

## CHAPTER 2

# Forest land and indigenous populations in Mesoamerica: cases of Costa Rica, Guatemala, Honduras, Mexico, Nicaragua and Panama

### 2.1 Forest resources in the Mesoamerican region

In 2010, the forest area of Latin America and the Caribbean<sup>6</sup> represented 23.5 percent of the global forest area (FAO, 2011b). Out of the Latin American total, the Mesoamerican region (Central America and Mexico) accounts for 8.8 percent of the forest area, with 6.8 percent of that belonging to Mexico and 2 percent to Central America.

Table 2. Forest area in Mesoamerican countries

Country	Forest area (1,000 hectares)	Percentage of national area (%)	Percentage of the forest area in Mesoamerica (%)
Belize	1,393	61	1.7
Costa Rica	2,605	51	3.1
El Salvador	287	14	0.3
Guatemala	3,657	34	4.3
Honduras	5,192	46.4	6.2
Nicaragua	3,114 Natural Other forest areas: 3392	26 percent natural forests and over 50 percent also including agroforestry systems	3.7
Panama	3,251	44	3.9
Mexico	6,4802	33.4	76.9
Total	8,4301		100 percent

Source: Produced on the basis of data from the FAO database, State of the World's Forests, 2011.

Mesoamerican forests tend to have rainforest vegetation, temperate forests and cloud forests, with the exception of a few dry forest areas in Mexico and very small areas in Central American countries. In terms of total area by country, the percentage of forest area in each of the countries in the Mesoamerican region (except El Salvador) represents over 30 percent of the national territory. This is highly relevant for the potential impact of the REDD+ initiative.

Deforestation and degradation processes in the Mesoamerican region are mainly due to land use changes for crop or livestock activities, illegal timber felling, forest fires and, in some countries such as Honduras, Mexico and Nicaragua, the impact of hurricanes. It is estimated that 70 percent of deforestation is caused by the transformation of forests into grassland, and 30 percent by agricultural expansion. If current trends continue until 2050, the region is predicted to lose around 45 gigatonnes of carbon.<sup>7</sup>

<sup>6</sup> Unlike the calculation from the FAO publication: State of the World's Forests (2011), for this document the total forest area of Latin America and the Caribbean was calculated to include Mexico.

<sup>7</sup> Central American Commission on Environment and Development, 2009 and CLUE Model in PRISMA, 2010.

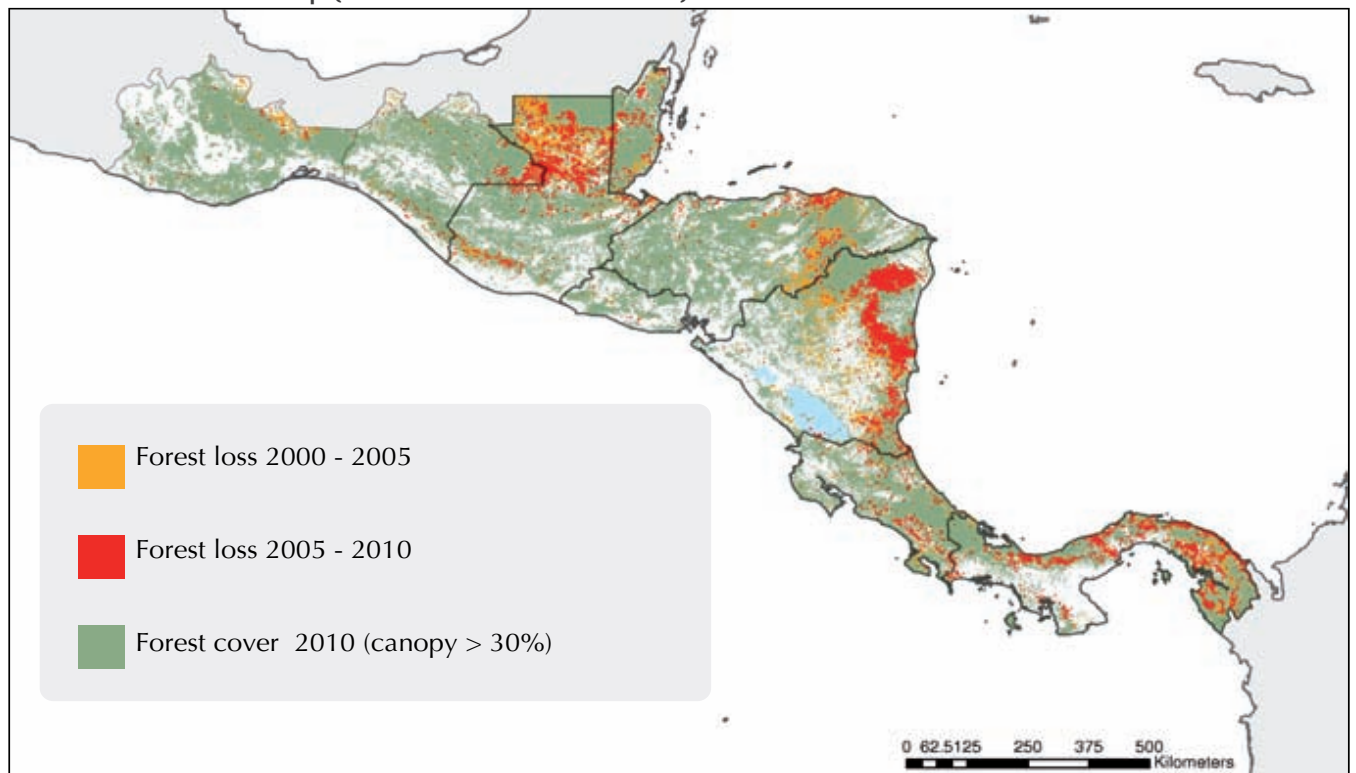
**Table 3. Annual change rate of forest area in Mesoamerica (1990–2000; 2000–2010)**

Country	Annual change rate, 1990–2000 (%)	Annual change rate, 2000–2010 (%)
Belize	-0.6	-0.7
Costa Rica	-0.8	0.9
El Salvador	-1.3	-1.4
Guatemala	-1.2	-1.4
Honduras	-2.4	-2.1
Nicaragua	-1.7	-2
Panama	-1.2	-0.4
Mexico	-0.5	-0.3
Total Central America (not including Mexico)	-1.6	-1.2

Source: Produced based on FAO database, State of the World's Forests, 2011.

These deforestation processes have increased the rate of annual change in four of the eight countries in the Mesoamerican region. Having said that, in Belize, Costa Rica, Mexico and Panama, there is a major transition and reforestation process that has brought down annual rates of change in the national forest area to almost zero in Mexico and Panama. This is significant in Mexico considering that the country's total forest area in 2010 was 64 802 000 hectares. In Costa Rica, not only has deforestation stopped but there is also a major reforestation process under way that has reached 0.9 percent a year. In total, over the past 10 years the deforestation rate in Central America has fallen by -0.4 percent, which represents an annual reduction in the destruction of 126 000 hectares of forest.<sup>8</sup>

**MAP 1. Deforestation map (2000–2005 and 2005–2010)**



\*Forest change has been magnified to facilitate consultation of the map. Real change may be smaller than suggested by the map graphics.

**Sources:**

- Change from MODIS Vegetative Cover Conversion
- Carroll, M.L., C.M. DiMiceli, J.R.G. Townshend, R.A. Sohlberg, M.C. Hansen, R.S. DeFries (2006), Vegetative Cover Conversion MOD44A, Burned Vegetation, Collection 4, University of Maryland, College Park, Maryland, 2004.
- Associated Peer-Reviewed Publication: Zhan, X., R. Sohlberg, J.R.G. Townshend, C.M. DiMiceli, M.L. Carroll, J.C. Eastman, M.C. Hansen, R.S. Defries (2002), Detección de cambios en la cobertura de suelo usando MODIS 250 meter data, Remote Sensing of Environment, 83, 336-350.

**Database source:**

- Global Land Cover Facility, [www.landcover.org](http://www.landcover.org).

<sup>8</sup> Central America suffered annual deforestation of around 374 000 hectares of its total forest area in the period 1990-2000, which dropped to an annual total of 248 000 hectares for the period 2000-2010.



Despite the positive reports of an overall reduction in deforestation processes in the Mesoamerican region, there are major deforestation fronts in areas with a large forest mass, such as the Maya Biosphere in Guatemala, the Río Plátano Reserve in Honduras, the Nicaraguan Caribbean region and the Ngöbe Buglé District in Panama (FAO, 2011b) – as shown in Map 1. These regions are also indigenous territories where population migration from Pacific to Atlantic areas, the advance of the agricultural frontier and illegal timber felling by people outside the communities are creating major conflicts with indigenous populations and their ancestral rights over the territories concerned. It should be pointed out that such conflicts take on greater importance when they take place in forest territories close to national borders, which is the case for most Mesoamerican countries.

## 2.2 The indigenous populations of Mesoamerican forest regions - Costa Rica, Guatemala, Honduras, Mexico, Nicaragua and Panama

As in Latin America as a whole, the Mesoamerican region's forest areas, indigenous territories and areas with high levels of rural poverty are often one and the same. Latin America is a region of many cultures, with its 671 recognized ethnic groups. There are estimated to be around 28-43 million indigenous people in the region, which represents around 40 percent of the total population of Latin American countries (FAO, 2009a). Around half of the indigenous population live in tropical forest areas. The highest concentration of indigenous peoples is found in Andean and Mesoamerican countries, such as the Plurinational State of Bolivia, Ecuador, Guatemala and Mexico. Around 80 percent of Latin America's indigenous population is poor. Analysing poverty levels from an income point of view shows that, notwithstanding the reduction in the levels of marginalization in countries over the past two decades, indigenous people continue to have the highest percentage of poverty in relation to the non-indigenous population (World Bank, 2006; Bello, *et al.*, 2002; World Bank, 2007).

In Mesoamerican countries, the situation of indigenous peoples is no different from that throughout the region. In Mesoamerica, indigenous peoples are among the poorest population groups and represent a substantial proportion of total population in countries such as Belize, Guatemala, Mexico and Panama (as shown in Table 4).

**Table 4. Percentage of indigenous population within national population of Mesoamerican countries**

Country	Total indigenous population	Percentage of indigenous population within national total (%)	Data source: Population census/year
Belize	38,562	16.7	2000
Costa Rica	63,876	1.7	2000
El Salvador	0	N.A.	N.A.
Guatemala	4,433,218	39.45*	2002
Honduras	470,027	7.2	2001
Nicaragua	443,847	8.63	2005
Panama	417,559	12.26	2010
Mexico	15,700,000	13.97	2010

\* Officially, 40 percent of the population is indigenous, while NGOs state that the figure is around 65 percent.

In terms of poverty among the indigenous population, 56 percent of Guatemala's total population were classified as poor and 16 percent as extremely poor in 2000. Out of the total poor population, 74 percent were indigenous, while 24.3 percent of the extremely poor population were indigenous.<sup>9</sup> In 2001, Nicaragua reported that 46 percent of its population was poor, with 15 percent extremely poor (World Bank, 2003). Although there are no statistics on the economic situation of the country's indigenous populations, municipal data from the 2001 report indicate that the autonomous regions of the Atlantic and its coast are part of the areas most severely affected by severe poverty. These regions are inhabited by mainly Miskito and Afro-descendent population. In Honduras, 50 percent of the population lives in rural areas, and 74 percent of that population are poor (71 percent of these people are indigenous). As of 2010, 46.2 percent of the total Mexican population were poor (52 million) (National Council for the Evaluation of Social Development Policy (CONEVAL), 2010).

<sup>9</sup> Government of Guatemala, Planning and Programming Secretariat (SEGEPLAN): <http://www.segeplan.gob.gt>.

The states of Oaxaca and Chiapas, which constitute the Mesoamerican area referred to in this document, were among the country's seven poorest federal entities.<sup>10</sup> As in Nicaragua, Panama has no recent statistics on indigenous poverty; in 2003 it was estimated that 98.4 percent of people in indigenous areas were living in extreme poverty.<sup>11</sup>

The main language families of the indigenous groups in the Mesoamerican region are Maya, Nahua, Oto Manguéan, Miskito,<sup>12</sup> Chibchan, Choco and Arawakan (Afro-descendent languages including Garífuna and Creole). Groups using the first three language families are of Mesoamerican origin, while the Miskito, Chibchans and Choco are the result of ancient migration processes from South America and the Caribbean (Duverger, C., 2007). The Garífuna descend from African slaves who freed themselves from French and British colonizers in the Caribbean and migrated to the north of the region's Atlantic coast to Belize, Guatemala and Honduras. They can also currently be found in Nicaragua.

### 2.3 Natural resource management and tenure systems of indigenous populations living in forest areas of Costa Rica, Guatemala, Honduras, Mexico, Nicaragua and Panama<sup>13</sup>

As in the rest of Latin America, in Mesoamerican countries many indigenous peoples live in forest areas. The analysis in this part of the document will concentrate on groups living in the areas of Mesoamerica with the greatest forest areas in the countries considered: Costa Rica Guatemala, Honduras, Mexico, Nicaragua and Panama. Table 5 and Map 2 show the composition and distribution of indigenous peoples in the Mesoamerican region.

**Table 5. Main forest areas with indigenous population in Mesoamerican countries**

Country	Indigenous forest areas	Language family	Indigenous peoples
Mexico	Chiapas: Lacandona forest, Sierra Madre Oaxaca: Chimalapa forest, Sierra Norte, Papaloapan isthmus and basin	Maya Oto-Manguéan Zoque-Mixe	Tzeltal, Tzotzil, C'hol, Tojolabal, Lacandón Zapotecos, Mixtecos, Chinantecos, Mazatecas y otras etnias Mixe, Zoque
Guatemala	Maya Biosphere region (Petén) Departments of Huehuetenango; Quiché; Alta Verapaz and Izabal.	Maya Maya Arawakan	Q'eqchi, Mopán Maya Akateko, Ixtatán Chuj, San Sebastián Coatán Chuj, Q'anjob'al, Nebaj Ixil, Chajul Ixil, Q'eqchi', Poqomchi Kiché, Awakateko, San Juan Cotzal Ixil, Uspanteco, Jakalteco, Mam, Tectiteco, Sacapulteco, Garífuna
Belize	Nationwide	Maya Arawakan	Kekchi, Garífuna
Honduras	Departments of Gracias a Dios, Colón and Olancho; including the Río Plátano Reserve	Misumalpan Chibchan, Arawakan	Misquitos, Tawahkas, Pech Garífuna
Nicaragua	Atlantic coast: North Atlantic Autonomous Region (RAAN) and the South Atlantic Autonomous Region (RAAS), Río Coco	Misumalpan Chibchan Arawakan	Misquitos, Sumu-Mayangna, Rama Garífuna
Costa Rica	Indigenous reserves recognized and defined in 1977, located in the east and centre of the country	Chibchan	Bri-Bri, Cabecar, Maléku Jaíka, Ngäbere (Boruca y Teribe)
Panamá	Kuna-Yala Comarca Kuna-Madungandí Comarca Kuna-Wargandí Comarca Emberá-Wounaan Comarca Darién Ngöbe-Buglé Comarca Lands of the Naso-Teribe (north east) Lands of the Bri-Bri	Chibchan Chibchan Choco Choco Chibchan Chibchan Chibchan	Kunas Kunas Emberá; Wounaan Emberá; Wounaan Teribe, Ngöbe, Buglé Naso, Teribe Bri-Bri

Source: Produced on the basis of *Ethnologue, Languages of the World*, consulted in July 2012.<sup>14</sup>

<sup>10</sup> Mexico has 32 federal entities, including the Federal District (the country's capital).

<sup>11</sup> Living Standards Survey by the Social Policy Directorate of the Ministry of Economy and Finance, 2003.

<sup>12</sup> The Miskito group currently covers the Pech and the Tawahkas, who live in the Biosphere region in Honduras and Nicaragua.

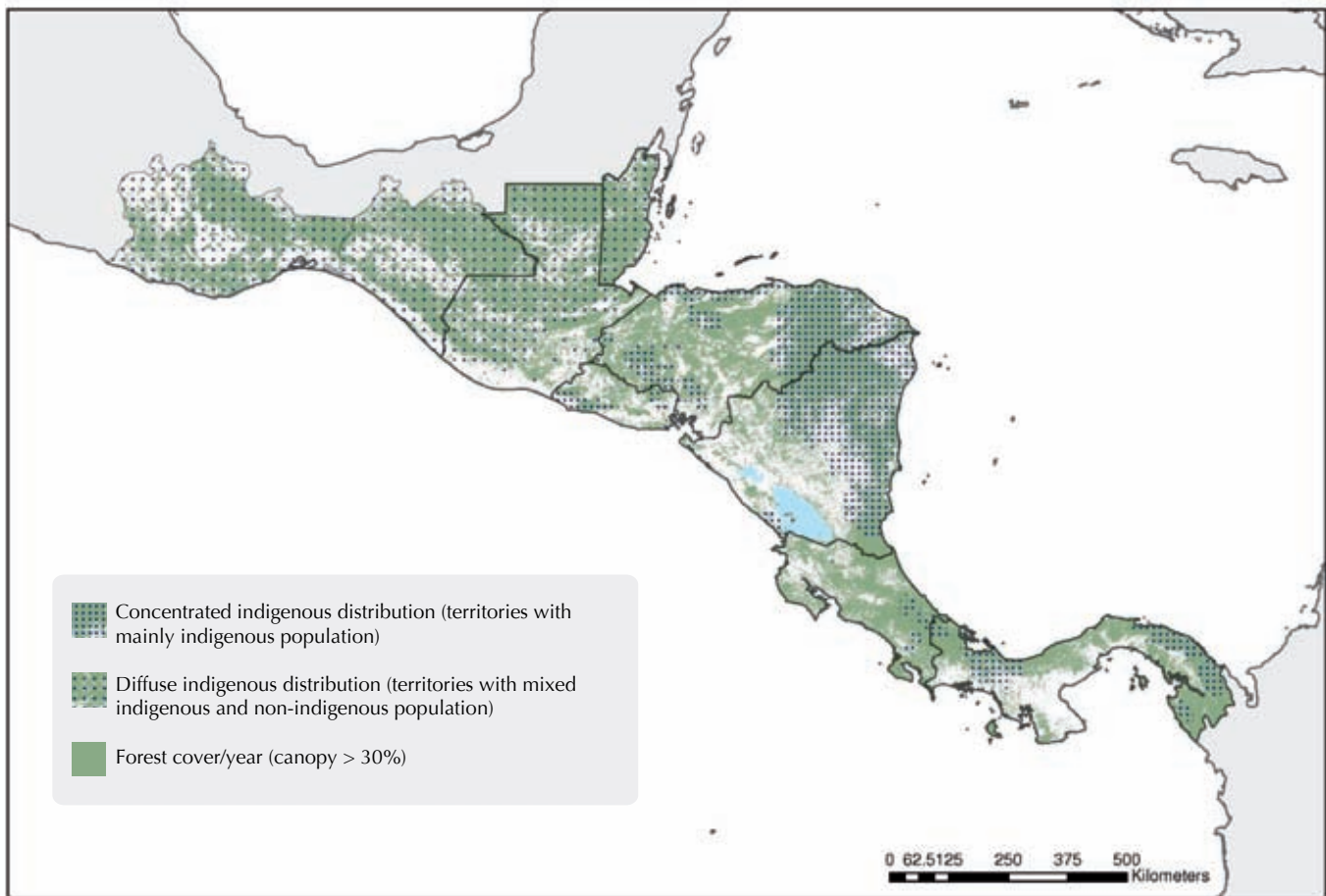
<sup>13</sup> Much of the analysis in this section is based on Herrera Garibay, Adriana. Central America Indigenous Peoples Lands Issues with focus on Guatemala, Honduras, Nicaragua and Panama. FAO contribution to the World Bank Land Policy Notes. Rome, 2008.

<sup>14</sup> Website: [http://www.ethnologue.com/country\\_index.asp](http://www.ethnologue.com/country_index.asp).





MAP 2. Distribution of the indigenous population in the forests of the Mesoamerican region



**Sources:**

- Canopy, MODIS Vegetation Continuous Fields
- Hansen, M., R. DeFries, J.R. Townshend, M. Carroll, C. Dimiceli, and R. Sohlberg (2006), Vegetation Continuous Fields MOD44B, 2001 Percent Tree Cover, Collection 4, University of Maryland, College Park, Maryland, 2001.
- Associated Peer-Reviewed Publication: Hansen, M., R.S. DeFries, J.R.G. Townshend, M. Carroll, C. Dimiceli, and R.A. Sohlberg (2003), "Global Percent Tree Cover at a Spatial Resolution of 500 Meters: First Results of the MODIS Vegetation Continuous Fields Algorithm", Earth Interactions, Vol 7, No 10, pp 1-15.

**Database source:**

- Global Land Cover Facility, [www.landcover.org](http://www.landcover.org).

Traditional systems of settlement, tenure, production and use of natural resources were dramatically affected by Spanish colonizers, who encouraged a displacement of indigenous peoples into remote areas so that they could appropriate the best land through *encomiendas* (trusteeships). In the Atlantic Region of Honduras and Nicaragua, colonization processes were based on British colonization of the Caribbean. In the post-colonial era, the formation of States led to the nationalization and municipalization of indigenous territories. In the late nineteenth century, many territories were sold to national and foreign investors. Such territories were also affected by agrarian settlement programmes carried out in the first part of the twentieth century and the agrarian reforms carried out with the support of the Alliance for Progress<sup>15</sup> in the period 1960–1981 (apart from in Mexico (1939) and Guatemala (1953)). Lastly, the civil wars in El Salvador, Guatemala and Nicaragua had a significant impact on the forms of common property and traditional collective use of natural resources maintained by most indigenous peoples in forest areas of Mesoamerica.

**Nicaragua.** The Atlantic coast of Nicaragua is home to over 50 percent of the country's indigenous population. The Miskito, Sumu-Mayangna, Mestizo, Creole, Garifuna and Rama peoples form a rich ethnic, linguistic and cultural universe in the area. Their traditional forms of managing natural resources, such as shifting cultivation, hunting, fishing, mining and wood production, have been changed by many factors, including population increase (indigenous and migrant) in territories; spontaneous colonization processes on the Pacific coast and central areas; settlement programmes; and intensive illegal felling.

<sup>15</sup> Especially those carried out in Guatemala, Honduras, Mexico and Nicaragua.



This part of the Nicaraguan coastal territory has been politically important, not only because of its cultural wealth and biodiversity, but also because it has been a hub for spontaneous colonization and expansion of the agricultural frontier for former Nicaraguan revolutionary fighters; government land-distribution programmes to establish settlements; and illegal felling. These processes have been facilitated by the lack of delimitation and legal recognition of ancestral rights over the territories of indigenous communities, and have dramatically influenced deforestation in the area.

The Atlantic Coast also includes special regime areas of Alto Río Coco, North Atlantic Autonomous Region (RAAN) and the South Atlantic Autonomous Region (RAAS), which were set up in 1987 through Law 28 – Autonomy Statute for the regions of the Atlantic Coast of Nicaragua. This law gave such regions political and administrative autonomy, as well as the power to resolve the demands of indigenous peoples to have their ancestral rights over territories recognized. The type of autonomy granted by the law does not allow secession from the national territory. The administrative part governed by a Regional Council, comprising the authorities of the Community Authorities, Regional and Municipal Council, does allow for the autonomous administration of these regions. This type of territorial administration, along with Law 445 of 2002 (Law on the Communal Property Regime of Indigenous Peoples and Ethnic Communities in the Autonomous Regions of the Atlantic Coast of Nicaragua), has seen the materialization of the government's efforts to facilitate the delimitation and entitlement processes for indigenous RAAN and RAAS territories, under an inter-community arrangement.

By mid-2012, 17 of the 23 territories earmarked for titling by the Government of Nicaragua had been titled in RAAN, RAAS and special regime areas of Alto Río Coco on the border with Honduras. Titling has benefited 250 communities of indigenous and Afro-descendent peoples over an area covering 22 478 996 km<sup>2</sup> (17.3 percent of the national territory). This area accounts for 60 percent of the total indigenous territory to be defined and titled on the Atlantic Coast.<sup>16</sup>

The progress of the titling process on the Atlantic Coast of Nicaragua is highly important for the REDD+ initiative, as well as for stopping deforestation processes, as 70.61 percent of the country's tropical forests (3.5 million hectares) are in the Atlantic region (with 41.69 percent, or 1.9 million hectares, in RAAN and 28.92 percent, or 1.6 million hectares, in RAAS). Out of the 72 protected national areas, about a dozen are in the RAAS and RAAN regions (some of the country's largest protected areas include the Bosawas and Indio Maíz Biosphere Reserves and the Wawashang, Cerro Silva and Punta Gorda Natural Reserves). As stated in previous paragraphs, deforestation in the Atlantic area is the result of the expanding agricultural frontier, government settlement programmes promoted as part of land distribution policies and illegal felling. However, it is also the result of the overexploitation of forest resources and the advance of rubber crops for export carried out by certain international companies from the first half of the nineteenth century. According to information from Nicaragua's National Forestry Institute, over the past decade the country has lost an average of 70 000 hectares of forest mass per year.<sup>17</sup> This represents an annual deforestation rate of 2 percent in the period 2000-2010, which is 0.3 percent higher than the rate observed in the country for the period 1990-2010 (FAO, 2011b).

Apart from the conflicts in the RAAN and RAAS regions that have already been mentioned, there remain other disputes relating to the borders between neighbouring communities in terms of titles issued between 1915 and 1925 by the Mosquitia Titling Commission that are standing in the way of current efforts to define and title territories.

**Honduras.** Geographically, the region of Mosquitia and the east of Honduras include the Departments of Gracias a Dios, Colón and Olancho, which are home to the Miskito, Tawahka and Pech peoples, who make up 13 percent of the country's total indigenous population. According to 2001 census data, the Miskitos (93 percent) are the largest population group in this area.<sup>18</sup> This region is important for REDD+ because of the expanse of tropical forests located there, their biodiversity and the scale of protected areas. The Department of Gracias a Dios alone (the location of Mosquitia) has an area of 16 630 km<sup>2</sup>. The region as a whole is home to around 80 percent of the species of flora and fauna in Honduras, and includes the country's largest system of protected areas (FAO, 2011b),<sup>19</sup> including the 243 126 hectares of the Tawahka Asangni Biosphere Reserve, Río Plátano Man and the Biosphere Reserve and the Patuca National Park. These reserves form the Central American Biological Corridor, which is the most biodiverse region in the Central American Isthmus.

<sup>16</sup> R-PP of Nicaragua, 2012.

<sup>17</sup> This information does not include losses caused by natural disasters, such as deforestation caused by Hurricane Felix in 2007, which destroyed around 510,764 hectares in RAAN alone.

<sup>18</sup> Miskito peoples make up 11.7 percent of the country's total indigenous peoples.

<sup>19</sup> Honduras is one of the six Latin American and Caribbean countries with the highest proportion of national forest land dedicated to protected systems.



Among the Miskito, who are the region's largest ethnic population, only 10 percent of the population have secondary or vocational education. In the mid-1970s, the Miskito formed a second-level organization to represent the 11 organized bases or areas of Miskito groups (Mosquitia Asla Takanka- MASTA). This organization is the country's main ethnic group authority, and its aim is the integration and organizational strengthening of all Miskito groups in Honduras.

Given the educational training among the Miskito, there has been considerable migration towards cities or paid work sources in coastal cities. In terms of the indigenous population who continue to carry out production activities in the region of Mosquitia and east Honduras, they tend to maintain the collective use of natural resources, including communal tenure of land and pools. This traditional collective management of resources has been changed by the increasing incursions of professional hunters, gold prospectors, rising illegal felling and a strong mestizo colonization that involves people removing trees to raise livestock and grow crops. Such situations cause serious social and economic conflict in the region, which is encouraged by a lack of demarcation and legal recognition of land tenure.

According to FAO data, in the period 2000-2010 Honduras lost around 120 000 hectares of forest per year, which is an annual rate of 2.1 percent of the country's total forest area (5.19 million hectares). Despite the 0.3 percent reduction in the annual rate of deforestation observed in the previous decade (1990-2000), Honduras maintains the highest deforestation rate of Central American countries (FAO, 2011b). This deforestation, especially when due to the advance of the agricultural frontier by colonizers and illegal felling, is aggravated by a lack of clarity concerning ownership rights over land and its boundaries (as in disputes over use of resources). The recent increase in violence associated with illegal drug trafficking along the coast and the border region with Nicaragua has caused other types of conflicts involving drug traffickers, indigenous people and soldiers.

Although the community represents the basic level of territorial recognition for the Miskito and Tawahka indigenous groups, traditional use recognizes the existence of a communal territory or functional habitat for a group of communities sharing the use of land and natural resources. In this framework, the demarcation of indigenous land by the community involves a great number of areas of overlap, which makes it difficult to attribute a precise territory to each community. Over the years, and with support from MASTA, territories for between 10 and 30 communities have been recognized. In 1997, the National Agrarian Institute titled 5 138 hectares under the communal lands arrangement for 4 communities from the Tawahka people of the Department of Olancho. In 2004, the Government established a new reserve of 250 800 hectares adjoining the Río Plátano reserve for the Tawahka Asangni peoples. The ownership of these territories still belongs to the Government. Based on the Property Law and with funding from the Government of Honduras and the World Bank, 2004 saw the launch of the Honduras Land Administration Project (PATH), which since 2010 has worked to demarcate and collectively title the land in the Mosquitia area of the Department of Gracias a Dios. The aim is to use the inter-community arrangement to demarcate and title three territories (Katainasta, Fitzmos and Ahuya Yari) for 50 Miskito communities. By mid-2012, the Honduran Government, through the National Agrarian Institute and the Property Institute, had demarcated and titled the territory of Katainasta in the coastal corridor of Karataska Lagoon, covering an area of 54 000 hectares (100 000 hectares including bodies of water). In addition, the project on Land Planning and Environmental Protection in the Río Plátano Area (PROTEP), which has funding from the German Government, hopes to use the same arrangement to title 9 Mosquitia territories in the Department of Gracias a Dios. However, this inter-community titling arrangement does not recognize, as is the case in Nicaragua, the legal existence of the territory itself and its governance bodies, which forces inhabitants to set up civil or cooperative societies to register titles.

**Panama.** Indigenous peoples account for 12.7 percent of the country's total population and come from the tropical forest areas in the east and west of Panama. The country has seven ethnic groups: Ngöbe, Buglé, Kuna, Embera, Wounaan, Naso-Teribe and Bri-bri. Apart from the latter group, 50 percent of the country's indigenous peoples live in rural areas.

One of the most striking aspects of Panama's indigenous peoples is their social structures. The structures have traditionally formed the basis for the political and administrative organization of their territories, and have proved sufficiently flexible to adapt to the country's current social and political structures. Their social structures maintain their ways of managing natural resources and their sense of belonging to the community and territory. Among the Kuna people, groups are organized into communities led by a chief, or *Sahila*. For the development of public works, the community organizes itself into commissions. One region's group of communities forms a Local Congress, and all Local Congresses then form the

General Congress. Unlike the Kuna, the Ngöbe people live in a smaller territory and are opposed to forming communities, fearing competition for the use of natural resources. They tend to live in small settlements known as *caseríos* (hamlets), consisting of kinship groups. They are administratively and politically governed by the chief of the kinship group. Within a territory, a group of *caseríos* is governed by the Local Congress, which is headed by a *cacique* (or chief). Territories are divided by regions, each governed by a regional *cacique*. The main authority in the territory is the General Congress, formed by regional representatives and led by the General *Cacique*.

Panama has a total area of 7 434 000 hectares, 44 percent of which is tropical forest (3 251 000 hectares). The 1.2 percent deforestation rate experienced by the country between 1990 and 2000 dropped to 0.4 percent in the period 2000-2010, which is a reflection of the importance that the Government has attached to the country's tourism and environmental development. It also reflects the gradual expansion of the size of protected areas, which grew from 43 to 70 between 2000 and 2008 (FAO, 2011b).

The causes of deforestation relate mainly to unbridled tree felling for the development of extensive livestock farming, especially in Darién in the far south of the country. Deforestation is also due to the lack of planning as part of territorial and urban development, which has been a major factor in the creation of new tourist settlements in forests and agricultural areas.

In terms of land tenure, Panama's indigenous peoples have been extremely active in the struggle for recognition of their cultural identity and territories. In accordance with Panama's 1972 Constitution, which recognizes that indigenous peoples' lands must be allotted for ownership and not user rights, the Government has legally recognized five territories of indigenous peoples, with their own legal status, and a surface area that covers 22 percent of the total national territory (and is home to 54 percent of the country's indigenous population).

**Table 6. Indigenous comarcas by group and total areal**

Comarcas	Total area (km <sup>2</sup> )	Percentage (%)
Kuna-Yala	2,393.10	14
Kuna-Madungandí	2,318.80	14
Kuna-Wargandí	778.30	5
Emberá-Wounaan	4,398.00	27
Ngöbe-Buglé	6,673.30	40
Comarcas total	16,561.50	100

Similarly to the autonomous regions in Nicaragua, the indigenous comarcas in Panama have political and administrative autonomy. Their internal organization and government are run by the authorities and traditions of the ethnic groups living in each *comarca*. These authorities are legally recognized by the national Government and have close links with the government representatives assigned to each *comarca* to support its traditional authorities in administrative tasks. In the case of the Kuna peoples, it is they and not the Government who elect the person to be the government representative. The representative is elected from within the Kuna community. Two of the *comarcas* have Provincial status, and each has a representative in the National Assembly. The remaining three *comarcas* have District status and have representatives on the boards of the District and Municipal Government.

Notwithstanding the importance of their administrative status, the physical delimitation of some *comarcas* has not been finalized. The demarcation of the Ngöbe-Buglé comarca by the National Land Administration Programme has encountered many problems in terms of implementation, including disputes about the *comarca* boundaries with landowners outside the *comarca*, as well as inhabitants therein. There are also some peoples who have not achieved recognition for their lands, such as some in the Naso and Bri-Bri communities, some Emberá and Wounaan communities (in Darién and Alto Bayano), and some Kuna (Takarkunyala) communities (Ortiz-T. *et al.*, 2010). The revival of the land market in Panama over the past five years has triggered an interest among tourist and real estate companies in indigenous *comarca* territories, and in some cases this has resulted in illegal agreements for tourist developments with foreign companies. In recent years, indigenous peoples (particularly those in the Ngöbe-Buglé comarca) have spoken out against the Government initiative to build a dam on the south-east border of the *comarca*.





**Costa Rica.** Unlike the rest of the countries in Mesoamerica, the indigenous population in Costa Rica accounts for just 1.7 percent of the country's total population. The 2000 census identified eight indigenous peoples: seven of Chibcha origin (Huetar, Maleku, Bri-Bri, Cabecar, Brunca, Guaymí) and one of Mesoamerican origin (Chorotega), and these are located in the east and central parts of the country.

Costa Rica has a total surface area of 51 100 km<sup>2</sup>, of which 70 percent is forest land. Within that proportion, 26 percent is made up of protected areas. The country has three types of forest with different regimes of tenure and land ownership: public, private and communal or indigenous.

**Table 7. Forest tenure regimes in Costa Rica, 2007**

Type of forest	Rights regime and type of forest management	Forest area (hectares)	Percentage (%)
Public forests	Absolute restriction (only usage permits awarded)	1,104,773.7	45
Private forests	Exclusively managed by owner in accordance with a management plan	557,771.67	22.5
	Payment for Environmental Services, based on agreement specified with State	500,706	20.6
Communal/indigenous forests	Joint forestry management by communities, with no possibility of selling wood	282,866.93	11.9
Total forest area		2,446,118.93	
Communal/indigenous forests	Payment for Environmental Services, based on agreement specified with State	37,442 (protection) 90 (reforestation) 305,694 trees (agro-forestry systems)	

Source: Ulate Chacón E. 'Implicaciones de la tenencia y la gestión forestal en la reducción de la pobreza en Costa Rica' in FAO, Forest tenure in Latin American countries: an overview. FAO, Rome, 2009.

Indigenous forests make up 11.9 percent of the country's total forest area (282 866.93 hectares), and are located in indigenous reserves that have been recognized and defined by Article 2 of the Indigenous Law of Costa Rica (1977). This Law, which recognizes the rights of indigenous peoples living on the land, has facilitated the titling of 24 indigenous reserves covering 5.9 percent of the national territory. The land titling rights over the reserves are collective and allocated to the indigenous peoples once they have set up Associations for Integral Indigenous Development (ADII), under which the ownership title is registered. ADIIs can be set up by several communities, as in cases of inter-community titling. The land and the resources in the reserves are inalienable, imprescriptible and for the exclusive use of communities. Resources are used by the community with the authorization of ADIIs, which are in turn overseen by the National System of Conservation Areas. There are legal restrictions on the sale of wood products in such territories.

Two important characteristics of this country's forestry sphere are the levels of reforestation achieved thanks to the 1986 Forestry Law and the incentive policy to promote forest plantations and reverse deforestation processes. While Costa Rica's forest coverage fell from 75 percent to 21 percent in the period 1940-1987 as a result of colonization and the expansion of the agricultural frontier for extensive livestock farming and crops (coffee, banana and sugarcane), the publication of the Forestry Law in 1986 caused forest coverage to increase, and had doubled by 1997 and increased by a further three percentage points (to 45 percent) by the year 2000. By 2010, the percentage forest cover had risen to 51 percent, and the deforestation process had been reversed, with Costa Rica posting a reforestation rate of 0.9 percent for that year (FAO. 2009c).



In terms of incentive policies, Costa Rica is a Mesoamerican example of implementing PES schemes set up as part of a mechanism provided for under the 1996 Forestry Law 7575. PES are financial mechanisms that pay private owners (including indigenous peoples) for environmental services. Payment is made from the National Forestry Financing Fund (FONAFIFO). Payment is per hectare/per year and varies according to the service provided. As of 2005, indigenous reserves were protecting a carbon supply of 85 495 gigatonnes of CO<sub>2</sub>, of which 2 349 gigatonnes were produced through the recovery in forest coverage during the period 2000-2005.<sup>20</sup> Out of the 24 ADIIs, 20 maintain contractual PES links with FONAFIFO.<sup>21</sup> Chapter four analyses the experience of implementing PES in Costa Rica's indigenous territories.

The ADIIs are also linked to regional environmental protection initiatives. The eight ADIIs in the Talamanca region that belong to the Bri-Bri and Cabecar peoples are part of the Caribbean regional ADII network. In the South Pacific region, 12 ADIIs are working with solidarity tourism activities and ecological tours organized by the Regional Aboriginal Association of Dikes.<sup>22</sup>

Disputes in indigenous territory occur when reserves have their land invaded by people from outside the communities, or in the event of illegal felling and the construction of hydroelectric dams (as with the Diquis hydroelectricity plant).

**Guatemala.** The Maya Biosphere region in El Petén and the Departments in the north of Guatemala (Huehuetenango, Quiché, Alta Verapaz and Izabal) are the areas with the country's largest forest mass, and natural resources here are communally managed by a large number of indigenous communities.

The Petén Department, the location of the Maya Biosphere, is home to about 50 percent of the country's total forest mass. The rest of the country's five northern departments contain 30 percent of the national total. Taken together, the five northern departments in Guatemala contain 80 percent of the country's forest mass. According to data from Table 8 for the period 2001-2006, Guatemala maintained an annual deforestation rate of 1.16 percent, with a significant contribution from the Departments of Izabal and Petén. El Petén in particular experienced an annual rate of forest mass loss of 1.79 percent during that period, which means total losses of 268 602 hectares. In the Department of Izabal, the annual deforestation rate between 2001-2006 was 3.01 percent, which represents a total loss of 43 587 hectares of forest mass during that period.

The causes of deforestation in Guatemala, and particularly in the north of the country, are mainly based on: changes in land use (especially for agricultural purposes); illegal timber felling (especially mahogany in the forests of Petén and some areas of Izabal); and the advance of the agricultural frontier in line with increasing new settlements in the wake of the civil war. In the northern areas of Guatemala, (and Petén in particular), migrants from the east or those returning from Mexico after the 36-year civil war ended in 1996 have developed extensive livestock farming and subsistence farming based on slash, fell and burn. This has significantly contributed to deforestation in the area.

**Table 8. Forest coverage, net change and rates of change at the departmental level, selected departments (2001-2006)**

Department	Coverage 2001 (hectares)	Coverage 2006 (hectares)	Percentage of national coverage 2006	Net change 2001-2006 (hectares)	Annual rate of change (percent)
Alta Verapaz	377,950	391,379	10.12	13,429	0.62
Huehuetenango	219,957	235,291	6.08	15,334	1.34
Izabal	289,714	246,127	6.36	-43,587	-3.01
Petén	2,192,096	1,923,494	49.75	-268,602	-1.79
Quiché	276,267	276,255	7.14	-11	0
<b>Subtotal for selected departments</b>	<b>3,355,984</b>	<b>3,072,546</b>	<b>79.45</b>	<b>-283,438</b>	<b>-----</b>
National total	4,152,051	3,866,383	100	286	-1.16

Source: Universidad del Valle, Guatemala, National Forestry Institute, National Council for Protected Areas, Universidad Rafael Landívar. Mapa de la Cobertura Forestal de Guatemala 2006 and Dinámica de la Cobertura Forestal 2001-2006. Guatemala, March, 2011. pp.31.

<sup>20</sup> R-PP-Costa Rica, San José, Costa Rica, 2010.

<sup>21</sup> Ibid.

<sup>22</sup> Ibid.



**Table 9. Communal lands – number of groups and land area in northern Departments of Guatemala, 2008**

Department	Number of communal groups	Hectares
Alta Verapaz	136	159,521
Huehuetenango	127	65,630
Izabal	48	264,230
Petén	38	512,276
Quiché	82	205,819
Subtotal for northern Departments	431	1,207,476
National total	1,213	1,577,129

Source: Based on the National Council for Protected Areas. *Estrategia Nacional para el Manejo y Conservación de Recursos Naturales en Tierras Comunales*. Guatemala. 2011, pp. 10.

The area's population are basically of Mayan and Ladino origin, with the exception of the Garifuna, who live in the port of Livingston, Izabal. Petén's current indigenous population is mainly from the Department of Alta Verapaz, and is the result of migration to the area over the past 20 years. In 2007, this population (mainly from the Q'eqchi and Chorti ethnic groups) was estimated to make up 18 percent of the total Petén population (Palma, 2007). Despite being migrants, the indigenous population in El Petén maintain the communal administration of their territories. The Maya communities in the remaining four northern departments of Guatemala maintain communal use of the forests in the form of communal lands that, in some cases, were allocated to them by the Government when they registered as non-profit civil associations.

Although the Mayan people in Guatemala were dispossessed of their ancestral lands centuries ago, they still maintain their cultural values, ceremonies and traditions. The current tenure of their lands has been shaped by models introduced in the post-colonial period, as well as those developed by the government in the 1944–1954 revolutionary period, which introduced protection for communal lands (prohibiting their sale, seizure or dissolution). Agrarian reform and agricultural colonization and land access programmes from the 1960s all influenced traditional forms of communal use through collective use arrangements (municipal common lands, agriculture cooperative, collective agrarian property and peasant associations). According to information from the National Council for Protected Areas, in 2008 Guatemala had a total of 1 213 groups on communal land covering 14.7 percent of national territory. The 431 communal groups in the country's northern Departments represent 35.53 percent of the national total, and cover 76.56 percent of the national territory with communal tenure.<sup>23</sup>

The country's northern departments have developed two ways of managing forest resources based on communal management: community forest concession proposed by the Government in 2000 for indigenous community management of Petén lands in the Maya Biosphere Reserve; and communal forest land management on the part of indigenous and peasant groups in the Departments of Alta Verapaz, Huehuetenango, Izabal and Quiché.

The community forest concessions model in El Petén arose as a means of recognizing the settlement rights of mestizo and indigenous migrants in buffer zones or areas close to protected areas in El Petén, thereby avoiding land disputes in the area. Concessions are not based on ancestral forms of resource management. They are a 25-year contract between the Government of Guatemala and a community organization that ensures rights of use, access, management, extraction and exclusion for wood and non-wood resources. The ownership rights in these contracts belong to the State, and exclude the possibility of sale or transfer of concession rights (CIFOR, FLACSO, 2009). Concessions range from 3 500 hectares to over 50 000 hectares, and include the participation of municipalities to support administration and dispute settlement. According to studies carried out into some of the region's groups (CIFOR, FLACSO, 2009), the management of non-wood resources, such as extraction and exploitation of *Chamaedorea* palm (*xate*), rubber (*hule*) and gum (*chicle*), is based on community and family relations using informal local rules – and this results in sustainable management of resources.

Land tenure disputes remain a major obstacle to rural development in Guatemala. According to the Secretariat for Agrarian Affairs, in 2009 there were 1 435 unresolved disputes involving 1 255 253 people. Most disputes concern the northern fringe of the country and El Petén. The reason for the high number of disputes in this department may be due to its recent inclusion as an expansion area for the agricultural frontier and the way in which land was distributed.

<sup>23</sup> These figures are not completely accurate, as recent studies carried out by the Land Registry show that some communal lands described by the National Council for Protected Areas no longer fulfil these characteristics, while others not described as such at the time, now do fit into that category.

To protect communal forms of tenure, regardless of their legal status, while avoiding the division of land during the updating of the land registry, the Government of Guatemala used the Land Registry to set up a specific procedure based on the 2005 Land Registry Law: the Communal Land Declaration. This procedure recognizes special forms of territory management, and the Land Registry can administratively declare it as Communal Land, and potentially provide a title to residents, provided that there has been no previous registration. This procedure is called Special Titling. To some extent, the institutionalization of the Declaration responds to the need to protect communal land management practices that may be affected by processes to update the land registry. The implementation of the Common Land Regulations has been under way since 2011, and is being carried out under phase 2 of the Land Administration Project funded by the World Bank and the Government of Guatemala.<sup>24</sup>

**Mexico.** The indigenous population in Mexico is around 10 million inhabitants, which represents 9.8 of the total national population.<sup>25</sup> Most of the indigenous population is located in six states in the centre and south-east of the country

**Table 10. Entities with the largest indigenous population in Mexico, 2005**

Entity	Total population	Percentage (%)
Oaxaca state	1,594,490	15.78
Chiapas state	1,330,981	13.17
Yucatán state	981,499	9.71
Veracruz state	975,316	9.65
Puebla state	921,655	9.12
Mexico state	839,692	8.31
<i>Subtotal</i>	<i>6,643,633</i>	<i>65.74</i>
<i>Indigenous Mexico</i>	<i>10,103,571</i>	<i>100</i>
<i>United Mexican States (total population)</i>	<i>103,236,388</i>	

Source: Produced on the basis of: National Commission for the Development of Indigenous Peoples (CDI) and UNDP. System of indicators for indigenous population in Mexico, based on: National Institute of Statistics and Geography (INEGI), Second Housing and Population Census, Mexico, 2005.

For the purposes of this study, we are considering the states of Oaxaca and Chiapas (on the south of Mexico's Pacific Coast) as being part of Mesoamerica, as they are home to 28.95 percent of the country's indigenous population. Out of the country's 62 indigenous groups, there are 13 ethnic groups in Oaxaca, and 12 in Chiapas.

Mexico is important in Mesoamerica because of its variety of ethnic groups, but also its large share of the forest area contained in all Central American forests. Mexico has 648 020 km<sup>2</sup> of forest, or 33 percent of the national territory (FAO, 2011b; FAO, 2009c).<sup>26</sup> This represents 76.9 percent of the total forest area in Mesoamerica. The states of Chiapas and Oaxaca are the country's most biodiverse. The region made up of the two states contains 8.6 percent of the national territory and 14.76 percent of the country's wooded areas (forests and jungles) (INEGI, 2011). Indigenous communities and *ejidos* in Oaxaca are widely recognized at the national and international levels thanks to the efforts in terms of ecosystem conservation and sustainable forest use systems through community forests.<sup>27</sup>

The surface area of the state of Oaxaca represents 4.8 percent of the national territory (94 290 km<sup>2</sup>), of which 54 percent (51 050 km<sup>2</sup>) is forest area (SEMARNAT, 2006). The forest area in Oaxaca includes two protected natural areas,<sup>28</sup> and its early experience in voluntary conservation is the first protection arrangement of its kind in Mexico. Oaxaca also has 89 forest areas certified for good forestry management, with a total area of 1 063 km<sup>2</sup> (mainly in indigenous agricultural units).

<sup>24</sup> Phase 2 involves updating the land registry and land regularization in 41 municipalities in the Departments of Alta Verapaz, Baja Verapaz, Izabal, Chiquimula, Zacapa, Escuintla, Sacatepéquez and Quiché.

<sup>25</sup> National Commission for the Development of Indigenous Peoples (CDI) and UNDP. System of indicators for indigenous population in Mexico, based on: National Institute of Statistics and Geography (INEGI), 12th General Population and Housing Census, 2000, and Second Housing and Population Census, 2005.

<sup>26</sup> The Mexican Secretariat of Environment and Natural Resources (SEMARNAT) classifies national forest area into two categories: (i) woodland area and (ii) other forest areas. According to these categories, the total national forest area is 141.7 million hectares, which is different from the FAO/FRA data that only consider woodland area.

<sup>27</sup> See: *Los Bosques Comunitarios de México, Manejo Sustentable de los paisajes forestales* (D. Bray, L. Merino, D. Barry), SEMARNAT, INE, UNAM, CCMSS, University of Florida.

<sup>28</sup> CONANP: Protected Natural Areas in the National System for Protected Areas.





The state of Chiapas, which borders with Guatemala, accounts for 3.8 percent of the country's territory (74 646 km<sup>2</sup>). Within that territory, 69 percent (51 481 km<sup>2</sup>) of the state is forest (SEMARNAT, 2006), including eight protected natural areas with a surface area of 9 422 km<sup>2</sup>. Protected natural areas make up 18.3 percent of the state's forest.

Although deforestation has fallen in the region over the past 20 years from 0.52 percent to 0.30 percent (FAO, 2011c), and the proportion of forest plantations rose by 5 percentage points to 6.65 percent in the same period, Oaxaca and especially Chiapas have suffered forest loss due to factors such as expansion of the agricultural frontier (particularly the introduction of pastures), illegal felling, forest fires and pests (CONAFOR, 2011). In the preliminary analysis for REDD+ preparation in the country, the Mexican National Forestry Commission showed a deforestation and degradation trend in areas with land tenure disputes, particularly in Oaxaca and Chiapas. This trend is less pronounced in areas that use land planning and forest management plans.<sup>29</sup>

Land tenure systems and ways of recognizing the land rights of indigenous populations have been influenced by historical agrarian processes in the country, land appropriation during colonial times, agrarian reform and the amendment of Article 27 of the Mexican Constitution in 1992. Article 27 of the 1917 Constitution established three type of property: small property, *ejidos* and communal property (with the latter two also known as agricultural units).<sup>30</sup> Before the above-mentioned amendment of that Article of the Constitution in 1992, they belonged to the State and were inalienable. By its nature, small private property is subject to size limits depending on type of crop and economic activity. Communal property recognizes the historical rights of indigenous communities and titles awarded to them by the Spanish Crown, giving way to permanent traditional structures of communal property. Unlike in the case of *ejidos*, communities have collective ownership of their land. Through the process of agrarian redistribution, indigenous peoples recovered some of the territories they had lost during the dictatorship of Porfirio Díaz (1876-1910), which now came under the *ejido* or communal land arrangement. Titling for both such arrangements considered indigenous communities as single entities, rather than groups of communities (indigenous peoples) living within a territory.<sup>31</sup>

Mexico's 30 000 *ejidos* and communities cover around 50 percent of the national territory, contain 75 percent of the country's forest territory, and 23 percent of them (6 800) are home to groups of indigenous speakers (Merino, 2010). Within that national total, Chiapas has 2 823 *ejidos* and communities, with a surface area covering 60.5 percent of total state territory, while Oaxaca has 1 632 *ejidos* and communities covering 92 percent of the state territory (Procuraduría Agraria (Agrarian Ombudsman), 2006).

As a result of the changes introduced to Mexican agrarian legislation when Article 27 of the Constitution was amended in 1992, the ownership rights for *ejidos* ceased to belong to the State and were assigned to their members through the *Asamblea Ejidal*. The reform of Article 27 maintains the land of communities under their ownership (as was the case previously). Although the 1992 legislation maintains the assembly of *ejidos* and communities as the highest decision-making body in terms of the sale of agricultural plots, it does prohibit the transfer, division and parcelling of *ejido* and communal woodlands and forest lands. In terms of use, indigenous *ejidos* and communities have developed various forms of managing territories, which include communal use areas and family-owned areas where agricultural and agroforestry activities are carried out. The General Law on Ecological Balance and Environmental Protection (LGEEPA), created in 1988 and reformed in 2012, gives *ejidos* and communities the right of protection, preservation, use and sustainable exploitation of natural resources, and the safeguarding and use of biodiversity. As well as regulating woodland areas, this Law also regulates protected natural areas that are often set up on community and *ejido* territory. Protected natural areas come under the National Council for Protected Areas (CONAP) and are administered through management programmes. Each protected natural area has a consultative body known as the Technical Advisory Committee, which involves members of the communities and *ejidos*, NGOs and research institutes. The management of the protected natural areas is, however, the responsibility of the government, not the owners.

In terms of land disputes, in 2006 the Agrarian Ombudsman (Procuraduría Agraria, 2006) recognized 1 248 ongoing agrarian disputes nationwide, including boundary disputes among neighbours<sup>32</sup> and internal family disputes (for reasons of inheritance).

<sup>29</sup> R-PP of Mexico, 2011.

<sup>30</sup> The *ejidos* are State lands for which user rights are given to originally landless peasants (which might include indigenous groups). Indigenous communities are territories titled in the name of indigenous peoples.

<sup>31</sup> Communities and *ejidos* are made up of a main population centre and a set territory, except in a few cases such as the communities of Chimalapas (Oaxaca) and La Lacandona (Chiapas), which are made up of various population centres in a single unit of tenure.

<sup>32</sup> Given that the initial measurements of agricultural units were made so long ago, as well as subsequent territorial extensions and invasions, there are many cases of overlap between *ejido* lands and problems among owners.

Some of these conflicts may be over 30 years old. They are more common in forest regions and among indigenous agrarian communities. The highest rates of agrarian dispute in the country are seen in the states of Chiapas, Oaxaca, Michoacán and Guerrero. Currently, land disputes are being aggravated by factors such as illegal timber extraction and drug crops, which both thrive amidst a lack of local governance seen in many disputed lands (Merino, 2010). Mexico has developed an effective alternative dispute settlement system that supports dispute settlement within groups by means of mediation processes. These methods have been hugely useful and successful in resolving the country's land disputes, particularly in the period following the reform of Article 27 of the Constitution. At present, most community disputes are solved within the community or *ejido* using assemblies, which are the groups' main decision-making body.

