,200	Rubber and acacia
59	Unigreen resource Co., Ltd	MondulKiri	3-Apr-09	8,000	Rubber
60	DTC group	MondulKiri	18-Mar-09	4,000	Rubber
61	RathSambath	Battambang	3-Apr-09	5,200	Rubber
62	Mega Star investment & forestry development	Kratie	31-Jul-09	8,000	Rubber
63	mega Star Produce & import export	Kratie	31-Jul-09	8,000	Rubber
64	Heng brother	Ratanakiri	31-Jul-09	2,361	Rubber and acacia

65	Kiri development	Ratanakiri	31-Jul-09	807	Rubber
66	Thy Nga development	PrahVihear	25-Sep-09	6,060	Rubber
67	Heang An Mang Yang K	Ratanakiri	25-Sep-09	6,891	Rubber
68	BNA (Cam) Cop.	Kampong Thom	25-Sep-09	7,500	Rubber
69	Un inter trading & development group (Cambodia)	StoengTreng	12-Oct-09	7,000	Rubber
70	Research Mining development	StoengTreng	12-Oct-09	7,200	Rubber
71	Fortuna plantation (Cambodia) limited	Kampong Spoeu	12-Oct-09	7,955	Oil palm and jetropha
72	PDS (Cambodia) Co., Ltd	Kratie	22-Oct-09	5,256	Rubber, acacia, casava
73	Kamandeno venture (Cambodia) limited	Kratie	13-Nov-09	7,635	sugar cane
74	Grandis timber Co., Ltd	Kampong Spoeu	31-Dec-09	9,820	teak
75	NK venture (Cambodia) limited	Svayreang	27-Jan-10	1,200	sugar cane
76	Chhun Hong rubber better	Kampong Cham	29-Jan-10	8,202	agro-industry
77	CXPB development	Kratie	29-Jan-10	8,202	agro-industry
78	C&V group	Kratie	29-Jan-10	7,000	Rubber
79	China dynamic investment	Kratie	29-Jan-10	6,600	Rubber and acacia
80	MohybaMaso on Cambodia JV Chamkat	MondulKiri	29-Jan-10	7,800	Rubber and jetropha
81	Day Dong Yoengcommercial join stock company	Ratanakiri	29-Jan-10	4,889	agro-industry
82	Krong Book Ratanakiri rubber development	Ratanakiri	9-Apr-10	6,695	Rubber
83	PNT Co., Ltd	PrahVihear	5-May-10	7,900	Rubber
84	CRCK development	Kampong Thom	5-May-10	6,155	Rubber
85	Camtry cooperation	Kampot	5-May-10	2,409	Eucarlyptus
86	Holing (Cambodia) international insurance	MondulKiri	5-May-10	8,400	Pine
87	CCV	Kampong Thom	5-May-10	5,730	Acacia
88	IPD instant pro-tradiing	Kratie	5-May-10	987	Rubber
89	NK agree (Cambodia) limited	Kratie	11-Nov-10	8,892	sugar cane
90	DavteangKratie rubber development company limited	Kratie	1-Mar-11	6,592	Rubber
91	DavteangKratie rubber development company limited	Kratie	1-Mar-11	7,972	Rubber
92	Chan sophea	Kratie	1-Mar-11	5,088	Rubber
93	Seiladamech Co., Ltd	PrahVihear	1-Mar-11	9,000	Rubber
94	BinhHoekKratie rubber II company limited	Kratie	1-Mar-11	10,000	Rubber
95	CRD	Ratanakiri	25-Mar-11	7,591	Rubber
96	Veasna investment	Ratanakiri	25-Mar-11	5,080	Rubber
97	New Line Cam PTY Ltd	Kratie	29-Mar-11	8,977	Rubber
98	Cheanly (investment) Co., Ltd	Ratanakiri	29-Mar-11	1,900	Rubber
99	Banya group	Siem Reap	25-Apr-11	7,000	not available
100	Holy Eco-industry (Cambodia)	Ratanakiri	17-Aug-11	7,497	Rubber, casava
101	Pacific lotus join stock company limited	MondulKiri	9-Sep-11	9,014	Rubber
102	Pacific lotus join stock company limited	MondulKiri	9-Sep-11	9,614	Rubber
103	Pacific lotus join stock company limited	MondulKiri	9-Sep-11	9,656	Rubber
104	Pacific lotus join stock company limited	MondulKiri	9-Sep-11	9,773	Rubber

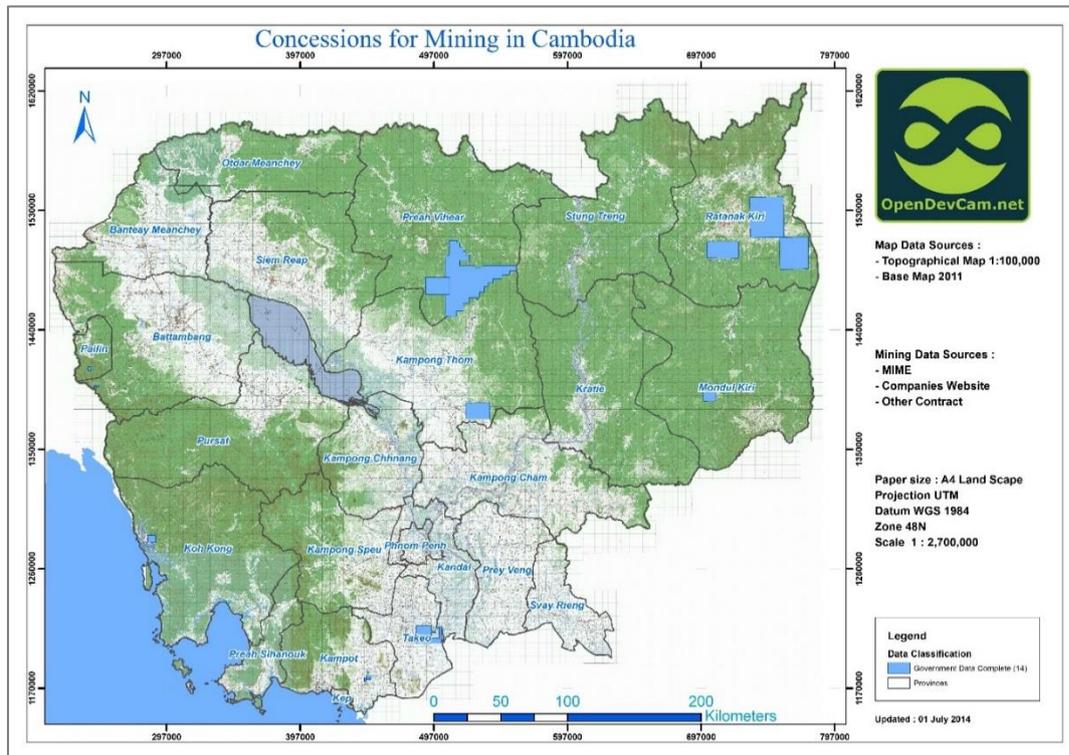
105	Pacific lotus join stock company limited	MondulKiri	22-Sep-11	9,000	Rubber, and agro-industry
106	Rubber Alev BM join stock	Ratanakiri	5-Oct-11	8,400	Rubber
107	BinhHoekKratie rubber 21 company limited	MondulKiri	24-Oct-11	8,926	Rubber
108	Eastern rubber (Cambodia)	Kratie	24-Oct-11	10,000	Rubber
109	HengNong (Cambodia) international company limited	PrahVihear	8-Nov-11	6,488	Acacia and sugar cane
110	Heng you (Cambodia) international company limited	PrahVihear	8-Nov-11	8,959	Acacia and sugar cane
111	Heng Roy (Cambodia) international company limited	PrahVihear	8-Nov-11	9,119	Acacia and sugar cane
112	LanPheng (Cambodia) international company limited	PrahVihear	8-Nov-11	9,015	Acacia and sugar cane
113	Roy Pheng (Cambodia) international company limited	PrahVihear	8-Nov-11	8,841	Acacia and sugar cane
114	RithmonySamnangLeab Co., Ltd	Kampong Thom	16-Jan-12	1,679	Rubber
115	EM group	Ratanakiri	26-Jan-12	749	Rubber
116	FP Malaysia (Cambodia) Plantation Co., Ltd	PrahVihear	30-Apr-12	8,200	Rubber and agro-industry
117	China great cause	PrahVihear	6-Jun-12	5,980	Rubber and agro-industry
	Missing data			1,628	
	Total area			1,181,522	

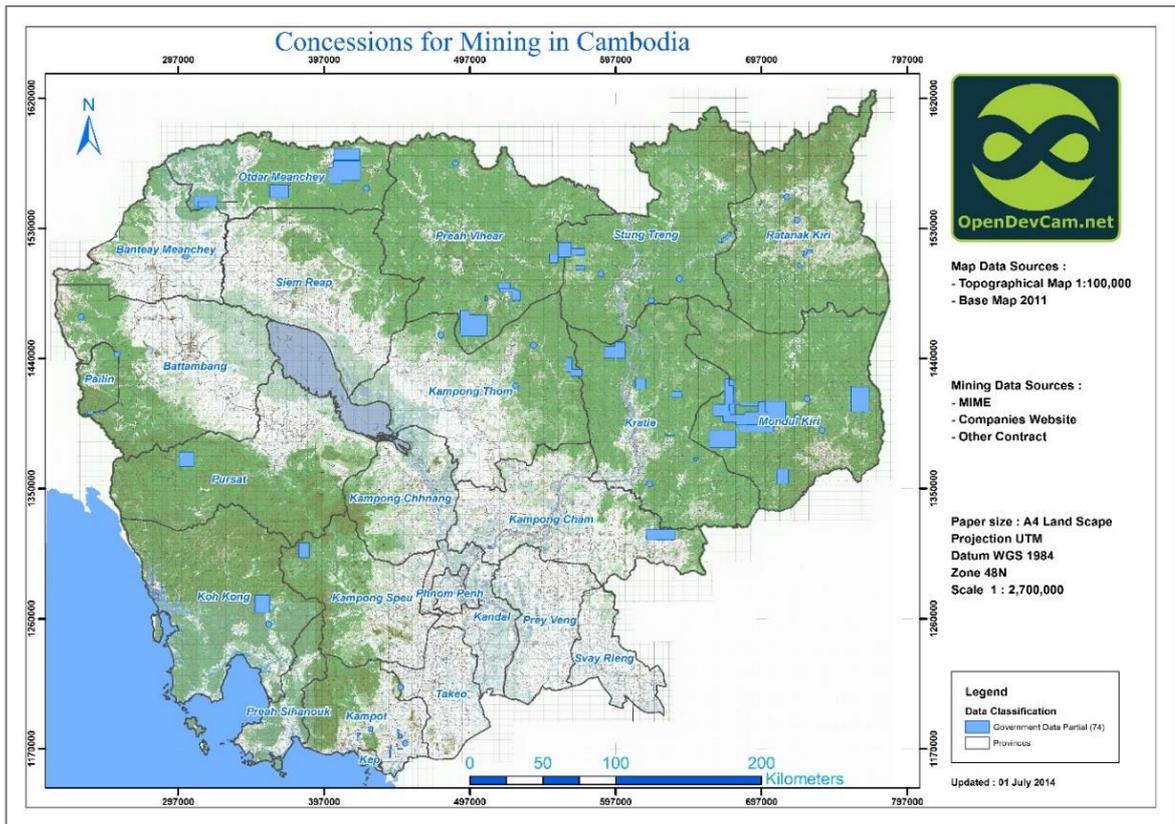
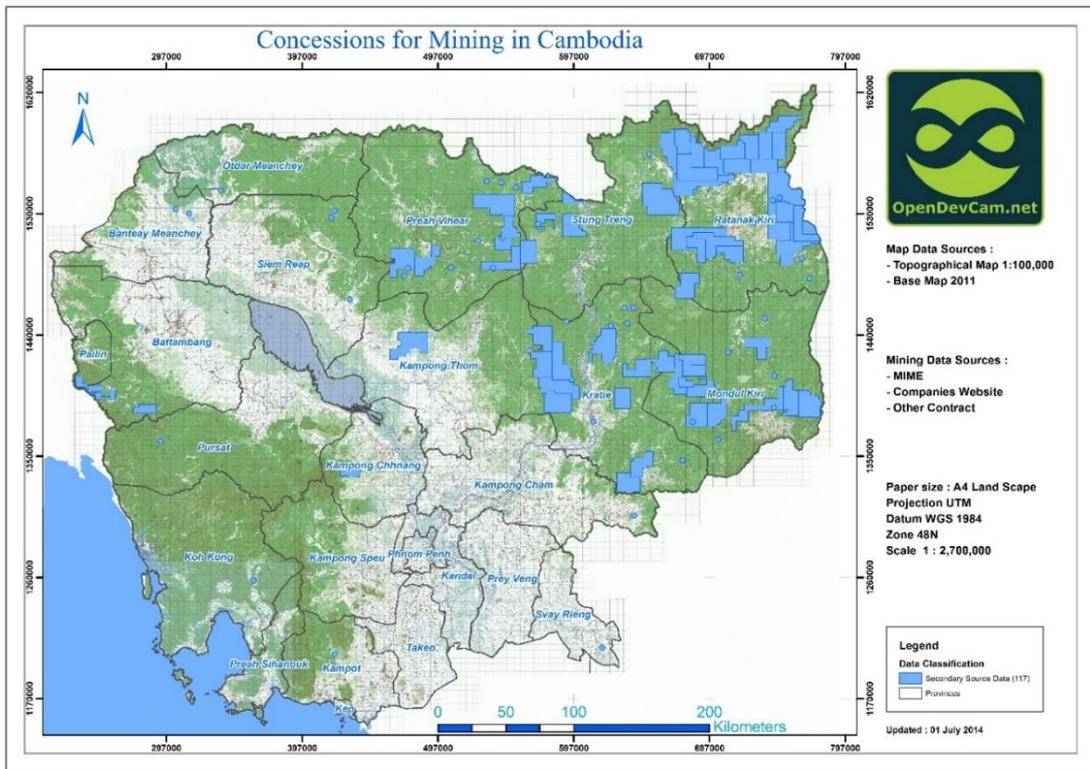
Annex 3 - Allocations of Protected Areas to Land Concessions (km²) (Forest Trends, 2014)

Forest Formation	Concession Areas		
	Total	Inside PAs	Outside PAs
Evergreen	4,914.68	2,645.38	2,269.30
Semi-evergreen	2,409.83	450.48	1,959.36
Deciduous	11,296.25	1,287.67	10,008.58
Secondary	896.31	227.30	669.01
Non-forest	4,761.85	687.43	4,074.42
Evergreen woodlands	77.07	12.08	65.00
Deciduous woodlands	95.20	22.60	72.60
Bamboo	87.77	82.29	5.48
Mangroves	40.20	28.08	12.12
Palm Oil	55.02	2.58	52.43
Rubber	758.15	23.82	734.33
Total area	25,392.34	5,469.71	19,922.64

Annex 4 - Allocated mining concessions (1st July 2014)

The below figures illustrate the location and extend of mining concessions based on different sets of data. As can be seen there are very significant differences in available data. Data source in lower right hand corner of figures.





About NEPCon

NEPCon is an international, non-profit organisation. We work to foster sustainable land use and climate-friendly solutions.

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