



LOGGING, MINING, AND AGRICULTURAL CONCESSIONS DATA TRANSPARENCY: A SURVEY OF 14 FORESTED COUNTRIES

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EXECUTIVE SUMMARY

Global demand for timber, agricultural commodities, and extractives is a significant driver of deforestation worldwide. The majority of the world’s forests are owned by governments, which often enter into contractual agreements with private companies or individuals for resource exploitation or conversion in a specific area for a predetermined amount of time. Transparent concessions data for these large-scale commercial activities are essential to understand drivers of forest loss, monitor environmental impacts of ongoing activities, and ensure efficient and sustainable allocation of land. However, most countries lack comprehensive datasets on the precise location, extent, and ownership of land concessions, and this makes it difficult to accurately understand how forest resources are being exploited, identify overlapping land uses, and monitor company activity.

This working paper gives an overview of the availability of information for land concessions in 14 forested countries (Brazil, Canada, Cambodia, Colombia, Indonesia, Liberia, Madagascar, Malaysia, Mexico, Myanmar, Papua New Guinea, Peru, Republic of the Congo, and Russia), with a special focus on open spatial information. This paper examines the existence of laws governing the disclosure of concessions data and assesses the completeness and quality of concessions data across countries and sectors, as reported by a network of in-country researchers.

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Overall, we found that comprehensive logging, mining, and, where relevant, agricultural spatial concessions data were not readily publicly available, and the level of data disclosure varied widely from one country to another. This paper includes the following key findings:

- **The level of concessions data disclosure varies significantly by country and sector.** For example, while comprehensive spatial data are available in the Republic of Congo and Canada, Myanmar, Madagascar, and Russia provide only limited access. In addition, concessions data were generally more accessible for mining than for logging or industrial agriculture.
- **Civil society can be a significant source of concessions information where official data are unavailable.** Despite the fact that concessions data are essential for participatory and equitable land-use planning, very few governments in this study proactively provide concessions data in a way that meets open data standards (e.g., available for download, use, reuse, and redistribution). Civil society, such as activist or research organizations, plays a role in complementing or compensating for a lack of official government data often through ad hoc means, such as digitizing paper documents, compiling leaked information, and publishing the resulting datasets to the public via independent Web portals.
- **Governments with freedom of information (FOI) laws tend to provide information more proactively than countries without these laws; however, challenges with data access and quality remain.** Many in-country researchers participating in this study successfully obtained at least partial concessions data (e.g., not geographically comprehensive) through information requests; however, the existence of FOI laws did not necessarily guarantee access to data. When formal FOI requests failed, researchers pointed to lack of cooperation among government ministries or a lack of awareness about information request procedures as barriers to accessing information through these means.
- **There is no consistent relationship between participation in voluntary partnerships or guidelines related to agriculture, logging, and mining concessions transparency, and proactive concessions data release.** Although participation in partnerships did seem to correlate moderately with increased proactive data disclosure, these partnerships were not drivers of disclosure in all cases. This is in spite of the fact that some partnerships, such as the Extractive Industries Transparency Initiative (EITI), specifically encourage the release of contractual agreements, licenses, and accompanying spatial data, which calls into question the effectiveness of such partnerships in achieving transparency goals.
- **No internationally agreed upon standard exists for the release of logging, mining, or agriculture concessions data. Even where governments proactively release information on concessions, data quality issues remain.** Some governments in this study released concessions data to the public. However, researchers often reported that data were out of date, incomplete, or inaccurate. Attribute and metadata vary widely and could benefit from international guidelines or standards that outline best practice.
- **The availability of digital spatial data and the laws pertaining to access to that information change rapidly.** Many of the links to laws and data that researchers provided were broken or offline only a few months after the study concluded; in other cases, government and civil society published new information portals during the same time period. The acquisition of concessions data is a time- and labor-intensive process.

This paper concludes with specific recommendations for policymakers, donors, civil society organizations, and other stakeholders for improving the transparency and disclosure of concessions information. The paper also suggests areas for further research, including the enabling conditions and barriers to land concessions transparency.

INTRODUCTION

Every year, an average of 13 million hectares of forest are lost, with the greatest acceleration of forest loss in the 21st century occurring in the tropics (Hansen et al. 2013; New York Declaration on Forests 2014). While the causes of forest loss vary by geography, experts estimate that industrial agriculture (clearing of forest for crops such as oil palm, soy, and rubber) accounts for a significant amount of all loss, with estimates ranging from 50 to 85 percent (Lawson 2014; Levin and Stevenson 2012; New York Declaration on Forests 2014). Logging, although varied by region, is the greatest driver of forest degradation and accounts for about 10 percent of global deforestation, while mining accounts for around 3 to 8 percent of deforestation (Geist and Lambin 2002; Kissinger et al. 2012). These industries can negatively affect local communities and ecosystems in ways beyond the loss of forests, such as the contamination of ecosystems from chemical processes used in mining and the fertilizer and pesticides used for industrial agriculture (Goudie 2000). In addition, local people are vulnerable to dispossession, conflict, and negative social effects stemming from an influx of temporary workers when their lands are leased for mining, industrial agriculture, and timber developments (Anseeuw et al. 2012; Sachs 2013).

According to the UN Food and Agriculture Organization (FAO), the majority of the world's forests are legally owned or held in trust by the state (FAO 2015). Governments grant access to the resources on land through the allocation of concessions to entities seeking to exploit or convert resources in a particular place and time.¹

For the purposes of this research project, the term concessions is defined as any contractual agreement that results in the significant acquisition of rights to lands for resource exploitation or conversion within a specified time period or for a specific area of land. Concessions are typically allocated to private companies by authorized government entities on lands legally owned or held in trust by the state. The industries that are frequently awarded these concessions and those on which this paper focuses are logging, mining, and agriculture. Although this paper focuses on 14 heavily forested countries, not all concessions considered in this study necessarily are granted in forested land.

Box 1 | Key Terms

Concession: any contractual agreement that results in the significant acquisition of rights to lands for resource exploitation or conversion within a specified time period or for a specific area. Concessions are typically allocated to private companies by authorized government entities on lands legally owned or held in trust by the state.

Concessions information and data: For the purposes of this study, the phrase concessions information and data refers to aggregated concessions data, maps and geospatial data, and copies of concessions contracts.

Transparency: the rights citizens have to access information; how much access they actually have to this information in practice; and the scope, accuracy, and timeliness of this information.

Proactive Disclosure: the disclosure of information or data by a public authority on its own initiative.

Benefits of Transparency

Greater public access to accurate, timely information across the lifecycle of concessions—from land allocation and contracting to monitoring and implementation of activities—can improve sustainable land and forest use in several ways.

Transparency is critical for enforcement and compliance, and to limit corruption (Gray 2002; Huggins 2011; Kolstad and Wiig 2009; Rosenblum and Maples 2009). When their location is known, concessions can be more effectively monitored in accordance with relevant laws and policies, as well as according to the terms of their contracts. Spatial and other data on concessions are necessary to credibly monitor “zero-deforestation” commitments made by buyers, traders, and suppliers of major commodities, such as palm oil, soy, beef, and forest products (Greenpeace 2015; New York Declaration on Forests, 2014). The knowledge of concessions proposed in an ecologically sensitive or legally protected area can create public pressure to mitigate impacts on the environment (Austin et. al. 2012).

Full disclosure of proposed concessions information in accessible formats is an indispensable element of obtaining the free, prior, and informed consent of local communities, helping to ensure they play an equitable role in decisions affecting their livelihood (Mahanty and McDermott 2013). Such disclosure can also enable participation by local communities in compliance monitoring, ensure benefit sharing, and generally support the exercise of political, social, and economic human rights (Saunders and Nussbaum 2008; Special Rapporteur for Freedom of Expression, Inter-American Commission on Human Rights 2012). New remote sensing technologies, such as satellite-based forest change detection systems, create new possibilities for efficiently monitoring the impact of concessions on local landscapes at scale (Fuller 2006).

Transparency has been linked to the improvement of government information management systems and the uptake and reuse of information by other stakeholders (Puddephatt et al. 2009). Transparency in the awarding of concessions can assist in avoiding conflicting land uses and land claims (Natural Resource Charter 2014). For example, sharing concession information among regulatory agencies and with the public can prevent allocation of overlapping land uses, such as concessions, protected areas, community lands, and indigenous territories. There is also growing evidence that economic transactions in which the rules are open and transparent may facilitate better conditions for foreign direct investment (Oge 2016).

Overall, concessions transparency provides greater clarity with respect to industrial impacts on forests and enables an understanding of the relative contributions of different activities that result in deforestation (Abood et al. 2015). Without transparency, investors cannot be held accountable for the negative social, economic, or environmental or political impacts that their operations cause; nor can operations be recognized when they comply with relevant laws and regulations. While not an end in itself, transparency should be recognized as a means through which greater accountability and broader reform is possible (Columbia Center on Sustainable Investment and Open Contracting Partnership 2016).

Existing Transparency Initiatives and Spatial Data

Several international and multilateral initiatives encourage increased public disclosure of land investments (Natural Resource Governance Institute 2015). For example, the Extractive Industries Transparency Initiative (EITI) is a global standard to promote open and accountable management of natural resources. EITI promotes the release of land concessions information relevant to the mining, oil, and gas sectors and has found broad-based support, with 51 countries now participating (EITI 2016). The Open Government Partnership (OGP), launched in 2010, works to secure commitments from governments to “promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen governance” (Open Government Partnership 2016). Through its Openness in Natural Resources Working Group, OGP aims to encourage the provision of access to environmental information, including release of spatial concessions data. Several other guidelines offer best practices for land contracts and investments, including the World Bank’s Land Governance Assessment Framework (Deininger et al. 2012), the World Resources Institute’s Indicator Framework for Assessing Forest Governance (Davis et al. 2013), the Open Contracting Partnership’s Global Principles (2013), the Open Data Charter Principles (2015), the Natural Resource Charter (2014), and the Land Matrix Global Observatory (2017).

The aforementioned voluntary frameworks, partnerships, and guidelines have, to date, encouraged the disclosure of individual contracts or permits and associated payments; however, few include specific provisions encouraging disclosure of spatial data indicating the physical location and extent of concessions. Although contracts sometimes include geographical information, formats are often difficult to access (e.g., a list of GPS points or a list of landmarks), not digital (e.g., paper maps stored in government offices), or out of date. The scope and format of the data available, as well as the mechanisms available to the public to obtain concession information, can greatly influence the overall transparency achieved in practice.

METHODS

This study aims to review the current availability, accessibility, and quality of concessions information in 14 countries, with a special focus on spatial data. The 14 countries surveyed were selected based on three criteria: high forest cover and high rates of forest loss, (see Appendix A for a list of countries, tree cover, and tree cover loss between 2001 and 2014); diversity in governance structure; public policies affecting land and concession transparency (e.g., Indonesia’s proposed OneMap policy; Brazil’s rural registry system, Liberia’s entry into EITI).

This study is based on the research of a network of in-country experts who collected information on their countries’ concession-granting processes and legal frameworks, and the availability, accessibility, and quality of the data they were able to collect for the logging, mining, and agriculture sectors in each country. Table 1 outlines the types of concessions researchers evaluated in each country. Research organizations in each country were selected because of their legal and policy expertise in the environmental field and for their existing relationship with World Resources Institute (WRI) programs (see Appendix B for list of research organizations).

Table 1 | Countries and Types of Concessions

COUNTRIES	TYPE OF CONCESSION/PERMIT EVALUATED		
	LOGGING	EXTRACTIVE INDUSTRY	AGRICULTURAL COMMODITY
Brazil	Logging permits on public forest	Mining exploration and exploitation permits	N/A
Cambodia	Logging permits on production forest of state permanent forest reserves, economic land concessions, hydro dam reservoir areas	Mining exploration and exploitation permits	Rubber
Canada	Logging permits on state-owned land	Mining exploration and exploitation permits	N/A
Colombia	Logging permits on forest reserves, private land, public land, indigenous lands, black communities	Hydrocarbon ^a	N/A
Indonesia	Not specified	Mining exploration and exploitation permits	Oil palm
Liberia	Logging permits on state-owned land	Mining exploration and exploitation permits	Oil palm/rubber
Madagascar	Logging permits on indigenous lands or public land	Mining exploration and exploitation permits	Jatropha
Malaysia	Logging permits on state land, indigenous lands, forests reserve, protected forests in Sarawak	Mining exploration and exploitation permits	Oil palm
Mexico	Logging permits on public, private, or community land	Mining exploration and exploitation permits	N/A
Myanmar	Logging permits on reserved forest land, protected public forest, unclassified forest land	Mining exploration and exploitation permits	Oil palm
Papua New Guinea	Logging permits on customary (indigenous) lands	Mining exploration and exploitation permits	Oil palm
Peru	Logging permits on public land (permanent production forests)	Mining exploration and exploitation permits	N/A
Republic of the Congo (ROC)	Logging permits on state-owned land	Mining exploration and exploitation permits	Oil palm
Russia	Logging permits on state-owned land (State Forest Funds land)	Mining exploration and exploitation permits	Not specified

Note: a) Colombian researchers chose to look at oil instead of mining.

The data collection, research method, and survey questions were developed in consultation with experts in land rights, land use, and transparency during a two-day workshop in 2015.² The methods include guidelines for document collection, a survey, and qualitative interviews. Under these guidelines, research organizations were asked to do the following:

- Determine if industrial agricultural concessions exist in their country of study, and if so, identify the industrial agricultural commodity that was the biggest driver of deforestation (e.g., oil palm, soy, rubber, etc.) Only concessions of this one agricultural commodity would be evaluated.
- Determine if there is an FOI mechanism that allows people to formally request government information. This could include a national or, where relevant, subnational FOI law, policy, or regulation but could also include actionable constitutional provisions.
- Determine if access to concessions data is regulated at the national, subnational, or both levels of government.³ In countries where concessions are allocated at the subnational level, researchers selected a single illustrative province or state to investigate. In countries where concession activity is regulated at both levels, access to concessions data was investigated at both levels.
- Identify the primary ministries responsible for the allocation of logging, mining, and selected industrial agricultural concessions at the national and subnational levels, where relevant.
- Identify any civil society organizations in their country that provide concessions data to the public.
- Identify the information access mechanisms through which the sample contracts, license information, and spatial data were available, in order of priority:
 - Proactive sources (such as online open data portals and government geoportals)
 - Reactive sources (such as through the submission of a formal information request)
 - Ad hoc sources (such as an informal request to a colleague or contact)

- Collect a series of documents and files (henceforth referred to interchangeably as “concessions data” or “concessions information”) through proactive, reactive, or ad hoc means. Types of documents obtained included copies of concessions contracts, concession maps, tabular data (alphanumeric data organized in rows and columns, such as license numbers, ownership information, start and end date, etc.) and spatial data (such as shapefiles) (see Appendix C for a complete list of the types of concessions data requested).
- Collect examples of laws and regulations pertaining to concessions information disclosure. These included both national and subnational, general and sector-specific laws (see Appendix D for a complete list of requested laws).
- Complete a 223-question survey using the collected documents and/or preexisting knowledge (full questionnaire available upon request from WRI).
- Answer a series of qualitative questions about their experience in collecting the data, and their initial perceptions about transparency in their country.

Evaluation Rubric of Data Accessibility and Quality

Based on input from the experts who participated in the methodology workshop and review of relevant existing guidelines,⁴ the authors developed a rubric with criteria for data accessibility and quality to guide the analysis and discussion of the findings (see Table 2).

Readers can use the rubric as a point of reference in understanding the spectrum of data disclosure practices, and governments can use the rubric as a self-evaluation tool in understanding where their current practices stand.

FINDINGS AND DISCUSSION

The following section provides a synthesis of the data gathered by in-country researchers, including the availability and quality of concessions data as well as the laws, policies, and regulations related to the release of concessions data. We consider the effectiveness of FOI laws and information requests as a means of accessing concession information. Finally, we look at potential factors influencing data disclosure, such as the presence or absence of voluntary partnerships and differences among sectors and countries.

Table 2 | Evaluation Rubric for Concessions Data Disclosure

CRITERIA	GOOD	FAIR	POOR
Data Accessibility			
Type of access	Proactively available to the public	Reactively available to the public through a formal or informal information request	Not publicly available
Point of access	Available through a public cadaster, register, or online geoportal	Available in paper copy by visiting the appropriate agency	No access
Cost of accessing data	No cost	Minimal cost	High cost
Format	Digital, downloadable, and machine-readable ^a	Digital but not machine-readable and/or downloadable	Paper only or no data
Protections for user privacy and anonymity	Full protection	Partial protection	No protection
Licensing	Data are openly licensed (free for use, reuse, and redistribution) with the appropriate creative commons license ^b	Data are available but not openly licensed	Data are not available or are manipulated and attributed to an incorrect source
Data Quality			
Timeliness	Data are updated in real or near real time	Data are updated annually	Data have not been updated for years
Completeness	Includes complete attributes, such as who, what, where, when, current status, and metadata	Includes some, but not all, of these attributes	Few or no attributes are included
Accuracy	Data are verifiable through a primary source and validated through a secondary source	Data are not verifiable	Data are inaccurate
Consistency	Data are consistent across sources and agencies	Data are somewhat inconsistent or lacking in some sources	Numerous inconsistencies identified in data

Notes: a) Machine-readable is defined as data and text in a form a computer can process. See Glossary for more details and additional terms and definitions.

b) CC0 or CC BY licenses are preferred. See <https://creativecommons.org/licenses> for more information.

Limitations

Several factors limit our findings. First, the small sample size of only 14 countries makes it difficult to draw definitive conclusions about the state of concessions transparency in the world writ large. In addition, the heterogeneity in land tenure regimes and land allocation processes presents challenges in using consistent terminology across countries (see Box 2). Second, in-country researchers had a limited time period (up to eight weeks) to conclude the research.

Not all were able to travel to all necessary government offices or submit and receive responses to follow up information requests if needed within this time frame. Lastly, the methodology instructed researchers to look at only the most significant agricultural commodity in each country, according to the researchers' estimation; however, many governments allocated land for multiple types of industrial agricultural expansion, and transparency may vary by commodities in ways not captured within this study.

Box 2 | Land Tenure Systems and Concession Allocation Differences across Study Countries

Although this paper aims to assess the availability of data related to concessions in 14 countries, the authors acknowledge that major differences in land tenure regimes and regulatory frameworks affect both processes for granting concessions and the security of those concessions. Land tenure systems “determine who can use what resources for how long, and under what conditions.” (FAO: <http://www.fao.org/docrep/005/y4307e/y4307e05.htm>). Simply put, concessions provide a form of allocating rights over particular forest resources.

However, tremendous variation exists between the land tenure systems of the 14 countries examined in this study and thus the specific rights associated with concessions. This variation makes it difficult to compare concession-granting processes across countries and impose universal best practices or criteria.

Globally, governments still claim 73 percent of total forested land (RRI 2017). However, this figure varies widely by region. In Latin America, communities own or control more than 39 percent of forests, whereas in the Congo Basin, governments claim up to 99 percent of forested land (RRI 2017). Some forests in the Congo Basin have been under concession regimes for over a century, whereas Peru and Bolivia have more recently introduced legislation allowing for timber concessions, for example (Karsenty et al. 2008). Due to differing histories of customary ownership, cadastral systems, and land title, many Latin American countries do not have the large-scale industrial agricultural concessions that have been granted in some African and Asian countries, such as Cambodia (“economic land concessions”) and Papua New Guinea (“special agricultural and business lease”).

It is beyond the scope of this study to assess how differing land tenure regimes affect data disclosure practices. However, the authors recognize the effect that differing land tenure systems have on the process of granting concessions, as well as the specific rights and responsibilities conferred on the concessionaire.

Legal Frameworks Relevant to Concessions Information Disclosure

No country in this study has specific laws that directly regulate the disclosure of concessions information; rather, various freedom of information laws, constitutional provisions, and transparency policies within each country inform disclosure. Freedom of information laws allow citizens to formally request information from government agencies, and many include proactive disclosure mechanisms, where governments release information publicly in a timely manner within prescribed formats, including through databases and in public reading rooms (Darbishire 2010). Specific forestry, mining, logging, and agricultural sector laws and policies can also include provisions for the release of concessions information. Conversely, in some countries, exemptions under freedom of information laws (related to confidential or proprietary business information) or certain secrecy acts (e.g., an official secrets act) may be used to restrict access to information.

The legal frameworks in each country and the quality of implementation are important factors in the level of concessions data available to the public. Of the 14 countries surveyed, eight countries have formal FOI laws: Mexico, Brazil, Russia, Liberia, Canada, Peru, Colombia, and Indonesia. Eight countries also have provisions within their sector-relevant laws (e.g., forestry law) that specifically govern the release of data: Brazil, Russia, Liberia, Papua New Guinea, Canada, Colombia, Madagascar, and the Republic of the Congo.⁵ Madagascar and Papua New Guinea also have constitutional provisions that allow for freedom of expression and communication that may result in creating a right of access to concessions data. Only Myanmar, Cambodia, and Malaysia lack both formal access to information laws, constitutional provisions, and national forest laws that explicitly govern the release of concessions data (see Table 3). Although the majority of countries have a national sectoral law, policy, or regulation that requires the release of mining exploration and exploitation data, they do not have such a law for logging or the agro-industry.

Table 3 | Presence of National FOI Laws, Policies, and Regulations Related to Concessions Data Disclosure

Country	Does the country have a national FOI law?	What is the name of the FOI law?	Does the FOI law include specific exemptions that could be used to deny access to concessions data?	Have any laws/policies/regulations been used to deny access to concessions information?	Do national law policies/regulations require the release of logging concessions data?	Do national law policies/regulations require the release of mining concessions data?	Do national law policies/regulations require the release of agricultural concessions data?
Brazil	Yes	Access to Information Law No. 12,527, of November 18, 2011	Yes	Yes	Yes	Yes	Yes
Cambodia	No	N/A	N/A	No	No	No	No
Canada	Yes	Access to Information Act of 1983	Yes	No	Yes	Yes	N/A
Colombia	Yes	Law 57 of 1985, as amended by Law 1712 of 2014 and Law 1437 of 2011	Yes	No	N/A	Yes ^a	N/A
Indonesia	Yes	Public Information Disclosure Act of 2008	No	Yes	No	Yes	No
Liberia	Yes	Freedom of Information Act of 2010	Yes	No	Yes	Yes	Yes
Madagascar	No ^b	N/A	N/A	Yes	Yes	Yes	Yes
Malaysia	No	N/A	N/A	Yes	No	No	No
Mexico	Yes	Federal Transparency and Access to Public Government Information Law, 2002	Yes	No	No	Yes	N/A
Myanmar	No	N/A	No	No	No	No	No
Peru	Yes	Law on Transparency and Access to Public Information, 2002	Yes	No	No	Yes	N/A
PNG	No ^c	N/A	N/A	No	Yes	No	No
ROC	No ^d	N/A	No	Yes	Yes	No	N/A
Russia	Yes	Federal Law on Providing Access to Information on the Activities of Government Bodies and Bodies of Local Self-Government, 2009	No	Yes	No	No	Yes

Notes: a) Oil in the case of Colombia. b) Madagascar has a constitutional provision on access to information. c) PNG does have a constitutional provision that includes a reference to the right to information as part of the right of freedom of expression. d) The law was passed in the Senate in October of 2016 and sent to the National Congress and then for signature to the President's office. A constitutional provision on access to information has existed since 2006

FOI laws commonly include a list of exemptions related to commercial confidentiality and information provided in confidence to governments that could, if applied restrictively, be used to deny access to concessions data. In principle, concessions data should not be confidential as they relate to activities important to the public interest in the management and use of public lands. Concessions relate to legally permitted uses regulated by statute, rather than information related to market share or profits. Researchers identified laws governing specific concession types that included provisions that could be used to deny public access. For example, in Cambodia, the Law on Management and Exploitation of Mineral Resources 2001, Article 20, requires maintaining the confidentiality of mining license applications, reports, and work plans. Also in Cambodia, Article 5 of the Law on the Press 1995 revealed a number of exceptions, including information that may be deemed harmful to national security; information revealing legal, commercial, or financial secrets obtained from an individual or organization; and information concerning an order or inspection of a financial institution.

Concessions Allocation and Information Access

The research revealed that all 14 countries granted logging and mining concessions, while only 9 recognized and granted agricultural concessions. In this study, the existence of concessions for agro-industry varied by region. Countries in the Americas (i.e., Brazil, Canada, Mexico, Colombia, and Peru) do not grant large agricultural concessions, whereas the countries in Africa and Southeast Asia do allocate concessions for agriculture.⁶

Concessions Information Availability

For each country, researchers assessed whether or not concessions information—in the form of concessions contracts, maps, spatial, and/or tabular data—was available proactively, through ad hoc means (e.g., informal queries), or by making formal information requests (see Appendix B for a complete list of the types of information requested).

Governments proactively released at least some type of concessions data and information (spatial boundaries, lists, contracts, etc.) in five countries for logging (Brazil, Canada, Indonesia, Peru, and ROC), seven countries for mining/oil (Mexico, Brazil, PNG, ROC, Canada, Peru, and Colombia), and only two countries for agriculture (Indonesia and ROC) (See Table 4.)^{7,8}

Proactive release of information from civil society organizations contributes significantly to the availability of information to the public, with civil society groups collecting, synthesizing, and then releasing information in an additional two countries for each sector. Researchers were able to acquire data through ad hoc means (that is, through informal or unofficial requests) in 10 countries for logging, 10 countries for mining, and 7 countries for agriculture. In total, the only concession types without any available information were logging concessions in Myanmar and agricultural concessions in Russia.

Researchers also evaluated whether data were available in digital or paper format. Information was available digitally from government sources in five countries for logging, seven for mining, and two for agriculture. It was available in paper form in an additional three countries for logging, and one country in both mining and agricultural sectors (see Figure 1).

Figure 1 | Concessions Information Format

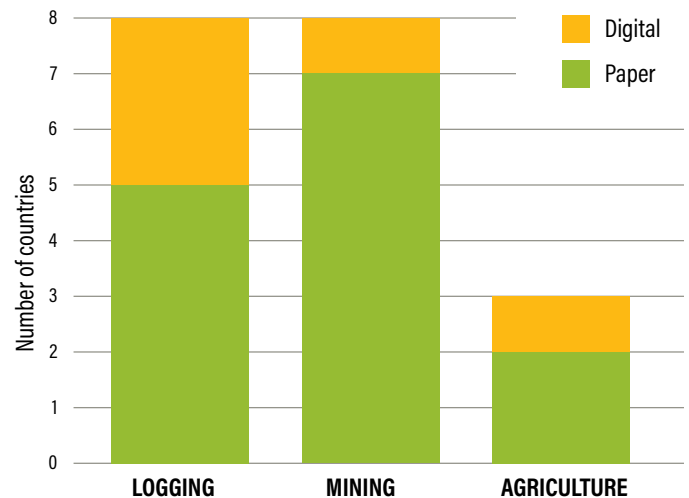


Table 4 | Source and Method of Concessions Data and Information Disclosure by Sector

SOURCE	LOGGING				MINING				AGRICULTURE			
	GOVERNMENT		CIVIL SOCIETY		GOVERNMENT		CIVIL SOCIETY		GOVERNMENT		CIVIL SOCIETY	
Method	Pro-active	Ad hoc	Pro-active	Ad hoc	Pro-active	Ad hoc	Pro-active	Ad hoc	Pro-active	Ad hoc	Pro-active	Ad hoc
Brazil	Yes	No	No	No	Yes	No	No	No	N/A	N/A	N/A	N/A
Cambodia	No	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Canada	Yes	No	Yes	Yes	Yes	No	Yes	No	N/A	N/A	N/A	N/A
Colombia	No	No	No	No	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A
Indonesia	Yes	No	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes
Liberia	Yes ^a	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
Madagascar	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Malaysia	No	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes
Mexico	No	Yes	No	Yes	Yes	No	Yes	Yes	N/A	N/A	N/A	N/A
Myanmar	No	No	No	No	No	Yes	No	Yes	No	Yes	No	Yes
Papua New Guinea	No	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes
Peru	Yes	Yes	Yes	Yes	Yes	No	No	No	N/A	N/A	N/A	N/A
Rep. of the Congo	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Russia	No	Yes	Yes	Yes	No	No	No	Yes	No	No	No	No

Note: a) The concessions data available in Liberia is made so through an online portal, <http://portals.flexicadastre.com/Liberia/>, which was published just after the research period concluded in January 2016.

Effectiveness of Information Requests for Accessing Concessions Data

A subset of the researchers submitted formal freedom of information requests for concessions contracts, maps, and spatial or tabular data, thereby obtaining information via reactive means. In most cases, researchers did not submit requests in countries where data were available proactively although, in some cases, researchers chose to request additional information beyond what was publicly available. Researchers also submitted ad hoc requests to the relevant government authority for spatial and associated information on all relevant types of concessions data, either by personal letter to personal contacts or through use of agency Web sites. Researchers then documented the experience, response time, cost, and quality of information received.

The following types of information were received:

- Maps of mining exploration licenses (PNG)
- A list of mining concessions from 2000 to 2015, which include the concession number, lot number, concession owner, state, status, geographic coordinates, and the type of mineral (Mexico)
- A shapefile presenting information regarding the number of permits granted, location, and the number of administrative acts granting those permits and concessions (Colombia)

Illustrative examples of some of the challenges researchers faced when submitting information requests are included in Box 3.

Box 3 | Researcher Experiences with Information Requests

Researchers made observations about their experiences with attempting to access data. The following is a summary of some of the challenges they faced:

- **Shifts in culture of transparency:** Some researchers commented on the lack of transparency around concession allocations particularly relating to data that were once made available but later removed. Also, they documented shocked reactions from officials that civil society was making requests for this type of information from mining, land, and forestry government agencies.
- **Lack of coordination:** Researchers found, typically, that there is no overarching ministry for land zoning or land change decision making, and ministries often fail to share information among themselves, which makes it challenging to access accurate and comprehensive information across the three sectoral areas.
- **Lack of response:** Many researchers noted the lack of response to the requests for information, and even failure to provide official forms to make information requests.
- **Lack of capacity and understanding of the law:** Researchers noted in some countries that FOI laws are new, and government officials were not familiar with the rights under the law and the procedures to request and disclose information. Some researchers had to follow up with a number of government officials, including high-level superiors of departments, before they received any information.
- **Difficulties in accessing data:** Many researchers noted that government agencies wanted to grant access selectively to documents and not provide wholesale access to databases or concessions of one type.

Researchers submitted requests for logging data in 11 of the 14 countries. Information requests resulted in information provided in full in two countries and partially in four countries (see Table 5). Only Peru and ROC granted access to all of the information that was requested, while Colombia, Liberia, Madagascar, and Russia provided some of the requested information. There was either a mute refusal (no response) or denial in Mexico, Myanmar, Cambodia, PNG, and Indonesia for various types of information by the time the study ended. Colombia and Peru provided information under FOI laws in the time prescribed by the law. Researchers in Indonesia noted that there were some minimal costs associated with photocopying for accessing logging data.

In 9 of the 14 countries, researchers submitted requests for mining data. Of the nine that submitted requests, two were unsuccessful (Cambodia, Indonesia), four were partially successful (Madagascar, Myanmar, Liberia, PNG), and three were fully successful (Peru, Russia, and Mexico). In five of the eight countries, there was a cost associated with the information request. In this study, costs were generally more frequent and higher for mining data than for the other sectors, and ranged from US\$8.50 (K 27.50) in PNG, \$1.25–\$20 (Ar 4,200–Ar 67,200) in Madagascar, and \$35 (120 PEN) in Peru. No costs were associated with requests in Myanmar, Cambodia, and Mexico, although in Mexico it was possible to pay a fee for more comprehensive data (i.e., copies of all 33,414 mining contracts, which would have amounted to approximately 133,000 pages).

Researchers submitted information requests in six of the eight countries that grant concessions for industrial agriculture (Madagascar, Myanmar, Cambodia, PNG, Liberia, and Indonesia,). Information was made available only partially in Indonesia and Liberia, and there were minimal costs in Indonesia for postage and copying.

Requests made for information were partially successful in most countries for at least one category of information. Researchers were most successful gaining full access to mining data (three countries, as compared to two for logging). Four countries provided partial access to both logging and mining data, although mining had a higher success rate as only nine requests were submitted (as opposed to eleven for logging). Agricultural concessions were the most difficult to access in all of the countries, with six requests made and only two partially granted (in Indonesia and Liberia).

Table 5 | Summary Table of Success in Obtaining Access to Data and Associated Costs from Submitting a Request for (Ad Hoc and Formal) Information

	LOGGING		MINING		AG-INDUSTRY	
	Success in accessing data?	Cost associated with information request?	Success in accessing data?	Cost associated with information request?	Success in accessing data?	Cost associated with information request?
Cambodia	No	No	No	No	No	No
Colombia	Partially	No	N/A	N/A	N/A	N/A
Indonesia	No	Yes	No	Yes	Partially	Yes
Liberia	Partially	No	Partially	Yes	Partially	No
Madagascar	Partially	No	Partially	Yes	No	No
Mexico	No	No	Yes	No	N/A	N/A
Myanmar	No	No	Partially	No	No	No
PNG	No	No	Partially	Yes	No	No
Peru	Yes	No	Yes	Yes	N/A	N/A
ROC	Yes	No	N/A	N/A	N/A	N/A
Russia	Partially	No	Yes	Partially	N/A	N/A

In the absence of proactive disclosure, information requests can serve as an important mechanism for accessing concessions data. For example, Colombian logging concessions data were not available proactively or through ad hoc means from government or civil society; however, researchers were able to obtain information from FOI requests from four of the nine attempted subnational governments. In Russia, mining concessions data were also obtained through an FOI request. This was not the case for agricultural concessions in any country except Indonesia and Liberia.

The majority of information requests did not charge for accessing information. Out of the 23 information requests submitted, 8 required some kind of fee or payment. Mining requests had the highest number of associated costs, accounting for five of the eight concessions requests.

Researchers found that there was often a tiered system of costs based on the type of information requested. For example, researchers in Mexico and Russia found that they could access basic data for free, such as lists of concessions, but obtaining more detailed information incurred a cost. Researchers generally thought that these costs were not prohibitive, though of course they may be out of reach for some citizens. The Malaysian researcher also pointed out that, even in the absence of formal costs for accessing the data, the indirect costs of legal fees and other associated expenses incurred can be exorbitant if concessions information can only be accessed through legal proceedings when disclosure laws fail to produce the requested information.

Box 4 | Analysis of the Content of Concessions Contracts^a

The nature and coverage of the collected contracts varies dramatically, making it difficult to draw clear trends. Contract lengths ranged from 10 to 200+ pages, and those concerning investments covered investments in mining, forestry, and agribusiness projects.

On issues like environmental protections, some contracts were very brief, primarily noting that the investment must comply with applicable environmental standards contained in domestic laws (Liberia: Sime Darby Plantation (Liberia) Inc., Western Cluster Limited, China Union Investment (Liberia) Bong Mines Co., Ltd.; Canada: Upper Canada Explorations Limited). It is generally preferable to regulate an investor's activity through law, rather than contracts, to encourage consistent and nondiscriminatory regulation of investments. Regulating through law can also make it easier for public bodies charged with monitoring various aspects of investments, as the requirements against which compliance is to be measured will be the same for all actors. Whether this approach constitutes best practice in every case, however, may depend on the quality of the law in question. In instances where a government perceives that its domestic laws inadequately deal with certain issues and may be in need of reform, a robust contractual regime

may help to fill governance gaps and ensure adequate protections or other safeguards in the meantime.

Some contracts also referred to vaguely defined "international standards" (Liberia: China Union) or to specific principles that serve as a benchmark for international good practice, such as the Voluntary Principles on Security and Human Rights (Liberia: China Union, Sime Darby), or the Principles of the Roundtable on Sustainable Palm Oil (Liberia: Sime Darby). Although these references might be indicative of attempts to use contracts to encourage responsible and rights-respecting investments, the effectiveness of this strategy will depend on how those standards are incorporated in the contract and, in particular, whether enforceable obligations are created.

Various contracts sought to limit the application of domestic laws to the investment, including by stabilizing or freezing (and thereby isolating the contract from any new laws or reforms regarding) fiscal laws (Liberia: Western Cluster), stabilizing all laws as they apply to the investor (Liberia: China Union), or acknowledging that the contract may set out derogations from the domestic law granted for the realization of the project (Madagascar: QIT-Fer et Titane Inc.). Such

limitations of the applicability of domestic law are generally not in line with best practices,^b as they can undermine democratic processes and the rule of law. The legality of such stabilization clauses will vary depending on the jurisdiction. In some instances, domestic courts may also hold such clauses invalid, though investors may seek recourse under an applicable investment treaty if host governments do not comply with such clauses.

Another problematic aspect of the contracts surveyed was the inclusion clauses that either contradict or undermine other parts of the contract. One example is a clause that seems to permit the investor to construct infrastructure for the investment even where it will adversely affect local people or environments, despite other clauses in the contract requiring compliance with domestic laws, which include obligations to carry out detailed impact assessment and planning processes in such circumstances (Cambodia: Khaou Chuly Development Co; Ltd). Another example is provisions that set out good practice social protections but then undermine them by granting the investor or the government discretion as to whether the investor must comply with such requirements (Liberia: Western Cluster, China Union).

Notes:

a) Sam Szoke-Burke, legal researcher at the Columbia Center on Sustainable Investment (CCSI), wrote the content for this box. Staff and fellows of the CCSI reviewed the contracts.

b) See, for example, OECD Guidelines for Multinational Enterprises at <http://www.oecd.org/daf/inv/mne/48004323.pdf> Chapter II, Art. A(5): "Enterprises should . . . refrain from seeking or accepting exemptions not contemplated in the statutory or regulatory framework related to human rights, environmental, health, safety, labour, taxation, financial incentives, or other issues."

Types of Concessions Data and Information: Contracts and Spatial Data

CONCESSIONS CONTRACTS

Researchers attempted to obtain at least one example of a concessions contract, the legal agreement between the government and the company holding the concession, for each of the three sectors (as applicable). Researchers were successful in collecting 22 contracts from 9 countries. Box 4 contains insights into the content and characteristics of the collected contracts.

SPATIAL CONCESSIONS DATA

Open data can help governments, civil society, and the private sector make more informed decisions by increasing transparency and accountability. According to the open definition from the Open Knowledge Foundation, ideally, governments would provide all spatial concessions data as open data, which is defined as information that is open access, downloadable online, machine-readable (i.e., data that a computer can process), open format (i.e., no restrictions on use and can be opened by a free program), and covered by an open data license. Under these criteria, few of the governments in this study provided information in a way that could be considered open.

When digital geospatial information on concessions was available, researchers evaluated whether these data adhered to open data standards (i.e., whether data were openly licensed, machine-readable, available as bulk download, etc.), and whether there was a link to a data portal containing those data (see Table 6).⁹

During the time of the study, researchers identified data portals for concession information in 11 of the 14 countries. Of these, seven countries had spatial data for logging concessions, nine countries had spatial data for mining concessions, and five countries had spatial data for agricultural concessions.

Table 6 | **Countries with Comprehensive Spatial Data Collected for Each Sector**

COUNTRY <small>Green indicates that government is the original source of the data</small>	SECTOR(S)	PORTAL	PORTAL PROVIDER	OPENLY LICENSED	MACHINE-READABLE	AVAILABLE AS BULK DOWNLOAD
Brazil	Mining, Logging	http://sigmine.dnpm.gov.br/webmap/	Government of Brazil	No	Yes (mining only)	Yes
Cambodia	Mining, Agriculture	https://cambodia.opendevdevelopmentmekong.net/map-explorer	Open Development Mekong	No	Yes	Yes
Canada	Logging, Mining	http://www.globalforestwatch.ca/data	Global Forest Watch Canada	Yes	Yes	Yes
Colombia	Mining, Oil	http://www.anh.gov.co/ http://sig.anla.gov.co:8083/	Government of Colombia	No	Yes	Yes
Indonesia	Logging, Agriculture	http://geoportal.menlhk.go.id/arcgis/home/	Government of Indonesia	Yes	Yes	Yes
Liberia^a	Logging, Mining, Agriculture	http://portals.flexicadastre.com/liberia/	Government of Liberia/Spatial Dimension	No	Available as map view only	No
Malaysia (Sarawak)	Logging, Agriculture	http://www.globalforestwatch.org	World Resources Institute	Yes	Yes	Yes
Mexico	Mining ^b	https://datos.gob.mx/	Government of Mexico	Yes	Yes	No
Papua New Guinea	Mining ^c	http://portal.mra.gov.pg/Map/	Spatial Dimension	No	Available as map view only	No
Peru	Logging, Mining	http://sisfor.osinfor.gob.pe/ http://geocatminapp.ingemmet.gob.pe/	Government of Peru	No	Yes (logging only)	No
Republic of the Congo	Logging, Mining, Agriculture	http://cog.forest-atlas.org	Government of ROC/World Resources Institute	Yes	Yes	Yes

Notes: a) The Government of Liberia and WRI launched the Liberia Forest Atlas in December 2016. Similar to the ROC Forest Atlas, data are openly licensed, machine-readable, and available as a bulk download. b) This information was available during the time of the study but was taken down prior to publication. c) Data not available on Global Forest Watch.

Table 6 shows that the data provided on the portals that are managed or comanaged by NGOs tended to be openly licensed, machine-readable, and downloadable (two out of three such portals met all three criteria), whereas the portals managed by governments were mixed (with only Indonesia meeting all three criteria). The portals that are comanaged by governments and Spatial Dimension, a private company, were the least accessible (see PNG and Liberia), as data were not openly licensed or available to download, and were only available as a map view. This greatly limits the manner in which users can analyze and interact with the data. The greatest shortcoming was with licensing. Fewer than half of the countries (five in total) provided data that were openly licensed, which restricts how users may use and redistribute the data.

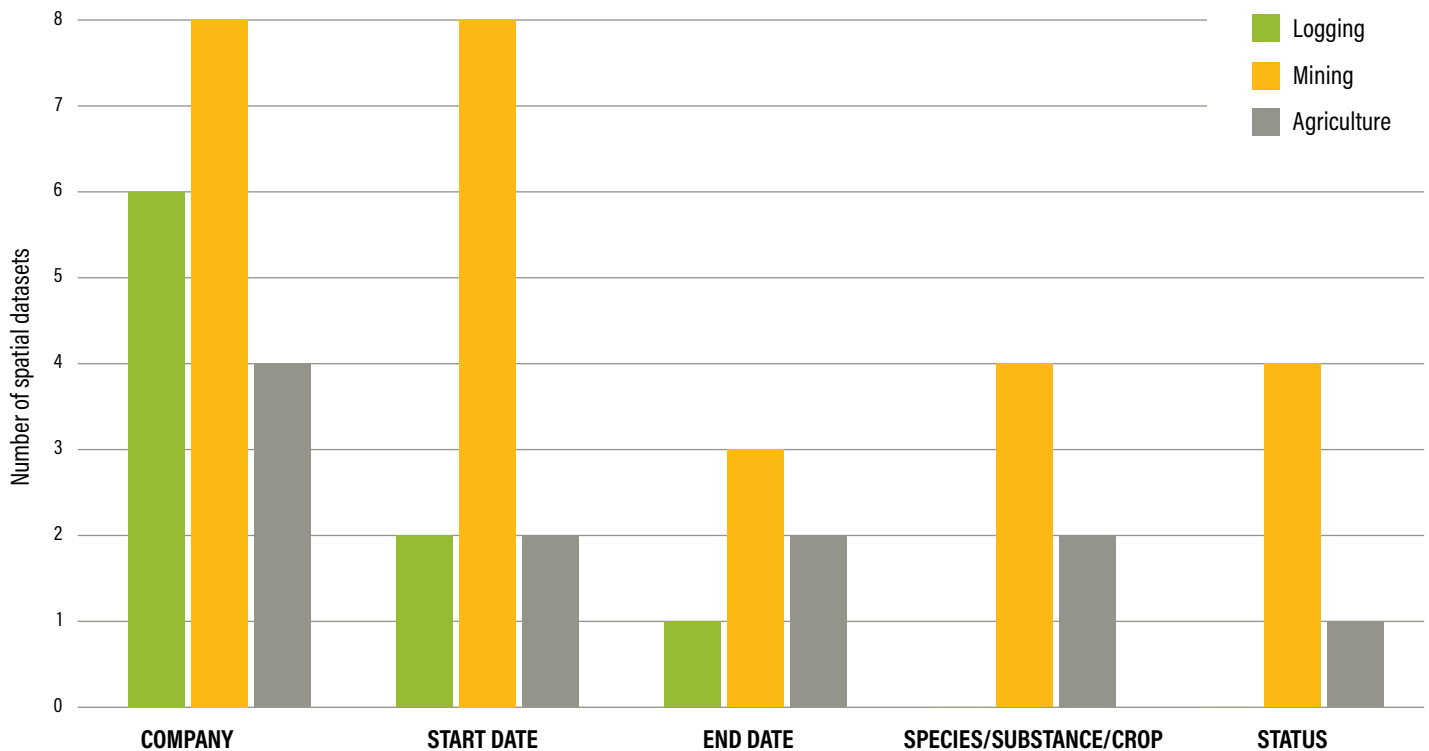
When evaluating the datasets against simple indicators of attribute completeness, almost all of the datasets included information on the company name and the start date of the concession (see Figure 2). Around half of the mining datasets included information on the substance permit-

ted for mining and the status of the concession. Both the dataset on oil palm provided by the government of Liberia and the dataset on Economic Land Concessions in Cambodia, which was created through extensive research of Open Development Cambodia, contained other attributes on the type of crop and the start and end dates of the concession.

Unfortunately, the availability of online information and the laws pertaining to that information change rapidly. A number of the links to laws and data that researchers provided were broken or offline only a few months after the study concluded; while, in other cases, new information portals were published by both government and civil society during the same time period. This makes even the acquisition of proactively available data a constant and time-consuming search.

Although we are unaware of any standards related to information disclosure specifically for spatial concessions data, the Open Contracting Partnership, an independent organization based in Washington, DC, has a standard for

Figure 2 | Attribute Information for Spatial Data for Different Sectors



the disclosure of information related to contracts.¹⁰ The standard indicates that the minimum information that should be provided for each contract includes the buyer name and address, status, time period, value, description, quantities, and associated documents, among others. Ideal information would also include the legal identifier and beneficial ownership information (information about a person who benefits from ownership even though the contract or concession title is in another person's name). Although we may not expect spatial data to include information on the value of the contract or specific restrictions, attributes such as the concession holder name and the time period are relevant for land-use planning and enforcement; and the creation of a standard could increase the completeness and quality of information provided in spatial datasets.

In the absence of officially disclosed spatial data, civil society provided data that filled some of the gaps left by governments. For example, Open Development Mekong is an online platform for proactive disclosure of mining and agricultural concessions collected from various sources. However, civil society must collate information from disparate sources, often resulting in partial or out-of-date information. Although data provided by civil society are preferable to no data at all, this should not be seen as a sufficient substitute for official government files.

Even when government disclosure of spatial concessions information meets the definition for open data, there may be issues with data quality, timeliness, or completeness. For example, although the Indonesian government releases some data on oil palm concessions, different ministries often have conflicting data. In one study, civil society researchers in Siak and Pelalawan, Riau, identified three types of discrepancies: differences in the attributes, shifts in locations, and boundary shapes, when comparing palm oil, logging, and pulpwood concessions data generated by local government versus national government agencies (Rafli et al. 2014). Furthermore, it may be difficult to assess the extent to which data conflict, especially when there are no other available sources of information about concessions.

The mining sector demonstrated the greatest level of proactive information release, as noted above. Researchers speculated that this might be due to relatively increased opportunities for foreign investment in the mining sector, although further research is required to understand the relationship between foreign investment and transpar-

ency. Also, half of the governments do not make mining data available. Of those that do, some data are restricted to viewing only and do not allow downloading. Spatial Dimension has created online mining cadaster portals for several countries, including Liberia and Papua New Guinea. Although it is commendable that Spatial Dimension and these governments are making the data available, the ability to download data is crucial for further analysis and advocacy with respect to concessions information.

Concessions Data and the Legal Framework

Laws Providing a Right of Access to Information (FOI Law) and Availability of Concessions Data

We compared the proactive availability of concessions data across all sectors with the presence or absence of a right of access to information or FOI law in each country, as well as the ability to access data informally from governments (see Table 7).

Although many governments fail to release concessions data proactively, governments in countries with FOI laws release concessions data more actively than do countries without such laws. For example, the governments of Brazil, Canada, and Peru proactively provide data for all sectors for which they grant concessions and have an FOI law. Mexico, Colombia, and Indonesia, which have strong laws, provide data for some concessions types. Madagascar, Myanmar, Cambodia, and Malaysia do not have FOI laws and do not provide any data proactively. Only the Republic of Congo does not have a law, but it releases all concessions data. The Government of Papua New Guinea proactively releases mining data even though it does not have an FOI law.

Government data were more often available in an ad hoc manner (e.g., through informal relationships with internal regulatory public officials) in countries with no proactively released official data, regardless of whether there was an FOI law. For example, nine governments provided logging data proactively or on an ad hoc basis, while eight governments provided mining data on an ad hoc basis. All but one government, Russia, shared industrial agricultural concessions data via informal means. Researchers were able to access at least some data in all six countries that do not have FOI laws. In total, the only countries that granted concessions but had no information available on concessions through proactive or ad hoc sources were Myanmar (logging concessions) and Russia (agricultural concessions).

Table 7 | **FOI Laws and the Disclosure of Government Data**

	FOI Laws	LOGGING		MINING		AGRICULTURE	
		Proactive Data Availability (from Government)	Ad Hoc Data Availability (from Government)	Proactive Data Availability (from Government)	Ad Hoc Data Availability (from Government)	Proactive Data Availability (from Government)	Ad Hoc Data Availability (from Government)
Brazil	Yes	Yes	No	Yes	No	N/A	N/A
Cambodia	No	No	Yes	No	Yes	No	Yes
Canada	Yes	Yes	No	Yes	No	N/A	N/A
Colombia	Yes	No	No	Yes	Yes	N/A	N/A
Indonesia	Yes	Yes	No	No	No	Yes	Yes
Liberia	Yes	No	Yes	No	Yes	No	Yes
Madagascar	No	No	Yes	No	Yes	No	Yes
Malaysia	No	No	Yes	No	Yes	No	Yes
Mexico	Yes	No	Yes	Yes	No	N/A	N/A
Myanmar	No	No	No	No	Yes	No	Yes
Peru	Yes	Yes	Yes	Yes	No	N/A	N/A
PNG	No	No	Yes	Yes	Yes	No	Yes
ROC	No	Yes	Yes	Yes	Yes	Yes	N/A
Russia	Yes	No	Yes	No	No	No	No

In general, however, there was no relationship between the presence of FOI laws and whether civil society provided access to concessions data (as shown in Table 8). In five countries, researchers documented examples where civil society has provided public access to logging concessions data. Three of these countries have FOI laws, and two do not. In contrast, civil society provides ad hoc access in 10 countries for logging. For mining concessions data, civil society provided access in four countries with FOI laws and in two countries without laws. Civil society groups in a total of 10 countries made ad hoc mining data available. Civil society groups in only four countries (out of nine countries with industrial agriculture concession systems) proactively provided agriculture concessions data, while such data were available on an ad hoc basis in

six countries. Indonesia, Russia, and Liberia are the only countries with industrial agriculture concessions that also have an FOI law.

Civil society groups provide a significant source of concessions data, regardless of the presence of FOI laws, but mostly through ad hoc means. The fact that ad hoc disclosure of concessions data was greater by both government and civil society suggests that data are shared based on personal relationships and through informal processes. That information was more commonly provided on an ad hoc basis, even in countries with FOI laws, may indicate that civil society is not taking advantage of these laws as much as it could.

Table 8 | **FOI Laws and Proactive vs. Ad Hoc Concessions Information Disclosure by Civil Society**

COUNTRY	NATIONAL FOI LAWS	PROACTIVE LOGGING DATA MADE AVAILABLE BY CIVIL SOCIETY	AD HOC LOGGING DATA MADE AVAILABLE BY CIVIL SOCIETY	PROACTIVE MINING DATA MADE AVAILABLE BY CIVIL SOCIETY	AD HOC MINING DATA MADE AVAILABLE BY CIVIL SOCIETY	PROACTIVE AGRICULTURE DATA MADE AVAILABLE BY CIVIL SOCIETY	AD HOC AGRICULTURE DATA MADE AVAILABLE BY CIVIL SOCIETY
Brazil	Yes	No	No	No	No	N/A	N/A
Cambodia	No	No	Yes	Yes	Yes	Yes	Yes
Canada	Yes	Yes	Yes	Yes	No	N/A	N/A
Colombia	Yes	No	No	Yes	Yes	N/A	N/A
Indonesia	Yes	No	No	Yes	No	Yes	Yes
Liberia	Yes	No	Yes	No	Yes	No	No
Madagascar	No	No	Yes	No	Yes	No	Yes
Malaysia	No	Yes	Yes	No	Yes	Yes	Yes
Mexico	Yes	No	Yes	Yes	Yes	N/A	N/A
Myanmar	No	No	No	No	Yes	No	No
Peru	Yes	Yes	Yes	No	No	N/A	N/A
PNG	No	No	Yes	No	Yes	No	Yes
ROC	No	Yes	Yes	Yes	Yes	Yes	Yes
Russia	Yes	Yes	Yes	No	Yes	No	No

Regulatory Complexity

Aside from FOI laws, some countries have specific legislation that governs the allocation of concessions in certain sectors but not others. For example

- Russia has a law governing the granting of agricultural concessions, but not one for mining or logging;
- Papua New Guinea has a law specifically governing logging concessions; and
- Madagascar has specific legislation that requires the release of mining exploration and exploitation data but has no similar laws for logging or agricultural concessions.

In addition to the diversity of national laws and regulations governing access to concessions data, countries vary in their levels of authority for governing concessions and access to information, adding to the regulatory complexity. Many countries operate as a federal republic with subnational (state) statutes that may affect the right to information and the allocation and management of concessions. Of the eight countries with FOI laws surveyed for this report, four countries have both national and subnational FOI laws: Brazil, Russia, Canada, and Indonesia. In addition, logging, mining, and industrial agriculture concessions can be granted at the national level, subnational level, or both. Adding yet more complexity, authority for granting concessions varies for different types of concessions within the same country. For example, researchers

found that Madagascar grants logging and mining concessions at both the national and subnational level but grants industrial agriculture concessions only at the national level. Malaysia grants mining concessions at the national and subnational level, but logging and industrial agriculture concessions are granted only at the subnational level (see Table 9).

This complexity makes it challenging to generalize both the state of transparency and suggested policy reforms. For example, the researchers selected the east Malaysian state of Sarawak to respond to the questions regarding subnational regulation of concessions for the purposes of this survey but pointed out that it is not fully representative of other states and the country as a whole. However, the states that have FOI laws (such as Selangor and Penang) are not greatly affected by forest concessions.

Table 9 | **Level at Which Different Types of Concessions Are Granted**

COUNTRY	NATIONAL FOI LAWS	SUBNATIONAL FOI LAWS	ARE LOGGING CONCESSIONS GRANTED AT THE NATIONAL LEVEL, SUBNATIONAL LEVEL OR BOTH?	ARE MINING CONCESSIONS GRANTED AT THE NATIONAL LEVEL, SUBNATIONAL LEVEL OR BOTH?	ARE AG-INDUSTRY CONCESSIONS GRANTED AT THE NATIONAL LEVEL, SUBNATIONAL LEVEL, OR BOTH?
Brazil	Yes	Yes	Both	National	N/A
Cambodia	No	No	National	National	National
Canada	Yes	Yes	Both	Both	N/A
Colombia	Yes	No	Subnational	National	N/A
Indonesia	Yes	Yes	National	Both	Both
Liberia	Yes	No	National	National	National
Madagascar	No	No	Both	Both	National
Malaysia	No	Yes	Subnational	Both	Subnational
Mexico	Yes	No	National	National	N/A
Myanmar	No	No	National	National	National
Peru	Yes	No	Both	Both	N/A
PNG	No	No	National	National	National
ROC	No	No	National	National	National
Russia	Yes	Yes	Both	Both	Subnational

There was no clear relationship between proactive disclosure and the level of government regulation (i.e., national versus subnational). Of the five governments that provide logging data proactively, Brazil, Canada, and Indonesia have both national and subnational FOI laws, but only Brazil and Canada grant logging concessions at both the national and subnational level. Indonesia grants logging concessions at the national level only. Peru has a national FOI law but grants logging concessions at both the national and subnational level.

Concessions may be granted at the national level, but the most up-to-date information is often found at the state or local level. This can make it challenging to know where and how to access concessions data.

Gaps in Laws and Practice

In contrast to laws facilitating the disclosure of concessions information, researchers in several countries noted the use of laws to deny access to concessions. The researcher in Madagascar noted that governments used intellectual property laws to deny access to concessions information. In Malaysia, the researcher found that the Official Secret Act (1972) (Act 88), which can be used to protect any document, information, and material pertaining to an “official secret,” has been applied to concessions information. Even in court cases involving land disputes for logging, governments have barred access to information related to individual concessions by invoking the Official Secrets Act. Researchers in Brazil also noted that Law 12,527/2011, Art. 6, inc. III, which allows for restrictions to personal information, and the Industrial Property Law, n°9.279, 1996, have been used to deny access to concessions data. Further, as highlighted previously in Box 3, researchers reported experiencing suspicion and resistance on the part of government entities when making requests for concessions information, even in countries with strong FOI laws.

Given the challenges of making formal and informal requests, the complexity of the regulatory systems at various national and subnational levels, and laws that can be used to deny access, the existence of FOI laws does not necessarily translate into easily accessible information.

The Role of International Voluntary Agreements and Availability and Accessibility of Concessions Information

To better understand the potential role of voluntary agreements in data disclosure, we identified whether the countries assessed or the companies operating in their countries participated in specific types of partnerships related to concession-granting processes. Voluntary partnerships that we identified included forest management certification programs (such as FSC and PEFC), the European Union’s Forest Law Enforcement, Governance and Trade Voluntary Partnership Agreements (EUFLEGT VPA), FAO’s Voluntary Guidelines on the Responsible Governance and Tenure of Land, Fisheries and Forests (VGGT), and the Extractive Industry Transparency Initiative (EITI). We looked at a variety of voluntary partnerships at the country and company level.

In the logging sector, 10 countries or companies operating within the countries (in the case of timber certification) participated in at least one voluntary partnership related to forest transparency (see Table 10). All of the countries that participated in two or more voluntary agreements also proactively disclosed logging data, with the exception of Malaysia. The relationship between certified timber operations and proactive disclosure appears to be moderately correlated, with seven of the nine certification countries proactively releasing data. Conversely, Cambodia, Madagascar, and PNG do not participate in any voluntary partnerships and do not release data proactively.

In relationship to mining, EITI is a well-established and widely recognized initiative to increase transparency in the mining, oil, and gas industries. Countries may join EITI, which is co-governed by countries, civil society, and the private sector. EITI recognizes the importance of releasing information about concessions licenses and accompanying geospatial data through its standard related to licenses. Section S.2.3 of the EITI standard requires implementing countries to maintain a publicly available register or cadaster system(s) with the coordinates of the license area (when collated). When not collated, “The government is required to ensure that the size and location of the license area are disclosed in the license register and that the coordinates are publicly available from the relevant government agency without unreasonable fees and restrictions.” The country EITI report should also document plans and timelines for making this information freely and electronically available through the license register.

Table 10 | **Participation in Voluntary Partnerships and the Proactive Availability of Logging Concessions Data**

COUNTRY	EUFLEGT VPA PARTNER COUNTRY	COUNTRY IMPLEMENTING FAO's VGGT	CERTIFIED TIMBER COMPANIES OPERATING IN COUNTRY	CONCESSIONS DATA PROACTIVELY AVAILABLE FOR LOGGING
Brazil	No	Yes	Yes	Yes
Cambodia	No	No	No	No
Canada	No	No	Yes	Yes
Colombia	No	Yes	Yes	Yes
Indonesia	Yes	No	Yes	Yes
Liberia	Yes	Yes	Yes	Yes
Madagascar	No	No	No	No
Malaysia	Yes	No	Yes	No
Mexico	No	No	No	No
Myanmar	No ^a	No	No	No
Peru	No	No	Yes	Yes
PNG	No	No	No	No
ROC	Yes	Yes	Yes	Yes
Russia	No	No	Yes	No

Note: a) This response has been changed from the researcher's initial response. Myanmar is working with the VPA and has expressed interest in joining the VPA partnership but has yet to officially join.

Over half of the countries (8 out of 14) participate in EITI (see Table 11). At the time of the study, five of the eight countries that participate in EITI make proactive data available, while three countries (Madagascar, Indonesia, and Myanmar) who participate, do not proactively release data. Russia, Cambodia, and Malaysia do not participate in the standard and do not proactively make available data on concessions.

Ultimately, no clear link could be drawn. More research is required to understand the relationship between participation in voluntary initiatives and proactive data release from governments. This research could focus on enforcement mechanisms, political support, capacity to comply with these standards, and time involved in partnerships and financial incentives. In theory, voluntary partnerships should be strong drivers of increased transparency, but the small sample size provides insufficient evidence for a correlation.

Differences among Sectors

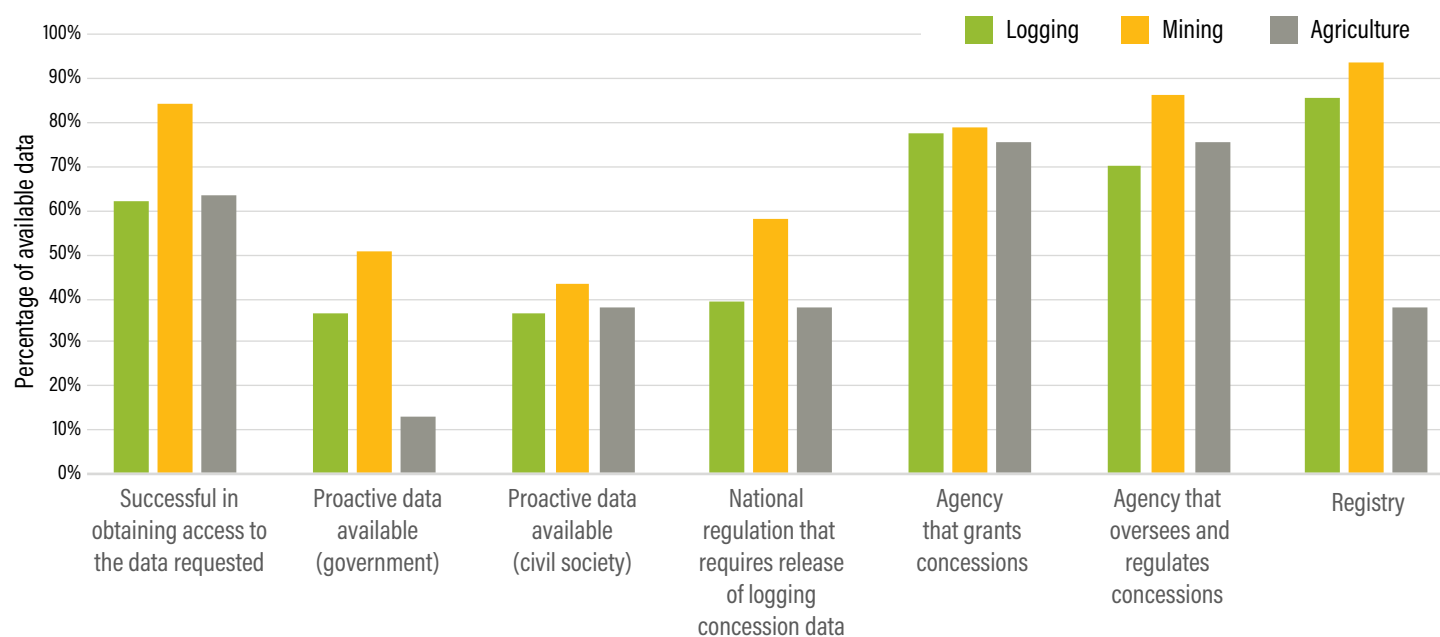
Despite the fact that there was no clear relationship between EITI participation and mining concessions disclosure, overall, information was much more complete, available, and accessible for mining, followed by logging, and finally by agriculture. As illustrated in Figure 3, this was true across almost all the variables considered in this study. More proactive data were available for mining from the government and civil society, and the mining sector had a greater number of ministries that both granted and regulated concessions. More countries (13) had mining registries than logging or agriculture registries, and more countries mandated the release of mining concessions data than data for other sectors. Most of the data were also available in digital form from governments for mining. Spatial data were more available for mining, and those data were more complete. Researchers successfully completed more information requests for mining than other sectors. Further research is required to determine why the mining sector experiences more transparency than other sectors (Figure 3).

Table 11 | Membership of EITI and the Proactive Availability of Mining Concessions Data

COUNTRY	MEMBERSHIP OF EITI	CONCESSIONS DATA PROACTIVELY AVAILABLE FOR MINING
Brazil	No	Yes
Cambodia	No	No
Canada	No	Yes
Colombia ^a	Yes	Yes
Indonesia	Yes	No
Liberia	Yes	Yes
Madagascar	Yes	No
Malaysia	No	No
Mexico	No	Yes
Myanmar	Yes	No
Peru	Yes	Yes
PNG	Yes	Yes
ROC	Yes	Yes
Russia	No	No

Note: a) Oil in the case of Colombia.

Figure 3 | Data Availability across Sectors



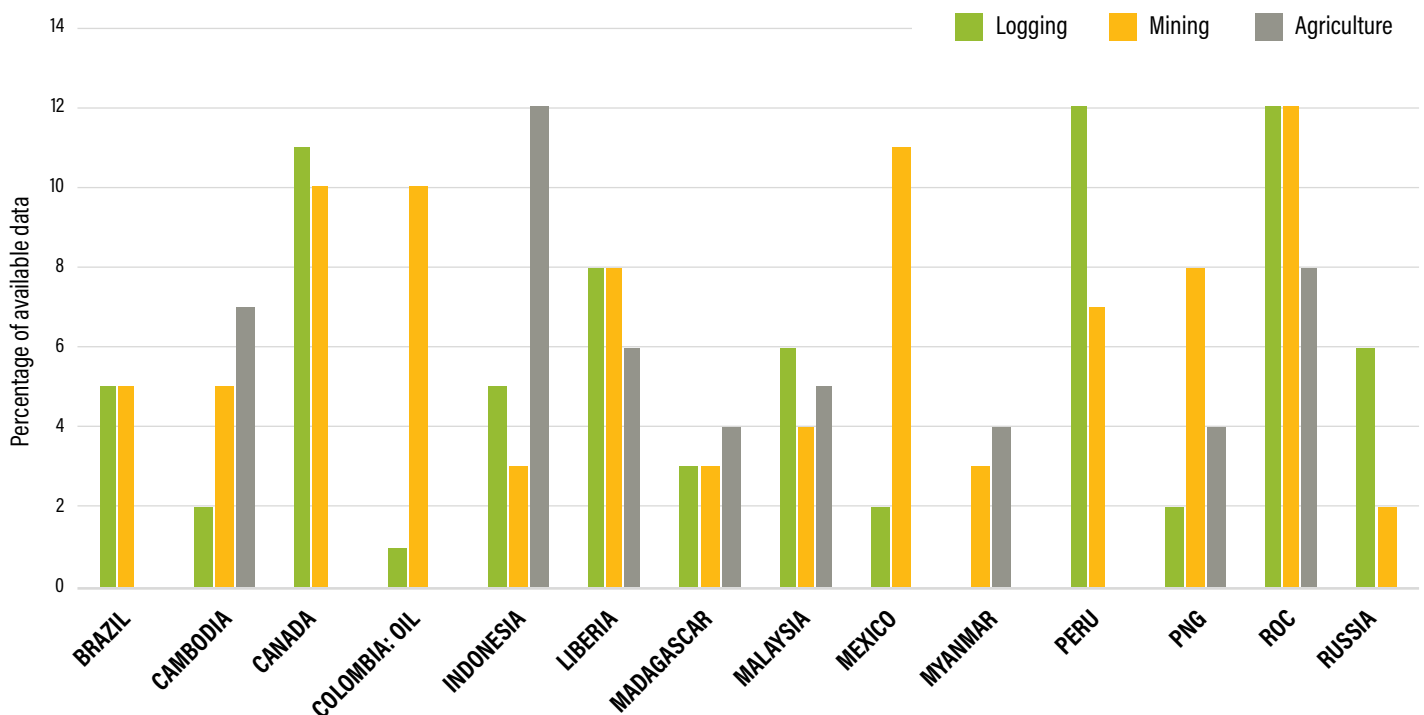
Differences among Countries

To compare how individual countries are performing against the rubric criteria for data accessibility, we weighted the different types and forms of access to reflect relative importance as outlined in the rubric. Thus, proactive disclosure by government was considered the best form of access, followed in decreasing order of significance by proactive disclosure by civil society, successfully obtaining access to government-requested data (reactive disclosure), and finally ad hoc access by government and civil society. These weighted averages were then combined to create a composite score for each country. Based on this scoring method, the Republic of Congo provides the most comprehensive access to all types of concessions data through online government and civil society portals, as well as reactive access through informal information requests and ad hoc engagement with civil society and government (Figure 4). Canada also supplies comprehensive information about concessions data through its online portal and reactive disclosure system. Peru, Indonesia, and Mexico proactively disclose concessions data through online data portals and reactively disclose data through formal and informal requests for information, but only for some of the types of concessions issued by the country.

Myanmar, Madagascar, and Russia supply only limited access to all concessions data through reactive disclosure and ad hoc engagement with government and civil society. Although Papua New Guinea has a mining data portal, very limited logging or agricultural concessions data are available. Further, the mining data portal does not provide downloadable data. In Cambodia, access through a civil society data portal and informal ad hoc engagement supplies data and helps compensate for limited direct access to government information.

We also evaluated the collected spatial data based on the completeness of five attribute fields (concession-holder name, time period, the crop or substance, and status). No country provided all five attributes throughout. Liberia, Papua New Guinea, and the Republic of Congo provided

Figure 4 | Combined Data Accessibility by Country (Proactive, Reactive, Ad Hoc)



four out of five attributes for mining spatial data; while Brazil, Liberia, and Colombia provided three out of five attributes for logging concessions. The datasets from Canada, Malaysia, and Indonesia included only a single attribute, the company name, for each type of concession category. Madagascar, Myanmar, and Russia do not provide any of the attributes in the datasets that we reviewed (Figure 5).

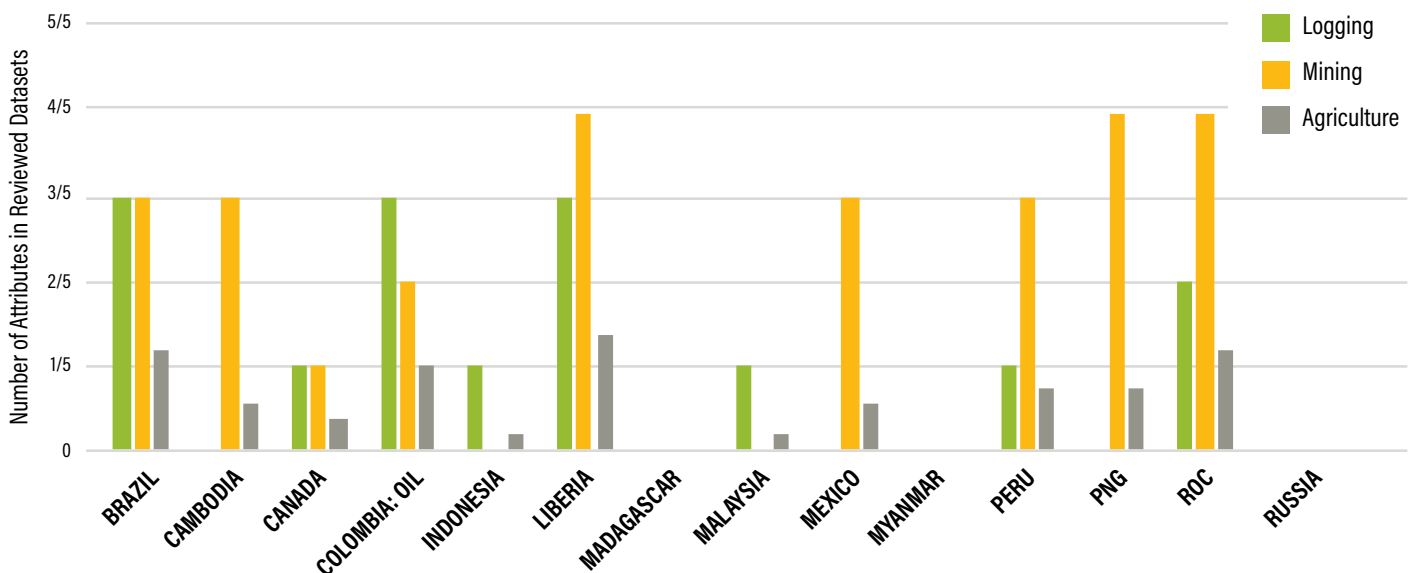
CONCLUSIONS

There is a troubling lack of comprehensive information about concessions in forested countries, as well as a lack of global standards or incentives for the proactive release of concessions data. Our survey results suggest that most countries in the study do not have a unified land information system that integrates data for all the concessions across various land-use sectors; or, if they do, the data are not made publicly available in a comprehensive way. This lack of transparency can negatively affect the ability of government and civil society to ensure enforcement and compliance with land-use decision-making laws and impedes efforts to fight corruption. Full disclosure provides the necessary, foundational support for public participation by local communities and monitoring of deforestation commitments made by government and the private sector.

Improving the proactive disclosure of high quality spatial concessions data offers an opportunity to expand transparency and provide a valuable public resource. Informal or formal requests for information can also be an avenue for public access but potentially create time and cost barriers to obtaining the data. FOI laws may have an impact on the proactive disclosure of forest information, but the presence of those laws does not guarantee comprehensive and complete data access. Information request mechanisms are at least sometimes successful when used to request concessions data, but both government agencies and civil society have low awareness as to how such mechanisms function in relation to the release of spatial information in particular.

In the 14 countries studied, industrial agriculture is the least consistent and transparent sector; mining is the most advanced in proactive disclosure of concessions information. This imbalance is consequential, given the fact that a significant driver of tropical forest loss is clearance for agricultural concessions. More research is required to understand the conditions that enable increased transparency in the mining sector and whether these can be replicated for the logging and agriculture sectors. However, our research also illustrated that even where government data portals exist for mining, many of these portals

Figure 5 | Spatial Dataset Attribute Information by Country



do not follow open data principles or best practices (i.e., license-free, downloadable, etc.), and this limits how the data can be used or evaluated. All sectors could benefit from a global standard and guidance to ensure consistent and proactive disclosure of concessions information that can also help expedite country-specific efforts to expand transparency.

The quality (complete, up-to-date, with attribute data) of the spatial information provided is also of paramount importance for transparency. In this aspect, the spatial data collected in this study were not consistently comprehensive. None of the concessions datasets collected included all of the attributes we evaluated, including concession-holder (company) name, time period, the crop or substance, and status.

Where proactive government data are unavailable, civil society can fill an important gap in securing and making transparent data in an ad hoc manner. In several countries in the study (e.g., Malaysia and Cambodia), civil society played a central role in collating data on concessions from individual contract documents or government gazettes and distributing the information in a centralized portal. However, concessions data are often used in land-conflict cases involving multiple or overlapping land claims or for governmental land-use decision-making processes. Thus government data, secured either proactively or reactively, are preferable and often less disputable when compared to data created and shared by civil society.

Long-term partnerships between governments and civil society may lead to increased transparency, as evidenced by the case of the partnership between WRI and the Republic of Congo's Ministry of Waters, Forests, Hunting, and Fishing (MEFCP) in which WRI works together with the government to build capacity to maintain spatial databases and online portals. The World Bank has also awarded funding to companies like Spatial Dimension to work with governments to build cadasters. Governments, civil society groups, and the private sector should work together to continue the momentum toward the proactive release of complete, accurate, and timely concessions data in order to achieve better transparency for people and forests.

RECOMMENDATIONS AND FURTHER RESEARCH

Based on these preliminary results, we propose the following recommendations to increase the disclosure of concessions information across the sectors driving deforestation:

- 1. Governments should facilitate greater access to concessions data, ideally proactively through comprehensive online portals.** Governments should strive to ensure that data provided through online portals are kept up to date, reflecting when new concessions are granted, revoked, or expired, and follow open-data principles (data are downloadable, free, etc.). In the interim, governments can also improve reactive access through timely compliance with requests under FOI legislation in their countries.
- 2. For countries with large forest concessions, expanding access to concessions data should be a priority for immediate action.** Governments should evaluate the institutional, human, and financial resources and capacity-building requirements necessary to develop integrated technical systems that ensure the accurate collection, analysis, and disclosure of concessions information and data. Governments should engage local and national civil society groups to identify opportunities and challenges respecting the demand and use of concessions data that will facilitate participatory and equitable land-use decision making. Finally, relevant ministry officials can engage elected leaders to secure the political will and financial support needed to make transparent forestry concessions information a priority.
- 3. Donors should invest in building capacity for governments to collate, digitize, and share concessions information proactively through online portals.** Emerging good practice in the release of concessions information by way of national portals can be found in countries including Brazil, Peru, Mexico, and the Republic of Congo. Donors need to ensure that any supported geoportals and/or cadasters for concessions follow open-data principles and standards and are updated regularly to reflect the spatial allocation of concessions. Donors can finance capacity building and technical assistance for government institutions and civil society organizations to meet both the mandate and demand for the disclosure and use of

concessions information and ensure proper internal coordination and involvement of civil society and the public.

4. **Civil society organizations should continue to collate, digitize, and publish concessions information to the public when such information is not otherwise available.** In addition, civil society organizations can pressure their governments to make commitments for the release of spatial and other concessions information through transparency mechanisms, such as the Open Government Partnership. By attempting to secure data and highlighting the lack of transparency, civil society can illustrate the demand and need for better access. Finally, civil society can encourage the development, passage, and implementation of robust FOI laws, with support for particularly opaque countries (e.g., Madagascar, Myanmar, Cambodia, Malaysia) that could benefit from the creation of additional FOI laws, and/or the passage or sectoral laws that require the release of concessions data.
5. **Public disclosure of spatial concessions information should be required under voluntary partnership agreements and incorporated into existing contract transparency initiatives.** Multi-stakeholder processes aimed at increasing transparency of contracts and payments like the EITI, timber, and agriculture certification systems, and the Roundtable on Sustainable Palm Oil, should incorporate principles and criteria that require disclosure of the boundaries of company operations, even when governments do not make these data available
6. **Given that the agriculture sector is currently one of the greatest deforestation drivers but has the lowest levels of transparency, relevant initiatives should prioritize greater data disclosure.** Multistakeholder fora aimed at reducing deforestation from agricultural commodities, such as the Consumer Goods Forum and TFA2020, should investigate guidelines and principles for disclosure of spatial concessions information, to improve attribution of drivers of deforestation and facilitate assessments of compliance with corporate zero deforestation commitments. These forums can and should play a role in promoting peer exchange and learning between governments and industry regarding the development of large-scale concessions portals and systems to support improved concession management across different sectors.

Although this study provided a useful synopsis of concessions transparency in 14 countries, further research is required in the following areas to better understand both the causes and effects of data disclosure:

- Enablers of and barriers to transparency, including regulatory complexity surrounding the allocation and management of concessions between different ministries, the technical capacity of governments to provide information and data, the role of corruption as a barrier to the development of open concessions data systems, cultures of openness vs. secrecy, and the ability of transparency laws to help drive the development of concession-information management systems
- Social economic, environment and human costs to secrecy
- Factors contributing to the failure of formal information requests to result in the release of concessions information
- Impacts of spatial transparency on land-use allocation processes, company compliance with sustainability commitments and environmental impact assessments, the effectiveness of grievance mechanisms when conflicts arise, the ability of local stakeholders to monitor concessions and participate in land-use planning, and ultimately, how these factors improve outcomes for forests and forest-dependent people
- Additional voluntary partnerships related to the sectors in this study and how they can influence new standards of development and implementation
- Larger economic or political factors influencing transparency, such as foreign investment and development finance. A majority of researchers indicated that the relative economic importance of a particular sector in a country could lead to increased transparency for that sector in order to attract foreign investment. More research is required to understand the relationship between a sector's economic importance and concessions transparency.

APPENDICES

Appendix A | Countries, Tree Cover Statistics, and Types of Concessions

COUNTRIES	TREE COVER (MHA) (2000)	PERCENT TREE COVER (2000)	TREE COVER LOSS (HA) (2001-2014)
Brazil	519	62	38,336,733
Cambodia	9	50	1,586,252
Canada	418	49	30,627,111
Colombia	82	73	2,822,693
Indonesia	161	86	18,507,771
Liberia	9	98	711,476
Madagascar	17	29	1,971,473
Malaysia	29	90	5,632,714
Mexico	53	27	2,587,661
Myanmar	43	65	2,030,101
Papua New Guinea (PNG)	43	93	781,081
Peru	78	61	1,949,885
Republic of the Congo (ROC)	26	78	409,526
Russia	761	47	40,939,593

Appendix B | Researching Organizations

COUNTRY	ORGANIZATION	WEB SITE
Brazil	Instituto Centro de Vida	http://www.icv.org.br/
Cambodia	East West Management Institute	http://ewmi.org/
Canada	Global Forest Watch Canada	http://www.globalforestwatch.ca/
Colombia	Ambiente y Sociedad	http://www.ambienteysociedad.org.co/en/
Indonesia	Forest Watch Indonesia	http://fwi.or.id/
Liberia	Sustainable Development Institute	http://sustainabledevelopmentinstitute.org/
Madagascar	Development and Environmental Law Center (DELIC)	http://www.delic-madagascar.org/
Malaysia	Bruno Manser Fonds	http://bmf.ch/en
Mexico	Mexican Center for Environmental Law (CEMDA)	http://www.cemda.org.mx/
Myanmar	ALARM	http://www.myanmaraffairs.com/
Peru	Sociedad Peruana de Derecho Ambiental	http://www.spda.org.pe/
Papua New Guinea	Ecoforestry	http://www.greenpeace.org/international/Global/international/code/2013/png/index.html
Republic of the Congo	World Resources Institute	http://www.wri.org/geography/republic-congo
Russia	Transparent World	http://www.transparentworld.ru/en/

Appendix C | **Types of Concessions Data Collected by Researchers**

CATEGORY	SPECIFIC DOCUMENTS
Concession Contracts	An example of a logging concession contract
	An example of a mining concession contract
	An example of a industrial agricultural concession contract
Concession Maps	An electronic SHP file or paper map with boundaries of a logging concession
	An electronic SHP file or paper map with boundaries of a mining concession
	An electronic SHP file or paper map with boundaries of an agro-industry concession
Aggregated National or Subnational Concessions Data	A consolidated SHP file, paper map, or tabular file of all logging licenses (with or without spatial data) at the national and/or subnational level
	A consolidated SHP file, paper map, or tabular file of all mining exploitation licenses (with or without spatial data) at the national and/or subnational level
	A consolidated file, paper map, or tabular file of the relevant industrial agricultural licenses (with or without spatial data) at the national and/or subnational level

Appendix D | **Copies of Laws Collected by Researchers**

CATEGORY	SPECIFIC DOCUMENTS
National-level Laws, Policies, and Regulation	The primary national FOI law and any related regulations or policies that specifically govern access to concessions data at the national level
	The primary national environmental laws if they address access to concessions data and any related regulations or policies that specifically govern access to concessions data at the national level
	The primary national forestry law and any related regulations or policies that specifically govern access to concessions data at the national level
	The primary national law regulating logging concessions (if different from forestry law) and any related regulations or policies that specifically govern access to concessions data at the national level
	The primary national mining law or laws of the country regulating concessions and any related regulations or policies that specifically govern access to both exploration and exploitation concessions data at the national level
	The primary national agricultural law or laws regulating the selected agro-industry concessions and any related regulations or policies that specifically govern access to concessions data at the national level
	Any law, policy, or regulation that creates a moratorium or cancellation of the granting of a particular type of concession included in the study
	Relevant state secret, commercial confidentiality and privacy laws, regulations, or policies that limit access to concessions data
Subnational-level Laws, Policies, and Regulations (where relevant)	Any land laws, policies, or regulations governing where (state land, indigenous lands, etc.) and how concessions are granted and managed
	Any subnational FOI law and related regulations or policies that govern access to concessions data at the subnational level
	The primary subnational environmental or forestry law and related regulations or policies that specifically govern access to concessions data at the subnational level
	The primary subnational law regulating logging concessions (if different from forestry law) and any related regulations or policies that specifically govern access to concessions data at the subnational level
	The primary subnational mining law or laws regulating concessions and any related regulations or policies that specifically govern access to both exploration and exploitation concessions data at the subnational level
The primary subnational agricultural law or laws regulating the selected agro-industry concessions and any related regulations or policies that specifically govern access to concessions data at the subnational level	

GLOSSARY

Concessions: For the purposes of this research project, the term *concessions* was defined as any contractual agreement that results in the significant acquisition of rights to lands for resource exploitation or conversion within a specified time period or for a specific area of land. Concessions are typically allocated to private companies or individual investors by authorized government entities on lands legally owned or held in trust by the state.

Disclosure: Disclosure refers to the act of making information known, although not all forms of disclosure are equal. Disclosure of information may be proactive and open, as through an online open data portal, or reactive, as in the case of information obtained through the submission of official FOI mechanisms. The degree of effectiveness of disclosure can also be gauged by its timeliness, its completeness, whether it is full or redacted, the costs associated, whether it is openly licensed, and if it's machine-readable, etc.

Formal Freedom of Information (FOI) law: Such laws provide citizens with a mechanism through which they may exercise their right to access information previously undisclosed by the government. More than 90 countries currently have formal FOI laws.

Information requests:

- **Ad hoc access:** Data or associated documents are acquired through an informal request to either a government official or a nongovernmental organization.
- **Proactive access:** Data and information are freely available, such as through an online portal or in paper form from a government office.
- **Reactive or formal access:** Data become available upon submission of a written (electronic or paper) information request, in accordance with the guidelines stipulated in the national FOI law.

Open Data: Data that carry associated licenses allowing the data to be freely used, reused, and redistributed by anyone. See <http://opendatahandbook.org/guide/en/what-is-open-data/> for more information.

Open format: Data that have no restrictions on use, that are covered by an open data license (such as a Creative Commons license), and that can be opened by a free program.

Machine-readable: Data provided in a format that can be easily processed or structured by a computer. Data can be digital, but not machine-readable. An example relevant to this study would be geospatial data that is contained in a PDF map or a list of latitude and longitude coordinates, as opposed to a shapefile, kml file, spreadsheet or other format that can be read by a computer.

Shapefile or SHP file: A SHP file is a file of nontopological geometry and attribute information for the spatial features in a dataset. The geometry for a feature is stored as a shape comprising a set of vector coordinates. See <https://www.esri.com/library/whitepapers/pdfs/shapefile.pdf> for more information.

Transparency: The rights that citizens have to access information; how much access they actually have to this information in practice; and the scope, accuracy, and timeliness of this information.

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ENDNOTES

1. For more definitions, please see the Glossary.
2. Representatives of the following organizations contributed to method design: Cadasta, CIFOR, Columbia Center on Sustainable Investment, Forest Trends, Global Witness, Greenpeace, Moabi, Rights and Resources Initiative, and Oxfam.
3. A subnational ministry is a provincial or regional body (e.g., a governor) with separate authority. A subnational representative of a national ministry implementing national policy should not be included unless he or she has have been granted unique and separate authority.
4. For example, the Open Knowledge Foundation's Global Open Data Index <http://index.okfn.org/methodology/>.
5. For the Republic of the Congo, the definition of "concessions data" used in this publication refers to information related to concessions activities that is to be published in the official journal as Ministerial text under the forest law. This includes the definition of a concession area, approval of a convention for exploitation, and approval of management plans. Laws and other ministerial texts are required to be published in the Journal Officiel, which, in theory, is published in both paper and electronic versions.
6. See Box 2 for more information about land allocation and concession tenure differences across countries.
7. Oil in the case of Colombia.
8. The concessions data available in the Republic of the Congo is made so through the Forest Atlas, a partnership between the Congolese government and the World Resources Institute (i.e., a government-civil society collaboration). In particular, for agriculture, concessions data are made available through ad hoc information gathering and this data point does not imply that the information is comprehensive, up to date, or complete.
9. All of these data are also available on Global Forest Watch unless otherwise noted.
10. See: <http://standard.open-contracting.org/latest/en/implementation/levels/>.

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ABOUT WRI

World Resources Institute is a global research organization that turns big ideas into action at the nexus of environment, economic opportunity and human well-being.

ABOUT CCSI

The Columbia Center on Sustainable Investment, a joint center of Columbia Law School and the Earth Institute at Columbia University, is the only university-based applied research center and forum dedicated to the study, practice, and discussion of sustainable international investment.



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