

IMPLEMENTATION OF REDD MECHANISMS  
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THE FORESTS DIALOGUE  
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Background Paper

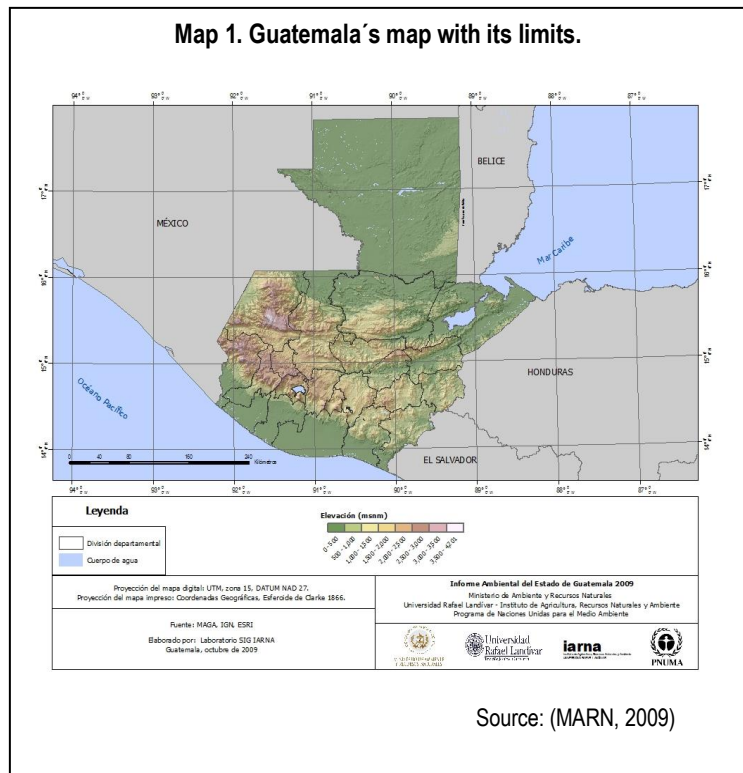
## 1. INTRODUCTION

This paper is a contribution to The Forests Dialogue on the implementation of REDD mechanisms to Guatemala. In the first three chapters, this document provides an overview of Guatemala from its historical, geographical, social, economic, and natural context. Chapter 4 presents a summary of the drivers of deforestation that exist in Guatemala and Chapter 5 describes the policy framework for the forestry sector. The core of the document about REDD, is presented in chapter 6 onwards and concludes with Chapter 13, which presents the conclusion on the topic under discussion.

## 2. GENERAL BACKGROUND (HISTORICAL AND GEOGRAPHICAL)

Officially known as the Republic of Guatemala, from the Náhuatl word Quauhtlemallan ("Place of many trees"). Guatemala has a land area of 108,889 km<sup>2</sup>, and borders with Mexico to the north and west, the Pacific ocean to the south, Belize and the Gulf of Honduras to the east, and Honduras and El Salvador to the southeast (Map 1).

Mountainous landforms cover almost 60% of the country's surface. The ecological zones range from sea level to about 4,211 meters above sea level in the Tajumulco volcano, which is the highest peak in Central America. Guatemala's chain of volcanoes includes 37 of the 68 volcanoes in Central American. As to the country's rainfall, there is variation from one area to the other, ranging from 400 to approximately 4,000 mm per year (IARNA/URL & IIA, 2004).

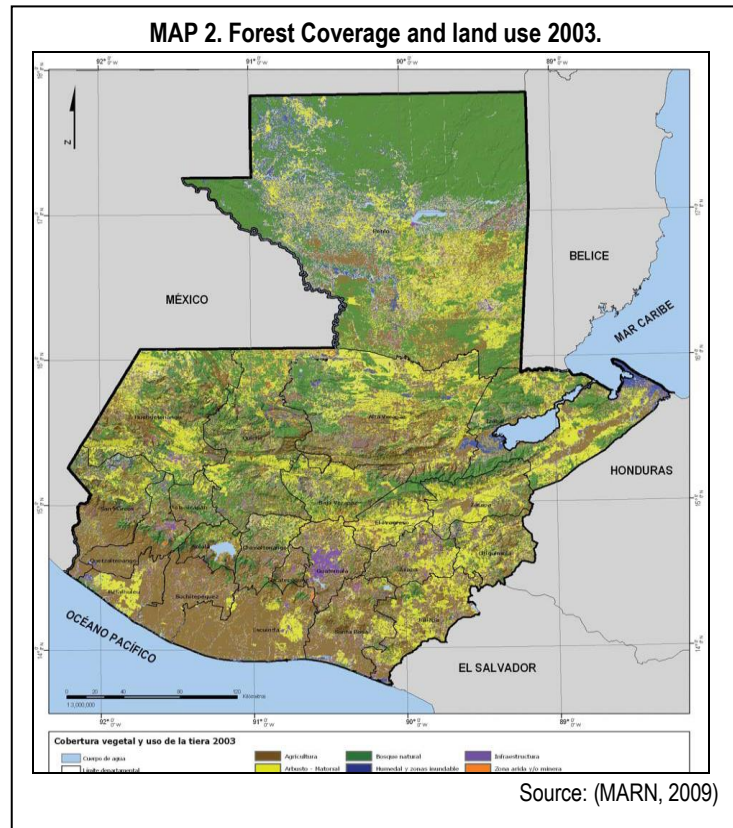


As a geographically small country, Guatemala has a unique natural and cultural diversity, having in its territory 22 linguistic communities of Mayan origin, as well as Garifuna and Xinka populations (Quezada, Ayala, Arana M., & Martínez, 2008). Its condition as a natural bridge between two continental masses, the range of soil, temperature, rainfall, and altitude are some of the factors responsible for the existence of a great variety of ecosystems and species. This natural and ethnic diversity has generated different forms of interaction and use of natural resources (IARNA/URL & IIA, 2004).

### 2.1. Forests

Guatemala's forest cover is 4,046,015 hectares (37.1% of the total area of the country). Within this area, Guatemala has a significant portion

with capacity for forest<sup>1</sup> use. In its study of land use capacity, the National Forest Institute (Instituto Nacional de Bosques- INAB)(2005), made a distinction between two categories: capacity for forest use, or forestry preferably aptitude (“APF” by its Spanish acronym), for activities of production of timber and non-timber goods, and a more general category that includes the production of environmental goods and services (“BySA” by its Spanish acronym). Based on this categorization, it is estimated that Guatemala has an APF for the production of environmental goods and services of 40.16% of its territory, about 4.32 million hectares (INAB, 2002). Map 2 shows forest cover and land use in 2003.



The country’s forest cover is divided between hardwoods (broad-leaved) (82.25%), conifers (9.95%) and mixed forests (7.80%). In the hardwoods predominate the primary and mature forests (57%), while in the conifer and mixed forest the advanced<sup>2</sup> secondary forests predominate (47% and 45% respectively). Forty-one percent of forests are in protected areas, mainly in the Maya Biosphere Reserve and Sierra de las Minas (IARNA/URL, 2009a).

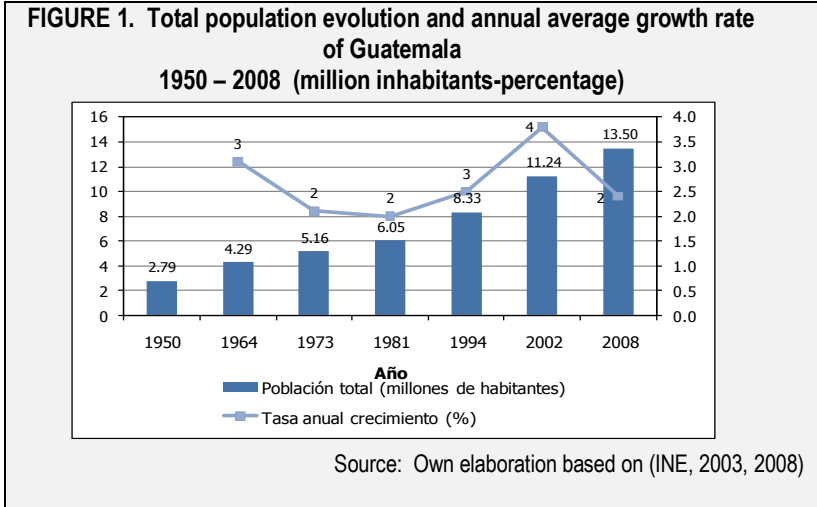
### 3. GENERAL CHARACTERISTICS OF GUATEMALA

#### 3.1. Population

During the period from 1900 to 2000, the Guatemalan population increased 12.7 times, from an estimated population of 0.8 million inhabitants at the beginning of the twentieth century to almost 2.8 million inhabitants in 1950 and 13.5 million inhabitants in 2008. Between the years 1994 and 2002 the population had an annual average growth rate of 3.8% - one of the highest in Latin America. Some calculations estimate the total current population is approximately 14.0 million inhabitants, with a current annual growth rate of 2%. (INE, 2008) (Figure 1).

<sup>1</sup> Understanding capacity of use in physical terms, as the support that a ground unit has to be used for certain uses or coverage and /or treatments.

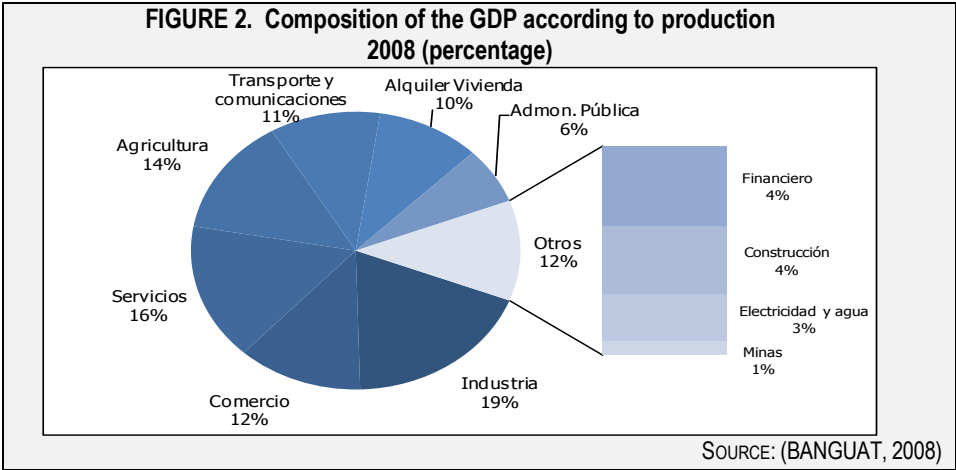
<sup>2</sup> Forest with heights greater than 5 m and that have not yet reached the maturity stage where saplings dominate.



Moreover, the dynamics of the population in the last two decades have shown an increasing trend towards urbanization. In fact, in 1981 a third of the total population of the nation lived in urban areas while in 2002 slightly less than half (46.1%) lived in urban areas. In ten of the twenty-two departments of the nation, the urban population was less than a third of the total. In other words, in most of the departments the population was overwhelmingly rural.

**3.2 Socioeconomic Activities**

The Gross Domestic Product (GDP) in 2008 was Q.294,663.5 millions, equivalent to approximately US\$37,900 millions, making the Guatemalan economy the largest in Central America. The manufacturing industry is the economic activity that generates more added value in the nation, representing 19% of GDP in 2008 (Figure 2). Commerce (12%) and services (16%) are the two economic activities that followed in importance for their contribution to the GDP. Agriculture contributes 14% of national production. The GDP is composed primarily of tertiary or service activities, representing about three-fifths of the national production of goods and services. The secondary activities are almost one fourth and the primary activities contribute 16%.



The economically active population (“PEA” by its acronym in Spanish) almost doubled from 1989 to 2006, rising from 2.9 to 5.5 million people. During those years women’s participation in the PEA increased from 26% to 38%, a

phenomenon known as the feminization of labour. The most significant change occurred in the composition of the urban and rural PEA. In 1989 the urban PEA represented 39% of the total, while in 2006 the figure was 52%, which means that the urban workforce came to predominate. This is consistent with the changes in the occupational structure by productive activity experienced during the same period. In 1989 half of the PEA were employed in the agriculture sector (50%). The service sector – which includes commerce, transport, finance and social services – was the second largest category, with 33% of the PEA. In 2006, the situation was reversed, with the agricultural sector representing about one third of the employed population and the service sector a little less than half (44%). The industry and construction sectors experienced minimal changes.

### 3.3 Land Tenure

#### a. Land Demand

Inequality in land access is expressed by the increase of land demand in the nation, as shown by the index of land demand, which refers to the proportion of land suitable for agriculture related to the amount of people who demands it under productive patterns of **micro-farms** and subfamilies. Between the years 2000 and 2006, this index increased significantly (127%) in municipalities with low demand for land, but decreased slightly in municipalities with high and medium demand for land (12 and 9% respectively) (Table 1).

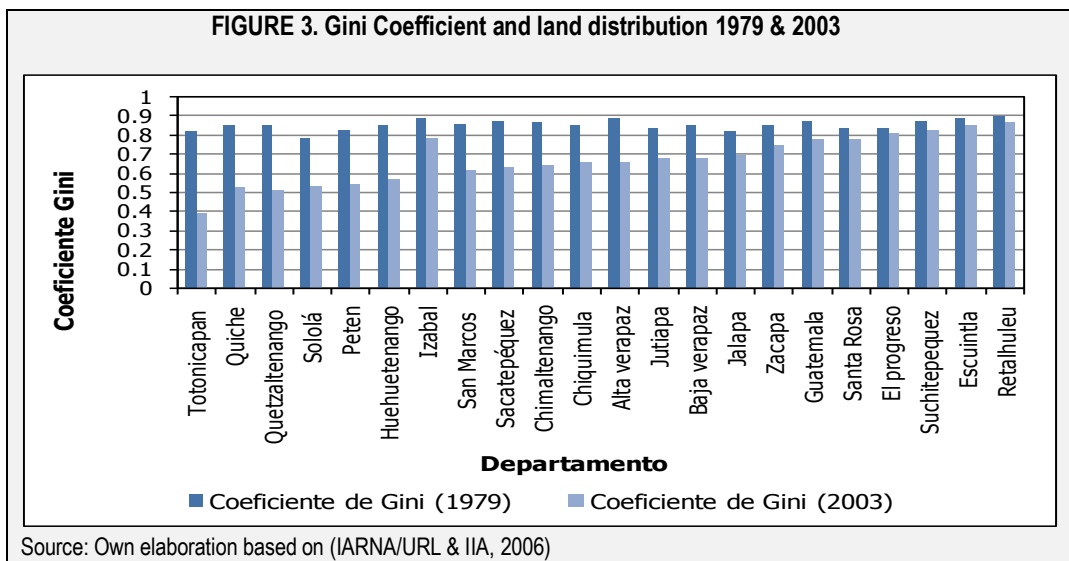
**TABLE 1. 1 Demand of land by municipality**

| Municipalities              | 2000 | 2006 | Percentage Change |
|-----------------------------|------|------|-------------------|
| With high demand for land   | 139  | 122  | -12               |
| With medium demand for land | 165  | 150  | -9                |
| With low demand for land    | 26   | 59   | 127               |

Source: Modified of (IARNA/URL & IIA, 2006)

#### b. Inequality in access to land.

The lack of **access** to quality agricultural land by the vast majority of the country's poorest population limits the possibilities for intensification of production and promotes its extensive and speculative use. The most common measure of **inequality of access to land** is provided by the GINI coefficient, defined as the quantification of the degree of inequality in access to land resources in the nation. Between the years 2000 and 2006, this coefficient decreased in 0.29, from 0.94 in the year 2000 to 0.65 in 2003 (IARNA/URL & IIA, 2006) (Figure 3). This decline, while important, still leaves the coefficient value among one of the highest ones in Latin America, limiting development in general.



The variables that conceptualize the emission reduction programs for avoided deforestation and forest degradation are related to: i) population, ii) socio-economic activities, and iii) land tenure in Guatemala. These variables are directly linked to population, since many of the causes of forest degradation are from anthropogenic activities that take place without any planning (e.g. unsustainable agricultural practices, etc.). This related ‘population-threat’ under the current national scheme of socio-economic development becomes relevant, because REDD mechanisms can leverage activities that are complementary and/or additional activities to the agricultural development initiatives, based on the 14% contribution of the agricultural sector to the GDP in 2008 and about 44% of the PEA in 2006 was occupied by the agricultural and services sector in the country. These macroeconomic indicators have the potential to launch local and regional initiatives under the REDD concept and reverse forest degradation trends in places that are of high importance because of their ecological integrity, their ability to reduce local environmental vulnerability, their cultural traits - tourist attractions, and their ability to regulate local hydrological cycles, etc.

The sustainability of any project dealing with avoided deforestation and forest degradation, must take into account the land market in the country, because the stability of the activities that reduce deforestation are closely tied to the objectives for the lands under production systems, which may vary according to owner and productive use. One of the weaknesses in the country is the lack of access to quality agricultural land by the vast majority of the population (the poorest). This limits the possibilities for productive intensification and promotes the extensive and speculative use of the land. This weakness becomes a potential threat to the areas of conservation or sustainable management.

#### 4. FOREST INSTITUTIONS

The legal and institutional framework of the forestry sector in Guatemala is composed of two specific legislative decrees (laws):

**4.1 Forestry law (Legislative Decree 101-96)** which has as objective (according to Article 1) “... to declare with national urgency and of social interest, the reforestation and conservation of forest, by stimulating forest development and their sustainable management...”. This law created the National Forest Institute (INAB) and delegated to it, because of its role of forest service, the administration and protection of forest areas outside protected areas,

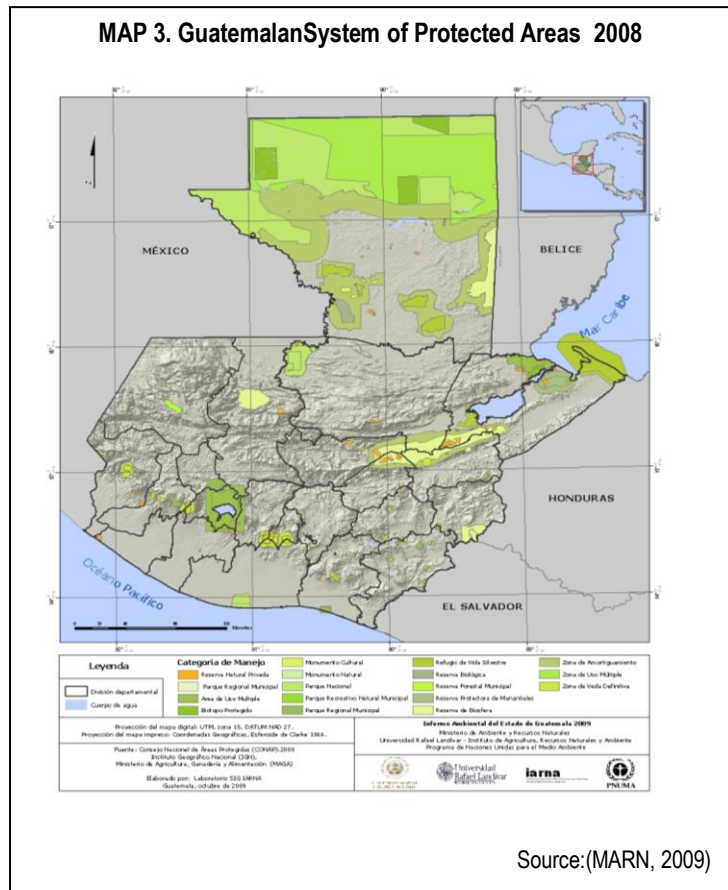
specifically as it relates to approvals for forestry use, forestry incentives, coordination to control illegal activities and forest protection.

The INAB has the National Forest Registry and a network of information, formally established between the nine Regional Directorates – where forest licenses are authorized – and the central office located in Guatemala City.

**4.2 Protected Areas Law (Legislative Decree 4-89 and its reforms)** delegates to the National Council of Protected Areas (CONAP by its acronym in Spanish), the regulation, administration and protection of forests within the Guatemalan System of Protected Areas (SIGAP by its acronym in Spanish)<sup>3</sup>.

CONAP is organized geographically into seven regions covering the 243 protected areas in the country. This equals an extension of 3,488,714 ha, or 32% of the national territory (CONAP, 2008) (Map 3). Each region is responsible for authorizing the forestry use and the information is subsequently sent to the Central Office in Guatemala City where it is systematized.

Protected areas with a strict level of protection, under the categories of biosphere reserve and national park, are those covering larger areas (50.5% of the SIGAP surface), while private protected areas are the most numerous (50.4% of the Protected Areas of the SIGAP) (Table 2).



**Table 2. Number and surface of protected areas by manage category**

| Management Category |                                     | Number | Proportion (%) | Surface (ha) | Proportion (%) |
|---------------------|-------------------------------------|--------|----------------|--------------|----------------|
| Category I          | Nacional Park                       | 21     | 8.5            | 736,574      | 21.1           |
|                     | Biological Reserve                  | 1      | 0.4            | 60,878       | 1.7            |
|                     | <i>Total</i>                        | 22     | 8.9            | 797,452      | 22.9           |
| Category II         | Protected biotope                   | 6      | 2.4            | 118,758      | 3.4            |
|                     | Cultural monument                   | 6      | 2.4            | 65,734       | 1.9            |
|                     | Natural monument                    | 1      | 0.4            | 1,714        | < 0.1          |
|                     | <i>Total</i>                        | 13     | 5.2            | 186,206      | 5.3            |
| Category III        | Multiple use area                   | 4      | 1.6            | 162,914      | 4.7            |
|                     | Wildlife refuge                     | 6      | 2.4            | 362,504      | 10.4           |
|                     | Municipal forest reserve            | 3      | 1.2            | 7,414        | 0.2            |
|                     | Springs protective reserve          | 2      | 0.8            | 52,805       | 1.5            |
|                     | <i>Total</i>                        | 15     | 15.4           | 585,637      | 16.8           |
| Category IV         | Municipal natural recreational park | 1      | 0.4            | 38           | < 0.1          |

<sup>3</sup> The SIGAP consists of protected areas throughout the country and the institutions that manage them. It is a mechanism to maintain representative samples of the country's biodiversity at different levels and biological scales.

|             |                          |     |       |           |       |
|-------------|--------------------------|-----|-------|-----------|-------|
|             | Municipal regional park  | 31  | 12.5  | 34,908    | 1.0   |
|             | Final closure area (cat) | 36  | 14.5  | 93,302    | 2.7   |
|             | <i>Total</i>             | 68  | 27.4  | 128,237   | 3.7   |
| Category V  | Private natural reserve  | 125 | 50.4  | 27,888    | 0.8   |
|             | <i>Total</i>             | 125 | 50.4  | 27,888    | 0.8   |
| Category VI | Biosphere reserve        | 5   | 2.0   | 1,763,282 | 50.5  |
|             | <i>Total</i>             | 5   | 2.0   | 1,763,282 | 50.5  |
|             | <i>Total</i>             | 243 | 100.0 | 3,488,713 | 100.0 |

Source: Own elaboration with information from (CONAP, 2008)

The institutional framework of the forest sector is complemented by associations with private producers, existing Municipal Forestry offices in some municipalities of the country, local coordinators, and Forest Policy driven by Guatemala's National Forestry Program (PFN-G, by its acronym in Spanish) in the nine forest regions. The last ones constitute a dialogue and consultation mechanisms that present an opportunity for traditionally marginalized groups.

Also working in forest management are the Ministry of Environment and Natural Resources (MARN) and the Ministry of Agriculture, Livestock and Food (MAGA).

Harvesting of wood and other wood products (except those for familiar consumption, plantations, and agroforestry systems planted voluntarily) outside protected areas requires licenses issued by INAB. This license is only the authorization to implement the management plan, which is a tool in monitoring the use and silvicultural techniques applied to the forest to ensure its sustainability within the area to be exploited.

Granted licenses are cancelled if they do not comply with the forest management plan or the obligations contracted with INAB. Within protected areas, the licenses are issued by CONAP. The Forestry Law establishes the figure of Forest Regent (FR) who is responsible with the licensee for the proper implementation of the management plan.

The FRs activities are regulated by a specific regulation that establishes penalties for them in case of noncompliance with their obligations.

According to the Forestry Law, the monitoring of illegal forest exploitation requires that the municipalities implement surveillance systems that are required to prevent illegal trade of forest products, with the support of INAB and CONAP. In the same way, municipalities will support the activities of both institutions to control the authorized use of forest products. Nonetheless, there has been only a partial support from the municipalities that have Municipal Forestry Offices – 162 of the 335 municipalities in the country.

Monitoring illegal forest activities requires the involvement of not only the INAB and CONAP, but also of institutions in charge of justice enforcement, such as the Public Ministry (MP), the Directorate of Nature Protection (DIPRONA) as a specialized branch of the National Civil Police (PNC), judges and judicial officers of the Courts.

## 5. FOREST ECONOMY

The following indicators describe the contribution of forests to the national economy:

### *a. Forestry Gross Domestic Product (GDP).*

Although forest resources and the activities based on the use of forests have an impact in the economy of the country, the GDP, as indicator of growth in national wealth, underestimates the contribution of the forestry sector by 64%. The



forestry GDP registers and describes the economic functions of forests from the contribution of forestry according to the National Accounts System (SCN: by its acronym in Spanish). It also takes into account other forest fluxes, like non-timber forest products (PFNM: by its acronym in Spanish), carbon emissions reduction, recreational activities, biodiversity conservation, and soil and water protection. According to this, the actual contribution of forests was of Q 6,000 million (USD\$<sup>4</sup> 790,272,279.00) in 2006 with a net added value of the forest sector equivalent to 2.58% of the national GDP (IARNA/URL & BANGUAT, 2009) (Table 3). The measurements of forest depreciation make possible to estimate the loss of productive capacity of direct income through the creation of products that are traded in the market and of indirect income through other benefits that depend on the existence of forest. In economic terms, during the period of 2001-2006 the depreciation of forest resources increased by 34%, with an index of calculated depletion as a reason between the depreciation of forest assets and forestry GDP, close to two fifths in 2006. In other words, when correcting the GDP to obtain a measurement of the economic income, about 1% of it belongs to forest depreciation. (IARNA/URL & BANGUAT, 2009).

**TABLE 3. True contribution of the forestry sector to the Guatemalan economy, 2001-2006 (Quetzales/Dollars and percentages)**

| Description  |               | Year                              |                                   |                                   |
|--|---------------|-----------------------------------|-----------------------------------|-----------------------------------|
|  |               | 2004                              | 2005                              | 2006                              |
| <b>Evaluation (Quetzales/Dollars of each year and percentage)</b>      |               |                                   |                                   |                                   |
| <b>Contribution of the Forest sector to GDP</b>                        |               |                                   |                                   |                                   |
| Gross Domestic Product   | (GDP)         | 190,440,065,731<br>25,392,008,764 | 208,293,949,789<br>27,772,526,638 | 229,548,209,068<br>30,606,427,875 |
| Forestry GDP   | (PIBF)        | 5,246,010,064<br>699,468,008      | 5,414,951,764<br>721,993,568      | 5,927,042,099<br>790,272,279      |
| Contribution of forestry according to SCN                              | (A)           | 1.01                              | 0.92                              | 0.93                              |
| Contribution of forest sector according CIB                            | (B)           | 2.75                              | 2.60                              | 2.58                              |
| Difference between A y B   | (A-B)         | -1.75                             | -1.68                             | -1.66                             |
| <b>Environmental costs of the activity</b>                             |               |                                   |                                   |                                   |
| Depreciation of forest assets  | (DAF)         | 1,909,169,533<br>254,555,937      | 2,045,285,801<br>272,704,773      | 2,258,106,011<br>301,080,801      |
| Depletion of forest assets index                                       | (DAF/PIBF/    | 0.36                              | 0.38                              | 0.38                              |
| <b>Gross Domestic Product environmentally adjusted</b>                 |               |                                   |                                   |                                   |
| GDP adjusted by depletion of assets                                    | (PIB-DAF)/PIB | 99.00                             | 99.02                             | 99.02                             |
| <b>Forest Gross Domestic Product (quetzales//Dollars of each year)</b> |               |                                   |                                   |                                   |
| <b>Production approach</b>   |               |                                   |                                   |                                   |
| Production   | (+)           | 5,949,259,818<br>793,234,642      | 6,147,152,167<br>819,620,288      | 6,733,757,527<br>897,834,336      |
| Intermediate consumption   | (-)           | 714,919,437<br>95,322,591         | 740,414,745<br>98,721,966         | 816,221,926<br>108,829,590        |
| Gross Value Added of the Forest  | (=)           | 5,234,340,381<br>697,912,050      | 5,406,737,422<br>720,898,322      | 5,917,535,601<br>789,004,746      |
| Net taxes of subsidies paid  | (*)           | 11,669,683<br>1,555,957           | 8,214,342<br>1,095,245            | 9,506,498<br>1,267,533            |
| Forestry sector net value added (Forestry GDP)                         | (=)           | 5,246,010,064<br>699,468,008      | 5,414,951,764<br>721,993,568      | 5,927,042,099<br>790,272,279      |
| <b>Cost approach</b>   |               |                                   |                                   |                                   |
| Final consumption  | (+)           | 2,495,795,376<br>332,772,716      | 2,486,382,148<br>331,517,619      | 2,878,869,089<br>383,849,211      |

<sup>4</sup> 1USD\$ X Q 7.50

|  |     |                              |                              |                              |
|--|-----|------------------------------|------------------------------|------------------------------|
| Gross capital formation                        | (+) | 2,015,805,842<br>268,774,112 | 2,123,790,698<br>283,172,093 | 2,056,057,650<br>274,141,020 |
| Exports  | (+) | 827,903,009<br>110,387,067   | 879,931,777<br>117,324,236   | 1,111,386,560<br>148,184,874 |
| Imports  | (-) | 93,494,163<br>12,465,888     | 75,152,859<br>10,020,381     | 119,271,200<br>15,902,826    |
| Forestry sector net value added (Forestry GDP) | (=) | 5,246,010,064<br>699,468,008 | 5,414,951,764<br>721,993,568 | 5,927,042,099<br>790,272,279 |
| <b>Income approach</b>                         |     |                              |                              |                              |
| Compensation of employees                      | (+) | 285,203,931<br>38,027,190    | 295,970,911<br>39,462,788    | 309,917,702<br>41,322,360    |
| Net taxes of subsidies paid                    | (+) | 11,669,683<br>1,555,957      | 8,214,342<br>1,095,245       | 9,506,498<br>1,267,533       |
| Mixed income                                   | (+) | 4,168,537,552<br>555,805,006 | 4,397,720,621<br>586,362,749 | 4,785,328,506<br>638,043,800 |
| Gross operating surplus                        | (+) | 780,598,898<br>104,079,853   | 713,045,890<br>95,072,785    | 822,289,393<br>109,638,585   |
| Forestry sector net value added (Forestry GDP) | (=) | 5,246,010,064<br>699,468,008 | 5,414,951,764<br>721,993,568 | 5,927,042,099<br>790,272,279 |
| <b>Personnel employed (persons)</b>            |     |                              |                              |                              |
| Employees                                      |     | 36,233                       | 36,713                       | 38,346                       |
| Self-employed personnel                        |     | 482,926                      | 484,352                      | 515,793                      |
| Employers, and personnel not paid directly     |     | 17,080                       | 17,160                       | 18,361                       |
| <b>Total of persons</b>                        |     | <b>536,229</b>               | <b>538,225</b>               | <b>572,499</b>               |

Source: (IARNA/URL & BANGUAT, 2009)

*b. Economic value of goods and services of forest ecosystems:*

Based on the table above, and the flow of the economic value of goods and some services of forest ecosystems in Guatemala, Table 4 presents the true contribution of forest goods and activities based on their use, in monetary and relative terms, the flows of supply of goods and services of forest ecosystems for 2006.

**TABLE 4. Flow of the economic value of goods and some services of forest ecosystems in Guatemala.**  
**Year 2006 (Quetzales/Dollars and percentages)**

|   |         |   |         |                            |                                      |
|---|---------|---|---------|----------------------------|--------------------------------------|
| Supply of goods and services of forest ecosystems in 2006 (Quetzales/Dollars)<br>23,536,983,741.00<br>3,138,264,4998.00 | 63.65 % | Production<br>14,980,412,592.00<br>1,997,388,345.00 | 54.95   | Secondary Industry         | 8,232,129,298.00<br>1,097,617,239.00 |
|   |         |   | 34.64   | Forest Timber              | 5,188,872,444.00<br>691,849,659.00   |
|   |         |   | 9.74    | Non-timber                 | 1,458,387,179.00<br>194,451,623.00   |
|   |         |   | 0.32    | Tourism                    | 47,198,281.00<br>6,293,104.00        |
|   |         |   | 0.22    | Wood waste                 | 32,656,880.00<br>4,354,250.00        |
|   |         |   | 0.14    | Wildlife                   | 21,168,411.00<br>2,822,454.00        |
|   |         |   | 19.66 % | Import<br>4,628,423,712.00 | 98.96                                |

|  |         |   |       |                    |                                 |
|--|---------|---|-------|--------------------|---------------------------------|
|  |         | 617,123,161.00  | 0.99  | Non-timber         | 45,775,698.00<br>6,103,426.00   |
|  |         |   | 0.05  | Forest Timber      | 2,249,931.00<br>1,113,780.00    |
|  | 14.70 % | Commercialization Margins<br>3,459,858,947.00<br>461,314,526.00 |       |                    |                                 |
|  | 1.99 %  | Net taxes of subsidies<br>468,288,490.00                        | 96.91 | Secondary Industry | 453,823,995.00<br>60,509,866.00 |
|  |         | 62,438,465.00   | 3.09  | Primary Industry   | 14,464,495.00<br>1,928,599.00   |

Source: (IARNA/URL & BANGUAT, 2009)

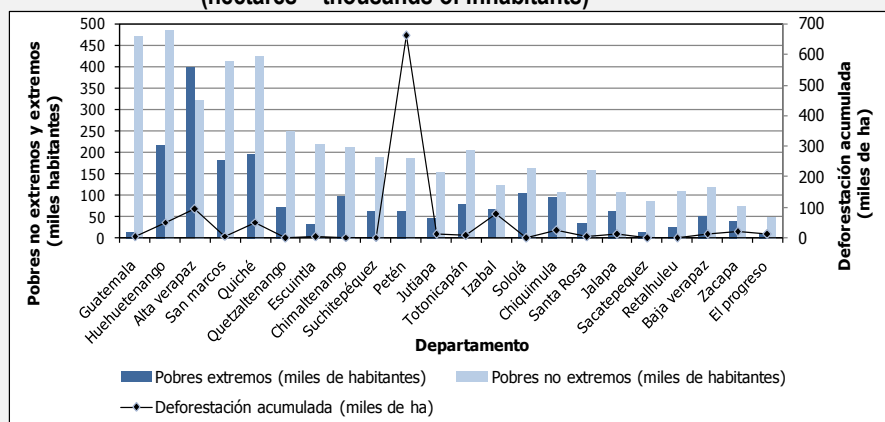
## 6. STATE OF FORESTS IN GUATEMALA

### 6.1 Drivers of Deforestation in Guatemala

The loss of forest coverage is an obvious problem in Guatemala and it is a process caused by multiple factors, linked to economic models and public policies. It is estimated that the nation has lost 50% of the forests that existed in 1950 (using as baseline 6,973,924 ha). According to studies by Castañeda (1995) some causes for the loss of forest coverage are:

- a. Lack of employment in rural area: Population growth, lack of opportunities in non-agricultural jobs and lack of available farmland forces many farmers to convert forestland into agricultural and livestock systems.
- b. Lack of forestry culture, financial conditions and promotion of agricultural techniques: The public policies of the last 150 years and its policy instruments such as soft loans, access to land, agricultural trade, transfer of technology and industrial development have left aside forestry activities for the production of environmental goods and services (IARNA/URL & IIA, 2004). As for the financial conditions, because the return period of the capital for forestry activities is longer than most other agricultural and livestock activities, the contribution of forest ecosystems to society (i.e. environmental services such as maintenance of the hydrological cycle, carbon uptake and oxygen release) do not represent direct and monetary revenue for the forest owners and conservation and forest management are not considered as an economically viable alternative for owners of land suitable for forestry (IARNA/URL & BANGUAT, 2009).
- c. Poverty: It is common to consider that deforestation is related to population growth; however, in Guatemala large populations have little relation to the cumulative deforested area. On the contrary, the departments of Petén and Izabal, which have medium-size populations within the national context, have high rates of cumulative deforestation (Figure 5), due to the support to cattle ranching, African palm cultivation and the extraction of hydrocarbons. The cumulative deforestation in the country is also related to the proportion of population living in extreme poverty, with the exception again of Petén e Izabal, for the above-mentioned reasons.

**FIGURE 5. Cumulative Deforestation (1991-2008) and levels of poverty, (2006)  
(hectares – thousands of inhabitants)**



Source: Own elaboration based on: (INE, 2009); (INE, 2006b)

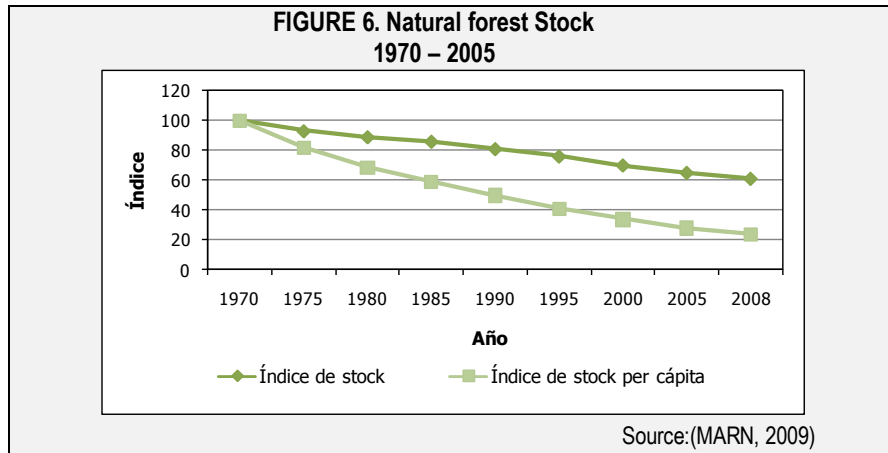
- d. Forest fires: One of the major pressures on forest resources are fires, many of them caused to eliminate the forest cover as first step to initiate uncontrolled invasions or colonization of reserve or protected areas. However, there is a sub-record of the number, location and surface impacted by fires; it is known that between the years 2000 to 2008, 278,284 hectares of forest have been affected. This impact includes total forest loss, disruption of canopy or both. (IARNA/URL, 2009b).

The year 2003 was strongly affected by forest fires causing economic, environmental, and social losses. The analysis of this situation showed that the damages caused by forest fires was above the Q500 million; with 95% of the damages being reported in protected areas.

- e. Pests: The INAB report of forest pests for 2003 indicates that pests and deceases affected 1,404.84 ha of forest. It is important to mention that after the forest fires of 1998, in 1999 there was a population explosion of gophers (*Ortogeomys sp.*) and rats (*Heteromys sp.*) in southern Petén and in 2000 there was a high incidence of pine weevil attacks (*Dendroctonus sp.*)
- f. Firewood as energy source: one of the major socio-economic pressures exerted on forest resources is the use of firewood as an energy source. Although, it is known that firewood is the main source of cooking fuel in rural areas, the extraction process is the result of the economies of time and effort of farmers; it begins with the collection of dry firewood, followed by the **lopping** of trees and later the felling of a tree that is used for timber or firewood.

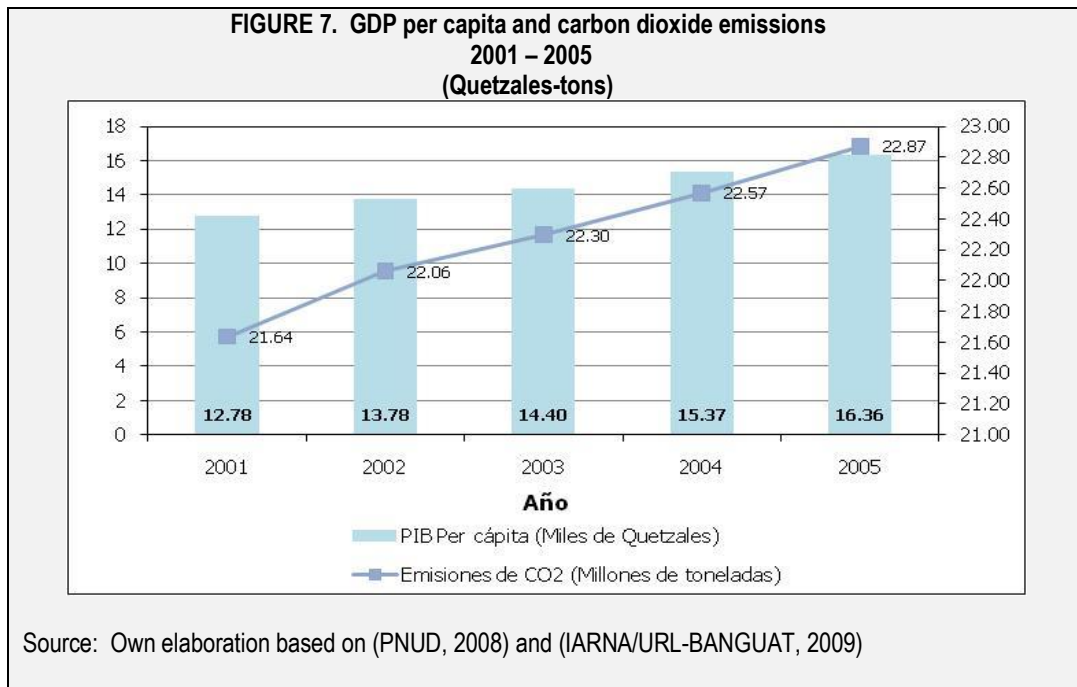
## 6.2 Loss of forest cover

The national forest inventory has declined rapidly in the last four decades, and more than half of the remaining forest is currently within protected areas. In 2008, the country's estimated forest cover, was 4 million hectares, one million less than in 1991. Using 100 as the base in 1970, the inventory dropped to 70 in 2000 and to 61 in 2008 (Figure 6). During these years the absolute rate of deforestation ranged between 60,000 and 70,000 ha per year, representing a yearly loss of 1.5% of the national forest inventory (IARNA/URL, 2009b) and converting these areas into zones of agricultural production.



## 7. GREENHOUSE GAS EMISSIONS

The production of goods and services in a country has been considered an indicator of social welfare; however, it can also be an indicator of the economic pressure on the environment. For the period 2001-2005 the GDP per capita has risen steadily, from Q12, 777 in 2001 to Q 16,356 in 2005. Similarly, the carbon dioxide emissions from households have also increased, from 21.64 million tons in 2001 to 22.87 million tons in 2005 (Figure 7).



During 2000, the MARN – through the Climate Change Unit – developed the inventory of emissions and absorptions of greenhouse gases. As Table 5 shows, emissions of carbon dioxide increased by approximately 13,831 metric tons in one decade, just like other greenhouse gases also increased.

**TABLE 5. Inventory of Emissions and Absorptions of Greenhouse gases for Guatemala (metric tons)**

| Year        | CO <sub>2</sub> Emissions | CO <sub>2</sub> Absorptions | Methane CH <sub>4</sub> | Nitrous oxide N <sub>2</sub> O | NO <sub>x</sub> | Carbon Monoxide | Non-methane volatile organic compounds | Sulfur dioxide SO <sub>2</sub> |
|-------------|---------------------------|-----------------------------|-------------------------|--------------------------------|-----------------|-----------------|--|--------------------------------|
| 1990        | 7,489.62                  | -42,903.73                  | 199.56                  | 20.71                          | 43.79           | 961.66          | 105.95                                 | 74.50                          |
| 2000        | 21,320.82                 | -23,718.01                  | 230.29                  | 55.33                          | 89.72           | 1,651.45        | 3,256.85                               | 75.15                          |
| Differences | 13,831.20                 | -16,185.71                  | 30.74                   | 34.62                          | 45.93           | 689.80          | 3,150.90                               | 06.5                           |

Source: (MARN, 2001)

## 8. POLITICAL AND LEGAL FRAMEWORK OF CLIMATE CHANGE

The environmental legislation regulates aspects related to natural resources (forest resources). The articles related to the topic of natural resources (forest resources) in the Constitution of the Republic of Guatemala are:

- Articles 60 and 61: Declare the cultural patrimony and state that it is under the protection of the State to preserve its characteristics.
- Article 64: Declares as a matter of national interest the conservation, protection and enhancement of the natural patrimony and the creation of parks, reserves and natural sanctuaries.
- Articles 95 and 96: Declare that health is a public good and all persons and institutions are required to ensure its conservation and restoration. Therefore, the State must control the quality of food, pharmaceutical, and chemical products that could affect the health and welfare of the population and ensure the improvement of basic sanitation conditions of the least protected communities.
- Article 97: Notes that the State, the municipalities and the population are obliged to foster social, economic and technological development to prevent environment contamination and maintain the ecological balance.
- Article 119, paragraph c): Indicates that is the obligation of the State to take the necessary measures to conserve, develop, and use natural resources in an efficient manner.
- Article 122: Declares areas and natural resources as State property and defines the reserves and state domains.
- Article 125: Declares of public benefit and necessity, technical and rational exploitation of hydrocarbons, minerals and other non-renewable natural resources.
- Article 126: Declares the country's reforestation and forest conservation efforts as matters of national security and social interest.

Because of the Constitution of the Republic of Guatemala, there are policies and laws related to the topic of natural resources that are linked to climate change and forest resources. They are:

**TABLE 6. Major environmental policies and instruments for their implementation**

| Year    | Policy or Instrument   |
|---------|--|
| 1985    | Political Constitution of the Republic of Guatemala  |
| 1986    | Law for the Protection and Improvement of the Environment, Decree 68-86  |
| 1989    | Protected Areas Law, Decree 4-89   |
| 1994-96 | Peace Agreements; Signature of the Firm and Lasting Peace<br>Forestry Law  |
| 1997    | National Forest Program  |
| 1999    | National Commission of Ecological Agriculture; Agrarian Policy of Guatemala; Forest Policy of Guatemala; National Biodiversity Policy  |
| 2000    | National Strategic Agenda of Environment and Natural Resources 2000-2004,  |
| 2001    | National Coral Reef Committee, Social Development and Population Policy; Forest Fire Protection System (SIPECIF); National Action Program against Desertification and Drought (PROANDYS) |
| 2003    | National Forestry Agenda, Policy Framework for Environmental Management; Gender Equity Policy in the Field of Environmental Management; National Climate Change Program                  |

|      |   |
|------|---|
| 2002 | Guidance and Advisory committee on Biodiversity (CONADIBIO)   |
| 2003 | National Climate Change Strategy  |
| 2004 | Government Environmental Strategy - Guate Verde 2004-2008; Policy for the Co-management of Protected Areas; National Environmental Education Policy   |
| 2005 | Presidential Commission Reverdecer Guatemala; Rural Development Policy; National Wetland Policy   |
| 2006 | Strategy and National Policy on Integrated Water Resources Management; Integrated Rural Development Policy  |
| 2007 | Policy for the Conservation, Protection and Improvement of the Environment and Natural Resources; Cleaner Production Policy for Guatemala; Energy and Mining Policy   |
| 2008 | Environmental Agenda from the perspective of indigenous people; National Strategy for the Management and Conservation of communal Lands; MARN Institutional Strategic Plan 2008-2012; Security Plan in Protected Areas; Agricultural Policy 2008-2012 |
| 2009 | Antigua Declaration for Sustainable Land Management; National Climate Change Policy   |

Source: own elaboration with information from (CRG, 2009), (IDEADS, 2008)

As a mechanism to promote forestry, in 1996 the Legislative Decree 101-96 establishes the National Forest Institute (INAB), and in coordination with the Ministry of Public Finance, delegates on it the responsibility of providing financial incentives to owners of land suitable for forestry that are dedicated to the implementation of forestry projects. In 1997 begins the Forestry Incentives Program (PINFOR, by its name in Spanish) with a lifespan of 20 years (ending in 2017).

Parallel to these instruments, Guatemala has ratified international commitments related to environmental matters that are linked to forest resources and climate change. They are:

- Convention on International Trade in endangered species of wild fauna and flora (CITES)
- Convention on Wetlands of International Importance (Ramsar)
- Convention on Biological Diversity (CDB)
- Framework Convention on Climate Change

Within the Executive Branch, there are institutions directly related to forestry and climate change:

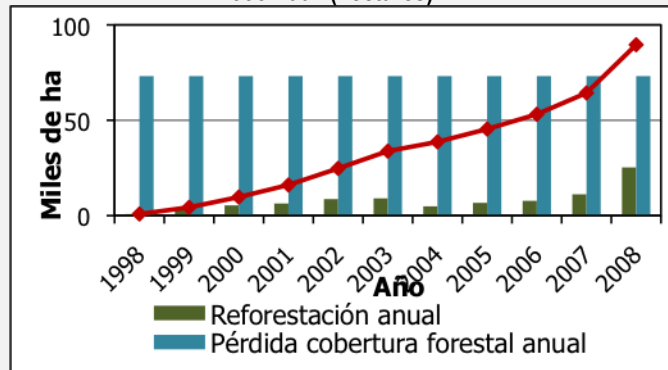
- Ministry of Environment and Natural Resources: Leading institution in environmental issues.
- National Council of Protected Areas: Institution that oversees the biodiversity in the country and the management of the Guatemalan System of Protected Areas and the natural resources within them.
- National Forest Institute: Institution responsible for the management and protection of forests outside protected areas.
- SIPECIF: Institution responsible for the control and prevention of forest FIRES.

## 9. POLICY INSTRUMENTS THAT PROMOTE THE REDUCTION OF DEFORESTATION AND IMPROVE THE STATE OF THE FORESTS

### 9.1 Forestry incentives program (PINFOR)

The impact of the Forestry Incentives Program (PINFOR: by its acronym in Spanish) is reflected in the 89,590 ha that were reforested (Figure 8) and the 162,000 ha of natural forest under management; 4.3% and 1% respectively in municipalities with high levels of poverty and 25.4% and 7.8% respectively in areas that function as hydrological catchments (INAB, 2009). Although this extension is far from compensating the cumulative deforestation, it constitutes one of the best examples of actions to reverse the loss of forest cover. Other impacts of the program include the strengthening of social organizations, the recovery of degraded areas and biodiversity, conservation of water resources and soils and the alleviation of poverty, since 64% of the total amount invested in PINFOR is directed to rural labour.

**FIGURE 8. Loss of forest cover and areas reforested by PINFOR 1998-2007 (hectares)**

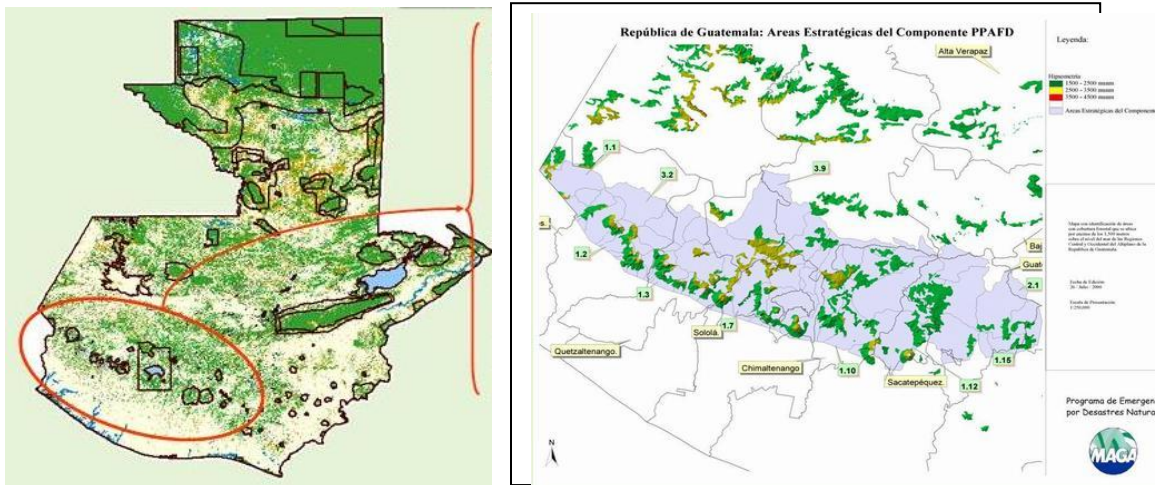


Source: Own elaboration based on (INE, 2009).

The commitments acquired by PINFOR in 2009 include: 1,121 projects, 19,976 hectares reforested and 22,189 hectares of natural forest under management. Nonetheless, this year's budget cuts have adversely affected the program, with an estimated loss of 8.1 million wages, 37% of which are contributed by PINFOR and 63% by the project owners. This budget reduction in economic incentives may jeopardize the conservation of areas of natural forest, turning them into potential areas to plant agricultural crops as a mechanism to address the lack of economic resources.

9.2 Pilot Program of Direct Forest Assets (PPAFD by its acronym in Spanish). This program is design to provide financial compensation for the environmental services provided by forests in those sectors that do not have access to PINFOR, due to the legal uncertainty about land tenure. The objective of the program is to contribute to the conservation of the remaining natural forest located in environmentally strategic areas in the central and western highland regions of the country (Map 4). This can be accomplished through direct payments to the owners and holders thereof, as a way to compensate and ensure the environmental services the forests provide, mainly soil protection and the maintenance of the hydrological cycle in the upper watersheds.

**MAP 4. Areas influenced by PPAFD**



Source: [www.maga/ppafd.gob.gt](http://www.maga/ppafd.gob.gt)



### 9.3 Incentive program for small holders of land suitable for forestry or agroforestry (PINPEP)<sup>5</sup> by its acronym in Spanish)

This program began in 2006 and ended in 2010 (a 4 year period) and aims to: a) increase the participation of small owners in the process of reforestation and natural forest management for protection and production and in the establishment and management of agroforestry systems; and b) incorporate the participation of those who have difficulty to legally show that they are the rightful owners of the land. The achievements by the year 2007 are: 2,446.32 ha. under forest management in forest plantations, agroforestry systems, production and protection. This program includes 79 municipalities of the departments currently most affected by hunger and poverty.

### 9.4 Natural Forest Management.

It is estimated that Guatemala has about 700,000 hectares of forest under some kind of forest management. Two thirds of these are carried out under the scheme of forest concessions with CONAP's authorization and the rest are operations authorized by INAB. The Study of Projections and Perspectives of the Forestry Sector in Guatemala (FAO-INAB, 2004) estimates that the nation can have under production an area of one million hectares.

## 10. REDD CONCEPT

Reduction of Emissions from Avoided Deforestation and Forest Degradation – REDD – is a concept that was introduced in the negotiation of the United Nations Framework Convention on Climate Change (UNFCCC) in 2005. REDD seeks to develop a strategy to address the reduction of Greenhouse Gas emissions (GHG) (GEI: by its acronym in Spanish) from land use change (deforestation), which according to the latest available data from 2005 represent 12.2% of the global emissions (World Resources Institute), and for regions like Latin America, and specifically for Guatemala they represent about 50% (MARN, 2001).

Despite having been introduced 4 years ago, it is still under discussion within the UNFCCC and some of the guidelines that will follow are still being defined. However, there has been a significant progress over the past year and there are certain guidelines that have not change since the concept was created. It is important to highlight that the focus of the scheme is the “reduction of GHG emissions” through avoided deforestation or degradation, conservation and enrichment of carbon stocks, and sustainable forest management (these last ones just were introduced in the negotiation text during the last Conference of the Parties -COP- of the UNFCCC) and its applicability has certain core principles: (i) the concept as such, is applicable to natural forest (this tendency continues in the UNFCCC and its not clearly established whether plantations will be included in this concept); (ii) the forest must have certain level of “threats” that could endanger their carbon stock and subsequently release greenhouse gas emissions (CO<sub>2</sub>, etc.); (iii) it must be demonstrated that the resources are necessary or “additional” and not for activities that usually take place (business as usual –BUA-).

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<sup>5</sup> PINPEP has a total cost of USD11 million of which USD7.9 million are part of the donation made by the Netherlands and USD3.2 million are the counterpart by the National Forest Institute. The INAB is the institution responsible for the implementation of the project and the technical and administrative reporting of its implementation.

Guatemala has some areas where the concept of REDD could be applied; however, it is necessary to work on all the minimum requirements (technical, legal, financial, social) to make this concept viable. Those requirements in general are discussed in this document. For countries like Guatemala, REDD may represent an opportunity (or need) to address a problem such as deforestation and its direct and indirect consequences, although it should be clear that it needs to be part of a comprehensive strategy to generate results. This opportunity stems from the global interest to use forests as a GHG mitigation strategy (as noted in the last COP of the UNFCCC), which would entail the provision of resources to strengthen forest management and conservation, although it is not clear yet from where the resources will come. REDD may also be a need, given that forest loss is the main sector of GHG emissions for the country (with possible effects on competitiveness) and the effects deforestation has on other strategic resources such as water, soil and biodiversity.

## **11. REDD STRATEGY AND STRUCTURING**

Initial steps have been taken to structure the REDD strategy in Guatemala. The Ministry of Environment and Natural Resources (MARN) through the Technical Unit on Climate Change (UTCC) has formed a working group (Panel on Forests, Biodiversity and Climate Change), which has discussed the general “guidelines” that should be considered for the development of a REDD strategy. Governmental institutions and NGOs, that have shown interest in developing this concept, integrate the group and even though the group is still limited and will require further expansion, it has provided a foundation to begin the discussion of the topic.

Four workshops have been conducted on the following topics: (i) Conceptual construction on deforestation and forests degradation; (ii) Evaluation of land use, forest policies and forest governance in Guatemala; (iii) Design of the Work Program to Elaborate a National Strategy to Reduce Forest Deforestation and Degradation; (iv) Reference Scenario and National Monitoring System of Guatemala’s Forest Cover. Overall, the workshops have been focused on generating conceptual information for the development of the REDD strategy in Guatemala. The issues to be addressed are: consultation procedures and the technical and financial support needed to develop the strategy (Cordova, 2009). The guidelines being used for the development of the strategy are mainly based on the procedures from the Forest Carbon Partnership Facility (FCPF) – World Bank (Guatemala is preparing its R-PP). However, there is an initial consensus that the strategy should not only be linked to the core REDD topic, instead it should be a broader discussion about deforestation in the country, its negative effects and benefits (Cordova, 2009).

The basic content of this strategy should include those major issues that must be included in a platform to make REDD a viable option, such as: (i) identification of areas with potential and feasibility analysis for the reduction of deforestation in these areas, this step is crucial to identify and prioritize stakeholders that should be included in the development of the strategy; (ii) socialization process, consultation and strategy design, (iii) development of an appropriate legal framework (clarifying resource rights and benefits of REDD); (iv) identification and development of mechanisms to achieve forest permanency and reduction of deforestation; (v) development of a system to register projects and/or REDD credits and, (vi) development of an emissions baseline and a monitoring system that meet the minimum requirements for REDD under the UNFCCC guidelines.

The procedure for the conceptual development of the strategy must be participatory; taking into account at least, the stakeholders mentioned in section 12 and trying to create consensus and synergies. This will probably be the most important challenge in the development of a strategy and it should be a key point to work on to facilitate the implementation and make it viable. It is important to point out that this process should consider the time and resources (human, technical, and financial) necessary to address in depth and with the appropriate level of detail the meaning and implications of REDD. This would seem like an obvious activity, but in other countries it has not been given the

necessary importance and this could mean the difference between failure and success in the implementation of the strategy. The issue has created high expectations and there is also considerable confusion among grassroots groups, NGOs (non-governmental organizations) that promote the issue and government institutions, so there should be a major effort to generate a clear knowledge foundation and build the strategy based on it.

## **12. PARTICIPATION OF KEY STAKEHOLDERS**

Among the key stakeholders in this initiative, it is important to consider the government, through The National Forest Institute (INAB), the National Council of Protected Areas (CONAP) and the Ministry of Environment and Natural Resources (MARN). INAB needs to be considered for its role as the entity responsible for the forest sector and the reduction of deforestation, as stipulated in the forestry law. CONAP should be considered for its role as administrative entity of the protected areas, bearing in mind that some of them have great potential for REDD and MARN for its role as leading agency in the issue of climate change to the UNFCCC. However, in this discussion it is important to include other government sectors such as MAGA (for policies that can reduce or encourage deforestation) and the Ministry of Interior and the Justice Sector, both responsible for addressing the issue of governance, which is an important “cause” of deforestation. Finally, another important actor for this sector are going to be the municipalities where REDD will take place, given that they already manage a significant area of woodlands, especially in the Petén and Highland zone.

On the other hand are the local groups that have a direct relation with the forest, either as managers that protect it or as agents of deforestation. In the first group, it is important to include organizations like the Alliance of Forest Communities (third-level organization), which brings together at least 400 first-level organizations, organized into 11 second-level organizations. This group is fairly representative of a sector concerned with the protection and management of the forest, and other groups that are not yet part of the structure could join it. The second group does not have an organized structure; however, it is important to find ways to engage them in the discussion, especially for those areas where they can be important agents of deforestation (Sierra del Lacandón National Park, Sierra de las Minas National Park, San Román, Franja Transversal del Norte, Visis Cabá, among others). It is worth noting that one of the precautions discussed and highlighted in the text of the REDD negotiation, within the Long-Term Cooperation Agreement (LCA) in the UNFCCC, is the full and effective involvement of local communities and indigenous people in the development of REDD activities. Therefore, it is a key aspect to consider when developing a strategy and special care should be given to it to ensure “full and effective” participation as required by the UNFCCC.

Producers of intensive or extensive crops are another important group that acts as agents of deforestation in some areas. Within this group, it is important to emphasize the producers of palm oil, sugarcane and extensive cattle ranching, which are the main agents of deforestation in this group.

Finally, local and international NGOs who are promoting REDD initiatives, should also be included in the process. They are stakeholders interested in promoting the issue; mainly because of the potential link the initiatives could have as a financing strategy for forest and biodiversity conservation. The following organization should be considered: Fundación Defensores de la Naturaleza (FDN), Lachuá Foundation, Foundation for the Development and Conservation (FUNDAECO), Rainforest Alliance (RA), The Nature Conservancy (TNC) and Conservation International (CI) among others.

The biggest challenge facing the development of a strategy is to reach a level of consensus among all these stakeholders, or to identify barriers that may limit the success of the initiative in part of a territory or at the national level.

## **13. CURRENT DISCUSSION OF REDD MECHANISMS IN GUATEMALA**

Guatemala participates actively in the REDD discussion within the UNFCCC, and the guidelines to direct the internal discussion are coming from there (Cordova, 2009). Last year, in addition to MARN, representatives from strategic institutions like CONAP and INAB joined the discussion, while other institutions, like MAGA, are still not participating. Nonetheless, there is a good level of understanding about the topic to guide the process of discussion and the development of a strategy.

The current discussion about REDD in Guatemala is at an early stage, although more advanced than in many countries in the region. Currently, MARN through the Panel on Forests, Biodiversity and Climate Change (Technical Unit on Climate Change) is working to develop general guidelines to conduct a process of discussion about the REDD strategy. At this time the group is just taking preliminary steps in the discussion process, but it will have to be extended in the socialization and work phase towards grassroots groups and key stakeholders who exert pressure (positive or negative) on the forests in Guatemala.

From the REDD mechanisms currently available, besides the voluntary market initiatives discussed in the next section, Guatemala has submitted a proposal to the Forest Carbon Partnership Facility (FCPF) at the World Bank (WB) through a document called Readiness Project idea Note (R-PIN), that was submitted on December 2008. This document is the first requirement to apply for funding from the WB and constitutes a kind of “diagnosis” of the forest situation in Guatemala, the ongoing initiatives to reduce deforestation, as well as gaps or weaknesses that could be strengthened to reduce deforestation. The financing provided by the WB at this stage would be to develop a “plan to establish” the REDDs strategy in the country (originally called R-PLAN, now known as RPP).

The R-PIN was approved by the FCPF in March 2009, but because it was submitted during the third round of applications still has not been allocated resources to develop the RPP. Nonetheless, the working group of forest, biodiversity and climate change, is working on finding alternative financing that could replace or supplement the funding for development and implementation of the strategy. At least two European countries, which have strong interest in supporting this initiative, have been identified and both proposals are being prepared at this time.

The other mechanism that Guatemala could apply to – The United Nations Collaborative Programme on REDD (UNREDD) – is an alternative that has not yet been explored, but it is considered as a potential source of financial support.

While it is true that these proposals are still being reviewed, some organizations like the Rainforest Alliance and IUCN have supported some discussions to encourage the development of a REDD strategy, by establishing methodological and legal tools, and facilitating pilot projects in the field, which create some conceptual basis for the development and implementation of REDD initiatives.

#### **14. PILOT PROJECTS: REDD SITES FOR GUATEMALA**

Currently, Guatemala has 39% of forest cover (IARNA/URL, 2009b) mainly located in the northern part of the country (Petén, Alta Verapaz, Quiché, Izabal) and the Sierra de las Minas.

In these regions, it is possible to find continuous areas of natural forest cover with little or without any level of degradation; even though around them forest landscapes may be fragmented or subjected to degradation. If we think about potential REDD sites, these areas should be the first ones to be considered, if they meet certain basic preliminary conditions like: (i) To be a natural forest; (ii) to be subjected to pressure from deforestation, degradation or other threat that could reduced their carbon stock; (iii) to have a significant extension to be cost-benefit attractive. On these sites it is important to do further analysis to determine the feasibility (technical, financial, social, and legal) to

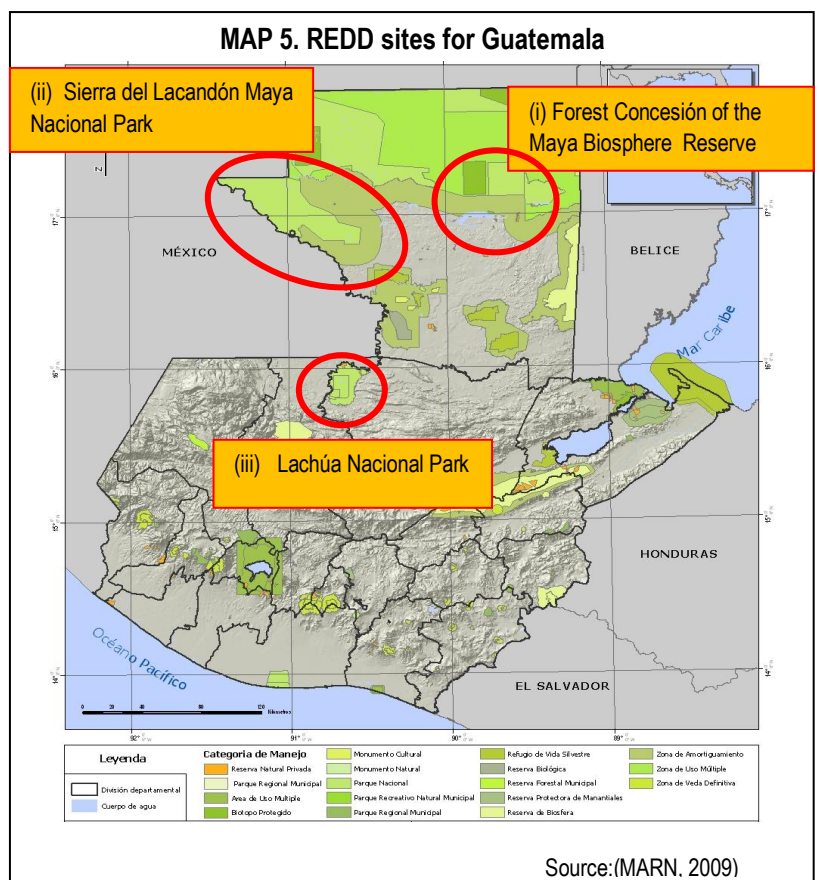
reduce GHG emissions, by reducing the loss of carbon stock. It is important to point out that from all these sites, the only ones that count with a more consolidated social base and with experience in forest management for use are the forest concessions in the Maya Biosphere Reserve. This point is important because if the idea is to “reduce” the loss of carbon stock, we must have strategies to achieve it, and in this case local groups and their capacity or interest to participate in this process are key factors to consider. Moreover, the majority of sites with REDD potential are on State lands; therefore, it is necessary to clarify the rights over the potential benefits that could be generated. This is a basic point that any party interested would like to clearly establish; to cite and example, the REDD credits that can be traded in the market (Personal Communication A. Sobenes). Finally, it is necessary to have valid data on how many emissions are projected and where they are going to occur (including the carbon stock) to create a “baseline” that best indicates where REDD emission reductions can be generated. From this perspective, it can be summarized that the strongest challenges to achieve the feasibility of the sites with REDD potential are: to attain the organizational consolidation of the social base related to REDD, to develop and implement mechanisms that will allow the “permanency” of the forest and thus emissions reductions – REDD, to clarify the rights over the benefits and to develop a methodological base to project emission reductions.

Currently, there are at least 3 pilot projects in Guatemala being implemented by interest groups, such as: (i) Project in the Forest Concessions of the Maya Biosphere Reserve, promoted by the Petén Forest Concession and Rainforest Alliance; (ii) Project of the Sierra Lacandón National Park, promoted by Fundación Defensores de la Naturaleza and; (iii) Project in the Lachuá National Park, promoted by Fundación Lachuá and UICN (Map 5). Taking into account that the three projects are located in protected areas, the National Council of Protected Areas (CONAP), participates as coordinator because it is the entity responsible for their administration and in the last one, the INAB also participates as Co-administrator.

## 15. BUILDING THE PLATFORM FOR REDD

### 15.1 Emissions baseline

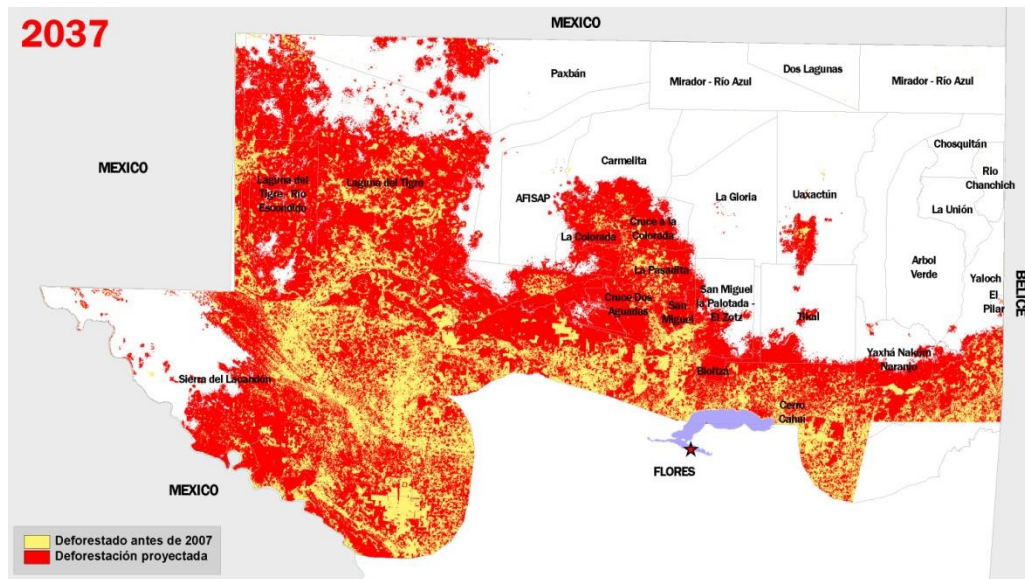
The emissions baseline from deforestation and degradation is a basic methodological tool that makes possible “forecasting” the amount of emissions that could occur due to the loss of carbon stock (from deforestation, degradation, or other) in the absence of actions to curb them.



This work requires historical information about deforestation (or the loss of stock) to try to “model” the factors that caused it and based on them predict where it will happen and where it can be prevented, as well as information about the carbon stock content. The introduction of “new actions” within REDD+, probably will require the development of conceptual elements in the baselines, where in addition of emission reductions there is an increase in carbon stock.

CONAP, with the support of Rainforest Alliance and the financial support from the project CONAP/Holland, the Cooperation of the Danish Government (DANIDA) through the Guatemalan Exporter’s Association (AGEXPORT: by its acronym in Spanish), and Wild Conservation Society (WCS) are working in the development of a sub-national baseline of emissions from deforestation in the Petén and northern Alta Verapaz and Izabal (based on information from CEMEC/CONAP). The baseline includes the areas of the three projects identified in the previous section and will generate the methodological foundation to determine their REDD potential. Also, it will provide options to develop proposals for other areas covered by the analysis. This methodological process should be extended to other areas such as Izabal, Sierra de las Minas, southern Alta Verapaz and northern Quiché and Huehuetenango where areas that could have potential for REDD have been identified. Map 6 shows the deforestation model developed for the Maya Biosphere Reserve, which is being expanded to the areas indicated above (Ramos, 2009) and with the carbon content data can generate a baseline of emissions from deforestation. It is important to notice that this baseline is being done for emissions from deforestation, without considering degradation or the increase or conservation of the carbon stock; elements that are being proposed under REDD+.

**MAP 6. Model of deforestation for northern Guatemala**



Source: (Ramos, 2009)

All the red area is a projection of where deforestation will occur from 2008 to 2037. This could be “avoided” and generate emissions reductions.

The trend in the discussion within the UNFCCC about the development of these methodological tools is that they should be done at the national level; nonetheless, several countries support that they may be initiated in stages in certain specific areas (Sub national) (SBSTA, UNFCCC, 2,009).

### 15.2 Legal framework analysis

The legal framework analysis for REDD implementation is another core aspect that is currently being developed. Both CONAP and MARN, with the support of IUCN and Rainforest Alliance, are working on analyzing the current legal framework and identifying gaps that need to be worked on to make REDD initiatives viable. The final results have not been submitted; however, it has been identified that a “supplementary” base could be used to give legal support to the initiative of the Forest Concessions, but it does not apply to all cases where the State does not have a legal figure like the concessions. As explained above, most of the areas that have the greatest potential for REDD are in protected areas that are State lands. There are at least two factors that merit seeking legal alternatives so the State can build alliances to implement REDD: 1) so far, it has been observed that potentially interested parties see a limitation on having a contractual relationship with the State; 2) socializing the benefits and responsibilities of REDD, could create a competitive advantage for achieving results (reducing emissions).

## **16. TRENDS**

The REDD trend will continue to be defined by the decisions being made within the UNFCCC negotiation. This convention is the one that has been setting the guidelines about REDD, and both the voluntary market and other potential markets like the United States, somehow respond to what the UNFCCC defines. Although it has been an evolving topic and the rules are being gradually refined, there are certain parameters that are expected not to have any major variation such as: (i) the concept as such, applied to reducing emission from “avoided deforestation and forest degradation” which marks the applicability to threatened natural forest (although the text proposed in the LCA of the UNFCCC has incorporated carbon stock conservation and enrichment and sustainable forest management) (ii) the national approach that requires the establishment, in the medium-term, of methodological mechanisms for national accounting of emissions and reductions; (iii) Monitoring, Reporting and Verification, which establish the need to have adequate monitoring and reporting systems that comply with minimum requirements for REDD (SBSTA /UNFCCC, 2009). There are some topics that still do not have a final definition like the treatment of REDD in NAMA (National Appropriate Mitigation Actions), if REDD is going to be considered as a Clean Development Mechanism (CDM); the scope of sustainable forest management, among others that may have important implications on how REDD will be addressed. Either way, it is important to follow the negotiations and see how these items are defined to be able to meet the requirements and create the conditions to comply with them.

The U.S. Climate Change Law (Waxman-Markey Bill) currently under discussion, which presumably has to go through a strong process of debate before its approval, is including the opportunity to fulfill part of its reductions outside of the U.S. and REDD is an eligible mechanism for it. This law proposes alternative initiatives for sub-national and national projects; however, if it begins with the first two, it provides developing countries with an eight-year period to have national accounting. As previously mentioned, this market has rules that somehow respond to the UNFCCC, and it would be expect that some of the recent discussions from the COP XV would be considered in it. If this law is approved, the United States would become one of the largest markets for REDD. However, a lot of work is still needed to turn this potential into a real opportunity to create a product that meets the requirements of this market.

The voluntary market is the only one that is currently buying this type of projects and some standards like the Voluntary Carbon Standard (VCS) are as demanding as the Clean Development Mechanism. Apparently, this could be the basis to create a U.S. standard for REDD projects. In that sense, it would be reasonable to use it in the design of any initiative during this phase in which REDD is still being defined.

## **15. CHALLENGES**

As shown in previous sections, REDD is a concept that provides an important opportunity for natural forests globally, but to translate that potential into a real opportunity is necessary to create conditions to make them feasible. There are several important challenges, among others discussed above, that could be highlighted as major issues to address:

(i) Institutional REDD. Because this process involves the participation of many stakeholders with different roles, it is necessary to create the entire institutional framework for the model to be functional. In the preliminary exercises, made in the quest for a strategy, it has been identified that the institutional framework for the topic is fragmented and it should be a priority to find a suitable structure.

(ii) Adequate legal conditions: Legal alternatives should be explored for the State to make alliances to implement REDD; first, because it has been noticed that those potentially interested, perceive the contractual relationship with the State as a limitation and second because it could be a competitive advantage to achieve the expected results (emission reduction) when socializing REDD benefits and responsibilities.

(iii) Development of Methodological tools: As noted in the last COP of the UNFCCC, REDD is going to be very strict on methodological aspects and currently the country does not have the tools to comply with those requirements.

(iv) Permanency of the “emissions reduction”. This issue usually is not given importance, however, it is a major challenge because having access to the REDD benefits also involves a commitments to assure the irreversibility of the emissions reduced by a minimum period that at the moment is not very clear. To ensure permanency it is necessary to develop capacities for adequate and efficient forest management and sustainable mechanisms to support this process. This is a big challenge, since most forests in Guatemala do not meet these conditions or they are still very weak.

## 17. CONCLUSIONS

REDD is a concept that under the current definition applies to the reduction of GHG emissions by avoiding the loss of carbon stocks from threatened natural forests; the concept, although advanced, is still under construction and its final guidelines are being negotiated within the UNFCCC.

Guatemala has areas that have potential to implement REDD initiatives; however, it is necessary to generate the conditions to develop such potential, following the guidelines of UNFCCC. Among these conditions are: the development of an emissions baseline for carbon stock loss that also predicts where and when such a loss will occur, the definition of the rights over REDD benefits, the development of the monitoring and reporting systems, as well as a system for reductions and/or projects that would give transparency to the accounting, and capacities to reduce emissions and ensure their permanency. Although there is not a national REDD strategy in the country, there are at least three initiatives that are providing experience and developing important tools that can offer feedback to the strategy and that are running field tests about what it takes the generation of reductions by REDD.

An important step for the promotion of REDD in the country is the development of a strategy about the subject. It should be participatory and involve representative sectors from the REDD areas in the country, which should include both those that reduce deforestation and those who promote or benefit from it, involving local groups, NGOs and the government.

There are at least two factors that merit looking for legal alternatives, so the State can make alliances to implement REDDS. First, because those potentially interested perceive the contractual relationship with the State as a limitation, and second because it could be a competitive advantage to achieve results (reducing emissions) when socializing REDD benefits and responsibilities.



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