Using open data and digital mapping to aggregate evidence for identifying and protecting indigenous peoples' lands and resources in Cambodia

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Cambodia's indigenous communities face multiple threats to their land and livelihoods from the country's fast growth and resulting pressure on forest and other resources. Organizations working to help secure these lands need accessible, independent and reliable data and access to digital tools and resources. Initiatives that use data aggregation and digital mapping in an open data environment can provide an effective solution.

ABSTRACT

Cambodia's 24 indigenous peoples have traditionally managed nearly 4 million hectares of remote forests.[1] Their wellbeing is tied to land security.

Today they face threats from fast economic growth. It is common for indigenous communities to find agricultural or mining concessions encroaching on their land, logging companies clearing their forests or dam builders forcing them to relocate. Land alienation means loss of livelihood and tradition, poorer health and education.

Obtaining communal land titles can strengthen a community's position and help secure its land for future generations, but achieving title is a long and difficult process that requires extensive support from outside organisations. Community training in digital mapping, and data aggregation in an open data environment are important and useful steps. Many organisations are involved. Open Development Cambodia (ODC) has a unique role as an independent, politically-neutral body, aggregating data and developing interactive maps and datasets that are accessible in both English and Khmer. ODC's development-focused open data initiative offers a model for developing areas globally.

This paper examines the threats posed to the lands and resources of indigenous peoples in Cambodia, and the difficult process of obtaining communal land titles. It explores the role that digital mapping, other technologies and data aggregation on an open platform can play in supporting projects working towards land security for indigenous communities.
Key words:

Cambodia
Collective land title
Innovation technology
Indigenous peoples
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Open data

Background – What identifies an indigenous people?

Having a distinct language is one defining factor, and there are at least 19 indigenous languages in Cambodia (Over 90% of the population speaks the Khmer language).[2] Indigenous people (IP) communities also have distinct cultures and beliefs, are strongly connected to their land and forests and wish to preserve and protect their ancestral environments and way of life.

It is generally accepted that there are 24 groups of indigenous peoples spread across 15 provinces in Cambodia, often in isolated rural areas.[3] They have traditionally managed nearly 4 million hectares of remote evergreen and dry deciduous forests.

At the local community level the numbers are more uncertain. Some sources believe there are 450 indigenous communities in Cambodia, while others believe the number is over 550 or even over 600.[4] It is generally agreed that indigenous people make up between 1 and 2 percent of the total national population of 15 million, but their numbers have not been separately identified in national census data to date.[5] Of the approximately 500 communities, only 119 are officially recognised by the Ministry of Rural Development,[6] so a large majority of indigenous communities have no official government recognition. Only 14 communities have been issued with communal land titles.[7]

Without the protection of title, community lands are under threat

Much of Cambodia's infrastructure and systems of governance were destroyed in the 1970s and 1980s during the Khmer Rouge regime and civil war. The country's economy has grown rapidly in recent years. However, without a strong base of land titling, limited law enforcement and huge pressure on natural resources, indigenous peoples have been alienated from many of their lands, forests and resources.

The scale is enormous: A 2013 study found that 3.9 million hectares, approximately 22 per cent of the country, is now controlled by the private sector and particularly the local elites.[8] Nearly 12 percent of the country's land area, or about 2 million hectares, has been granted to investors through economic land concessions (ELCs) that can last for up to 99 years.[9] In addition, 704,592 hectares have been granted for different types of mining licenses, and 305,405 hectares assigned to 72 hydropower projects.[10]

The indigenous communities live in areas of Cambodia that are often resource-rich, and are losing their lands through large-scale deforestation, land conversion for agribusiness and major infrastructure developments such as hydropower dams.
Land security is vital. Some people in Cambodia, use a phrase 'dei chea chivit' meaning 'land is life', which sums up its importance. Economic land concessions have meant the loss of sacred burial lands, spiritual forests and farming lands of many indigenous people. Their livelihoods, typically involving shifting cultivation and the extensive gathering of forest products, have been negatively affected. Their spirit forests hold deep significance for them as a link to ancestors and natural spirits. Their identities and cultures and beliefs are intimately bound to their communal lands and forests.

Forest loss has been especially notable, happening both inside and outside of economic land concession areas on a vast scale. In a 2010 report on foreign investment in agriculture in Cambodia, the United Nations Food and Agriculture Organization and the International Tropical Timber Organization found that Cambodia had seen the third greatest primary forest cover loss in the world.

As a United Nations office described in 2007, "The alienation of indigenous land through the grant of economic land and other concessions is undermining the ability of indigenous communities to register their collective ownership of traditional lands, and enforce their rights to land under the Land Law."[11]

Land alienation is continuing today. In 2016, a Chinese-owned company opened a $360 million sugar mill in Preah Vihear province, but local people and indigenous communities have accused the company of land grabbing.[12]

The real issues is that all this takes place in a context of significant corruption, trampling people's legitimate land rights. For four years in a row, Transparency International's index of corrupt countries has rated Cambodia the country perceived as ASEAN's most corrupt, ahead only of North Korea and Afghanistan in the whole of Asia and the Pacific. The 2016 Corruption Perceptions Index put Cambodia at 156 out of 176 countries worldwide.[13] In the 2016 Rule of Law Index, published by the legal non-profit World Justice Project, Cambodia ranked 112 out of 113 countries surveyed globally and last in the East Asia and Pacific region.[14]

Looking at the challenges they face, IP communities start from a doubly disadvantaged position. Firstly, they live in remote areas that are a considerable physical distance from Phnom Penh, the capital and the economic and government center of the country. Their voices are rarely heard where decisions are made and they have very little influence. Secondly, their languages, values, lifestyles and belief systems are very different from those of government and the companies coming into contact with them. In many cases there has been limited contact with state institutions. For example, many IP communities prefer to handle disputes between community members themselves, rather than using the Cambodian police or court system. It is easy to see the weak position they hold.

Migration is also having a significant impact on IP communities. On one side, some IP families move away to give their children better educational opportunities or to find higher incomes. On the other side, outsiders move into IP areas to take advantage of the land, forests and other resources.[15]

In these vulnerable circumstances, the costs of having no form of security to rely on are enormous. The International Working Group on Indigenous Affairs made a general comment that is very true for Cambodia: "Indigenous peoples remain on the margins of society: they are poorer, less educated, die at a younger age, are much more likely to commit suicide, and are generally in worse health than the rest of the population."[16]

Gaining collective title to land is an important step to a stronger and healthier future. Title has put IP communities in a stronger position when dealing with outside companies. The O'Rona community in Mondulkiri was able to successfully defend its land in a 2015 court challenge by producing its communal title.[17] In the process of gaining title, other communities have been able to regain land lost to industrial agribusiness plantations.

There is even some evidence that simply engaging in the process of working with NGOs and mapping boundaries, developing land management plans and so on may itself reduce loss of forest area.[18]

The steps for granting communal land titles

Indigenous peoples are not mentioned in Cambodia's 1993 Constitution, nor do they appear in any laws before the 21st century. Change came at the start of this century, when the Land Law 2001 recognised indigenous people as a legal category. The law also included the concept of communal land rights – the shared rights of a community – making Cambodia the first mainland Southeast Asian country to do this.

The Land Law was followed a year later by the 2002 Forestry Law, which also recognised indigenous peoples. It includes the concept of communal forests, but compared to communal land title, community forestry provides indigenous peoples much weaker rights.

While the Land Law of 2001 introduced the concept of communal title, no titles were actually issued at that time because the process wasn't sufficiently clear. It was in 2009 that the real action began, with the issuing of the Sub-decree No. 83 *Procedure of Registration of Land of Indigenous Communities* and the *Circular of the Ministry of Rural Development on the Procedures and Methods of Implementing National Policy on the Development and Identification of an Indigenous Community.*

This 8 year-gap was a crucial one, because it was during this period that a large proportion of the almost 2 million hectares of economic land concessions were granted.

To summarize, the 2009 sub-decree set out three steps:

Step 1: The Ministry of Rural Development issues a letter of recognition that the community is an indigenous community.

Step 2: The Ministry of Interior registers the community as a legal entity.

Step 3: The Ministry of Land Management, Urban Planning and Construction surveys the land and ultimately issues titles.

The 2009 sub-decree sets out what land can be registered as communal:

1. Residential land or land reserved for house building that has already been

registered as state private land.
2. Traditional agricultural land, actual cultivated land, farmland and reserved land necessary for shifting cultivation recognised by administration authorities and neighbors and that has already been registered as state private land.
3. Spiritual forest land (one or more places for each community) with the total land size not more than 7 ha.
4. Forest land burial areas (one or many places for each community) with the total land size not more than 7 ha.

Only relatively small areas of forest can be included in communal land titles – up to 14 ha per village. This is a challenge for those communities, such as the Bunong in Seima, whose livelihoods depend on forest resources such as resin.

Land held in communal title cannot be sold or mortgaged. It is a useful approach to protect an indigenous people's spirit forest, graveyards, and important ancestral lands for future generations. Holding title helps protect against encroachment from outsiders.

For some in the community, though, this type of title also has its restrictions. If someone needs money for medical treatment, or wants to invest in small machinery to expand their production, they cannot use communal land as security for a bank loan. For this reason, some communities have chosen not to apply for communal title because they want the freedoms that private title brings. Some communities have started the process to apply for communal title but then put their application on hold.

Challenges to the move for communal title don't just come from people in the community who want private title – they also come from outside. Commercial actors promote private title because it serves their interests better, as they can buy land held in private title. There is also a widespread perception that local and central governments prefer communities to take private title. Land titling is an electoral issue, with candidates promising offers of support to a community around titling depending on how the community votes.

Step 1 – Recognition by The Ministry Of Rural Development

The first step is for a community to obtain a letter of recognition as a community from the Ministry of Rural Development. There is no government budget to assist communities in achieving this – funding for the process comes from donors and NGOs. At the start of 2017, of the approximately 450–500 IP communities in Cambodia, 119 had received a letter of recognition.[19] In other words, approximately only a quarter of the IP communities have made the first step.

Although the process sounds very simple – getting a letter from the Ministry saying you are who you are – is difficult. A community has to self-identify, has to be aware of what communal title means and what the process involves, and has to decide that communal title

is the path it wishes to follow. For people who typically cannot read government documents in Khmer language, who do not understand the law and who are geographically isolated, this requires capacity building and consensus building in the community, typically with assistance from an outside organisation.

The Ministry requires good evidence before it gives recognition. The community needs to compile information about exactly what makes them a community. An indigenous NGO worker in Ratanakiri province found in practice that "to be recognised by the Ministry of Rural Development, a community needs to prove it is a collective unit sharing common language, customary law and culture, including art, dance and ceremonial events".[20]

Step 2 – Approval as A Legal Entity By Ministry Of Interior

To be able to get title, a community must be approved as a legal entity. This requires the community to establish a committee that is recognised and approved by the local commune council. Internal rules and bylaws must be agreed upon. With local, provincial and national approval, the Ministry of Interior then accepts the community as a legal entity.

This is a significant amount of work, because all the documents have to produced in the Khmer language, the official and government language in Cambodia, and most indigenous people cannot fluently read and write Khmer.

Many NGOs have also found that often, subnational agencies don't have a good understanding of the process. This can lead to delays.

Of the 119 communities that have been recognised as a community in step 1, 102 have also been accepted as legal entities.[21]

The big challenge is the gap between step 2 and the final granting of title in step 3. Part of step 2 requires a community to identify its boundaries, locating them with GPS points and then compiling an agreed digital map. One donor estimated that steps 1 and 2 cost about US$10,000 each. Another $20,000 then needs to be found to carry out the mapping – and again, there is no government funding available to assist with this.

IP communities only achieve progress through this process with extensive support from NGOs. Training and capacity-building must take place so the community understands the process itself, and can then work through it.

GPS Mapping

The community needs to determine what it wishes to have included in communal land: a graveyard, spirit forest, farming area, and so on. Then it needs to physically establish boundaries, which is done on foot with hand-held GPS devices. GPS[22] stands for Global Positioning System. It makes use of signals sent out from a network of 31 satellites orbiting around 20,000 kilometres (12,000 miles) above the earth and circling it twice a day. A

handheld receiver can use these signals to work out the latitude and longitude of a point on the earth. It typically needs to receive information from four different satellites (although in some circumstances three satellite signals are enough). When a basic model of GPS is used with care, accuracy within 2 metres is easily achieved, but more advanced models of GPS units provide accuracy within a few millimetres. Once the GPS coordinates have all been completed they are downloaded to a computer and the creation of a digital map begins.

Where GPS mapping involves dense forest or steep terrain it can be difficult and time consuming, involving extended fieldwork. Typically the work is conducted by NGO staff.

Communal land is also often made up of a number of separate blocks that may be some distance apart – it is common for IP people to cover a lot of ground while hunting or collecting forest resources. There may also be negotiation required with other communities to define boundaries. This often means that during the process where GPS devices are taken around a location, not only will the IP community and NGO supporters be involved, but other communities with land interest may also be needed to agree where one community's land ends and another begins.

Once the maps are completed, they are checked at the district and then provincial level. The paperwork required from earlier stages is checked to ensure it is complete. At this point, even though title may still be a long period away from being issued, some interim protection measures on the land can be ordered by the provincial governor. This is the result of a 2011 inter-ministerial circular that allows local regulations temporarily stopping land transactions and requires local authorities to put on hold paperwork for transactions involving land in the proposed communal area.

Step 3 – Issue of Title By Ministry Of Land Management, Urban Planning And Construction

In the final stage of the process everything required to this point is checked. Checks are also made with the Ministry of Agriculture, Forestry and Fisheries and the Ministry for Environment to see whether the identified land overlaps with state land or a protected area. If communal land is in public state land, a sub-decree is required to change that portion of land to private state land, to allow title to be granted.

This was the case with communal land occupied by mostly ethnic Bonong communities inside the Seima National Protected Forest. Wildlife Conservation Society (WCS), a US-based wildlife conservation organisation had supported the management of Seima National Protected Forest since it first gained protection status in 2002. Subsequently they supported the IP groups residing in the area in attaining communal title, recognizing the important role for indigenous communities in environmental management and protection.

The communal title proposal is made public, allowing comments and challenges to be heard.

The government carries out an official survey of the land, reinforced concrete posts are installed at regular intervals to mark the boundaries, and titles are issued.

A community often does not gain just a single land title – there are typically multiple blocks of land that are part of the community, and so when a community's land is officially recognised as communal land at the end of the process, it is not unusual for there to be ten or twelve or more separate blocks of land that have titles issued.

54 communities have made application to begin step 3 so far, with 47 applications accepted and 24 in process through this last step. Just 14 titles have been issued to date.[23] The first were pilot projects in Mondulkiri and received their titles in December 2011. However, it has taken some other communities 4 to 8 years of work to gain title.

There are some government funds available at the very final step of the process, $30,000 per community for up to 10 communities per year.

Among the organisations that have funded work with IP communities wanting communal title:
- The International Labour Organization set up a Support for Indigenous Peoples' Project, involving 166 indigenous communities.
- The Office of the UN High Commissioner for Human Rights in Cambodia launched its programme in 2011, giving legal, financial and logistical support to communities in Mondulkiri, Kampong Speu and Battambang provinces.
- The German aid agency GIZ ran a substantial programme of support until mid 2016.
- Support for indigenous land registration has also been provided since 2009 through the Land Administration Sub-Sector Program, which is supported by multiple donors.

Onsite support of IP communities has been carried out by a wide range of NGOs. The Indigenous Community Support Organisation (ICSO), for example, worked on this with 40 villages in Ratanakiri province.[24] Other organisations involved, such as the previously-mentioned Wildlife Conservation Society, have undertaken this work as part of a wider program.

Open data and the role of Open Development Cambodia

Open Development Cambodia (ODC) is an NGO with a unique role. It was launched in 2011 as an independent, politically-neutral body and is registered with the Ministry of Interior in Cambodia as a local NGO. Supported in its inception and early development by funding from East-West Management Institute (EWMI), it was the first open data website[25] or organisation in Southeast Asia at that time. ODC specializes in aggregating data and developing interactive digital maps and datasets. Data from many sources are collated into an independent and easily-accessed platform, opening space for informed discussion of development issues.

ODC makes its data resources accessible online to everyone, in both English and Khmer language – it is critical that data is provided in the local language. ODC's management and staff are predominantly Khmer, with a mixed governing board.

ODC separates the provision of objective information from any advocacy or development agenda, and provides contrasting data sets. This separation of data from advocacy is a key strategic determinant of ODC's success. ODC's "just the facts" approach, based on the open data standard, allows the site to avoid some of the major pitfalls in societies where freedom of information is technically the law but where information that may not toe the official line can be censured as biased, self-censored as too risky, or discounted or discredited by peers as biased because it comes from a competing source with a particular advocacy perspective. Instead, ODC data presented *with context* but *without editorial comment* is perceived as credible and objective across sectors, rather than being purposefully provocative or biased. This allows it to remain available online as an important resource, used and even added to by entities that might otherwise question it or try to censor it. This methodology allows ODC to create a unique space for broader and more informed discussion of critical development issues, encompassing a wide range of perspectives in a less provocative format.

Operationally, data is collected and managed in a single database using CKAN, a web-based open-source data management system. Data is available online and downloadable in formats that include PDF, JPG, SHP, GeoJSON, CSV, KML and HTML.

ODC has an in-house digital mapping team who curate and provide an interactive map explorer that invites visitors to synthesize data and create new knowledge and insights to match their particular needs. The platform content covers a broader range of information and development themes than most groups who generally focus on specific themes. This allows for a more layered approach where competing perspectives can be represented.

The interactive technology ODC uses allows different map layers to be combined and assessed. For example, the ODC dataset for community forests lists 337 different forests, from those less than 10 hectares to one over 5000 hectares. There is also a first iteration online of a map and dataset for indigenous communities that provides data including the number of families, land size, etc. for different communities.

Accessing data for use is of course always a key issue. With the 14 communities that have been granted communal titles to date, the government has released maps for some of the areas, but not for all. It is therefore not possible from government data alone to produce a single map showing all the different titles issued so far. ODC's online map identifies the communities, the location, details of their landholding, etc, but does not yet include the boundaries for all the titles.

Some government data has not been available in digital format. ODC's staff have digitized this, cleaned the data and made it publicly available in a much more accessible way than previously provided. In some cases – for example with economic land concessions – ODC

has aggregated incomplete datasets from government together with those from other sources to build a more comprehensive picture.

Beyond the existing interactive maps, map layers and data sets, ODC has produced an online mapping kit that allows communities to create maps and develop mapping skills. ODC also has a set of hand-held GPS devices, and like other NGOs has run mapping workshops in different parts of Cambodia. It has worked closely with staff of other NGOs in this area.

ODC has partnered with other organisations to share its expertise and in return obtained additional web content and data. This included working on the 2013 *Atlas of Cambodia* with Save Cambodia's Wildlife. The Atlas reflects Cambodia's rapidly changing socio-economic and environmental landscapes. ODC's mapping expertise and open data platform complemented existing knowledge to produce a more comprehensive and widely accessible Atlas. Some of the data from the other NGOs fed back into ODC's interactive map.

This work has come at a time when digital technology is being adopted at an explosive rate. Internet use in Cambodia, for example, grew 414% in 2014.[26]

The quality and speed of service is quickly improving too. A new submarine telecoms cable just completed connects Cambodia, Thailand and Malaysia, increasing capacity and strengthening existing networks. Another underwater fiber-optic cable will patch into the existing AAE-1 cable, one of the main high-speed data connections that already links China, Vietnam and Malaysia.

The world is rapidly becoming smaller as we get better connected and what is being learnt in one place may be very useful in another. The existence of indigenous peoples whose lands and resources are at risk is not unique to the Mekong basin. While ODC was the first initiative of its type in Southeast Asia, its model of development-focused open data, its emphasis on digital mapping and its community training initiatives, offer potential for other developing areas around the world.

Where to Go From Here?

To date, just 14 communities from approximately 500 have received communal title. Another 24 communities have completed their mapping and are in the final stage of the process. It is believed that as many as nine communities may receive title in the next 12 months which is encouraging news.[27]

The bad news is that since a major donor, the German agency GIZ, withdrew from this area of work in the first half of 2016, no new applications for communal title have been received by the Ministry for Land Management, Urban Planning and Construction. Therefore, funding for the process as it currently exists is a major challenge.

While there are still NGOs with the capacity to work with IP communities when funding is available, that capacity does not remain static. Staff turnover is high within local NGOs, therefore momentum is often lost while new staff are trained and inducted into the progress of each case.

There are questions around the communal land titling process itself as it stands. Some observers have said that communal land rights in Cambodia should not be considered adequate, as communal land titles currently do not include the provision of strong and permanent communal rights over forests, an issue of great importance for those whose livelihoods are heavily dependent on forest resources.

It has also been suggested that Khmer people, the majority population in Cambodia, should also be given the same rights to obtain communal title since they also have communal lands that are being lost.

Cambodia has yet to ratify ILO Convention No. 169 on Indigenous and Tribal Peoples. This international legal instrument offers legal protection for indigenous peoples, including their rights to land and resources and self-management. It requires participation and consultation of indigenous peoples on issues that affect them - particularly development issues. For many people, ratifying this would be a positive step.

There is clear evidence that communal title has value, with communities reclaiming lost land from encroaching agribusinesses under government orders. There have also been signs of government flexibility around titles issued. Indigenous communities have been able to add land to their titles to provide for future agricultural development and population growth – and IP populations are certainly growing.

In the technology space, a lot is happening. Internet uptake is expected to climb from approximately 25% of the population at present to 80% in just three years' time.[28] Facebook has proved extremely popular in Cambodia. Much of the mainstream Khmer language news media follows the government line, and many Khmer citizens look to Facebook for news and information well beyond personal social contacts. The Cambodian Centre for Human Rights has promoted some land rights information through Facebook. There is a proven and growing role for digital services in supporting indigenous people on their path to communal title, and challenging threats to their land.

ODC's Continuing Role

ODC content quickly became regarded as a reliable source of data, cited in business plans, numerous mainstream and specialist media reports, academic research and in donor and UN reports. For example, the UN Special Rapporteur for Human Rights in Cambodia relied on ODC data in a 2012 report on economic land concessions.

By maintaining independence and neutrality and making objective data available and accessible to everyone without becoming an advocacy NGO, ODC maintains good

relationships with key actors in both government and civil society. From this position it can bring to one location data sets and maps from many, sometimes hard-to-find, sources.

As indicated above, the interactive technology ODC uses allows different map layers to be combined and assessed and for visitors to synthesize data and create new knowledge and insights to match their particular needs. For example, using the ODC dataset for community forests listing 337 different forests and overlaying it with the online map and dataset for indigenous communities that includes the number of families, land size, etc. for different communities the following types of analysis can be accomplished:

- Matching indigenous lands with economic land concessions: identifying the overlaps, and how much land is affected. This can be crucial information for a community and its NGO supporters when they are starting out on the path to land title and gathering information. Independent data can be provided to support the alteration or revoking of concessions. Although the scale of land concessions is enormous and the actors involved wield significant influence, the government has shown that it has the capacity to act in ways that benefit these indigenous communities:
  - In 2014, 24 concessions were revoked or reduced in size by a total of 202,210 hectares in 11 provinces.
  - A Chinese company that was granted an 8841-hectare concession in Preah Vihear in 2011 had this cut by approximately 1,000 hectares following protests from local people.[29]
  - A community in Battambang province, being supported by the UN's OHCHR in its journey to get communal land title, successfully claimed 700 hectares back from a plantation.[30]
- Identifying concessions that break the law. For example, under Cambodian law, ELCs can be granted only on state private land and cannot exceed 10,000 hectares. The same person or legal entity cannot hold several concessions that total more than 10,000 hectares. Studying publicly available and reliable datasets allows breaches of law to be identified. This provides evidence for an indigenous people to mount a challenge where their lands are being targeted.
- Locating the communities in areas where licenses have been issued for mineral exploration. While there may have been interaction between company staff and community people on the affected land, the community may not be clear about the companies involved or the details of the license granted. ODC's profiles can usually identify the companies, the areas of the license and any conditions that apply.
- Using ODC's extensive work mapping deforestation in Cambodia to measure the impact of forest loss on specific indigenous communities and their forests. ODC's mapping of forest loss has been based on Landsat images from the United States Geological Survey 1973 and 2014. This data can help a community assess what they have lost and indicate threats and risks in the background as they apply for title.

In addition to its wider work around communal land titling, ODC is looking at two closely related areas: data management of existing titles, and the land available from cancelled or reduced economic land concessions.

While obtaining titles for communal land is a big achievement for a community, it is not the end of the work they need to do. If a community is granted 18 titles, for example, those titles cannot just be divided between community members, put in safe places and forgotten. ODC has identified a need for digitizing the data, ensuring both its security and accessibility. It needs to be easily accessed by different community members in their discussions with commercial and government bodies, neighboring landowners and NGOs. Of course it also needs to be readily available should an IP become involved in court action to protect its land. Once again, digitizing data and making it accessible is a solution (This data is not openly available online from the government). ODC is working to source funding for this important project.

The second area of current action for ODC that has a potentially huge impact on IP land and communal title is identifying land that has been released from cancelled or reduced economic land concessions. Much of that land has overlapped IP land and been subject to dispute.

In May 2012, the Cambodian government stopped issuing new concessions and began scrutinizing existing ones. Two yeas later, an inter-ministerial body was established to look into 230 ELCs. (117 of these fell were the responsibility of the Ministry of Agriculture Forestry and Fisheries and 113 of the Ministry of Environment.) After another two years, in February 2016, the prime minister said the review was complete and nearly 1 million hectares of formerly-ELC land would be given to poor families.[31] There is clearly a potential for IP communities here, given the close proximity of many ELCs and IP communities.

ODC research has found that, as of January 2017, 32 ELCs had been revoked and 87 had been downsized. But it is not clear exactly which parcels of land have become available from cancelled or downsized ELCs – no maps or geospatial coordinates have been provided.

ODC is currently working with other NGOs and the UN's OHCHR to approach the government with a request that a complete and up-to-date data file of current, revoked and reduced ELCs be made available. ODC's data sets have been validated by other NGOs working in the area. ODC's report will be presented to government for its response. The intention is that ODC's online database can then be updated. Having a complete and up-to-date digital map of ELCs will be of enormous help to those IPS and the NGOs working with them as they identify their lands, identify potentially disputed areas and work towards obtaining communal title. (In law, companies planning major developments are required to complete impact assessments, so potential conflicts should be identified and resolved. But there is poor oversight and enforcement of this, impacting IP land security.)

In 2016, Open Development Cambodia became part of a wider entity, Open Development Mekong. The new resource now includes a regional platform and recently launched

localized Myanmar site, with Thailand, Laos and Vietnam to come online shortly. The region is home to 235 million people. The new site will allow transborder issues affecting IP communities and land title to be explored.

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[22] This technology is used in developing countries for more than just mapping land for titling purposes. At the United National climate change conference in Paris in December 2015, members of the Prey Lang Community Network in Cambodia explained how they use GPS systems and digital mapping to document illegal logging and other environmental crimes.

[23] IMG 2017, op cit

[24] Interview with Sao Vansey, E.D. ICSO, 13 January 2017.

[25] www.opendevelopmentcambodia.net

[26] Ananth Baliga. "Cambodians flock to the net." *The Phnom Penh Post*, 12 March 2015. Accessed on 5 November 2015.

[27] IMG Consultancy 2017, op cit

[28] Sok Chan. "Cheaper internet next year." Khmer Times, 26 October 2016

[29] Cheng Sokhorng, 2016. "Giant sugar mill set to open in Preah Vihear", *The Phnom Penh Post*, 4 February 2016

[30] OHCHR, Cambodia, 2015.

[31] Naren, K., 2016. "PM pledges 1 million hectares of ELC land to poor", *The Cambodia Daily*, 26 February 2016.