



**5th monitoring report: The current status of Prey Lang
with monitoring data from PLCN patrolling February 2015 - July 2016**

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5TH MONITORING REPORT THE CURRENT STATUS OF PREY LANG

WITH MONITORING DATA FROM PLCN PATROLLING FEBRUARY 2015 - JULY 2016

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The Current status of Prey Lang

Monitoring information from PLCN patrolling for the periods:

- i. Latest monitoring period: 1. April 2016 – 31. July 2016
- ii. Total monitoring period: 4. February 2015 – 31. July 2016



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Date: October 2016

Editors Note

This monitoring report is the result of numerous individual and collective efforts. It would not have been possible without the tireless monitoring and data collection of the PLCN forest monitors. They show courageous effort and persistence in protecting our forest for future generations to come. This report is dedicated to each and every one of them and their daily commitment to protecting Prey Lang.

This report is also dedicated to Kem Ley, political analyst and grassroots activist, who was shot dead on 10 July 2016. Kem Ley was an environmental defender and prominent supporter of PLCN and advocated for the return of forest management to the communities. "Hand the land back to the communities, they can protect it," he used to say [34].

The report exists in two versions (Khmer and English), with the English version being the original.

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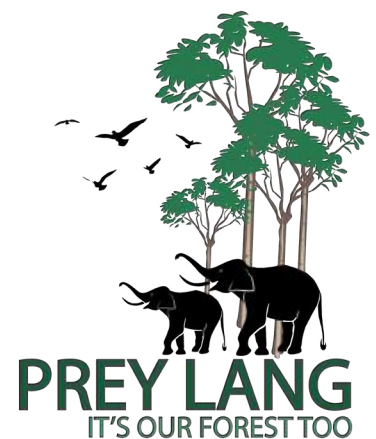
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OBJECTIVE

This is the fifth monitoring report on the status of the Prey Lang forest. It aims to document the high biological value of Prey Lang and the extent of illegal logging in the Prey Lang area. Data collected from Prey Lang Community Network's (PLCN's) forest monitoring activities will be used to describe the current status of Prey Lang. The data was collected between April and July 2016, through a specially designed smartphone application named the Prey Lang app.

BACKGROUND

The Prey Lang forest complex is situated in the central plains of Cambodia and is of high importance not only to the local economies and households but also to the broader Cambodian public. More than 250,000 mainly indigenous people live in 340 villages in Prey Lang and depend on it for their survival. Despite this, illegal logging and forest destruction has intensified over the past decades. Forest loss in Cambodia between 2001 and 2014 accelerated at a faster rate than in any other country, according to the University of Maryland [3].

As a response, in 2001, local community members formed PLCN, an informal network of volunteers that advocates for the protection of their land. They conduct periodical forest patrols to intercept loggers and seize chainsaws and encourage local authorities and the national government to take responsibility for the protection of Prey Lang.

In an attempt to tackle deforestation, in May

2016 the Cambodian government designated 431,683 ha of Prey Lang as a Wildlife Sanctuary. However, critical voices [14,15,16] suggest that little change has taken place on the ground in Prey Lang.

METHODS

The Prey Lang app has been developed through a series of consultation workshops with PLCN. The development of the app is an ongoing process which aims to serve the needs of forest monitoring. The app is able to document three main categories, namely "Activities", "Resources" and "Reporting (interactions)" and, through a further categorization, PLCN forest monitors have the opportunity to document detailed cases. Data managers subsequently validate and analyze the data.

KEY FINDINGS

1. During the monitoring period (Apr – July 2016), the PLCN forest monitors have mainly focused on documenting natural resources (494 cases, 62% of all validated entries) and illegal logging activities (283 cases, 36%).
2. PLCN gave special focus to documenting trees (404 cases, 82% of all natural resources). They also documented non-timber forest products (NTFPs) (67 cases, 13%), animals (19 cases, 4%) and sacred sites (4 cases, 1%).
3. Pdeak (*Anisoptera costata* Korth.) and Chhertheal (*Dipterocarpus alatus* Roxb. & G. Don.) trees were the most reported resources but also the species most often reported as

being logged. These species are used for construction and resin extraction, respectively, which explains the PLCN's efforts to account for these natural resources.

4. The illegal logging activities monitored by PLCN included signs of tree stumps (157 cases, 56%), cleared forest areas (68 cases, 24%), planks left on site (39 cases, 14%) and tree-pole transportation (17 cases, 6%).

5. During the whole reporting period from February 2015, most entries were related to illegal activities (1,519 cases, 48%), and 1,462 entries to natural resources (46%).

6. Local tractors were the preferred means of transport for the illegal loggers (240 cases, 74% of all means of transportation recorded), followed by motorbikes (33 cases, 10%).

7. The forest monitors from Kampong Thom, the province in Prey Lang with best road infrastructure, reported the highest number of cases of illegal activities (564 cases, 37% of all reported activities) and natural resources (577, 39.5% of all reported resources).

8. The majority of the cases in which they reported an interaction with the authorities were perceived as positive (23 cases, 85% of all interactions), and forest monitors only reported negative interactions in three cases (11%). Through personal communications with forest monitors, however, we have reason to believe that the low number of reports of negative interactions with authorities may not reflect the reality.

CONCLUSION

- Deforestation and illegal logging are still serious threats to Prey Lang. There was a 14% increase in the number of reports of cleared areas. The collected data shows that both protected and unprotected areas are affected by illegal logging.
- All provinces report difficulties with some officials at the local level. Local officials regularly participate in forest patrols in Kampong Thom and Kratie provinces.
- Significant increase in the monitoring efficiency of PLCN. PLCN has shown that community monitoring can:
 - Provide data of the same accuracy as that collected by professionals,
 - Increase the feeling of ownership and responsibility,
 - Promote local involvement in decision-making,
 - Shorten the time to put new regulations in place,
 - Shorten the response time from the moment illegal activity is observed until enforcement occurs.

RECOMMENDATIONS

1. Develop a co-management model that includes PLCN in the protection of Prey Lang. PLCN has a proven record of effective forest monitoring.
2. Financial and political support to PLCN, in order to continue forest patrols and to achieve Cambodia's goal of 60% forest cover by 2030.
3. Ongoing training of forest monitors clearly pays off in terms of the amount and quality of data collected.

1. Introduction

The Prey Lang Forest is the largest remaining evergreen forest in Cambodia. It has a high density of endangered trees, plants and animal species and is of high biological and cultural value to local communities as well as to the Cambodian public. Policy efforts are under way to enforce Prey Lang's integrity as a newly-designated protected area. Evidence suggests that deforestation has increased during the transition period in advance of possibly stronger protection measures. This report presents the status of the Prey Lang Forest.

1.1 OBJECTIVES AND APPROACH

This is the fifth monitoring report on the state of the Prey Lang forest. It aims to document the high biological value of Prey Lang and the extent of illegal logging in the Prey Lang area.

The report presents data collected by PLCN forest monitors during patrols carried out between 1 April 2016 and 30 July 2016.

With the fifth monitoring report, PLCN is seeking to:

- Inform forest monitors, PLCN members, subnational and na-

tional government, the Cambodian public and the international community about the status of Prey Lang and the threats it faces, with the hope of influencing future management decisions;

- Show how smartphone technology can strengthen the monitoring of forest resources and illegal activities in Prey Lang.

PLCN is committed to patrolling and protecting Prey Lang Forest. It will continue to publish reports based on community monitoring in order to create a public record of the status of Prey Lang regarding natural resources and illegal activities.

1.2 THE PREY LANG FOREST

The Prey Lang forest complex is situated in the central plains of Cambodia. It spans approximately 500,000 ha of the Cambodian lowlands, covering the four provinces; Kratie, Stung Treng, Kampong Thom and Preah Vihear. The Prey Lang forest supports seven distinct forest ecosystems, including swamp forests as well as evergreen, semi-evergreen and deciduous forests. Prey Lang has a high density of rare and threatened tree species and numerous other endangered plant and animal species [1]. Prey Lang is also a major watershed feeding into the Mekong River and Tonle Sap Lake – both crucial to the Cambodian economy

and to the livelihoods of surrounding communities [2]. The forest is therefore of high importance not only to the local economies and households but also to the broader Cambodian public. More than 250,000 mainly indigenous people live in 340 villages in Prey Lang or within 10 kilometers of it. The forest is an irreplaceable part of their culture and spiritual life and they depend on it for their everyday survival. Sustainable forest-related activities such as resin tapping, food collection and gathering of timber for house construction and firewood are essential activities for the local communities.

DEFORESTATION CONTINUES

Despite the unique value of Prey Lang, illegal logging and forest destruction has intensified over the past decades. The forest cover loss in Prey Lang between 2002 and 2016 is shown in (Fig. 1.1)

According to Open Development Cambodia, forests covered 72% of the country's territory in 1970, whereas by 2014 the forest cover had been reduced to 48%, including plantations. Forest loss in Cambodia between 2001 and 2014 accelerated at a faster rate than in any other country in the world, according to global figures based on satellite data from the World Resources Institute and University of Maryland [3, 4].

These results are also supported by the annual report of the Ministry of Agriculture, Forestry and Fishery for 2016. Here the Ministry disclosed that the total forest cover in Cambodia was 61% in 2002, 57% in 2010 and less than 50% in 2014. The Ministry believes that the country's forest cover will continue to decrease unless forest crimes and land conversion are curtailed [5]

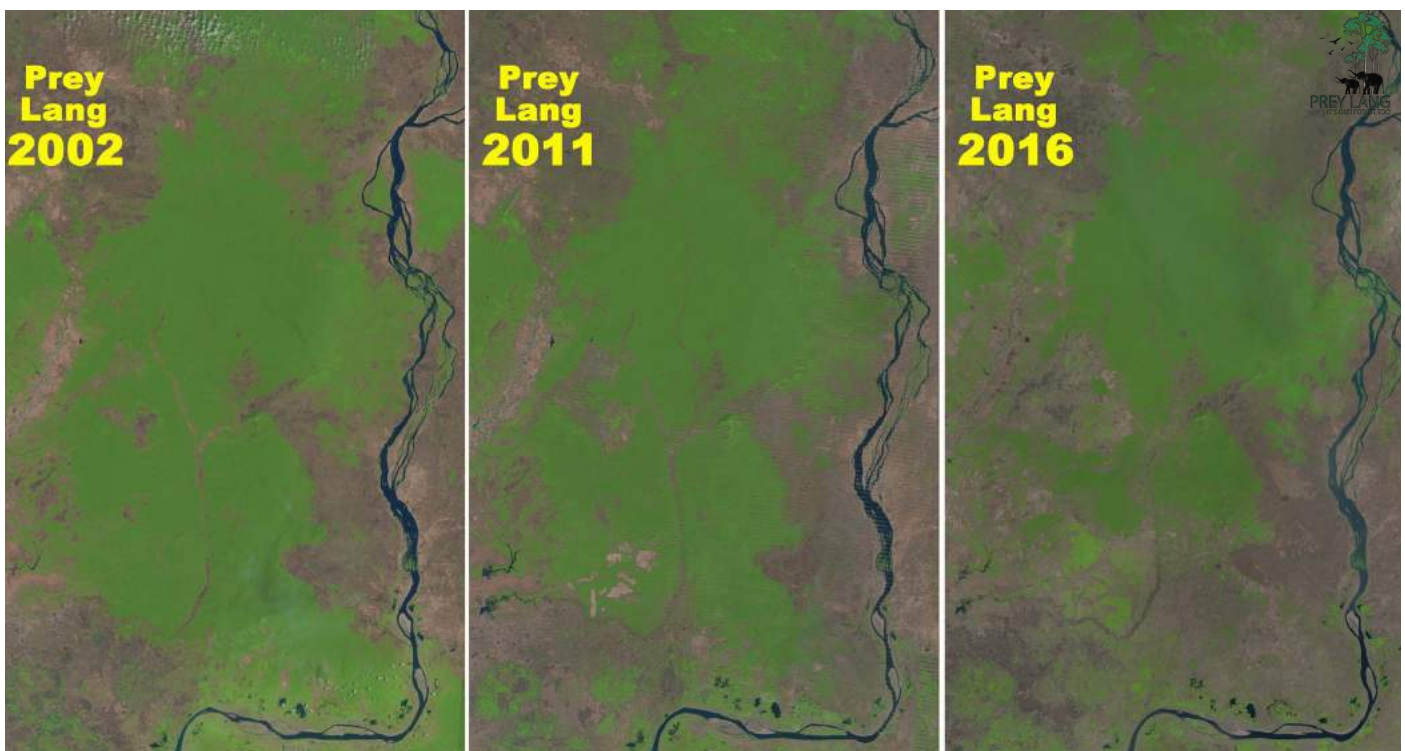


Figure 1.1: Satellite image of Cambodia generated from the USGS Earth Explorer site. Freely available at: <http://earthexplorer.usgs.gov/>. Image courtesy of Allan Michaud, Wild Cambodia <http://wildcambodia.net/>

Land Concessions: Deforestation

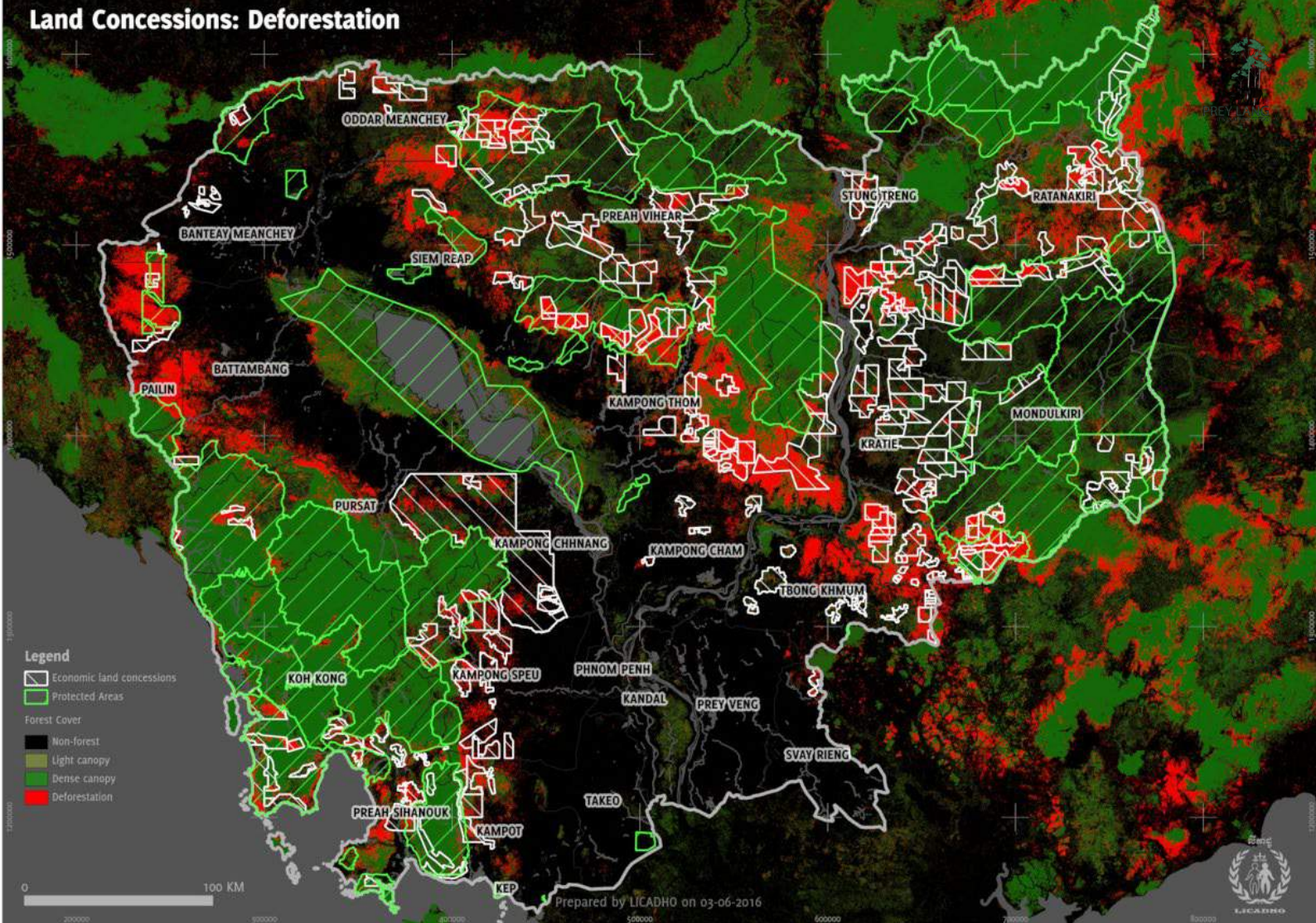


Figure 1.2: Mapping of protected areas, deforestation and Economic Land Concessions (ELCs), Forest cover data: University of Maryland, Update ELC and Protected Areas June 2016, LICADHO

An informative map released by the human rights organization LICADHO in June 2016, shows that deforestation in Cambodia still continues, even inside the country's protected areas [24] (Fig.1.2.)

EFFECTS OF CLIMATE CHANGE

Cambodia's forest loss plays a significant role in driving global climate change as deforestation is responsible for around 12% of greenhouse gas emissions [6, 7]. The country itself was one of the nations most affected by weather-related events in 2013 [8]. Cambodia's rural population has already experienced negative impacts on their livelihoods due to increasing temperatures and changing precipita-

tion patterns in the last few years [9]. This affects mainly agricultural and forest output [6]. New evidence is furthermore suggesting a strong link between deforestation and reduced precipitation in tropical areas around the world [19]. Preventing deforestation and illegal logging in Prey Lang would therefore contribute to both reducing greenhouse gas emissions and mitigating severe drought events.

PREY LANG IS AN IMPORTANT ECOLOGICAL AND ECONOMIC RESOURCE AND, IF MANAGED IN A SUSTAINABLE WAY, WILL REMAIN A CONSIDERABLE ASSET TO THE COUNTRY THAT CAN CONTRIBUTE TO NATIONAL DEVELOPMENT.

1.3 THE PREY LANG COMMUNITY NETWORK (PLCN)

History

In 2001, communities living in and around the Prey Lang area started advocating for the protection of their ancestral forest lands. Their protests were a response to the large-scale illegal logging and land grabbing activities in the area that were destroying the forest and affecting local communities' access to natural resources. PLCN was consequently formed of community members from the provinces of Kratie, Stung Treng, Preah Vihear and Kampong Thom, united in fighting for preservation of the forest.

OVER THE YEARS, PLCN HAS BECOME A WELL-ORGANIZED GROUP OF INDIGENOUS ENVIRONMENTAL ADVOCATES, INCREASINGLY RECOGNIZED BOTH AT THE NATIONAL AND INTERNATIONAL LEVELS.

Under the tagline "It's Our Forest Too", PLCN uses various forms of advocacy to raise awareness about Prey Lang and its protection. It conducts periodic forest patrols to intercept loggers and seize chainsaws and other equipment, while also organizing peaceful forest protests such as marches, demonstrations, tree planting events and petitions. In December 2015, PLCN was awarded the prestigious UNDP Equator Initiative Prize at the COP21 in Paris.

CURRENT ACTIVITIES

Although most of the PLCN members live in rural areas and engage in subsistence agriculture, the network makes use of new technologies. Systematic data collection is possible through use of a specially designed smartphone application that enables forest monitors to document the status of Prey Lang. PLCN is also active on social media, primarily Facebook, where they share news, photos and short videos about the organization's recent activities. To date, PLCN's Facebook page has attracted



more than 20,500 followers¹.

Training in use of social media is central to the network's capacity for advocacy and campaign activities. In September 2016, a two-day citizen journalism workshop was held with 35 PLCN members. The aim was to train the members in disseminating their data and main findings in reports, press releases, short videos, etc. The content produced during and after the workshop will feed into an international campaign running in November 2016, before and during the COP22 in Marrakech, Morocco.

1.4 RECENT DEVELOPMENTS

PLCN and the situation in Prey Lang have gained international media attention over the years. Recently, Deutsche Welle has explored how monks are battling deforestation in Prey Lang, and The Diplomat has reported in length about the severe deforestation taking place in Cambodia [25, 16].



Figure 1.3: Equator Prize awarded to PLCN members, during ceremony at the COP21, Paris, France. Image courtesy of Chris Rainier

NEW GOVERNMENT MEASURES

In May 2016, the Cambodian government announced its intention to declare five forests, covering 900,000 hectares, as protected zones. Initially 305,000 ha of the Prey Lang core area was included. This figure later increased to 431,683 ha, however, after forest in Preah Vihear was selected for inclusion within the designation. PLCN welcomed the government's decision to protect Prey Lang [10] and to backtrack on its previous plans to exclude a large part of Prey Lang in Preah Vihear province [11, 12]. The sub-decree signed by Prime Minister Hun Sen on May 9 designated 431,683 ha of Prey Lang as a Wildlife Sanctuary, including at least part of the contested area in Preah Vihear.

In July, the Prime Minister made a public call to the Ministry of Environment, Ministry of Agriculture, Forestry and Fishery and Ministry of Mines and Energy to enhance cooperation with the NGOs and local communities working to protect forests, such as PLCN. The Prime Minister stated that: "(the lack of cooperation) is an error that we have to change, that begins in government." [13]. To that end, the Ministry of Environment organized a forum on "Natural Resource Protection and Conservation", presided over by the Prime Minister, and invited forest communities, networks (including PLCN) and NGOs to open a communication channel. The Ministry of Environment subsequently invited PLCN to a meeting where they discussed future cooperation, including the possibility of

signing a Memorandum of Understanding with the aim of better protecting Prey Lang. PLCN appreciates the recent efforts of the Cambodian government, and especially the Ministry of Environment, to engage in dialogue with local forest communities. Many challenges remain if illegal logging is to be reduced in Prey Lang but dialogue with government officials is an important new step (see also PLCN statement) [32].

CHALLENGES

The government's recent forest conservation initiatives have not been universally lauded, however. Leading activists, researchers, environmental campaigners and advocates claim that the new laws and initiatives will not address the problems in the Prey Lang region. This is largely because the criminals targeted by these are not the Economic Land Concessions (ELCs), Mining Concessions (MCs), [17] or the multiple well-protected middlemen who transport timber from small loggers to larger markets, but the small-scale loggers [14, 15, 16].

The large-scale illegal timber trade with Vietnam has been an ongoing problem. The source of this trade is not small-scale loggers but much larger operations that are difficult to document. This trade amounted to USD 380 million dollars in 2015 (20). In January 2016, Prime Minister Hun Sen took action. He set up a special task force with the declared purpose of stopping all timber transportation at the Cambodian-Vietnamese border. This led to a series of raids involving arrests and confiscation

of timber. This action had a dramatic effect on cross border trade, which fell from 34,000 cubic meters of wood in January to 5,000 cubic meters in February, although it rose again to 10,000 in March 2016 [20].

Unfortunately, this increase was not taken seriously by the Minister of Environment [20]. Recent evidence suggests that this number will rise again, as over 5,000 cubic meters of first-grade Thnong and Sokrom wood has been discovered close to the border [29], which remains open to the illegal trade in Cambodia's forests [28]. Additionally, this continuation in illegal transport of timber across the Vietnamese border will escalate with a new proposed road and border crossing through the Keoseima protected area in Mondulkiri. Evidence of the impacts of roads and border crossings on increased deforestation and illegal logging is convincing (Malhi, et al. (2015). *The Fate of the Amazon* [19]; Laurance W. (2012). *As Roads Spread in Rainforests, The Environmental Toll Grows* [36]). Yet government opinion on the road is that it is "a necessity that will improve people's livelihood in the area" [21].

The forest remains at severe risk if the real drivers of deforestation continue to be ignored: large-scale forest conversion for economic development, elite purchases, cross border illegal trade, and improved infrastructure. If these issues continue to be dismissed as minor or condoned as necessary for job creation then the forest will not survive.

NEW LEGISLATION BY THE INTERNATIONAL CRIMINAL COURT (ICC)

The ICC approved new legislation in September that will enable the Court to proceed with cases against company executives, politicians and other individuals responsible for land grabbing and environmental destruction [22]. The announcement by the ICC comes ahead of a decision by the chief prosecutor Fatou Bensouda to investigate a case filed in 2014 by the London-based law firm Global Diligence against Cambodia's ruling elite, holding it responsible for human rights abuses and land seizures within the country. "This new focus will help close the impunity gap for international crimes committed during peacetime, and open the door for the case filed on behalf of Cambodian victims against Cambodia's ruling elite," Bensouda stated in an announcement of the new legislation [22] [35]. The spokesman of the Cambodian People's Party, Sok Eysan, commented on the new legislation by stating that: "We aren't worried because we haven't done anything wrong." [23].



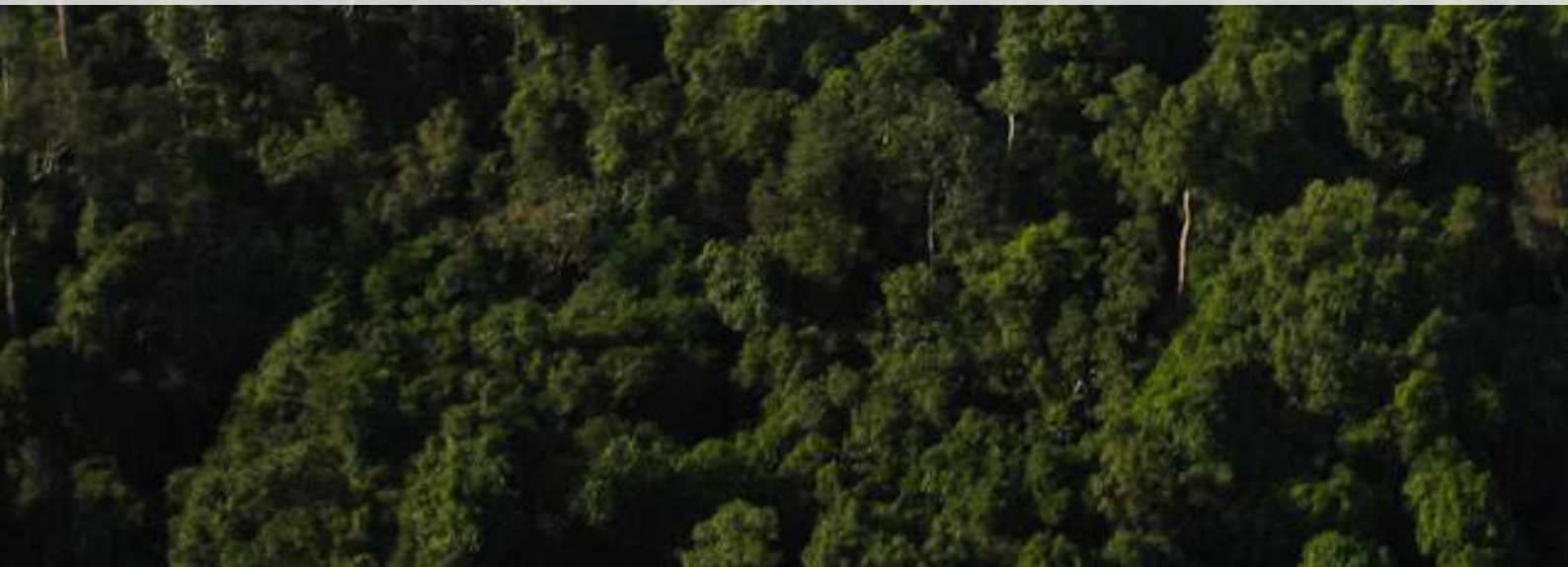


2. Methods

2.1 COMMUNITY-BASED MONITORING

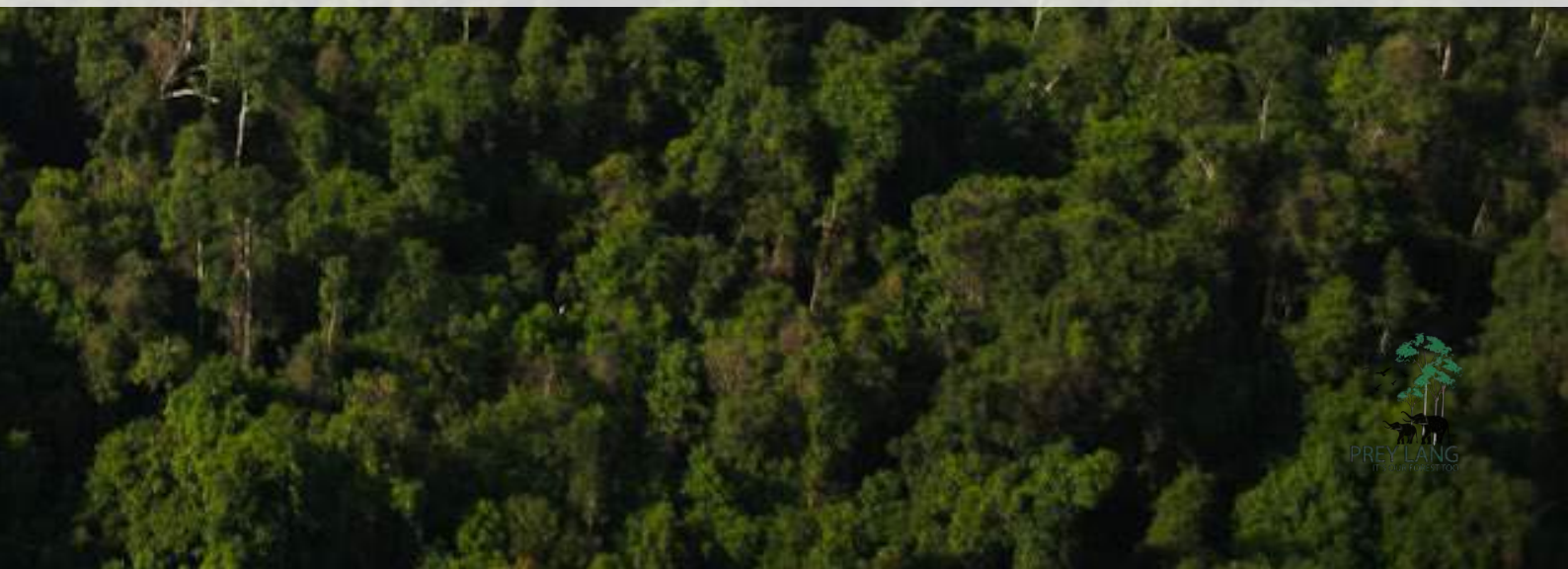
PLCN has identified the need for systematic data collection to provide a more complete picture of the pressures on the forest and their impacts on biodiversity and local livelihoods. PLCN has therefore been provided with the skills and ICT tools to undertake community-based monitoring of Prey Lang. The Prey Lang app has been developed to ensure that systematic and well-documented monitoring is conducted.

One important parameter has been to ensure long-term ownership that will support sustainable monitoring and patrolling independent of donor funding. A bottom-up approach, taking its point of departure in the interests of PLCN and the ongoing PLCN patrols, has therefore been implemented.





THE PREY LANG APP IS A TOOL TO SYSTEMATIZE DATA COLLECTED BY THE FOREST MONITORS AND IT USES THEIR KNOWLEDGE AND CAPACITY. THE DATA IS COMPILED ON BOTH THE LARGER FOREST PATROLS AS WELL AS INDIVIDUAL DAY-TO-DAY TRIPS TO THE FORESTS.



There are several types of patrol, each of them with a slightly different goal. The is large patrols, taking place a few times every year and involving numerous groups of people, from 30 to a few hundred patrollers. These large, organized patrols usually last up to one week and involve PLCN members from all four provinces covering vast areas of the forest by motorbike. The second type of forest patrol is more spontaneous and frequent. It happens when villagers overhear sounds of nearby logging during NTFP collection - for instance resin tapping. Other patrollers are then informed and a group musters to intercept the logging. These patrols consume a great deal of resources, both in terms of money and time. This is often an issue since the community members cannot afford to patrol frequently enough due to the high opportunity cost of foregone income from their primary jobs. Patrol members are volunteers but depend on support for food and petrol for the patrols. The last type of patrol, which is also the rarest, happens when scientists, students or NGO workers conduct research projects in the forest accompanied by PLCN members. These situations also often include data collection using the Prey Lang app.

2.2 THE PREY LANG SMARTPHONE APPLICATION

Thirty-six monitors from PLCN are compiling data using a smartphone application. The data collection officially began

on 4 February 2015 and is expected to develop and expand in the coming years. The smartphone application (Fig. 2.1) records three main categories: "Activities", "Resources" and "Reporting" - with further sub-categories.

- "Activities" refers to extraction activities happening in the Prey Lang area, such as illegal logging activities, illegal hunting and illegal fishing.
- "Resources" refers to natural or cultural resources and sites found in the Prey Lang area. This includes resin trees, Non-Timber Forest Products (NTFPs) and high-value timber species threatened by logging. Information on wildlife is also collected on an ad-hoc basis.
- "Reporting" refers to any interaction with authorities regarding Prey Lang. This function is used when monitors submit reports and complaints to local authorities.

The collected data is uploaded to a database and analyzed by database managers. Physical proof (audio recordings and photos) substantiates all data. GPS coordinates are uploaded together with the data, although it has been a challenge to substantiate all the data with GPS points. Development of the application to serve the needs of PLCN members is an ongoing and dynamic process. Last year, database managers and the developers collaborated in order to improve the application and help advance PLCN's goals. The changes applied were mainly aimed at making categorization

easier for the forest monitors, resolving technical issues, fixing bugs and making the handling of the database more convenient. A more detailed explanation of the changes can be found in the results section of this report.

We offer to provide documentation to anyone who wishes to investigate the accuracy of our claims but reserve the right to protect the identities of individual patrol members and specific locations of important natural resources.



Figure 2.1 App screenshots

2.3 DATA OWNERSHIP

In July 2016, an additional function was developed for the app, allowing forest monitors to obtain a real-time view of what they are reporting, what is validated or not, the reason for the lack of validation, as well as basic graphs that communicate the essence of their collected data. The additional function is a major improvement in the Prey Lang app; it was not previously possible for the forest monitors to view the uploaded data but now

they can. It is hoped that it will strengthen the future monitoring of Prey Lang forest. The forest monitors have unique log-in details. When they log in, they see a dashboard that presents automatically generated graphs Reference (Fig.2.2). They also have the option to see not only the data reported by fellow monitors but also details of their own performance Reference (Fig. 2.3, 2.4). The forest monitors can thus assess their performance, understand their mistakes and correct them. They can also plan the next forest patrols based on information from the database.

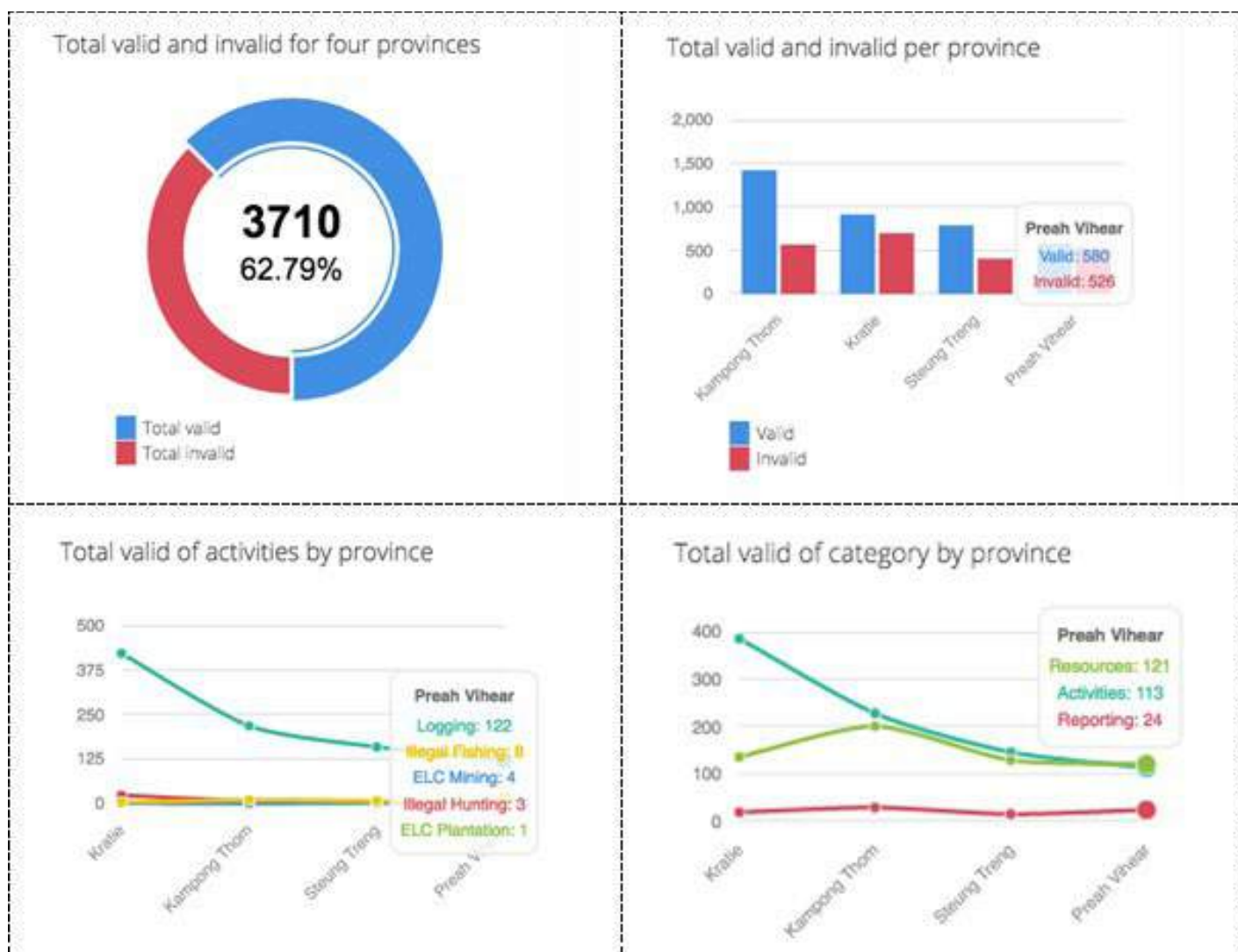


Figure 2.2: Visualize Report feature: Sample graphs.

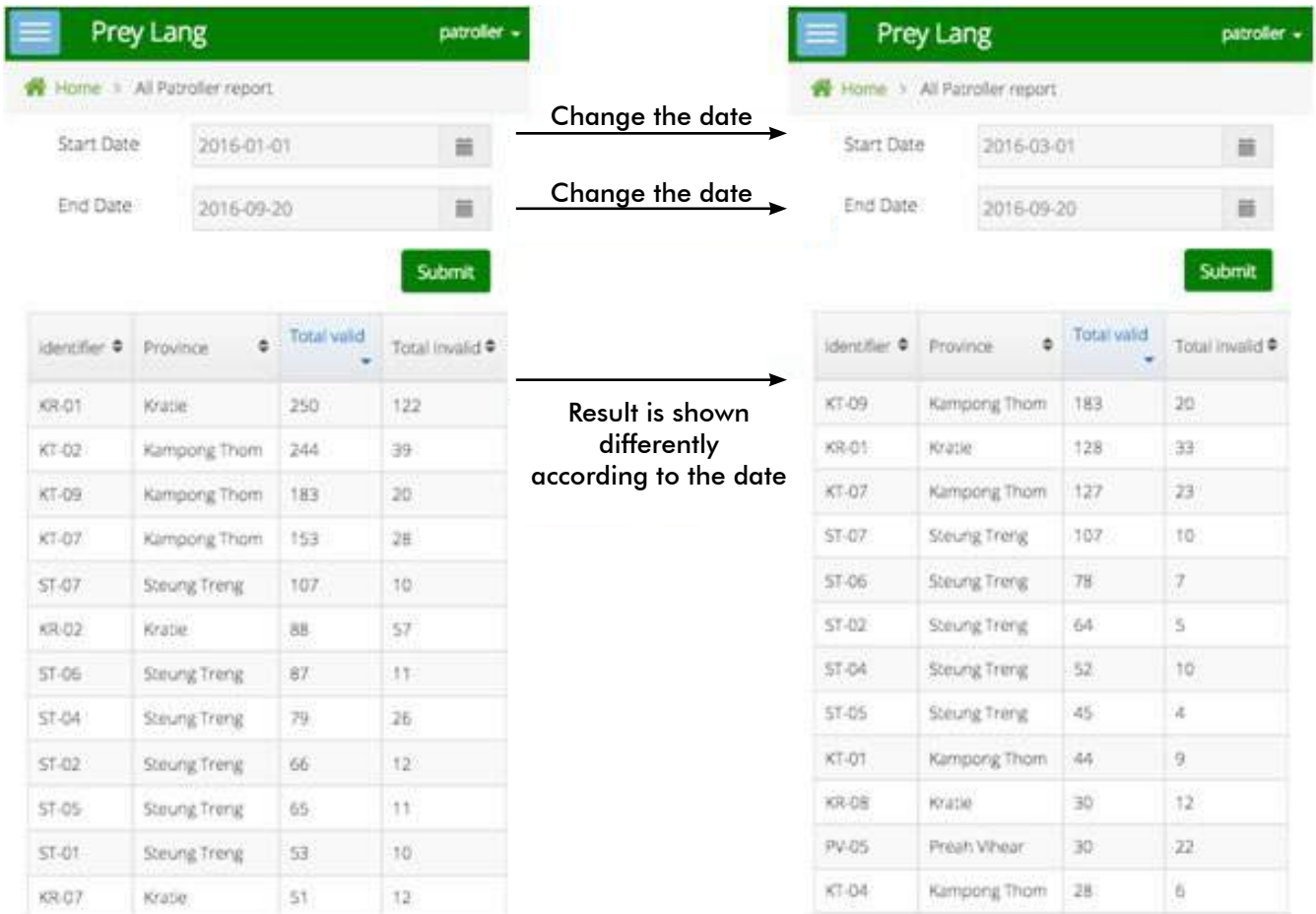


Figure 2.3: Individual Report feature: Overview of individual patroller performance.

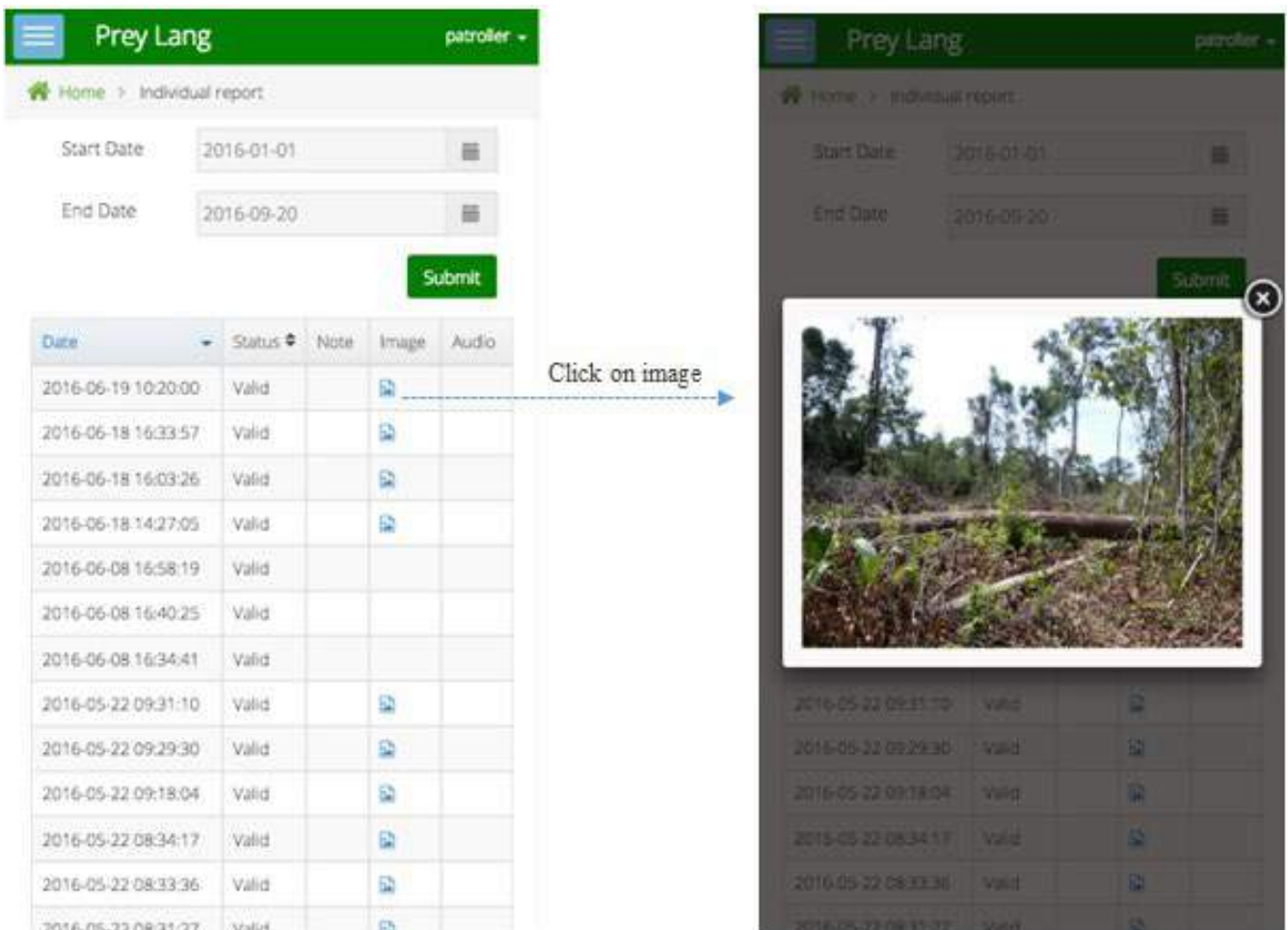


Figure 2.4: Group Report feature: Overview of all the patrollers' performance.

3. Results

This section presents an overview of the data collected by the forest monitors. PLCN monitors from all four provinces (Kratie, Stueng Treng, Preah Vihear and Kampong Thom) used the Prey Lang app to record/survey the state of the Prey Lang forest. This section will include two subsections:

1. First, a subsection on the latest monitoring period from 1 April to 30 July 2016. The subsection will include a statistical evaluation of all the validated data entries.
2. Second, data from the beginning of the monitoring in February 2015 until July 2016 will be presented. This summarized data will be enriched with data that was previously assessed as invalid because of missing evidence (photos/audio files).

3.1 LATEST REPORTING PERIOD (1 APRIL – 31 JULY 2016)

Between April and July 2016, the Prey Lang database received 1,536 entries, of which 793 (51.6%) were validated and used in the statistical analysis. This is the highest validation rate since the beginning of the monitoring period and an increase of 20% compared to the previous monitoring period (December 2015 – March 2016).

GENERAL FINDINGS

Validated entries (cases) contain a picture and, in some cases, an audio file documenting the event. They are subsequently analyzed for the purpose of the monitoring report. The number of entries differed from province to province, with Kampong Thom having the most valid entries. However, Stung Treng had the greatest increase compared to the previous reporting period (15% increase) (Fig. 3.1).

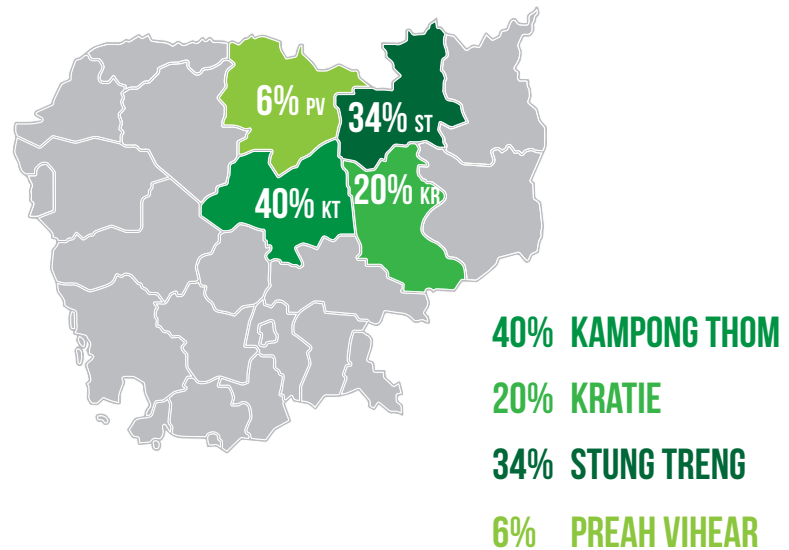


Figure 3.1: Distribution of valid entries among the four provinces (KT: Kampong Thom, KR:Kratie, ST:Stung Treng, PV:Preah Vihear) during the reporting period (Apr-Jul)

A total of 283 illegal activities (36% of total entries) were reported. Moreover, 494 cases (62%) of "Resources" were recorded, mostly resin trees and luxury wood trees. In contrast, the number of records in the "Other" category is very low. In the most recent period, only 12 cases (2%) were reported, showing that PLCN has become more specific in its reports. The category "Reporting" contains only three cases (~0%). Two of them refer to documents submitted to the authorities and one case reports on the "Forum on Awareness of Roviang District Councilors", during which PLCN's interaction with the authorities was positive. (Fig. 3.2)

TOTAL VALID ENTRIES



Figure 3.2: General monitoring activity during the reporting period (Apr-Jul)

NATURAL RESOURCES

In January 2016, the app was updated with a dropdown menu that listed plant and animal names. This resulted in a 26% increase in reporting on natural resources compared to the previous monitoring period. The plant list was compiled with the help of local plant experts in Preah Vihear and Stung Treng provinces and validated by an expert botanist [26].

Trees are documented in 404 cases (82%), followed by 67 reports of NTFPs 67 (13%), 19 cases of animals (4%) and sacred resources, such as temples, which were reported only four times (1%). (Fig. 3.3) Resources are documented during patrols but also when forest monitors are in the forest for purposes other than patrolling, such as collecting NTFPs.

RESOURCES

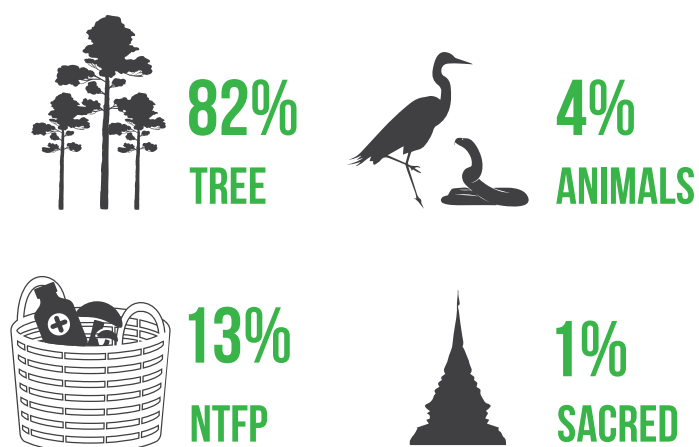


Figure 3.3: Recorded resources during the reporting period (Apr-Jul)



Figure 3.4: Resin trees



In the category “Trees”, we can see another big shift in forest monitors’ reporting: the number of entries in the category “Other luxury trees” increased by 35% compared to the previous monitoring period. Such trees were reported in 267 cases (66%) while “Resin trees” were reported in 137 cases (34%).(Fig. 3.5) The fact that there are no reported “unidentified trees”, as in previous reports, indicates the increased capacity of the forest monitors (Fig. 3.4).

TREES



Figure 3.5: Recorded trees during the reporting period (Apr/Jul)

The most frequently recorded luxury trees can be seen in the (Fig. 3.6). Regarding the types of NTFP that were recorded, 26 cases (40%) recorded medicinal NTFP, 25 cases (38%) recorded edible NTFP and 14 cases (22%) recorded NTFP for crafts, while the most reported species were Chongpdao /Pdao (*Calamus viminalis* Willd.) and Saom (Unidentified). The indigenous Kuy of Pneak Rulek characterize the plant Pdao (*Calamus viminalis* Willd.) (Fig 3.7) as medicinal. According to a study [26], they chop the root of the plant into small pieces and, after boiling it in water, drink it to treat high fever. The plant is also used in the construction of fences.

MOST REPORTED LUXURY TREE SPECIES

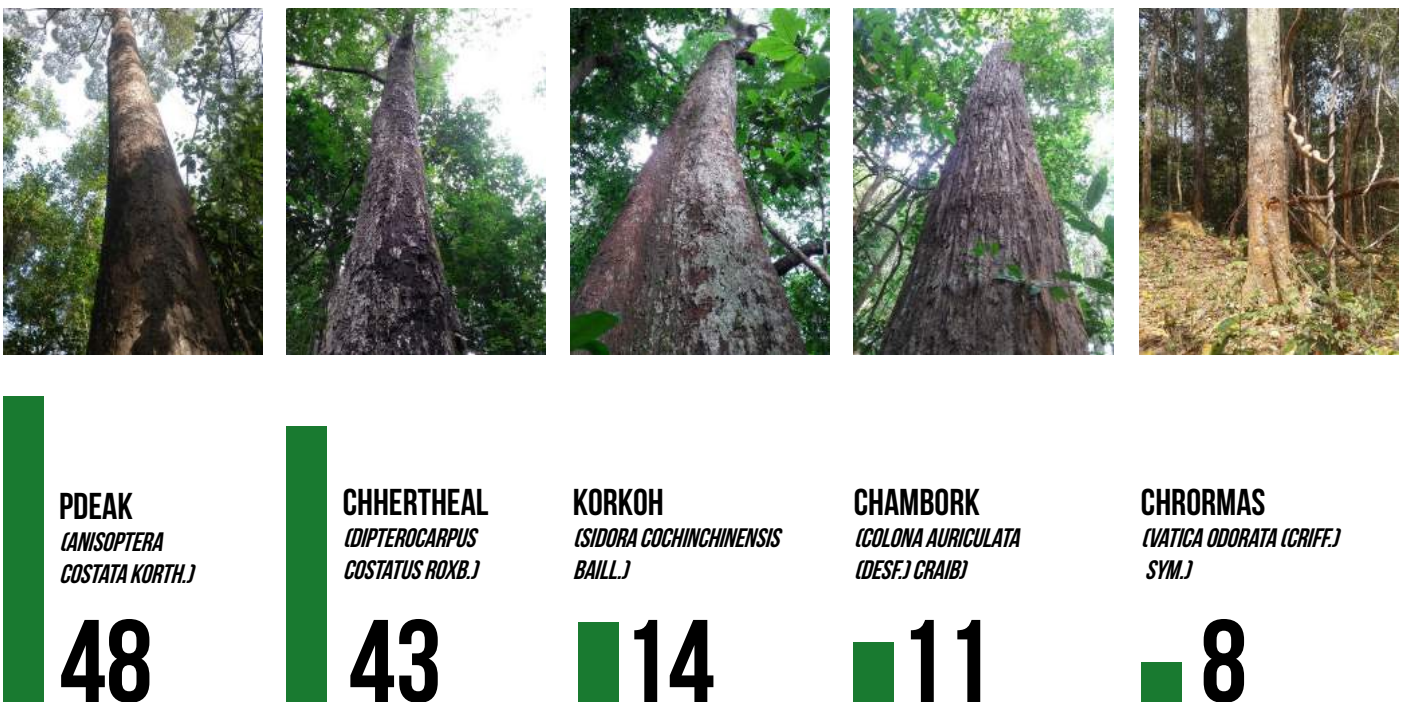


Figure 3.6: Most reported luxury tree species during the reporting period (Apr-Jul)

NTFP TYPE



Figure 3.7: Different types of NTFP reported during the reporting period (Apr-Jul)



ILLEGAL ACTIVITIES

Two hundred and twenty-eight (228) illegal activities were recorded in the entries from April to July 2016, and almost all of them (99.3%) documented illegal logging. No illegal hunting or fishing was recorded and no ELCs. The remaining 0.7% corresponds to two cases of ELC plantations, and should not be overlooked. On 17th of May, members of PLCN came across an Acacia plantation owned by Think Biotech in Kratie province (Fig 3.8).

Even though there is a 20% decrease in reports of illegal activities compared to the previous monitoring period, reports of areas that have been cleared increased by 14% in this monitoring period. This shows that illegal logging is still continuing uninterrupted in Prey Lang. This change may indicate that single tree cutting may be giving way to plantation clearing, which is significant both for its effects on the integrity of the forest and its regeneration as well as the livelihood of local people. Further data needs to be collected to assess whether this indicates a more permanent change.

Figure 3.8 Think Biotech Concession in Kratie province



The logging category is divided into four sub-categories:

- “Stump” (157 cases, 56%) which refers to cases where the forest monitors find a single tree stump,



- “Cleared Areas” (68 cases, 24%) which refers to large deforested areas.



- “Planks” (39 cases, 14%) which refers to timber that the loggers leave behind



- “Transport” (17 cases, 6%) which refers to different means of transportation such as cow machine (local tractor), motorbikes and less often big trucks



ILLEGAL LOGGING



Figure 3.9: Reporting Illegal logging during the reporting period (Apr-Jul)



In cases where the forest monitors reported either a “Stump” or “Planks”, they had the option to subsequently report the name of the logged tree. Among the ~48% of the cases where the name had been entered, the most reported species were Chhertheal (*Dipterocarpus alatus* Roxb. & G. Don) and Pdeak (*Anisoptera costata* Korth.)

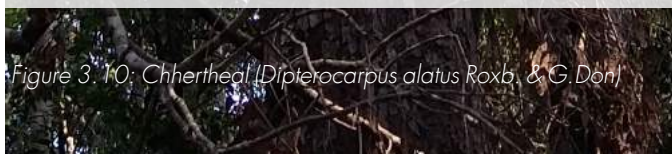


Figure 3.10: Chhertheal (*Dipterocarpus alatus* Roxb. & G. Don)

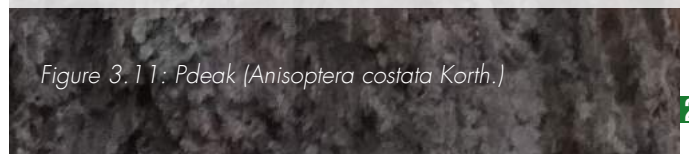


Figure 3.11: Pdeak (*Anisoptera costata* Korth.)

During forest patrols, the participants usually follow the sounds of logging. In most cases, the loggers manage to run away before the patrollers can catch them but they often leave both the timber and chainsaws behind. In these circumstances, the chainsaws (Fig. 3.12) are confiscated, their serial numbers are noted down and they subsequently are handed over to the Ministry of Environment.

The wood is often impossible to transport and therefore left behind. When the monitors encounter the loggers, they first try to de-escalate the situation by using non-violent methods. They will then check whether the loggers have logging permits. If they do not, which is usually the case, PLCN informs them about the destructive effects of logging on the forest and communities and makes them sign a contract (using thumb prints), stating that the loggers will refrain from continuing these illegal activities in the future.

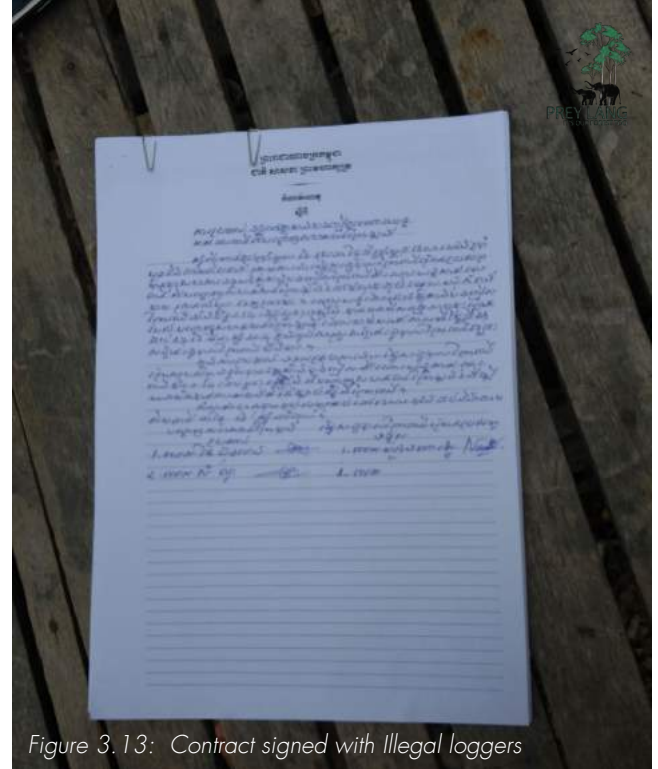


Figure 3.13: Contract signed with Illegal loggers

While this does not ensure that illegal loggers do actually refrain from such activities, the contracts are still useful because they create a database of names and faces (pictures of the illegal loggers are also taken) and evoke a sense of guilt or even shame in the offender (Fig. 3.13).

As previously mentioned, the category “Stump” refers to cases where the forest monitors find a single tree stump. The extraction of single, high-value trees is a common practice among illegal loggers, who do not have the means to log whole areas. The logged trees are either cut up on site or directly transported out of the forest as logs. Because the illegal loggers have to use roads coming out of the forest to transport the wood and pass through villages, they are often sighted by local PLCN members. One issue with recording cases of transportation is that it can be difficult to know whether the wood was cut legally or illegally once outside the core zone of Prey Lang.



Figure 3.12 Chainsaw left behind by illegal loggers

3.2 TOTAL REPORTING PERIOD (4 FEBRUARY 2015 – 31 JULY 2016)

This part of the report gives a summary of the entries recorded during the whole reporting period from 4 February 2015 to 31 July 2016. Over the 18-month period, a total of 12,726 entries were recorded, 3,186 (25%) of which were validated (cases).

GENERAL FINDINGS

In Fig 3.14 we can see how the reports were distributed over the period and what forest monitors reported regarding “Resources” and “Activities”.

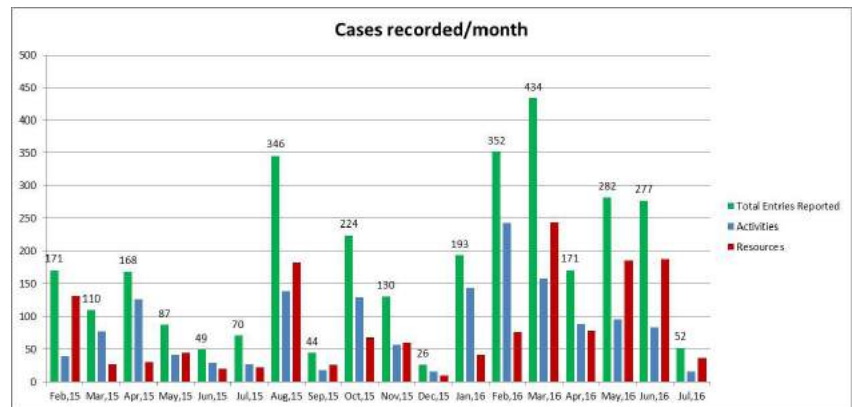


Figure 3.14: Reporting Illegal logging during the reporting period (Apr-Jul)

The total number of validated entries made by each province is shown in (Fig. 3.15). Variations in the number of reports can be explained by the difference in the areas of fig. 3.15 in the areas of the remaining forest in the respective provinces and therefore also the amount of illegal activities as well as natural resources in these areas. Kampong Thom (1,167 cases, 37%) and Kratie (826 cases, 26%) provinces have the most remaining forest and their number of entries is therefore higher than those of Stung Treng (693 cases, 22%) and Preah Vihear (481 cases, 15%). Time, resources and the number of members available to join the PLCN patrols in the different provinces also partly explain the differences.

CASES / PROVINCE

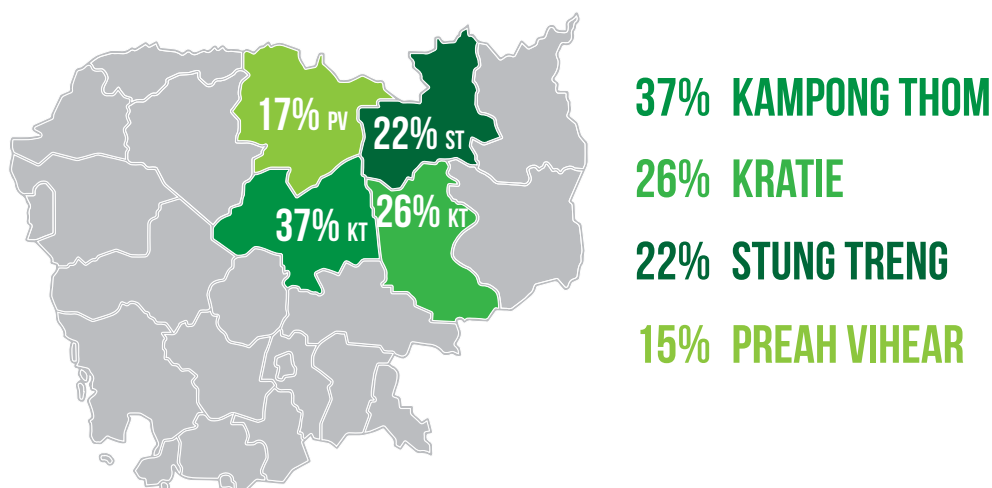


Figure 3.15: Distribution of valid entries, among the four provinces (KT: Kampong Thom, KR:Kratie, ST:Stung Treng, PV:Preah Vihear) during the total period

TOTAL VALID ENTRIES

Each entry falls into one of the four main categories: "Activities", "Resources", "Reporting (Interactions)" and "Other". (Fig. 3.16) shows the breakdown of the 3,186 entries into the four categories. Of the total of 3,186 validated entries, 1,519 cases were recorded as "Activities" (48%), 1,462 cases as "Resources" (46%), 178 cases as "Other" (5%) and 27 cases as "Reporting" (1%). These categories are again broken down into sub-categories, making the data even more detailed.



Figure 3.16: General monitoring activity during the total period

ILLEGAL ACTIVITIES

99.2% of the reported cases of activities concern illegal logging. The remaining 0.8% is distributed among "illegal fishing" (2 cases), "Illegal hunting" (3 cases), "ELC plantation" (4 cases) and "ELC mining" (2 cases) (Graph not shown). The logging category is further divided into four sub-categories representing different logging-related observations. (Fig. 3.17) The submitted entries were broken down as follows: "Stump" (824 cases, 55%), "Transport" (325 cases, 21%), "Area that is missing" (236 cases, 16%) and "Planks" (123 cases, 8%).

ILLEGAL LOGGING

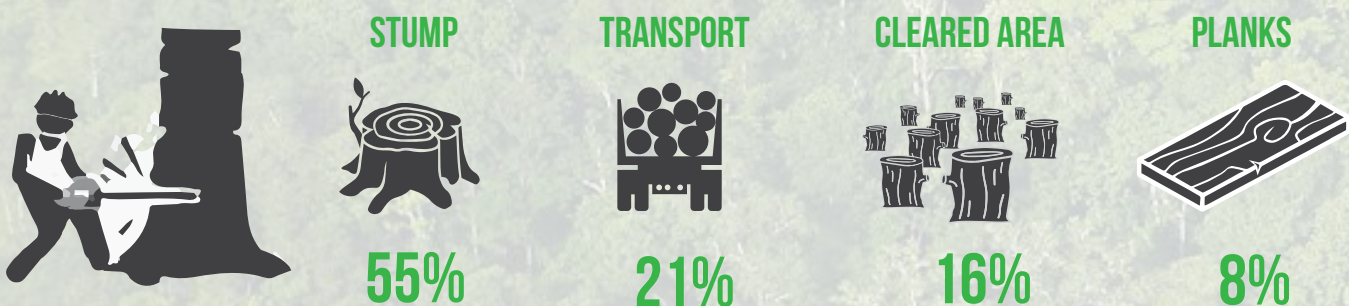


Figure 3.17 :Reporting of Illegal logging during the total period

As noted above, the “Stump” category refers to cases where forest monitors record individual tree stumps from single logged trees.

IT IS A COMMON PRACTICE FOR ILLEGAL LOGGERS WHO DO NOT HAVE THE RESOURCES TO LOG WHOLE AREAS TO LOG SINGLE, HIGH-VALUE TREES. THESE TREES ARE THEN EITHER CUT UP INTO PLANKS ON SITE OR TRANSPORTED OUT OF THE FOREST AS LOGS.

The forest monitors also have the option to record the local name of the species. As in the previous reporting period, the most commonly recognized species

to transport the wood out of the forest, they often pass through nearby villages where it is not uncommon for local members of the PLCN to record them. The problem with this is that as soon as the wood has left the Prey Lang core zone, it is impossible to tell if it has come from legal or illegal logging operations.

The app allows forest monitors to distinguish between different types of transportation (fig. 3.18). The most commonly used machine for transporting wood is the “Cow machine” (240 cases, 74%), a kind of tractor used in local farming. Next is “Motorbike” (33 cases, 10%) followed by “Big truck (25 cases, 8%), “Ox cart”

TRANSPORT

COW MACHINE



74%

BIG TRUCK



8%

OX CART



4%

MOTORBIKE



10%

Figure 3.18: Reporting of Illegal transportation cases during the total period

logged in this way are Cherthheal (*Dipterocarpus alatus Roxb. & G.Don*) and Pdeak (*Anisoptera costata Korth*).

“Transport” refers to cases when transportation of logs or planks was recorded both inside and outside of the core area of the forest. Because illegal loggers or timber haulers have to use roads

(14 cases, 4%) and “Other” (13 cases, 4%). The category “other” contains cars, boats and unidentified vehicles.

A “Cleared area” is defined as a larger deforested area, usually cleared to make way for agricultural production or new forest plantations. The scale of the cleared area may vary greatly between

entries. While the number of recorded instances in this sub-category may seem low, it is important to note that these have a much larger impact on the state of the forest ecosystem than single tree stumps.

The “Planks” (123 cases, 8%) categorization is used when forest monitors find plank stashes in forest clearings or at the roadside. These planks are usually cut up by the loggers to be transported later by a different group of haulers.

In December 2015, a “locality” option was added to the app, which allows the forest monitors to add information about illegal loggers encountered. The options available are: local, immigrant, ELC and “do not know”. While the forest monitors’ reporting is still low for this category, the function will, in the future, serve to help understand how much of the deforestation is caused by companies.

NATURAL RESOURCES

Besides recording illegal logging activities, an important part of the monitoring consists of recording the natural resources within Prey Lang forest. This will help underline the importance of protecting the forest, whose resin trees and other non-timber forest products (NTFPs) constitute a vital part of the lives of many of the local villagers. (Fig. 3.19) shows these observations broken down into the four

sub-categories “Tree”, “Animals”, “NTFP” and “Sacred”.

As can be seen, the most documented resource is trees (1265 cases, 87%), followed by NTFPs (126 cases, 9%) – mostly rattan, mushrooms, chillies and other unidentified plants. The records of “animals” (49 cases, 3%) and “sacred” resources (22 cases, 1%) such as burial sites, temples and sacred trees make up a minor part of the resources documented.

(Fig. 3.20) shows a further breakdown of the distribution of tree species recorded under the sub-category “Tree”. “Resin trees” (792 cases, 63%) make up the majority of recorded trees. This can be explained by the fact that these species are used for resin extraction. The resin can be sold on the local markets and gives the families a vital income.

RESOURCES

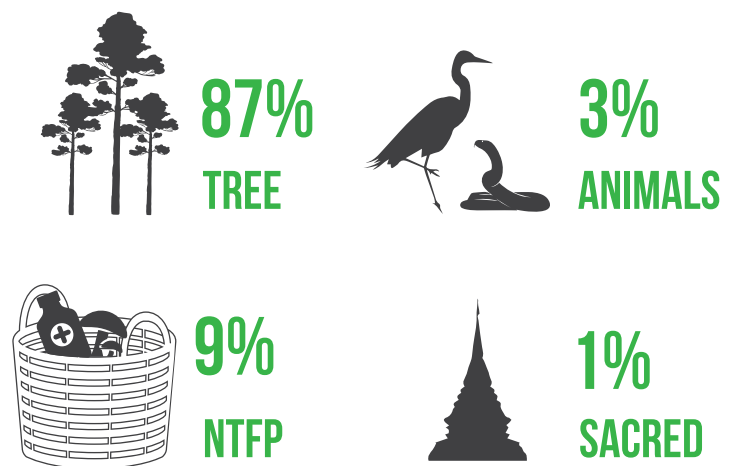


Figure 3.19: Recorded resources during the total period

It is only natural that patrol members will frequently recognize these trees as a valuable resource. The resinous trees within the Dipterocarpaceae family are also attractive as timber, as it is graded as above-average quality. "Other luxury trees" (463 cases, 36%) is a mix of 25+ different species that make up the second largest group, with "Unidentified trees" (10, 1%) constituting the smallest group.

TREES



Figure 3.20: Recording of trees during the reporting period

Of the luxury trees, the most notable species are Doung Chem (*Heritiera sumatrana* (Miq.) Kosterm. / *H. javanica* (Blume) Kosterm), which is a source of Mengkulang timber [30], Krolanh (*Dialium cochinchinense* Pierre), which has been listed as near threatened on the IUCN Red List of Threatened Species [31], and Chambork (*Colona auriculata* (Desf.) Craib. All three of these species are used in construction and for making furniture.

Apart from the tree resources, many villagers (including members of PLCN) are dependent on NTFPs for survival. Products such as resin, rattan, chillies, mushrooms and other plants are harvested and either used for crafts, food and medicine in households or sold on local markets for extra income. (Fig. 3.21) shows the distribution between the different types of NTFPs that have been registered in the forest. The three sub-categories of "Edibles" (42 cases, 33%), "Crafts" (38 cases, 30%) and "Medicinal" (35 cases, 28%) make up almost equal parts, with "Unidentified NFTP types" (11 cases, 9%) accounting for the remaining entries.

NTFP TYPE

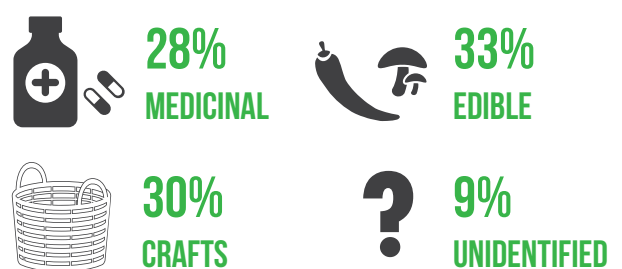


Figure 3.21: Different types of NTFP during the reporting period

Although Prey Lang forest is rich in biodiversity, the recording of animals only accounts for 3% of the total natural resource entries. Animals are difficult to capture, and these reports are usually based on spotting of animal tracks, faeces, or spotting them by hearing or sight. (Fig. 3.22) shows the most reported animals. As PLCN members become more accustomed to using the app, the number of records in this category is expected to increase.



Figure 3.22: Most reported animals during the total period

REPORTING INTERACTIONS

This category contains all the records of interactions with authorities. (Fig. 3.23) It is further divided into four categories: “Positive interaction with authorities” (23 cases, 85%), “Negative interaction with authorities” (3 cases, 11%), “Authorities seen taking illegal actions” (1 case, 4%) and “Submitting official report to authorities”, for which there were no cases. The only time PLCN members reported authorities taking illegal actions was in October 2015. Forest monitors reported a local tractor transporting wood and selling it to an official from the Forestry Administration. Although the last categories seem very important, the forest monitors are not using this documentation option. Through personal communications with forest monitors, we have reason to believe that the low number of reports of “Authorities taking illegal actions” may not reflect the reality.

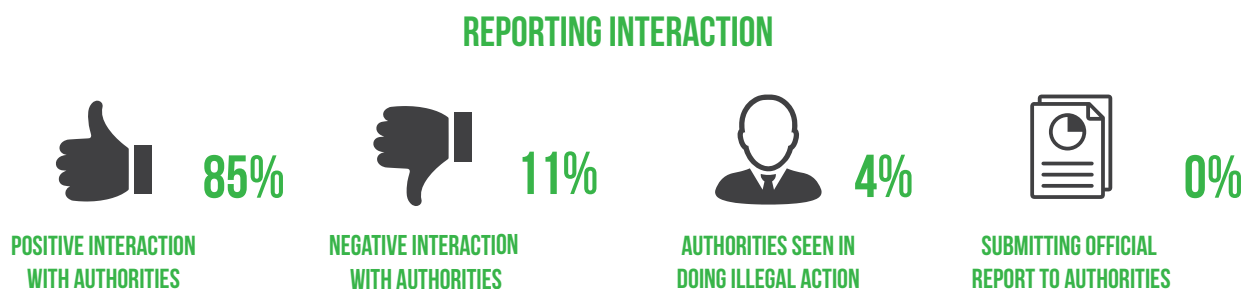


Figure 3.23: Reporting interactions during the total period

Some cases may be directly related to one of the other categories, such as confiscating a chainsaw, registering a document signed by illegal loggers etc. To ensure consistency in the data and avoid duplication, they are put into this category. This category also contains other records such as group photos of the patrols, monk marches and meetings/workshops. Under the category "Other", we also find the recording of sawmills, which should not be present in a protected area. The results of the records in the category "Other" can be seen in (Fig. 3.24) below.

CATEGORY "OTHERS"

38

CHAINSAWS



17

DOCUMENTS/AGREEMENTS



2

MAPS



54

PATROL PHOTO



17

MARKERS/SIGNS



11

MEETINGS/WORKSHOPS



14

MONK MARCH



20

TRAINING



20

OTHER



Figure 3.24: Category "Other" during the total period

An aerial photograph showing a large area of deforestation. The top half of the image is a dense, lush green forest. Below the forest, a large, cleared area of brownish soil is visible, with some scattered trees and debris. The bottom half of the image shows a smaller, more intact forest area. The text '4. Map of PLCN's monitoring activity' is overlaid in white, serif font across the middle of the image.

4. Map of PLCN's monitoring activity

(Fig. 4.1) is a visual representation of what has been recorded in Prey Lang since the beginning of the monitoring period (February 2015). PLCN's forest monitors have made greater efforts in monitoring natural resources (257 cases, 44%) and illegal activities and the confiscation of chainsaws (194 cases, 33%). Even though the Prey Lang area has been newly classified as a Wildlife Sanctuary Area (in May 2016), data on illegal logging both inside and outside the boundaries of the protected area were recorded in Kratie, Stung Treng and Preah Vihear provinces, as well as along the Mekong River. Highlighted on this map are the illegal logging cases recorded inside the protected Prey Lang area.

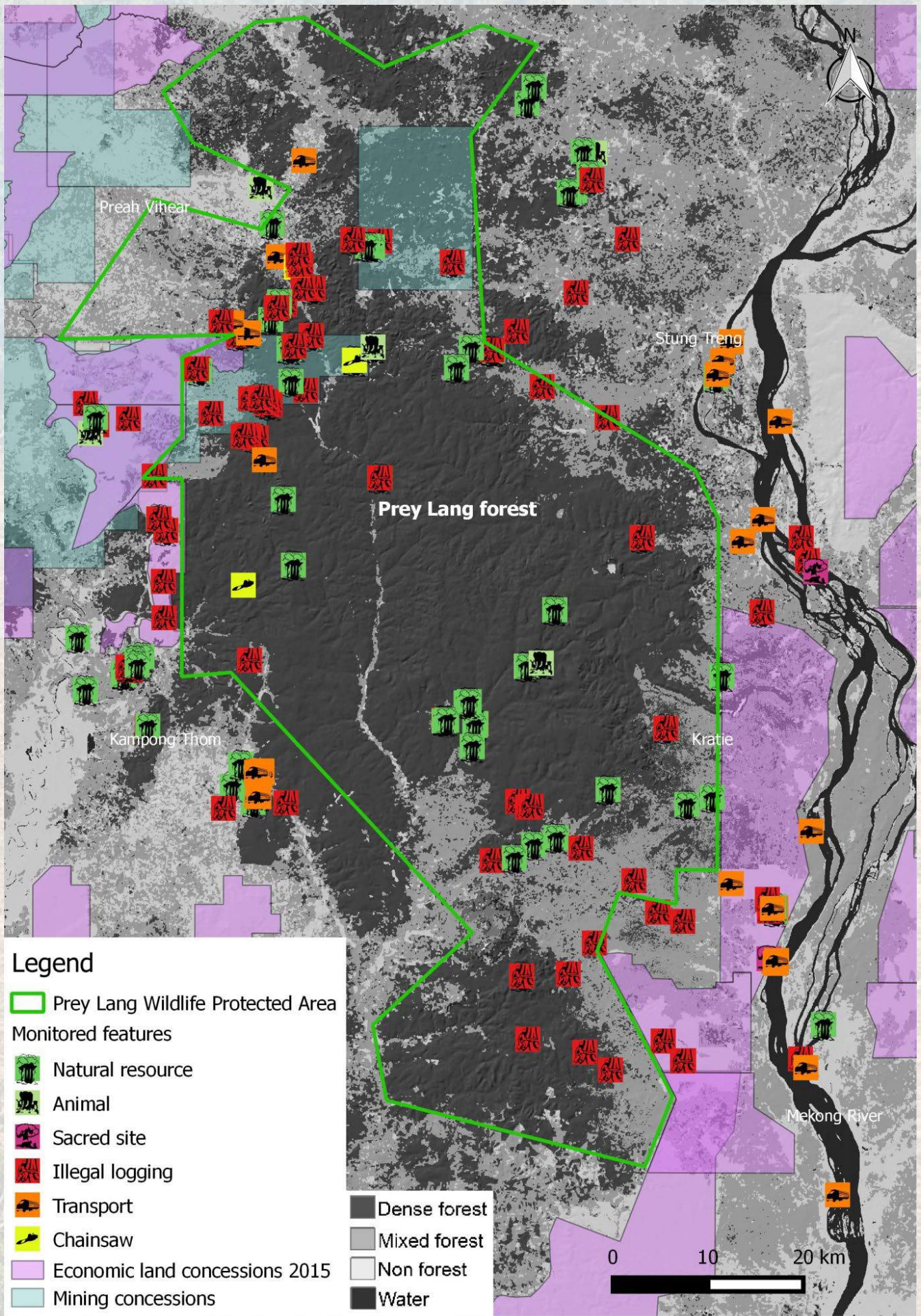


Figure 4.1: Map of Prey Lang with the monitored activities. Forest cover map modified from Open Development Cambodia (ODC, 2014). Economic land concessions and mining licenses data was taken from Licadho (2015) and ODC. Map generated using QGIS Brighton 2.6.0

5. Conclusions

THE NUMBER OF CLEARED AREAS RECORDED INCREASED BY 14% IN COMPARISON TO THE PREVIOUS MONITORING PERIOD. DEFORESTATION AND ILLEGAL LOGGING ARE STILL SERIOUS THREATS TO PREY LANG

The collected data shows that both protected and unprotected areas are affected by illegal logging. The extent of illegal logging and plantation clearing varies in the four provinces. Compared to the previous reporting period, the most significant

change has been seen in Preah Vihear, where increased illegal logging activities have been witnessed [33] (Steering Committee meeting notes).

The extent and quality of cooperation between subnational government and PLCN also varies in the four provinces. Generally, cooperation has improved since the transfer of the jurisdiction of Prey Lang from the Ministry of Agriculture, Forestry and Fisheries (the Forestry Administration) to the Ministry of Environment. All provinces have reported an improvement in

However, further data needs to be collected to investigate whether or not this change is permanent.

PLCN's efficiency in collecting data has risen significantly, as is summed up in the (Fig. 5.1) The work conducted by PLCN has resulted in the most extensive source of data on illegal logging activities in Prey Lang and, possibly, in Cambodia. This data is highly valuable for the government, researchers and the general public and should be used to strengthen the protection of Prey Lang.

INCREASE* IN PLCN REPORTS OF:



Fig.5.1: Increases* during latest reporting period

the relationship with the provincial departments of the Ministry of Environment. In some provinces, PLCN now undertakes joint patrols with the Ministry of Environment, which is an important step forward in the protection of Prey Lang. PLCN would like to continue strengthening the cooperation with local authorities, especially commune councils as this remains a challenge in many parts of Prey Lang [17].

THE DATA SUGGESTS THAT SINGLE TREE CUTTING MAY BE GIVING WAY TO PLANTATION CLEARING. THIS IS SIGNIFICANT DUE TO ITS EFFECTS ON THE INTEGRITY OF THE FOREST, AS WELL AS THE LIVELIHOOD OF THE LOCALS.

*The increase derives from the comparison of the two monitoring periods: the current (Apr-Jul) and the previous one (Dec-Mar). It is based on the results of the 4th monitoring report, and refers to an increase in percentage point (p.p), being the arithmetic difference between two percentages.

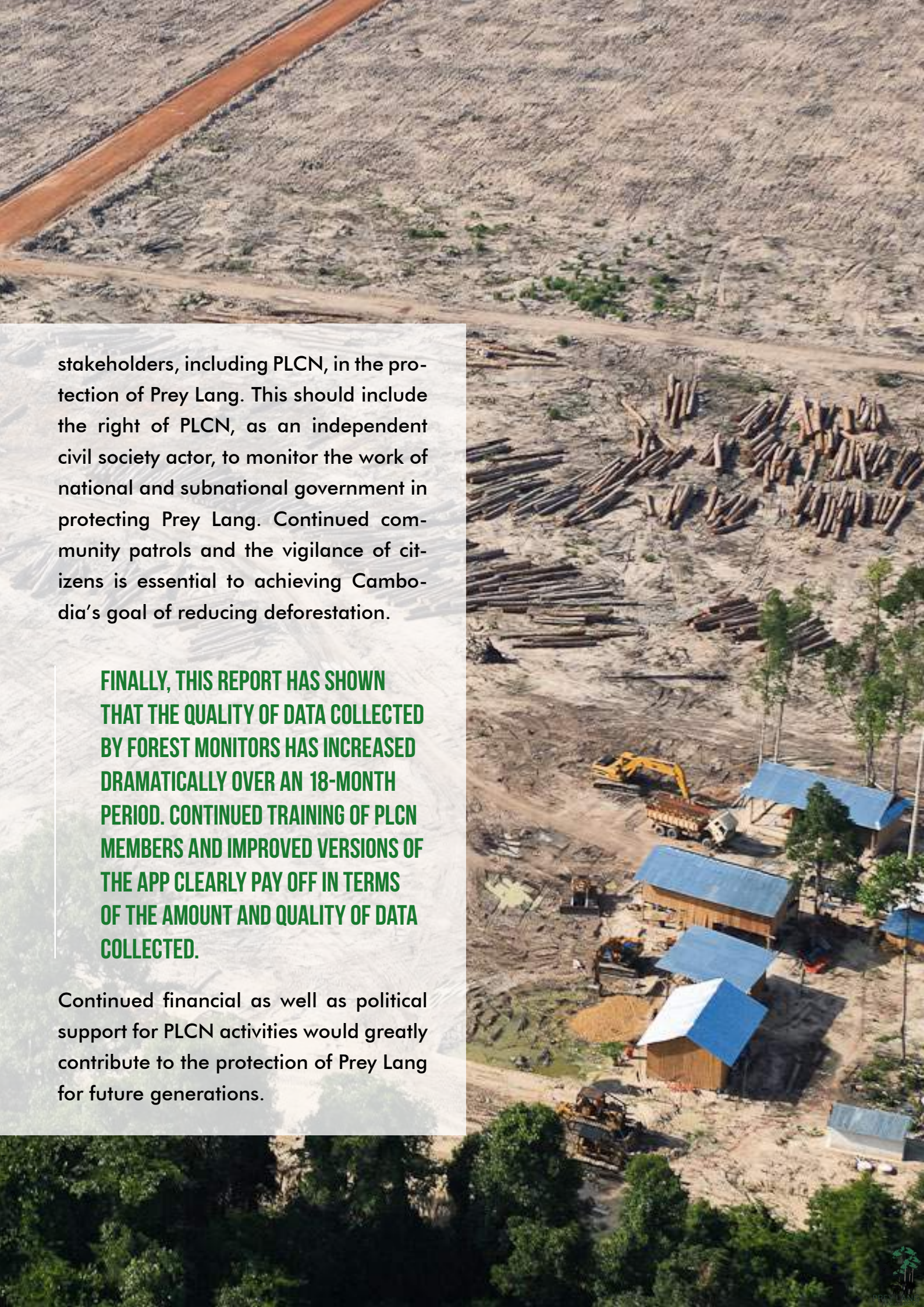
PLCN has shown that community monitoring can:

- Provide data of similar accuracy to that collected by professionals,
- Increase feelings of ownership and responsibility,
- Promote local involvement in decision-making,
- Shorten the time to put new regulations in place,
- Shorten the response time between when illegal activity is observed and enforcement happens.

6. Recommendations

An aerial photograph showing a landscape of deforestation. A wide, reddish-brown dirt road cuts through a cleared area. To the right of the road, a large pile of cut logs is visible. The background shows a steep, eroded hillside with sparse vegetation. In the foreground, a dense, green forest remains, contrasting with the cleared area.

Forest patrols armed with smartphones and a specially designed app have proven a cost-effective way of monitoring forest crimes and natural resources. Local communities quickly learn how to use information and communication technology and are able to document and report illegal activities. Before systematic monitoring commenced in February 2015, PLCN had no systematic records of forest crimes and natural resources. The simple and visual design of the app enables forest monitors to upload observations to a database. The efficiency of the community patrols should prompt the Cambodian government and the Ministry of Environment, in particular, to initiate a dialogue and enhance cooperation with PLCN. Given the government's poor record of managing existing protected areas, the recent declaration of Prey Lang as a protected area should be seen as an opportunity to develop a co-management model. This model should define the roles, benefits and responsibilities of

An aerial photograph showing a large area of deforestation. A wide, reddish-brown dirt road runs diagonally across the top left. Below it, a large pile of cut logs is scattered on the cleared ground. In the lower right, there is a small settlement with several wooden houses with blue roofs. A yellow excavator and a truck are visible near the houses. The bottom of the image shows a dense green forest, contrasting with the cleared area above.

stakeholders, including PLCN, in the protection of Prey Lang. This should include the right of PLCN, as an independent civil society actor, to monitor the work of national and subnational government in protecting Prey Lang. Continued community patrols and the vigilance of citizens is essential to achieving Cambodia's goal of reducing deforestation.

FINALLY, THIS REPORT HAS SHOWN THAT THE QUALITY OF DATA COLLECTED BY FOREST MONITORS HAS INCREASED DRAMATICALLY OVER AN 18-MONTH PERIOD. CONTINUED TRAINING OF PLCN MEMBERS AND IMPROVED VERSIONS OF THE APP CLEARLY PAY OFF IN TERMS OF THE AMOUNT AND QUALITY OF DATA COLLECTED.

Continued financial as well as political support for PLCN activities would greatly contribute to the protection of Prey Lang for future generations.

7. PLCN Statement

**Kingdom of Cambodia
Nation, Religion, King
Statement
Thanksgiving to the Royal
Government of Cambodia**

The original statement was formulated in Khmer language and translated into English.

We, the members of Prey Lang Community Network from the four provinces: Kratie, Kompong Thom, Preh Vihear, and Stung Treng, would like to give thanks to the royal government of Cambodia through the Ministry of Environment that allowed us to attend the forum on “Natural Resource Protection and Conservation” at the Peace House on August 22, 2016. We were extremely excited that the government pays attention to us and the natural resources.

We all are Prey Lang Community Network, a volunteer network that has

joined the government in forest protection in Prey Lang wildlife sanctuary. We have observed that the government is taking greater effort in and paying more attention to the natural resource protection.

Recently, in order to celebrate International Indigenous Day, a letter signed by Samdech Decho Hun Sen, the Prime Minister of Cambodian government, says that, in order to enhance the living of the indigenous people, the government will continue to push forward the development work for our indigenous people, in accordance with rectangular strategy of the government, by strengthening the natural resource protection and preservation with sustainability and economic development in the areas that the indigenous people have been living in.

On the Fisheries Day celebrated on July 1, 2016, at Tpong District, Kompong Spue, Samdech Decho Hun Sen, the Prime Minister, stated that, “In order to

sustain our natural resources, our protection has to be done more strongly, more effectively, and more participatively.” Samdech also appealed to the State sector, civil societies, people and development partners to participate in our natural resource protection and conservation.

Presiding over the Conference of Annual Review on the work of Agriculture, Forestry and Fisheries on May 12, 2016, Samdech Decho Hun Sen, the Prime Minister, also appealed to the people, monks, communities and forest activists to join. On May 9, 2016, the government signed a sub-decree 74 អនក្រឹត្យ រដ្ឋបាល on the creation of “Prey Lang” wildlife sanctuary and the inclusion of the forests in other four places as the forest protected areas.

We have also observed that H.E. Sai Sam Al, the Minister of the Ministry of Environment, has taken a great effort in the forest protection in every forest area, and he recently committed to place his political life in the forest protection. This was a most appropriate decision making of the government in the cause of natural resource protection.

We, the members of Prey Lang Community Network, strongly believe that the government will take actions on time, as stated above, in order to close down all the forest destructive activities in Prey Lang wild life sanctuary and protect other areas from illegal activities of land concession companies and wood business companies in Prey Lang areas.

We, the members of Prey Lang Community Network, would like to request the government as follows:

1. The government recognizes the role of Prey Lang Community Network, and offers its ownership.
2. The government forms a local joint committee, which consists of Prey Lang Community Network, to monitor the protection work of Prey Lang areas.
3. The government offers the budgets and technical trainings on the natural resource protection to Prey Lang Community Network.
4. The government pushes for the effective actions of the Prey Lang natural resource governance and management from the village level to the local level.
5. The government pushes for the cooperation and participation of the Prey Lang Community Network and the Ministry of Environment.
6. The government improves and monitors the role fulfillment of the environmental officials, the forest administrators and the institutions involved in natural resource protection and conservation.
7. The government includes the significance and advantage of Prey Lang in the Cambodian educational system for the next generations to learn and comprehend.
8. The government includes Prey Lang as one of the core study centers.
9. The government takes action to confiscate all the chainsaws from villages, communes, districts, provinces, business

locations around Prey Lang, and to cease chainsaw importation.

10. The government shuts down the buying and selling of all types of woods, both legally and illegally, around Prey Lang.

11. The government interferes to close down all the sawmill businesses and wood crafts around Prey Lang wildlife sanctuary.

12. The Ministry of Environment takes action on illegal campuses and settlements with a purpose to clear the forest land, to hunt, and to ask as place for illegal loggers in Prey Lang area.

13. The Ministry of Environment continues to cooperate with Prey Lang Community Network, which was voluntarily founded since the year of 2000, in suppressing and preventing the forest crimes in Prey Lang areas.

14. The forest suppression and prevention committee takes action and interferes as soon as possible in order to prevent the forest crimes in Prey Lang areas.

15. The government takes legal actions on the officials, the local authorities and those who put the forest activists under life threat, and on the brokers who has been involved in wood businesses and Prey Lang forest destruction.

16. The government observes and investigates on the use of social land concession and mine concession around Prey Lang areas.

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6. Mr. Houl Veit, Kratie Community Network, 088 971 2820
7. Mr. Heoun Sopheab, Kompong Thom Community Network, 012 373 441
8. Mr. Minh Ni, Kompong Thom Community Network, 092 246 058

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