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# Table of Contents

**Executive Summary** ................................................................................................................................. 1

1. **Introduction** ..................................................................................................................................................... 8
   1.1. **Purpose** ......................................................................................................................................................... 8
   1.2. **USAID Program Description** ....................................................................................................................... 9
   1.3. **Methodology** ................................................................................................................................................. 9

2. **Region/Country Context** ............................................................................................................... 10
   2.1. **Location and Region/Country Development Context** ................................................................................. 11
   2.2. **Biophysical Setting** ..................................................................................................................................... 13

3. **Status of the Country’s Biodiversity and Tropical Forests** ..................................................................... 14
   3.1. **Major Ecosystem Types and Status** .............................................................................................................. 15
   3.2. **Status of Tropical Forests** ............................................................................................................................. 18
   3.3. **Species Diversity and Status** .......................................................................................................................... 20
   3.4. **Genetic Diversity** .......................................................................................................................................... 20
   3.5. **Status and Management of Protected Areas** ............................................................................................. 21
   3.6. **Status and Management of Key Natural Resources Outside Protected Areas** ..................................... 24
   3.7. **Overview of Ecosystem Services** .................................................................................................................. 24

4. **Legal Framework Affecting Conservation** ............................................................................................... 26
   4.1. **National Laws, Policies, and Strategies** ........................................................................................................ 27
   4.2. **International Agreements** ............................................................................................................................. 27
   4.3. **Government Agencies** .................................................................................................................................... 28
   4.4. **Conservation Initiatives and Gap Analysis** ............................................................................................... 30

5. **Orinoco Mining Arc** ........................................................................................................................................ 34
   5.1. **Mining Politics and Reality South of the Orinoco and Its Relationship with the Orinoco Mining Arc** ................. 35
   5.2. **Environmental Impact of the Orinoco Mining Arc** ........................................................................................ 36
   5.3. **Social Impact of the Orinoco Mining Arc (Human Rights and Health)** ......... 38
   5.4. **Economic Impact of the Orinoco Mining Arc** ............................................................................................... 42

**VENEZUELA FAA118/119 Tropical Forest and Biodiversity Analysis**
# VENEZUELA

## FAA118/119 TROPICAL FOREST AND BIODIVERSITY ANALYSIS

### 6. INDIGENOUS PEOPLES

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1. INDIGENOUS PEOPLES IN VENEZUELA: POPULATION, ETHNIC GROUPS,</td>
<td>43</td>
</tr>
<tr>
<td>LANGUAGES, LOCATIONS</td>
<td></td>
</tr>
<tr>
<td>6.2. DEVELOPMENT AND ITS CULTURAL-ECOLOGICAL IMPACTS ON INDIGENOUS</td>
<td>44</td>
</tr>
<tr>
<td>PEOPLES AND COMMUNITIES</td>
<td></td>
</tr>
<tr>
<td>6.3. INDIGENOUS LEGAL AND INSTITUTIONAL FRAMEWORK</td>
<td>45</td>
</tr>
<tr>
<td>6.4. THREATS AND THEIR IMPACTS ON INDIGENOUS PEOPLES AND</td>
<td>48</td>
</tr>
<tr>
<td>BIOCULTURAL DIVERSITY</td>
<td></td>
</tr>
<tr>
<td>6.5. RECOMMENDED ACTIONS</td>
<td>50</td>
</tr>
</tbody>
</table>

### 7. OIL SPILLS IN VENEZUELA

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1. INTRODUCTION</td>
<td>52</td>
</tr>
<tr>
<td>7.2. STAKEHOLDER ANALYSIS</td>
<td>53</td>
</tr>
<tr>
<td>7.3. THREATS DERIVED FROM OIL ACTIVITY</td>
<td>56</td>
</tr>
<tr>
<td>7.4. ANALYSIS OF POSSIBLE ACTIONS TO REDUCE BIODIVERSITY LOSS CAUSED</td>
<td>58</td>
</tr>
<tr>
<td>BY OIL SPILLS</td>
<td>59</td>
</tr>
</tbody>
</table>

### 8. THREATS TO BIODIVERSITY AND TROPICAL FORESTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1. DIRECT THREATS TO TROPICAL FOREST ECOSYSTEMS</td>
<td>62</td>
</tr>
<tr>
<td>8.2. DIRECT THREATS AND DRIVERS TO INDIGENOUS PEOPLES</td>
<td>63</td>
</tr>
<tr>
<td>8.3. DIRECT THREATS AND DRIVERS RELATED TO OIL SPILLS</td>
<td>67</td>
</tr>
<tr>
<td>8.4. SOCIOPOLITICAL AND ECONOMIC THREAT DRIVERS</td>
<td>73</td>
</tr>
</tbody>
</table>

### 9. ACTIONS NEEDED TO CONSERVE AND SUSTAINABLY MANAGE BIODIVERSITY AND TROPICAL FORESTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1. ACTIONS NEEDED TO CONSERVE TROPICAL FORESTS</td>
<td>79</td>
</tr>
<tr>
<td>9.2. ACTIONS NEEDED TO CONSERVE TROPICAL BIODIVERSITY FROM THE THREAT</td>
<td>80</td>
</tr>
<tr>
<td>OF OIL SPILLS</td>
<td></td>
</tr>
<tr>
<td>9.3. CROSS-CUTTING ACTIONS NECESSARY FOR BIODIVERSITY CONSERVATION</td>
<td>85</td>
</tr>
</tbody>
</table>

### 10. MEETING THE IDENTIFIED NEEDS TO CONSERVE AND SUSTAINABLY MANAGE BIODIVERSITY AND TROPICAL FORESTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1. ACTIONS NEEDED TO CONSERVE TROPICAL FORESTS</td>
<td>87</td>
</tr>
<tr>
<td>10.2. ACTIONS NEEDED TO CONSERVE TROPICAL BIODIVERSITY FROM THE THREAT</td>
<td>88</td>
</tr>
<tr>
<td>OF OIL SPILLS</td>
<td></td>
</tr>
<tr>
<td>10.3. CROSS-CUTTING ACTIONS NECESSARY FOR BIODIVERSITY CONSERVATION</td>
<td>90</td>
</tr>
</tbody>
</table>

### 11. RECOMMENDATIONS TO CONSERVE AND SUSTAINABLY MANAGE BIODIVERSITY AND TROPICAL FORESTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1. RECOMMENDATIONS TO CONSERVE AND SUSTAINABLY MANAGE BIODIVERSITY</td>
<td>90</td>
</tr>
<tr>
<td>AND OIL SPILLS</td>
<td></td>
</tr>
<tr>
<td>11.2. RECOMMENDATIONS TO PROTECT INDIGENOUS PEOPLES' RIGHTS</td>
<td>94</td>
</tr>
<tr>
<td>Annex</td>
<td>Title</td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>A</td>
<td>Statement of Work</td>
</tr>
<tr>
<td>B</td>
<td>Relevant International Treaties for the Conservation of Biodiversity</td>
</tr>
<tr>
<td>C</td>
<td>Actions Organized According to Main Oil Spill Threats</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>ANA</td>
<td>National Environmental Authority (Autoridad Nacional Ambiental)</td>
</tr>
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<td>BCV</td>
<td>Central Bank of Venezuela (Banco Central de Venezuela)</td>
</tr>
<tr>
<td>ELN</td>
<td>National Liberation Army of Colombia (Ejército de Liberación Nacional Colombia)</td>
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<tr>
<td>ESSC</td>
<td>Environment Support Services Contract</td>
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<tr>
<td>FAA</td>
<td>Foreign Assistance Act</td>
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<td>FARC</td>
<td>Revolutionary Armed Forces of Colombia (Fuerzas Armadas Revolucionarias de Colombia, Disidencias)</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>INEA</td>
<td>National Institute of Aquatic Spaces (Instituto Nacional de Investigaciones Agrícolas)</td>
</tr>
<tr>
<td>INPARQUES</td>
<td>National Parks Institute (Instituto Nacional de Parques)</td>
</tr>
<tr>
<td>IPLCs</td>
<td>Indigenous Peoples and Local Communities</td>
</tr>
<tr>
<td>IUCN</td>
<td>International Union for Conservation of Nature</td>
</tr>
<tr>
<td>KM²</td>
<td>Square Kilometer</td>
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<tr>
<td>LAC</td>
<td>Bureau for Latin America and the Caribbean</td>
</tr>
<tr>
<td>MINAMB</td>
<td>Ministry of People’s Power for the Environment (Ministerio del Poder Popular para el Ambiente)</td>
</tr>
<tr>
<td>MINEC</td>
<td>Ministry of People’s Power for Ecosocialism (Ministerio del Poder Popular para el Ecosocialismo)</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
</tr>
<tr>
<td>NPA</td>
<td>National Protected Area</td>
</tr>
<tr>
<td>NTFP</td>
<td>Non-Timber Forest Products</td>
</tr>
<tr>
<td>PDVSA</td>
<td>Petróleos de Venezuela SA</td>
</tr>
<tr>
<td>PES</td>
<td>Payments for Environmental Services</td>
</tr>
<tr>
<td>PORU</td>
<td>Management and Use Regulations Plan (Plan de Ordenamiento y Reglamento de Uso)</td>
</tr>
<tr>
<td>REIB</td>
<td>Regimen of Bilingual Intercultural Education</td>
</tr>
<tr>
<td>SAOI</td>
<td>Service of Attention and Orientation to the Indigene</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>WWF</td>
<td>World Wildlife Fund</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

Introduction

The Foreign Assistance Act (FAA) of 1961 recognizes the importance of tropical forests and biodiversity. Sections 118(e) and 119(d) of the FAA prioritize the conservation and sustainable management of tropical forests and biodiversity as important objectives of United States development assistance. At the time of this report, Venezuela is a non-presence country for the United States Agency for International Development (USAID). USAID programming currently focuses on democracy, human rights, and governance and is managed by the Bureau for Latin America and the Caribbean (LAC) in Washington, D.C. This 118/119 Analysis, a first for Venezuela, has the following objectives:

1. Describe the current status of Venezuela's tropical forests and biodiversity, including emerging issues, threats, and trends.
2. Provide updated information and analysis on Venezuela’s oil spills and the Orinoco Mining Arc and their socio-ecological impacts.
3. Describe Venezuela’s Indigenous Peoples current status in relationship to biodiversity degradation and other threats to the environment.
4. Identify actions necessary to conserve tropical forests and biodiversity and the extent to which the Venezuela Operating Unit is supporting such actions.
5. Develop recommendations to guide USAID in developing informed conservation strategies.

Because this is the country’s first 118/119 Analysis and current data was either unavailable, outdated, or skewed by the Maduro government, it was done by synthesizing existing information and creating new data.

Under USAID’s LAC Environment Support Services Contract (ESSC), a team of local consultants and ESSC staff conducted the analysis. The report was developed in three phases: (1) bringing together a team of Venezuelan experts; (2) documenting, generating, and analyzing data through a literature review, original remote-sensing data and forest-loss estimates, and 51 interviews related to forests, biodiversity, and environmental threats; and (3) working with the team to broadly identify the threats, drivers, and actions necessary to reduce pressures on forests and biodiversity in Venezuela.

Country Context

Venezuela’s great geographic and biological diversity includes the Andes Mountains, Amazon Basin, Guiana Shield, Caribbean Sea, and Atlantic Ocean, making it one of the ten most biodiverse countries in the world and home to a large number of endemic species.

The Venezuelan population is concentrated in the central part of the northern coast and the Andean region, with more than 70 percent living in cities. Accounting for 2.8 percent of the population, are 52 recognized Indigenous groups, 27 of whom live south of the Orinoco River, which bisects the country. Many of these groups are in initial contact.
Because Venezuela is rich in natural resources, including the world’s largest oil reserves, the foundation of its economy has long been the commercialization of oil. In the latter decades of the 20th century, this wealth made Venezuela a prosperous nation and a regional leader in environmental protection and research. However, over the last 20 years, factors—including the politicization and deprofessionalization of state oil company Petróleos de Venezuela SA (PDVSA), poor governance, and the dismantling of the country’s independent institutions—have led to economic crisis, widespread poverty, and lapses in public services such as water, electricity, and health care. Approximately 6 million Venezuelans have emigrated since 2015 due to these factors, leaving the country’s population at roughly 28 million. These factors have also contributed to a collapse in the oversight and protection of natural areas, proliferation of threats to the country’s biodiversity, and sharp reduction in university capacity and research.

**Status of the Country’s Biodiversity**

Due to its unique geographic positioning, Venezuela is a mega diverse country, with 15 official bioregions containing 14 distinct terrestrial ecosystems, 15 freshwater ecosystems, and a range of marine and coastal ecosystems. Tropical forests cover nearly 40 percent of the country’s territory, with evergreen forests accounting for the majority of the forests (31.5 percent), followed by dry forests and cloud forests. Páramo ecosystems cover a small fraction of Venezuelan territory (less than 1 percent) at high altitudes, whereas a variety of grasslands, savannas, and scrublands thrive in a range of elevations, accounting for more than 12.5 percent of the country.

This diverse set of ecosystems corresponds to a vast diversity of species, including 390 mammals, 1,384 birds, 341 reptiles, 360 amphibians, 2,068 fish, and 16,484 plants. However, with many parts of the country yet unexplored, the full range of Venezuela's biodiversity remains unknown.

Unfortunately, many of Venezuela’s species are under threat, with at least 289 animal species and 559 plant species at risk of extinction. Additionally, the country’s tropical forests and other ecosystems face numerous distinct threats. North of the Orinoco River, these threats include agricultural and urban expansion, the direct and indirect effects of the oil industry, and unsustainable hunting, with an estimated 90 percent of the dry forests in the region no longer in existence. In the heavily forested region south of the Orinoco, agriculture and cattle, logging, and mining are responsible for the loss of almost 7,000 square kilometers (km²) of forest in the last two decades. In 2016, the government created the Orinoco Mining Arc, causing an explosion of deforestation, including in protected areas (see Section 5). The greatest impact is in Yapacana National Park, which has lost more than 20 km² due to illegal gold mining. On average, the nation has lost an estimated 616 km² of forest each year since 2000.

Yapacana is one of 106 protected areas in Venezuela, which account for 26.7 percent of the nation’s territory. Administered by the central government, the protected area system suffers from ineffective management due to insufficient funding, weak environmental institutionality, and a lack of personnel and equipment to carry out oversight. The result is rising encroachment on protected areas from agriculture, unplanned urban expansion, and mining, leading to forest loss and land conflict. The latter of these particularly affects Indigenous Peoples who lack formal recognition of their ancestral lands, many of which overlap with protected areas. Meanwhile, coastal protected areas increasingly experience oil spills caused by the decrepit state of PDVSA operations.

Enforcement of environmental regulation outside of protected areas is extremely low due to the dismantling of the National Environmental Authority, a lack of funds and personnel, and corruption.
Activity in these areas is marked by low compliance with land-use plans and little monitoring of activities with a risk of environmental degradation.

Despite these threats, Venezuela’s natural wealth provides a wide range of ecosystem services. Eighty percent of drinking water comes from the protected areas and 70 percent of the nation’s electricity is generated by the Caroní River. Additionally, the country’s tropical forests store vast amounts of carbon and are underutilized in terms of non-timber forest products. Mangroves and coral reefs shield the coast from storms and erosion and attract tourists, while the country’s fisheries are home to around 60 species of interest for commercial and subsistence purposes. However, national policy fails to recognize the potential of ecosystem services and payment for these services is a poorly developed legal concept, likely due to the centralized nature of the government and its opposition to market-based mechanisms.

**Legal Framework Affecting Conservation**

Venezuela’s 1999 Constitution contains the foundations of the country’s environmental policy, although the core legal and institutional principles already existed. The Organic Environmental Law of 2006 and the National Land-Use Plan are additional key elements of Venezuela’s domestic environmental policy and planning. The National Environmental Authority (ANA) oversees the administration of these measures. In 2012, ANA developed a National Biodiversity Conservation Strategy, but the agency has yet to create a National Environmental Plan as outlined in the Organic Environmental Law. The Protected Areas Under Special Administration are the core of territorial management, making up 68.4 percent of the country and falling into 24 categories based on their purpose (e.g., conservation, research, productive activities, etc.).

Despite a profusion of environmental regulations in Venezuela, application is limited and some measures lack consistency with one another. Additionally, environmental and biodiversity policy is highly centralized, with very little institutionality developed at the local level and even less at the regional level. Multiple gaps exist in the Venezuelan environmental legal framework, particularly related to climate change, ecosystem services, wildlife, protected areas, private conservation, land-use plans for Protected Areas under Special Administrations and documentation of endangered species.

On the international level, Venezuela signed a series of treaties related to biodiversity and tropical forest conservation, but is notably not a signatory of several other treaties, including the Bonn Convention, the Leticia Pact, the Escazú Agreement, and the Minamata Convention on Mercury.

The country’s principal environmental authority is the Ministry for Ecosocialism, which has been renamed and reorganized multiple times and experienced high rates of turnover, mass firings, and a deprofessionalization. The ministry is also marked by a lack of equipment, scant budget, and extremely low salaries. ANA forms part of the Ministry of Ecosocialism, while the National Parks Institute (INPARQUES) is another environmental authority in the country.

On the legislative level, the legitimate National Assembly recognized by the United States has passed important measures, including the Organic Law of the Freshwater Mega Reserve and Biodiversity of south of the Orinoco and Amazon. However, the Maduro government does not recognize this legislative body as legitimate, instead recognizing another National Assembly established following the 2020 election, which was widely considered to be fraudulent.
Because of the lack of governmental accountability for environmental management, civil society plays an important role in maintaining conservation in Venezuela. However, government hostility toward non-governmental organizations (NGOs) over the last 20 years has led most of these international organizations to withdraw from the country. Meanwhile, local organizations suffer from illegal government overreach (e.g., restrictions on receiving international financing and registering new organizations).

**Orinoco Mining Arc**

Venezuela is rich in valuable metals and minerals, including gold, diamonds, iron, and bauxite. Starting in the early 2000s, extraction of these resources was governed by a relatively robust mining policy. This changed around 2015 as the government moved away from oil revenues and established political and economic control over the mining sector, unsustainably exploiting the country’s resources for short-term gain (particularly gold, which the regime sells illegally). In 2016, the Orinoco Mining Arc was decreed, designating 12 percent of the country for extraction of mineral resources under government and military control.

Many groups, including the country’s legitimate National Assembly, have decried the Orinoco Mining Arc policy as violating human and labor rights, environmental law, and the Venezuelan Constitution. This policy is defined by minimal enforcement of environmental regulations, a lack of consultation with local communities, brutal working conditions, illegal economies and violence, and a lack of public services, food, and medicine. Its environmental impacts include hundreds of kilometers of rivers contaminated by mercury from alluvial gold mining and more than 2,300 km² of deforestation since 2015 (more than 3.4 percent of the area’s forest), including in protected areas.

The social impacts are also significant. Nearly all of the 1.7 million inhabitants of Bolívar State live within the Orinoco Mining Arc. Conflicts over control of illegal mining and other activities carried out by both non-state armed groups and Venezuela’s own security forces have made it one of the most violent regions in the country. The illicit economy in the Orinoco Mining Arc extends beyond mining to trafficking of drugs and arms, labor and sexual exploitation, and extortion. The violence resulting from these economies includes more than 38 massacres and 426 extrajudicial executions carried out by state security forces between 2019 and 2020. Also of note are the terrible living conditions in the Mining Arc, including a lack of potable water, poor sanitation, severe power cuts, and limited health care, and a proliferation of diseases. Venezuela accounts for 70 percent of the continent’s malaria deaths, with more than 400,000 annual cases, due in large part to the favorable mosquito habitat created by illegal gold mining.

**Indigenous Peoples**

Indigenous groups account for around 2.8 percent of Venezuela’s population, with at least 52 distinct nations speaking more than 34 languages. Most of this population (61 percent) is concentrated in Zulia State in the eastern part of the country and the Amazon region, where Indigenous Peoples have the highest density relative to total population.

Indigenous Peoples in Venezuela have a range of livelihoods, including agriculture, non-timber forest product extraction, handicraft production, artisanal mining, public-sector employment, and public welfare enrollment. Under President Hugo Chávez (1999–2013), reliance on traditional livelihoods declined in favor of greater dependence on the government for basic goods and services, employment, income, inexpensive food, and free medicine. The economic crisis Nicolás Maduro (2013–present) has presided over has decimated these benefits, driving many Indigenous Peoples to take up illegal mining or migrate.
The shrinking presence of the state has also left Indigenous Peoples more vulnerable to external threats to their land, safety, and health, especially from armed criminal groups, some of which are widely considered to be supported by or allied with the Venezuelan military.

Despite an impressive framework of laws and institutions ostensibly safeguarding the rights and privileges of Venezuela’s Indigenous Peoples, there is a wide gap between policy and practice. This is evidenced by a lack of land tenure (e.g., by 2014, only around 12 percent of Indigenous communities held titles to their lands) and a failure of policies claiming to preserve Indigenous languages. Despite promising programs to improve Indigenous health care, many have not benefited from them and in recent years, Indigenous health has deteriorated dramatically due to an increase in exposure to mining and the general collapse of the Venezuelan public health system, including logistical support for traveling in and out of Indigenous territories. Indigenous populations are also particularly impacted by malaria epidemics south of the Orinoco.

Overall, Indigenous Peoples in Venezuela suffer a multitude of threats from outsiders seeking to exploit them and the natural resources of their lands. This analysis identifies five major interrelated threats to Indigenous populations and cultures, biodiversity, and ecosystem services south of the Orinoco. These include extractivism, land insecurity, health threats, violence, and biocultural assimilation.

**Oil Spills**

Venezuela’s marine ecosystems include large stretches of mangrove forests, sandy beaches, and coral reefs, which are the habitat for over 3,400 recorded marine species. Oil spills are the greatest threat to these ecosystems, followed by discharge from rivers and fishing. In recent years, oil spills have spiked due to a combination of contributing factors, including a lack of maintenance of deteriorating oil installations, scarcity of qualified personnel, an inoperative National Contingency Plan, and a lack of regulators independent from PDVSA and the state. The close proximity of much of Venezuela’s oil infrastructure to protected areas exacerbates the threat posed by oil spills.

Prior to 2000, PDVSA maintained its facilities and operated according to strict safety and environmental protocols. Highly qualified technical and managerial personnel ran the company and its equipment was state-of-the-art. An effective National Contingency Plan was followed when spills occurred. Today’s PDVSA bears little resemblance to the pre-2000 company and oil spills are one of the clearest illustrations of this change.

According to PDVSA’s most recent report on oil spills, from 2010–2016 there were nearly 47,000 events, accounting for more than 850,000 barrels of spilled oil. Of these, more than 230,000 barrels were in bodies of water, affecting aquatic ecosystems, the fishing industry, and the health of nearby populations. Since 2015, satellite images have detected spills in Lake Maracaibo, the Gulf of Venezuela, and El Palito refinery, where a huge spill of approximately 26,000 barrels took place in 2020. Lake Maracaibo experiences a steady stream of spills from its hundreds of platforms and thousands of wells and kilometers of pipelines. PDVSA has done little to recognize recent spills or reverse environmental damage. Interviews with 16 people associated with the oil industry suggest the socioeconomic and environmental scope of the spills have increased over the past five years, during which PDVSA has not published data.

**Threats to Biodiversity and Tropical Forests**

The analysis team identified and classified multiple threats to Venezuela’s biodiversity and tropical forests. Among these are mining of gold and other minerals; agricultural expansion; forest fires caused by the
clearing of land for agriculture and cattle; unplanned urban growth, including roads and other linear infrastructure; harvesting of firewood in response to gas shortages; poaching and wildlife trafficking; and climate change.

Also identified were threats to Indigenous Peoples, whose livelihoods are closely linked to the health of Venezuela’s ecosystems. These include extractivism, land insecurity, poor health conditions, violence, and biocultural assimilation.

Oil spills pose a specific threat in Venezuela, particularly to marine ecosystems. This analysis identifies the key drivers of oil spills in the country as a lack of maintenance of oil installations, qualified technical and managerial personnel, and independent regulatory agencies, as well as an inoperative National Contingency Plan. These things are compounded by oil leaks from an obsolete vehicle fleet, poor management of used vehicle oil, oil spills from Trinidad and Colombia, fuel spills from oil and non-oil marine vessels, and fuel leaks at service stations.

This analysis found the sociopolitical and economic drivers of the threats to Venezuela’s biodiversity include a lack of rule of law, fragile administration of environmental policy, permissive public policies related to extractivism, a financial crisis rooted in the collapse of the oil industry, humanitarian crisis an the proliferation of human rights abuses, mass emigration, and government corruption.

**Actions**

The analysis team identified actions to address the identified threats and drivers. Most actions involve civil society and are defined as viable interventions that can occur in the current context with little or no support from the Maduro regime.

Despite the absence of a USAID/Venezuela Mission or explicit Agency environment programming in Venezuela, this analysis identifies several areas of potential overlap between the work of the Venezuela Operating Unit and the report recommendations. These include defending land rights, especially for Indigenous and local communities; supporting civil society in advancing conservation goals and protecting biodiversity; improving Venezuela’s environmental legal framework and employing large-scale management planning that supports conservation goals; and supporting independent media and civil society in documenting and reporting on the environmental crimes and other threats destroying Venezuela’s forests and biodiversity.

**Recommendations**

Despite the monumental challenges facing Venezuela’s biodiversity, there is hope for conservation work in Venezuela. Much work is already underway by Indigenous and local communities, researchers, social change agents, and environmental champions, all of which USAID can partner with and support. The environmental and social value of the country’s tremendous biodiversity make this difficult work well-worth while.
This 118/119 Analysis provides the following recommendations and actions to conserve and advance the sustainable management of biodiversity and tropical forests in Venezuela:

**Recommendation 1: Increase transparency and information about biodiversity threats**  
Action 1: Establish threat observatories (data collection, citizen advocacy, and monitoring)  
Action 2: Support independent media and journalism  
Action 3: Establish communication campaigns (local to international)

**Recommendation 2: Improve natural resource management and local livelihoods**  
Action 1: Establish conservation enterprises  
Action 2: Promote alternative and reliable sources of energy

**Recommendation 3: Support landscape-level conservation**  
Action 1: Support Indigenous land titling and conservation  
Action 2: Establish a network of private and community conservation areas and local forest guardians to protect critical ecosystems  
Action 3: Support restoration and reforestation efforts at the community level

**Recommendation 4: Empower local stakeholders to improve their ability to safeguard biodiversity and protect tropical ecosystems**  
Action 1: Strengthen civil society  
Action 2: Strengthen universities and research

**Recommendation 5: Improve health and basic services in remote communities**  
Action 1: Improve access to health in remote communities  
Action 2: Improve access to internet, clean water, and clean energy

**Recommendation 6: Improve the rule of law through civil society action**

Specific recommendations for protection of the rights of Indigenous Peoples include Indigenous land-rights vindication, health care improvement, security restoration, economic alternatives to predatory extractivism, cultural conservation, and ethno-cultural education.

Finally, given its unique context, this analysis provides several general considerations for working in Venezuela, including work with discretion; invest in local partnerships, pursuing long-term changes on a small scale; be flexible with financing strategies and methods; and ensure donors and implementing partners working in Venezuela are knowledgeable about the realities of the country’s current situation.
1. INTRODUCTION

1.1. PURPOSE

The primary purpose of this analysis is to provide the Venezuelan Operating Unit with updated information on the status of Venezuela’s tropical forest and biodiversity in compliance with Sections 118 and 119 of the Foreign Assistance Act (FAA) of 1961. Additionally, the analysis has the following objectives:

1. Describe the current status of Venezuela’s tropical forests and biodiversity, including emerging issues, threats, and trends.
2. Provide updated information and analysis on Venezuela’s oil spills and the Orinoco Mining Arc and their socio-ecological impacts.
3. Describe Venezuela’s Indigenous Peoples current status in relationship to biodiversity degradation and other threats to the environment.
4. Identify actions necessary to conserve tropical forests and biodiversity and the extent to which the Mission is supporting such actions.
5. Develop recommendations to guide the Venezuela Operating Unit in developing informed conservation strategies.
As this is the first 118/119 Analysis for Venezuela, its development relied on the synthesis and analysis of existing information, interviews with key stakeholders, and the generation of original primary data, which was necessary because official data was unavailable, outdated, or skewed by the Maduro government.

1.2. USAID PROGRAM DESCRIPTION

At the time of this analysis, Venezuela is a non-presence country for the United States Agency for International Development (USAID). Its programming currently focuses on democracy, human rights, and governance and is managed by the Bureau for Latin America and the Caribbean (LAC) in Washington, D.C.

1.3. METHODOLOGY

This report was developed in three phases: (1) bringing together a team of Venezuelan experts; (2) documenting, generating, and analyzing data; and (3) working with the team to broadly identify the threats, drivers, and actions necessary to reduce pressures on forests and biodiversity in Venezuela. The following is a summary of actions carried out in the second and third phases:

- **Literature review:** The analysis team searched all online information using Google, online library collections, and official government websites. The team consulted a total of 1,302 references consisting mainly of scientific articles, technical reports, degree theses, seminars, and opinion articles.

- **Interviews:** A series of structured and open-ended surveys were designed and conducted to learn about the current situation in relation to the management of protected areas, evidence of and response to oil spills, the condition of Indigenous Peoples, and the current status of the environmental legal framework. The team consulted 51 Venezuelan stakeholders, including subject matter specialists, Indigenous Peoples, and retired and serving civil servants.

- **Spatial analysis:** There is a dearth of current information on environmental issues in Venezuela. To obtain updated data on tropical forest loss and make a preliminary assessment of the impact of oil spills on marine-coastal ecosystems, the analysis team carried out spatial analyses based on the availability of remote sensors and free satellite imagery platforms. These data are novel and not publicly available because the team of local experts conducted this research for the purpose of this report. A summary of these methods of these analyses follows:

  - **Tropical forest loss:** The team carried out a spatial-temporal analysis using free remote sensing tools to calculate forest loss. Emphasis was placed on forest loss, and the types of anthropic threats that affect forest cover, including infrastructure, mining, and agriculture. The team analyzed the results at the bioregional, ecosystems, and protected-areas levels.

  - **Oil spills:** The team collected satellite images showing oil spills at oil facilities located in the coastal marine zone and in Maracaibo Lake. Much of this evidence was confirmed by photographs, written press reports, and social networks.
2. REGION/COUNTRY CONTEXT
2.1. LOCATION AND REGION/COUNTRY DEVELOPMENT CONTEXT

Venezuela is located in the north of South America in the equatorial belt, a privileged geographical position among the Caribbean, Atlantic, Andes, Guiana Shield, and Amazon. According to the Constitution of 1999, the Bolivarian Republic of Venezuela is a federal state, made up of the Capital District, twenty-three states, an insular territory, and more than 311 federal dependencies1 (Figure 1).

![Map of Venezuela, State Boundaries and Major Rivers](image)

**Figure 1.** Map of Venezuela, State Boundaries and Major Rivers.

The country’s current population is approximately 28 million,2 4 million less than projected for June 2021, and maintains a population density similar to 2010. Venezuela is the only Latin American country with a decrease in population in the last decade. This atypical population pattern is a consequence of massive emigration, with more than 6 million people emigrating from Venezuela between 2015 and 2020, and, to a lesser extent, increased infant mortality and decreased life expectancy.3 The central northern coastal and Andean regions are the most populated regions, with more than 70 percent of the population living in cities. Venezuela’s Indigenous communities are culturally rich, though they account for just 2.8 percent of the total population.4 There are 52 recognized Indigenous groups, 27 of them located south of the Orinoco and many in isolation or initial contact.

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4 República Bolivariana de Venezuela, Resultados Básicos sobre Población y Viviendas 2011 de la República Bolivariana de Venezuela, y algunos indicadores sociodemográficos básicos, a escala nacional y por entidad (Venezuela: Instituto Nacional de Estadística, 2011).
Venezuela was characterized as an oil rentier country until the worldwide fall of crude oil prices in 2009 and the disinvestment and dismantling of Petroleos de Venezuela SA (PDVSA) following its transformation into a political instrument by the country’s executive power. For many years, oil revenues allowed for strategic investments in the environment, national infrastructure projects, electric power, incentives for quality education, and research. These activities received international recognition and led to territorial planning and land-use regulation projects that ensured the sustainable management of natural resources for many years. Simultaneously, from the 1970s through the 1990s, oil revenues financed multiple projects to measure biodiversity, promote land management planning, and protect large forested areas through state policies and minimal human intervention. This work was focused in the states of Amazonas, Delta Amacuro, and Bolívar (48 percent of the national territory), all of which are known for their scenic beauty and cultural wealth.

In the last 20 years, the combination of Venezuela’s weakened government systems, economic crisis, centralization of all government functions and resources, loss of institutional independence, and constitutional breakdown, have resulted in serious social and environmental consequences. At a social level, there is an extraordinary increase in poverty and inequality; intermittent access to public services, such as water, gas, and electricity; and reduced availability of hospital equipment. On the environment side, the loss of institutions means organizations are not there to follow up on threats and to demand mitigation, compensation, or restoration of affected areas. Similarly, most environment donors have withdrawn from the country, leaving a significant gap in funding for biodiversity conservation initiatives. These gaps in organizational action and funding are made worse by the lack of economic resources, internet access, and the university crisis, which has led to a decline in research, understanding of ecological processes, and decision-making based on the best available scientific evidence. For three decades, from the 1970s through the 1990s, Venezuela was considered a leader in Latin America in the environmental field. Today, its investment in the environment is less than 0.1 percent of the gross domestic product (GDP). This is a significant change for the nation that developed the region’s first Ministry for the Environment, promoted international agreements, and developed fundamentals in wildlife management. Venezuela has gone from producing almost 5 percent of all scientific research in Latin America at the end of the 1990s to producing less than 1 percent of scientific research in Latin America in 2018. Other evidence of the research and education crisis in Venezuela are the salaries of university professors and the mass exodus of researchers. In the last 20 years, estimates suggest 2,100 researchers have left the country leaving classrooms and labs without the students and professors needed to conduct research. Additionally,
the highest university professor salary in Venezuela today is around $40 per month, a decrease of 99.5 percent compared to 2001. For perspective, this wage would cover about 11 percent of a basic bag of groceries in Venezuela’s 2021 economy.

2.2. BIOPHYSICAL SETTING

Venezuela has a total surface area of 916,445 square kilometers (km²) and a maritime space of 710,600 km² where the country assumes jurisdiction over the exploration and exploitation of marine resources. The country is characterized by its geographic diversity, from deserts to glaciers to various types of tropical forests and grasslands there are contrasting elevations formed by its three mountain ranges, the Andean, Coastal, and Guiana Shield, the latter being one of Earth’s oldest geological formations. Additionally, it has a wide territorial sea, with a coastline that extends for 5,046 km, where the marine-coastal ecosystems add to the heterogeneity of landscapes and the richness of species. This medley of landscapes makes Venezuela one of the ten most biologically diverse countries in the world, the fifth most biologically diverse country in South America, and home to a large number of endemic species.17,18

The climate in Venezuela is generally warm and rainy and is known for its trade winds from the northeast and southeast. There are two well-defined climatic periods that include a rainy season between May and September and a dry season between October and April. The average daily temperature ranges from 0°C, mainly in the Andean mountains, to 28°C. Rainfall varies between 400 and 4,000 millimeters per year in the south of the country.

Water resources are one of Venezuela’s main assets, however, its water use is complex and costly due to the unequal distribution of the resource throughout the country. The country’s Orinoco River is the fourth-longest in South America and third-largest in the world. The river flows into a wide delta toward the Atlantic Ocean and divides the country longitudinally in a proportional way.

Venezuela has more than 100 hydroelectric dams. The country’s largest dams were built in Guri, Caruachi, and Macag, on the Caroni River, the main tributary of the Orinoco. These dams generate 70 percent of the country’s electricity, with a hydroelectric potential of more than 17,000 megawatts.19 The Guri dam is one of the largest in the world.

3. STATUS OF THE COUNTRY’S BIODIVERSITY AND TROPICAL FORESTS
3.1. MAJOR ECOSYSTEM TYPES AND STATUS

3.1.1 Bioregions of Venezuela

In Venezuela there are 26 terrestrial ecoregions, according to the classification of the World Wildlife Fund (WWF). This differs slightly from the Ministry of Ecosocialism classification of bioregions, which it uses for territorial planning and environmental management. According to this system, Venezuela has 15 bioregions. Each bioregion has a distinctive geological history with similar natural regions and topography. For practicality purposes, this 118/119 Analysis divides Venezuela into north of the Orinoco and south of the Orinoco. The bioregions also refer to this geographical division (see Table 1 and Figure 2).

**TABLE 1. Bioregions of North and South Orinoco**

<table>
<thead>
<tr>
<th>REGION</th>
<th>NORTH OF THE ORINOCO</th>
<th>SOUTH OF THE ORINOCO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coastal-Territorial</td>
<td>Mountainous Region North of the Orinoco</td>
</tr>
<tr>
<td>BIOREGION</td>
<td></td>
<td>Wetland Areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mountainous Region and Forests South of the Orinoco</td>
</tr>
<tr>
<td>Insular</td>
<td>The Andes–Perijá</td>
<td>Depression of Lake Maracaibo, a region of numerous endemisms</td>
</tr>
<tr>
<td>Marine</td>
<td>Coastal Range–Eastern</td>
<td>The Plains</td>
</tr>
<tr>
<td>Coastal–Territorial</td>
<td>Coastal Range–Western</td>
<td>Deltaic plain of the Orinoco and San Juan rivers</td>
</tr>
<tr>
<td>Coastal–Maritime</td>
<td>The Andes</td>
<td>Floodplains of the upper and middle Orinoco</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The Lara-Falcon Hills System</td>
</tr>
</tbody>
</table>


3.1.2 Ecosystems of Venezuela

Within Venezuela’s 15 bioregions, there are 14 terrestrial and 15 freshwater ecosystems, following the International Union for Conservation of Nature (IUCN) ecosystem typology.\textsuperscript{22} The following is a description of the most threatened terrestrial ecosystems, including their current forest cover; those ecosystems with an important role in the provision of environmental services such as water, food, and productive activities; and where most of the population is concentrated.

1. **Tropical forests**: Tropical forests extend between 100 and 3,000 meters in altitude and cover 39.8 percent of the country. Within this large category of tropical forests are dry or seasonal forests, evergreen forests, cloud forests, and moorlands (paramo) forests.
   - **Tropical dry forests**: These forests cover 4.2 percent of the territory and include those ecosystems with distinct periods of rain and drought. Deciduous tree species dominate this

ecosystem, along with cacti and xerophytic species adapted to water stress. The greatest distribution of these forests is found north of the Orinoco, occupying part of the lowlands. South of the Orinoco, its distribution is limited to the north of the state of Bolivar. Tropical dry forests represent the most threatened ecosystem in the country, with 10 percent of their original cover remaining. Only 5 percent of this remnant is under some form of official protection. Its high vulnerability is generally associated with urban growth and expansion, grazing, and agricultural activity.23

- **Evergreen forests:** These forests are highly productive ecosystems that cover 31.5 percent of the national territory. They are dense, stratified evergreen forests that receive abundant rainfall throughout the year. They have a complex trophic network and a high species richness. North of the Orinoco, they are heavily disturbed, mainly in the states of Apure, Aragua, Lara, Táchira, and Zulia, and are now secondary forests with a reduced diversity of species. In contrast, the forests south of the Orinoco cover thousands of nearly continuous square kilometers (30 percent of the national territory), forming part of the Amazon biogeographic region. Human intervention is scarce and restricted to Indigenous settlements with low population density, though there are areas exploited by mining. Throughout the states of Amazonas, Bolivar, and Delta Amacuro, these forests differ in their composition and have the highest rates of rich flora species per hectare. To the north of the Orinoco, urban, agricultural, forestry, and industrial development have modified the landscape. In the last 10 years, the once-large extensions of forest with little intervention have been degraded by gold and diamond mining, and logging.24

- **Cloud Forests:** These forests are humid evergreen mountain forests with abundant rainfall, high relative humidity, and low radiation, located in the condensation zone of the orographic clouds (600–3,000 meters above sea level). They cover about 0.2 percent of the country, scattered throughout the mountain systems both north and south of the Orinoco. They have a high richness of epiphytes and trees, as well as a complex structure and trophic network. They are the most isolated forests and therefore have high levels of endemism, even when comparing the composition of species among the tepuyes (mesas). Historically, they have been the least-disturbed forests in Venezuela, with most found within the system of protected areas. The main threats are extensive cattle ranching and the effects of climate change on the altitude of the orographic condensation level, decreased humidity, and increased temperature.25

2. **Moorlands (paramo):** These are ecosystems that transition between the forest and the perpetual snow line. They are characterized by extreme environmental conditions, strong sunshine, and daily temperature variations of more than 15°C. The typical plant formations of these ecosystems are shrublands, grasslands, and rosettes, the latter being the best studied.26 They are concentrated in the high mountain bioregions (above 2,500 meters) and cover less than 1 percent of the national territory. The landscape is characterized by a mosaic of highly diverse vegetation formations, highlighting the need for conservation and management strategies, with participatory zoning of the territory and public awareness and environmental education.27 The main threats are potato farming and other commercial

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crops that use many agrochemicals, contaminating and degrading the soil, and cattle ranching that extends beyond the agricultural land. Climate change is a more recent, but serious threat to Venezuela. The country runs the risk of being the first Andean nation to run out of glaciers, which will significantly impact the dynamics of moorland ecosystems.  

3. Grasslands and savannas: These are lowland or highland ecosystems with a seasonal climate in semi-arid environments where non-woody plant species predominate. In Venezuela, they cover 8 percent of the country and can be differentiated between savannas, tepuyan grasslands, coastal grasslands, and swamp grasslands, according to the predominant floristic component, their distribution, and certain ecological restrictions.

4. Xerophytic shrublands or scrublands: These are semi-arid ecosystems characterized by water deficit, substrate permeability, low retention capacity, and poorly developed soil profile. The thorny plant formations are dominated by legumes and cacti. They cover 4.5 percent of the national territory and are divided into two groups. First, are the low-altitude scrublands associated mainly with the coastline, with some in depression zones such as Lake Maracaibo and the Lara-Falcón Hills System. Second, are the high-altitude scrublands in the Andean ecoregion that can be found at up to 2,600 meters altitude. In the low altitudes, these scrublands are threatened by human settlements, timber extraction for firewood, and goat grazing.

3.2. STATUS OF TROPICAL FORESTS

Information related to forest cover in Venezuela varies and is outdated. The last national study of vegetation cover was carried out by Huber and Oliveira in 2010. More recently, organizations, including Provita and SOS Orinoco, carried out studies focusing on specific regions of the country, mainly south of the Orinoco. In view of the need to update recent statistics on forest loss, the team of consultants conducted an analysis based on available global products such as Global Forest Change, GlobeLand 30, and MapBiomas Amazon, which allow for easy comparison and updating of estimates.

The 417,000 km² forest area of Venezuela has steadily decreased since 2000 at an average rate of 616 km² per year. To better understand the causes and patterns of deforestation in the country, this analysis looked at the regions north and south of the Orinoco. Figure 3 shows the accumulated forest loss over the last 20 years in these two macro-regions.

Historically, the ecosystems north of the Orinoco have been the most affected by the expansion of agricultural and urban activities, direct and indirect impacts of oil extraction, and unsustainable hunting for food and skins. The estimated loss of dry forests in this region is 90 percent of the original historical distribution. In the last 20 years, the region north of Orinoco has lost 5,436 km² of forest. The analysis...
carried out for this report shows that between 2000 and 2015, the bioregions associated with the north of Orinoco generated Venezuela’s greatest average forest loss per year. However, since 2015, this pattern has changed with greater loss of Amazonian forests in the region south of the Orinoco caused by agricultural and mining activities (see Figure 3).


South of the Orinoco, forests represent 76 percent of the region. In contrast to the north of the Orinoco, the south of the Orinoco has a low population density (more than 24 inhabitants/km²), with the highest density of Indigenous populations and large extensions of forests and other ecosystems under a special protection regime. In the last 20 years, the area south of the Orinoco has lost 6,872 km² of forest, this data aligns with the Provita and SOS Orinoco studies.34 The main historical causes of deforestation are cattle ranching and agriculture, followed by forestry and mining. However, since 2016—the year the Mining Arc was decreed (see Section 5)—deforestation in the region has increased significantly, making it the area with the greatest forest loss (5,201 km²). This matches SOS Orinoco35 estimates, showing mining activity south of the Orinoco grew exponentially from 2015–2020, affecting protected areas and watersheds. For example, Yapacana National Park, the most devastated of Venezuela’s 44 national parks, lost more than 20.3 km² to illegal gold mining. The Caroní River basin, one of the main tributaries of the Orinoco, has been affected along almost its entire length, including the savannas and tepuyes protected within Canaima National Park, a United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Site.

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World Heritage site. This analysis also aligns with the most recent WWF study (2021),\textsuperscript{36} which identifies several deforestation fronts in the Venezuelan Amazon, placing the country among the five Latin American countries with the highest deforestation rates, mainly driven by subsistence agriculture, large-scale agriculture, and mining.

\textbf{3.3. SPECIES DIVERSITY AND STATUS}

Venezuela is among the ten most biodiverse countries in the world and ranks sixth in plant richness, seventh with the largest number of amphibians, eighth in number of mammal species, and sixth in bird species.\textsuperscript{37} Despite this, many areas remain unexplored, leaving knowledge of Venezuela's biodiversity incomplete.\textsuperscript{38}

According to the 2015 Red Book of Venezuelan Fauna, of the 4,000 species evaluated, 289 are threatened with extinction, two are extinct (\textit{Atelopus vogli}, the yellow harlequin toad of Maracay, and \textit{Lithogenes valencia}, the naked corroncho of Lake Valencia), and 256 are considered near-threatened. The \textit{Red Book of Venezuelan Flora} evaluated 6,121 species, of which 559 are threatened and five are extinct. For both fauna and flora, habitat loss is the main threat, followed by legal and illegal commercial exploitation.\textsuperscript{39}

\begin{table}
\centering
\caption{Summary of Flora and Fauna}
\begin{tabular}{|c|c|c|c|c|}
\hline
Reptiles & Mammals & Algae & Gymnosperms & Invertebrates \\
341 & 390 & 550 & 29 & 16,000 \\
\hline
Birds & Amphibians & Fish & Angiosperms & Fungi \\
1,384 & 360 & 2,068 & 14,636 & 3,596 \\
\hline
\end{tabular}
\end{table}

The country's National Biodiversity Office does not have updated biodiversity lists or assessments of the conservation status of flora and fauna. Additionally, the country has only published one edition of the National Biological Diversity Strategy, and this was in 2005. Due to the lack of information, the team of consultants did a systematic literature review to have a comprehensive list and understanding of the

\textsuperscript{38} Vílisa Morón Zambrano, “Situación actual de los bosques y la biodiversidad en Venezuela: Un reflejo de la gestión ambiental en el país” (Seminario de maestría, departamento de estudios ambientales, Universidad Simón Bolívar, 2015), 12.
current status of Venezuela's biodiversity. Table 2 shows a summary of flora and fauna identified through this desktop analysis.

3.4. GENETIC DIVERSITY

Research and documentation of agrobiodiversity in Venezuela is still scarce. It is important to promote this type of study, because it is not only part of the diversity of Venezuela but also represents an important strategy to face the effects of climate change and promote food security. Venezuela has many local and commercial varieties for various species of agricultural interest. Among these, some items stand out—for example, cocoa, cassava and legumes, which are mainly maintained by local producers and serve as a genetic base for the establishment of improvement breeding programs.

3.5. STATUS AND MANAGEMENT OF PROTECTED AREAS

Venezuela has a total of 106 protected natural areas divided into five protection categories, which occupy 26.7 percent of the national territory (244,000 km²), both continental and insular: 44 national parks, 44 natural monuments, one wildlife sanctuary, ten wildlife refuges, and seven wildlife reserves (see Figure 4). These five protection categories are comparable to four of the six management categories of the IUCN: national parks (including wildlife sanctuaries), natural monuments, habitat/species management area (including wildlife refuges; depending on its main objective, it can be a wildlife sanctuary), and protected area with managed resources (including wildlife reserves). Natural protected areas are part of a special legal

FIGURE 4. Natural Protected Areas of Venezuela
regime outlined in Venezuela’s Organic Law for Land Management called Protected Areas under Special Administration, that defines 24 management categories. These categories of Protected Areas under Special Administration can be further classified into three generic groups: (1) those that are strictly protective, scientific, educational, and recreational; (2) those with protective purposes through regulated uses; and (3) those with production and geostrategic purposes\(^\text{40}\) (the five types of national protected areas [NPA] mentioned above fall into category 1 and 2). Just over 406 Protected Areas under Special Administration units have been decreed, covering an area of approximately 968,930 km\(^2\) (considering the existing overlap between some of them). Excluding the overlap, these cover 632,756 km\(^2\), representing 68.4 percent of the country’s total area.

Management of protected areas is exercised by the central government. There are no conservation areas managed at the local, communal, or municipal level. The National Parks Institute (INPARQUES) is in charge of the administration of national parks and natural monuments, while the Office for Biological Diversity manages the rest of the areas. Both entities became part of the Ministry of Ecosocialism after the elimination of the Ministry of the Environment in 2014.\(^\text{41,42}\) The governing instrument for Protected Areas under Special Administration, including the NPAs, is the Management and Use Regulations Plan (PORU). This functions as a management plan for each protected area and is the document through which the occupation and use of the territory is organized and administered. However, only 31 of the 106 NPAs have their PORU, leaving more than half of the areas without the fundamental instrument to guarantee their management.

South of the Orinoco are 29 NPAs, which occupy 44.7 percent (110,000 km\(^2\)) of the total area of the country’s NPAs. The remaining 77 NPAs are located in northern Venezuela and cover an area of 134,000 km\(^2\). The expansion of disturbed areas within the NPAs is increasing and forested areas are progressively decreasing. The spatial analysis carried out for this report found that the forest area within the NPAs was 190,000 km\(^2\) in 2000 and reduced to 188,000 km\(^2\) by 2020, representing a loss of 2,000 km\(^2\) or 100 km\(^2\) per year. This analysis found this trend accelerated in the five years from 2015 to 2020, when forest loss averaged about 210 km\(^2\) per year, more than double the rate of loss in the previous 15 years.

The main drivers of forest loss are agricultural expansion, unplanned urban growth, and mining. Of the 106 natural protected areas in Venezuela, 27 (25 percent) have 1 km\(^2\) or more of some type of agricultural or livestock activity. The national parks are the most affected by these threats, accounting for 74 percent of all agricultural and livestock activities that take place within the country’s protected areas. Illegal settlements and constructions within Venezuela’s protected areas have also grown steadily in recent years, especially in the north of the country.

For the year 2020, available data show at least 27 km\(^2\) of areas with illegal settlement and construction development within NPAs. In 2000, there were about 16 km\(^2\). Despite minimal urban development south of the Orinoco compared to the north of the country, in 2020, Canaima National Park was the third protected area with the most illegal and irregular constructions in the entire country, almost doubling in the last five years.

\(^{40}\) “Ley Orgánica para la Ordenación del Territorio,” República de Venezuela, Gaceta Oficial No. 3.238, Extraordinario, del 11 de agosto de 1983, capítulo V, artículo 15, 16, and 17.


South of the Orinoco, the expansion of mining activity in protected areas increased by 1,200 percent over the last 20 years. By 2020, data show almost 40 km² of deforestation due to mining in these areas, with Yapacana National Park (20.3 km²) and Canaima (15.4 km²) the most affected by this activity, accounting for 80 percent of the reported deforestation. In the northwestern part of the country, in the Perijá bioregion, NPAs are also affected by coal extraction.43

This increase in deforestation has not been evaluated or addressed by INPARQUES. It is worth noting that most of the national parks where forest loss has increased, whether due to mining or illegal construction, have a management plan or PORU that clearly establishes any infrastructure is limited to the original settlers of the protected area. Similarly, there is also zoning for native villages and tourism developments. Most of these constructions have occurred without following any guidelines. Although in some cases there are permits from the environmental authorities, neither the environmental impact studies nor the mitigation and compensation actions that must be carried out are public or in place.44,45,46

Likewise, in the Andes-Perijá bioregion (Zulia State) and south of the Orinoco, the NPAs are also vulnerable to the historical and continuous conflict of use that exists in relation to land tenure. In the Amazon, the dispute occurs between the Indigenous Peoples and the Venezuelan and Colombian irregular paramilitary groups that hold the power of the mining activity,47 while in Perijá (Zulia State) the conflict is between cattle ranchers and Indigenous Peoples.48 In addition, these regions (Southern Orinoco and Zulia State, Sierra de Perijá) have the largest Indigenous population in the country, and there is a great delay in the formal recognition of the ancestral territories of these peoples, many of which overlap with the NPAs. The links and ancestral practices of lesser environmental impact that characterize the Indigenous Peoples in the region—and that have made them defenders of the territory and key actors in the effective management of protected areas—are not being strengthened or improved.49

The system of protected areas is less representative in the lowlands, with the Lara-Falcón Hills System, the Plains, and the Coastal-Maritime bioregions having less than 10 percent of their territory protected. Both the Lara-Falcón Hills System and the Plains have been historically affected by agricultural and urban expansion, concentrating the greatest loss of dry forests in the country, and are currently the bioregions most affected by fires, where the vulnerability of Terepaima National Park stands out.50 Meanwhile, the protected areas of the Coastal-Maritime bioregion are increasingly vulnerable to oil spills51 and to state policies that promote high-impact tourism and the construction of private housing developments that fail to comply with established regulations.52

45 “El hachazo que partirá el corazón de Morrocoy,” ArmandoInfo, consultado el 17 de Enero del 2022, https://armando.info/hachazo-que-partira-el-corazon-de-morrocoy/.
Currently, Venezuela’s system of protected areas is characterized by ineffective management due to an insufficient budget, the weakness of environmental institutions in the face of national policies that prey on the environment, and the lack of personnel and equipment available to comply with the guarding and control obligations. The existence of two administrative entities (INPARQUES and MINEC’s Biodiversity Office) creates differences in conservation policies, administrative and legal autonomy, and conflict resolution strategies. In addition, it is economically unfeasible to manage 20 percent of the territory with less than 1 percent of the GDP\textsuperscript{53} and even more so if 85 percent of this budget is for labor costs.\textsuperscript{54} The number of park rangers is insufficient, and those in place are poorly trained and paid and lack the infrastructure, vehicles, and equipment adequately patrol protected areas day and night, attend to tourists, and address illegal mining, drug trafficking, trespassing, hunting, and flora extraction in coordination with the security authorities.\textsuperscript{55,56,57,58}

### 3.6. STATUS AND MANAGEMENT OF KEY NATURAL RESOURCES OUTSIDE PROTECTED AREAS

Outside the Protected Areas under Special Administration, natural resource management is governed by the ordinary regime, which depends mainly on the administration of the National Environmental Authority (ANA) and should follow the territorial planning outlined in the State Plans for Territorial Planning. Few states in Venezuela have approved plans and most of them were approved at the end of the last century. Due to the dismantling of the ANA, environmental management outside the Protected Areas under Special Administration is low and ineffective, because land use planning is not complied with and there is no monitoring or evaluation of activities sensitive to environmental degradation. Law enforcement levels are extremely low, the environmental guard or police force is insufficient, and officials are corrupt.\textsuperscript{59} In the forests south of the Orinoco, deforestation outside protected areas is high and associated with agricultural and mining activities.\textsuperscript{60,61}

### 3.7. OVERVIEW OF ECOSYSTEM SERVICES

Venezuela is a country rich in natural resources and biodiversity. Its ecosystems and biota are of equal or greater importance, from the point of view of ecosystem services, than those of any other neighboring country in the Neotropics. Twenty-six percent of the country (not counting the territorial sea) is under protected areas, and 80 percent of the drinking water consumed by Venezuelans is produced in these spaces.\textsuperscript{62} Venezuela has the largest water reserve in Iberoamerica, after Brazil, due to its mighty rivers.\textsuperscript{63} The Caroni River alone is responsible for 70 percent of the electricity generated in the country.\textsuperscript{64} It is estimated that the tropical forests south of the Orinoco store between 4 and 7 petagrams of carbon,

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\textsuperscript{59} Morón-Zambrano, 2015
\textsuperscript{60} Pacheco 2011 y Madil y col. 2013
\textsuperscript{61} Rojas-Lopez, 2006
\textsuperscript{62} Zoyla Martínez, Situación de los recursos hídricos en Venezuela (Venezuela: Caracas, Asociación Venezolana para el Agua, 2011), 53.
and their carbon sequestration is surely one of the main environmental services tropical forests provide. More than 50 percent of Venezuela's total forests have been identified as having favorable characteristics for the production of forest goods. However, in the last 50 years, the forestry industry has not exceeded 1 percent as a contribution to the total GDP. In relation to non-timber forest products (NTFPs), such as food, fibers, resins, and wildlife, Venezuela has invested little in gathering accurate information on their production and use, despite their importance as a source of income in local economies. Mangroves and coral reefs protect the marine-coastal line from storms and erosion, serve as breeding and refuge areas for fish that are important both commercially and for the livelihood of communities, and are also major tourist attractions. However, tourism activity has little impact on GDP, which shows little planning and investment. In 2012, estimates show 570,000 tourists entered the country and spent $793 dollars.

Regarding fisheries, some 60 species in total are of commercial and subsistence interest. Marine fishing accounts for 88 percent of production and the rest is continental. Industrial marine fishing extracts more than 45,000 tons annually, artisanal marine fishing 166,000 tons, and subsistence fishing at least 5,000 tons. Inland artisanal fishing is estimated between 16,000 and 60,000 tons.

Despite the country's great potential, the recording, quantification, valuation, and appreciation of ecosystem services is not national policy. Although payments for environmental services (PES) is rooted in the current legislation, it also has weaknesses and gaps related to the centralist vision of the government and its rejection of market mechanisms. There seems to be a political obstacle and lack of regulatory development of the mechanisms that would make PES feasible. In general, there are no regulations or institutions that allow the application of PES and transparent mechanisms that could reduce biodiversity loss. In fact, there is no legal framework that regulates these services and no projects that take advantage of this great wealth.

70 Blanca Bottini and Antonio Machado, “Parte del Informe (FAO) sobre el estado de las pesquerías en Venezuela, 2021,” (Borrador confidencial).
4. LEGAL FRAMEWORK AFFECTING CONSERVATION
4.1. NATIONAL LAWS, POLICIES, AND STRATEGIES

The 1999 Constitution of Venezuela lays the foundations for a regulatory system for biodiversity conservation and its sustainable use, and for the environmental and renewable natural resources policy. However, the fundamental principles of regulatory and institutional development were achieved in Venezuela prior to its incorporation into the latest constitutional text of 1999 and updated during the Chavez administration.

The country’s environmental policy is based on the principles established in the Constitution, in the Organic Environmental Law of 2006, and in the international conventions or treaties formally contracted as per Article 7. Environmental planning, which conceptually includes biodiversity, is circumscribed to an integrated and hierarchical system of plans, whose fundamental instrument is the National Land Management Plan, complemented by the National Environmental Plan. The latter binds the national, state, and municipal, communal councils, entities and their environmental plans according to Article 26. These plans and parties make up the national system for environmental planning and are fundamental instruments of public management in environmental matters.

Environmental policy is administered through the National Environment Authority (ANA), which falls under Executive Power. ANA, which has changed its name on numerous occasions, formulated the National Strategy for the 2012 Conservation of Biological Diversity, currently undergoing review and updating. ANA, however, has not yet developed the National Environmental Plan stipulated by the Organic Law of the Environment. The National Land Management Plan, a fundamental policy document prepared and approved in 1996, is in the process of being revised. To date, no regional, state, municipal, or local environmental plans are known to have been approved.

Additionally, if analyzed in a comprehensive way, the Constitution contradicts itself as the fundamental principles contained in Articles 127, 128, and 129 related to environmental rights are in direct conflict with Article 307 related to land tenure and “idle lands.” This latter concept, coming from the Agrarian Reform Law (1960) and its successor, the Land and Agrarian Development Law (2005), is used as an argument for the expropriation of private land and the promotion of agricultural production. This has been one of the “underlying causes” for deforestation. Coupled with the climate of corruption and mismanagement of the law, this concept, has generated social conflicts in the western region of the country and loss of forest cover and associated biodiversity. This inconsistency seems to be attenuated by Article 70 of the Forestry Law (2013), which establishes that land where natural forests are located may not be considered idle or uncultivated.

4.2. INTERNATIONAL AGREEMENTS

Venezuela signed and officially published (effectively becoming internal laws of Venezuela) a series of international treaties and agreements related to biodiversity and conservation of tropical forests and species (see Annex B). It is important to note, however, Venezuela is not a signatory to the following relevant international agreements or treaties:

4.3. GOVERNMENT AGENCIES

The Ministry of People’s Power for Ecosocialism (MINEC) is currently the National Environmental Authority. It is structured by two Vice Ministries. The first is the Vice Ministry for Environmental Management, which includes the general directorates of biological diversity, inspection and control of environmental impacts, training for ecosocialism, ecosystem management and conservation policies, forest heritage, climate change adaptation and mitigation, and comprehensive waste management. In general, it is responsible for the hydrographic basins, territorial planning and management, renewable natural resources, environmental quality, and territorial management. Among the six strategic guidelines that govern it, one that stands out is “guaranteeing the conservation and sustainable management of national parks, protected areas, and biodiversity.”

Additionally, the new Vice Ministry for the Preservation of Life and Biodiversity was created in January 2022 in response to climate change, which drives biodiversity loss. According to the decree that created the new Vice Ministry, the measures aimed at conserving and sustainably using biological diversity must focus on climate change adaptation, prevention, and the reduction of its causes and the mitigation of its adverse effects. To comply with international commitments, this Vice Ministry must promote knowledge, innovation, participation, and awareness, as well as plans, programs, and projects aimed at the preservation of ecosystems and the human species in the face of climate change.

Within the structure of the organization chart is the General Directorate of Biological Diversity, which administers matters related to the management and conservation, in situ and ex situ, of wildlife, wild flora and fauna trafficking, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) authority, collections for scientific purposes of fauna and flora, access to genetic resources, and access to carry out activities in protected areas.

According to the decree creating the Ministry of People’s Power for Ecosocialism, the General Directorate of Territorial Environmental Management (now called the General Directorate of Ecosystem Management and Conservation Policies, and attached to the Vice Ministry of Environmental Management) is responsible for issuing guidelines and directives for national environmental policy in terms of territorial

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planning, land use, and environmental management. This particularly affects the Protected Areas under Special Administration, which are the backbone of the country's territorial management strategy and therefore have a key impact on the in situ conservation of biological diversity.

The National Environmental Authority has changed its name since the first Ministry of Environment and Renewable Natural Resources was created in 1976. It was renamed the Ministry of Environment and Natural Resources and later the Ministry of People's Power for the Environment (MINAMB). In the last 20 years, all government ministries use the phrase “people's power” in their formal designations. In 2014, MINAMB was merged with the Ministry for Housing and Habitat and renamed the Ministry for Ecosocialism, Habitat, and Housing. Seven months later, the latter was eliminated, and in 2015 the Ministry for Ecosocialism and Water was created. In 2018, the Ministry for Ecosocialism and Water was split into the Ministry for Ecosocialism (MINEC) and the Ministry for Water Management. The latter focuses primarily on water supply and distribution and has little impact on environmental matters. These changes in name and structure have greatly affected the functioning and development of the National Environmental Authority. All of this has been accompanied by a high turnover, rotation, and recycling of professional staff, as well as massive layoffs and deprofessionalization. In parallel, the collapse of infrastructure and equipment is manifested in a severe lack of equipment and supplies, inadequate budgets, and low salaries paid by the Public Administration.

There are other national authorities of the Executive Power created by law, and although they are supervised by the ministries they are not ministries but are instead autonomous institutes. A fundamental one for biodiversity management in Venezuela is INPARQUES. Created in 1973 by the legislature and reformed in 1978 to guide public policies for the protection and management of the National Parks System.

It is worth noting the Higher Body for the Comprehensive Management of the National System of Parks and Natural Monuments of Venezuela, created in 2014, claims control over the National Parks System and potentially contradicts the Law of INPARQUES (1978). However, this “body” actually functions as a coordinating body in political and financial matters, headed by the Republic President and composed of 16 ministers, the Bolivarian National Guard, and INPARQUES. To date, there is no evidence of its administrative activity. This decree is of lower legal hierarchy than the Law of INPARQUES, so the administrative authority of the system continues to be an autonomous institute.

It is important to highlight that in November 2021, a Commission of the Presidency of the Republic, called the National Committee of the Green Climate Fund, was created as an advisory body to the President, chaired by the Sectoral Vice President for Planning.

The Ministry of Ecological Mining Development, created in 2016, is responsible for ensuring compliance with policy guidelines for the ecological and efficient use and exploitation of mining resources. However,
the environmental administrative management associated with mining, such as the granting of authorization for the appropriation of resources, remains in the hands and responsibility of MINEC.

Other institutions that impact environmental issues in Venezuela at the Executive level include the National Land Institute, the Socialist Institute of Fisheries and Aquaculture, and the Bolivarian National Guard. At the level of the Citizen Power, the following entities exist: Public Prosecutor’s Office, Ombudsman’s Office. In the Legislative Branch, the National Assembly.

The confusion and conflict in the functioning of the Legislative Branch (National Assembly) deserves special attention. On the one hand, there is the National Assembly recognized by the Maduro government and the product of 2020 elections the U.S. Government considers illegitimate. On the other hand, there is the “legitimate” National Assembly elected in 2015, led by the opposition, and recognized by the U.S. Government. This body continues to function, ignoring the 2020 elections. As part of this crisis, the Executive Branch has disregarded the “legitimate” National Assembly since 2017 and ignores the laws it passes. Among these laws are the Organic Law of the Mega Freshwater and Biodiversity Reserve of the Southern Orinoco and the Amazon, which would have important repercussions for biodiversity conservation south of the Orinoco River and were it not in political limbo. This law, once enacted, would reorganize the territory of the south of the country, creating new protected areas and recategorizing others toward biodiversity conservation objectives, increasing protection coverage in the region.

In Venezuela, environmental and biodiversity institutions are based almost exclusively in the national or central power. Very little has been delegated or developed at the municipal level, and even less at the state or regional level (federated states or state governorships), despite the Constitution defining the Venezuelan State as a federal and decentralized one. The municipal environmental competences are mainly restricted to the urban area (environmental quality and sanitation). Hardly any municipality in the country has an organization to deal with environmental issues, and the ones that do focus on only a few variables, such as noise pollution, the management of green areas, tree planting, and public ornamentation. In general, there are no structures, officials, technical capacities, or regulations related to the management of sewage, runoff water, natural spaces, protection of native vegetation, or invasive species. There are some municipalities that play a role in fire management, but only through the Civil Protection system, which is a centralized system of the national government.

4.4. CONSERVATION INITIATIVES AND GAP ANALYSIS

4.4.1 Conservation Initiatives and Civil Society Status

Non-governmental, environmental, and conservationist organizations (NGOs) in Venezuela contributed significantly to environmental management and citizen participation efforts over the last 20 years through the implementation of research, conservation, education, outreach, and sustainable management projects in rural and urban areas.

84 Citizen Power is an additional Power of the government created in the 1999 Constitution (article 136) under President Chavez.
In the early 2000s, there were more NGOs in Venezuela and they maintained a larger number of projects, and even raised funds within the country. Important international NGOs, such as Wildlife Conservation Society, The Nature Conservancy, Conservation International, and WWF, were involved in design, financing, and implementation of conservation projects. Most of these NGOs no longer operate in the country and for those that do, their work has been reduced to small, specific projects.

Since 2002, the government’s animosity toward NGOs, especially international ones, has grown. In response, well-known, local NGOs came together in the Network of Environmental Non-Governmental Organizations of Venezuela (Red ARA), which had at least 32 members. Many of these organizations are still actively maintaining activities, but are struggling to access financing and manage funds due to exchange restrictions and are unable to gain support from official agencies. One surviving group of local NGOs is the Alliance for Climate Action of Venezuela, which reports having 26 participating organizations.

The government’s hostility toward NGOs means these groups are rarely considered in any public discussions of environmental issues. This political polarization has led some NGOs to question the government’s environmental performance and those who tacitly or openly support it, with criticism of the Orinoco Mining Arc and oil spills, in particular; continuing to fuel the government’s animosity toward national NGOs.

Civil society organizations, with interests that extend beyond the environment, report being subjected to controls and audits through unconstitutional and illegal mechanisms that violate international norms for the protection of human rights and fundamental freedoms. Specifically, these behaviors have been associated with the National Office Against Organized Crime and Financing of Terrorism, which is attached to the Ministry of the Interior, Justice, and Peace. Among the restrictions denounced by these organizations are the prohibition on obtaining international financing to defend citizen’s advocacy and the Ministry of Foreign Affairs mandate to audit and inspect agreements between people or legal entities and foreign organizations and to suspend those agreements if they are considered destabilizing. Additionally, it is difficult for NGOs to register official documents (organization minutes, financial statements, etc.) with the Public Registry. Organizations often resort to using “managers” who use informal mechanisms to navigate obstacles, and it is almost impossible to register a new NGO, whether it is a foundation or a non-profit. All together, there is a generalized sense of hostility from the Maduro government towards civil society organizations.

Despite these obstacles, there are still some opportunities to finance NGO projects through multilateral agencies. One example is the Small Grants Program of the Global Environment Facility, which invested $5.7 million between 2010 and 2021, in 209 environmental projects, 99 of which were focused on

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biodiversity. Some foreign governments agencies or embassies also still have small initiatives to support environmental NGOs, as in the case of the United Kingdom, France, the Netherlands, Finland, Germany, Australia, New Zealand, the European Union, and Spain. In terms of opportunities of multilateral funding, the government also obtained resources and participated in projects, particularly through the Amazon Cooperation Treaty and the Global Environment Facility.

### 4.4.2 Gaps in the Legal Framework

The environment legal framework, aimed at protecting and conserving biodiversity, has gaps and needs to be updated in the following areas:

**Climate Change:** Even though Venezuela signed and ratified the Framework Convention on Climate Change, Kyoto Protocol, and Paris Agreement, a special internal law on climate change is needed to develop fundamental principles of the Framework Convention and establish norms to make adaptation and mitigation effective.

**Environmental Services:** Venezuela does not have an adequate or explicit regulatory framework or public policies to take advantage of the benefits ecosystems can provide, or to promote their conservation to ensure the sustainability of those benefits. There is also a lack of regulations to develop and establish payment for ecosystem services, especially in the form of economic and fiscal incentives that promote private and community conservation efforts and contribute to the generation and maintenance of these services.

**Wildlife:** Venezuelan wildlife law has not been adapted or updated since 1970.

**Protected Areas:** Venezuelan domestic legislation has not formally adopted the term “protected area” within the framework of the Convention on Biodiversity. Adopting this term would lead to the development of a true “system” of protected areas, as part of the Protected Areas under Special Administration, with all the management options recommended by IUCN. A law providing such a framework is both desirable and necessary.

**Private Conservation Areas:** For more than 50 years, there are areas where in situ biodiversity conservation has been and continues to be carried out by civil society or private landowners, but these areas are not formally recognized by the state and lack legal security and support. These types of initiatives are becoming increasingly important worldwide, but without laws to protect and promote them, Venezuela is lagging behind.

**National Parks and Natural Monuments:** When a large part of the 1966 Forestry Law of Soils and Waters was abolished, the 2013 Forestry Law was not employed to fill the resulting gaps, leaving national
parks and natural monuments with spotty legal regulation. Currently, the legal anchors for these protected areas are spread across several pieces of guidance, including the Washington Convention, the Constitution of the Republic, and the Organic Law for Territorial Planning. This gap in the legal framework reinforces the need for a regulatory law for the national parks and natural monuments system.

Management Plans and Regulations for the Use of Protected Areas Under Special Administration: A significant proportion of protected areas, 60 percent of national parks, lack this management tool.

Red List of Species: In Venezuela, there are no officially endorsed red lists of species that can be used to better manage biodiversity conservation. In 1996, an official endangered species list was established by decree. Unfortunately, this list, which includes only vertebrates, is outdated and lacks a flexible process for follow-up and updating based on a red list. Ideally, these formalized lists should include not only wildlife species, but invertebrates, flora, and fungi, and have updating processes that don’t require using a static mechanism such as a decree. Design of a faster and more efficient mechanism for updating and maintaining these lists is needed.

Photo: Tamia Souto

5. ORINOCO MINING ARC
5.1. MINING POLITICS AND REALITY SOUTH OF THE ORINOCO AND ITS RELATIONSHIP WITH THE ORINOCO MINING ARC

Be it gold, diamonds, iron, or bauxite, mining is a long-standing activity in the south of the country. Until 2000, Venezuela’s mining policy was relatively balanced, regulated, supervised, and shaped by environment and land use management policies. While there has always been small-scale and artisanal mining, which is illegal and difficult to control, it has expanded significantly in recent decades.

The current Venezuelan government’s official mining policy expresses interest in promoting mineral extraction activities as a way to diversify the economy and break with oil revenue. Nevertheless, in reality, the policy provides the government complete political and economic control over fast-generating-income extractive activities by establishing alliances with small-scale mining operations.

According to the Bolivarian Economic Agenda, the Venezuelan government is committed to investing the wealth from the mines to stimulate agriculture and industry to strengthen national “prosperity.” To this end, it has followed a political-administrative and legal strategy to establish dominance over the production and commercialization of mineral resources, or what the Ministry of Industry calls the “sovereign and hegemonic control of the mining production chain.” Starting in 2014, a series of regulations have been issued that establish the nationalization of gold mining and the mandatory sale of gold to the Central Bank of Venezuela (BCV).

In 2016, the Orinoco Mining Arc was established by decree (Official Gazette, No. 40,855, Decree No. 2,248) to “stimulate activities associated with the country's mineral resources.” This means 111,844 km² of land (12 percent of the country) north of the Bolivar State is destined for mining activity under the control of the central government.

The establishment of the Orinoco Mining Arc, is the beginning of a new mining policy in Venezuela that incorporates the military through the creation of the Military Limited Company of Mining, Oil, and Gas Industries (CAMIMPEG), and the establishment of the Ministry for the Development of Ecological Mining. This is complemented by other actions such as the designation of some minerals as “strategic,” the formation of joint ventures between the government and the private sector to explore and exploit these minerals, and the establishment of alliances with small-scale mining operations.

These legal, administrative, and fiscal changes to the mining activity in Venezuela have created a troubling new reality, evidenced by a growing wave of public allegations from social, academic, and political sectors of the country. These include:

• A significant lack of transparency regarding compliance with prior environmental control measures (preparation and approval of environmental and socio cultural impact studies of mining projects), as well as of the conditions of the authorizations granted.

• A lack of participation of local communities in the consent process to develop projects in their region.
• The establishment of a system of extortion with the militarization of mining areas, where operations and supplies are subject to the payment of illegal fees.
• The appearance of criminal groups that extort miners and establish “rules” of conduct in the mines.
• The absence of public services associated with mining projects.
• An inadequate supply of food and medicines, increasing the pressure on hunting and farming areas.

These claims paint a picture of Venezuela’s mining policy as one that prioritizes extractive activities over any other activity, and legitimizes all mining activity within and outside the legal limits of the Orinoco Mining Arc. This has enabled the proliferation of mining throughout southern Venezuela.

Evidence makes clear that mining within the Orinoco Mining Arc, and far beyond, is predominantly illegal, executed by criminal and armed groups in alliance with the Maduro government. Additionally, the country’s instability has complicated formal investment, exploration, and mining activities, making clean and transparent business execution impossible in areas where mineral deposits exist due to the presence of armed and irregular groups.109

The opposition-led National Assembly, recognized as legitimate by the U.S. Government, and several civil society groups have repeatedly condemned the Orinoco Mining Arc decree as illegal and unconstitutional, framing it as a violation of civil, political, and labor rights and tax regulation that criminalizes any questioning that could disrupt its implementation. Further, critics contend the decree goes against the Organic Law of the Environment and the rules protecting the rights of Indigenous Peoples and local communities.110,111

Because questioning the legality of the Orinoco Mining Arc and/or hindering the development of the activities foreseen in the decree are not allowed, protest, dissent, or opposition to mining activities within the Orinoco Mining Arc are punishable offenses.

5.2. ENVIRONMENTAL IMPACT OF THE ORINOCO MINING ARC

Southern Venezuela, the Guayanes Shield, and the Venezuelan Amazon are home to biological wealth that is as exceptional as it is unknown,112 a stark reminder of the extreme environmental losses activities such as mining can cause. The Orinoco Mining Arc touches 18 watersheds, 6 of which have their entire surface area within the Orinoco Mining Arc polygonal area. Alluvial gold mining follows watercourses, directly affecting more than 380 km of riverbeds. The waters of the Caroni are reported to have a significant amount of sediment more than 50 km from the discharge sites. Mercury contamination has also been found in its waters as well as in the Caura River, where discharge was found more than 200 km from its probable source. Mercury concentrations found in fish in the Caura are above the

112 Carlos A. Lasso, José S. Usma, Fernando Trujillo, and Anabel Rial, eds. “Biodiversidad de la cuenca del Orinoco: bases científicas para la identificación de áreas prioritarias para la conservación y uso sostenible de la biodiversidad,” Instituto de Investigación de Recursos Biológicos Alexander von Humboldt (Bogotá, Colombia: WWF Colombia, Fundación Omacha, Fundación La Salle e Instituto de Estudios de la Orinoquia, Universidad Nacional de Colombia, 2010).
acceptable threshold, and 92 percent of women examined in this area also had mercury levels above the tolerable concentration level of 2 mg/kg established by the World Health Organization.  

Between 2000 and 2020, the forest area in the Orinoco Mining Arc decreased by 7.6 percent, equivalent to 5,209 km². Between 2015 and 2020, the forest area decreased 2,301 km². This loss of forest is equivalent to the emission of approximately 162 million tons of CO2. Because so much of the plant and animal life in this biologically rich region depends on these forest habitats, their fragmentation is worrisome.  

In relation to the Protected Areas under Special Administration, this analysis found Caura National Park, Imataca Forest Reserve, Dorado-Tumeremo Forest Reserve, San Pedro Forest Reserve, and Bolívar State Border Security Zone are directly affected by the decree. The impact of the Mining Arc transcends its legal limits by masking and legitimizing the development of mining activities, even within protected areas, such as national parks, natural monuments, and wildlife refuges (see Figure 5).

**FIGURE 5.** Location of Main Protected Areas South of the Orinoco region, the Orinoco Mining Arc, and Mining Areas (as well as their footprint)


The impacts of the Orinoco Mining Arc are evident in the national parks and monuments of Amazonas and Bolívar States, where illegal mining increased after its creation. This increase is documented in the SOS Orinoco reports, which identified more than 900 mines or mining sites in the watersheds of the Amazonas and Bolívar States, inside and outside the Mining Arc, including within the following protected areas: Canaima National Park, Icabarú, Paragua, Cerro Guaiquinima national monument, Caura National Park, Yapacana National Park, Reserva de Biosfera Alto Orinoco-Casiquiare, and Cerro Autana Natural Monuments.

Even the Maduro government, in its first Country Report for the Convention on Biological Diversity, acknowledged that alluvial gold mining has caused deterioration of fragile ecosystems in the Amazon and Guyana, including deforestation, loss of habitats and species, and mercury contamination and devastation. Still, there are no restoration technologies or policies in place.

From an institutional point of view, Venezuela had in place the administrative structures (Ministry of the Environment, Environmental Authority), technical capacities (experts with knowledge and experience), and regulatory bases (laws, decrees, and technical norms) to develop an adequate plan to foresee and mitigate many of the impacts of mining. However, talk of environmental and biodiversity protections are rhetoric in the case of the Orinoco Mining Arc and control by the Venezuelan Environmental Authority is non-existent. The Office of the Comptroller General of the Republic has recognized that ANA is not complying with the Organic Law of Environment and uncontrolled mining in Protected Areas Under Special Administration causes irreversible damage to the environment.

5.3. SOCIAL IMPACT OF THE ORINOCO MINING ARC (HUMAN RIGHTS AND HEALTH)

5.3.1 The Population in the Orinoco Mining Arc

The population of Bolívar State was estimated to be 1,721,782 in 2020 with 95 percent of inhabitants living within the Orinoco Mining Arc. The areas not included in the Mining Arc are occupied mainly by Indigenous populations in small, scattered communities, though Indigenous populations also live within...
the Orinoco Mining Arc. Similarly, 73 percent (429) of the Bolivar State towns are within the Orinoco Mining Arc.126 The Mining Arc also affects the indigenous territories, most of which are not demarcated or titled, of 14 of the 20 ethnic groups with traditional occupations in the Bolivar State. Of the 524 indigenous communities reported for the Bolivar State, 176 (or 34 percent), are located within the Orinoco Mining Arc.128

5.3.2 Insecurity and Violence

Bolivar is now one of the most violent regions in the country. This change is attributed to the ongoing fight for control of illegal mining and other illicit businesses, mainly within the Orinoco Mining Arc, by organized crime, non-state armed actors, and official security forces.

According to the Venezuelan Violence Observatory, in 2017, three Bolivar municipalities in the Orinoco Mining Arc recorded the highest violent death rates in the country, these included El Callao with 816 deaths per 100,000 inhabitants, Roscio with 306 deaths per 100,000 inhabitants, and Sifontes with 274 deaths per 100,000 inhabitants. These rates are significantly higher than the world’s most violent countries, where the rate ranges from 56 to 82 homicides per 100,000 inhabitants. In the Roscio municipality, the lethal and violent actions of the police and military operations killed five times more people than the criminals.

5.3.3 Irregular Armed Groups and Criminal Economies

The Orinoco Mining Arc is mainly under the control of criminal groups, including the so-called mining unions127 and “prans,”128 mega-gangs such as the Aragua Train and the Bolivar Train, guerrilla groups such as Colombia’s National Liberation Army (ELN), and dissidents of the Revolutionary Armed Forces of Colombia (FARC). These groups act with the consent and support of the Venezuelan government of Maduro and its military leadership.129

Criminal groups are in charge of territorial control and the imposition of order in the mines. To ensure security, they establish a series of strict “rules” and cruel punishments, including beatings, shootings in the hands, amputations, and death. It is common for these punishments to be carried out for exemplary purposes, such as public executions of dismembered victims with chainsaws, axes, or machetes.130 From an economic point of view, these groups engage in other illicit businesses that may or may not be linked to the mining economy, such as trafficking of drugs, minerals, mercury, arms, fuel, and timber, and human trafficking for labor and/or sexual exploitation. They obtain gold or money from extortion practices in exchange for protection, a practice known as the collection of “vaccine.”

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127 These groups originated from construction unions in Bolivar state involved in extortion practices, which moved their operations to mining due to the economic crisis and the collapse of basic industries in Guyana.
128 The “pranato” is a form of criminal organization in Venezuela, originating in prisons, where a boss or “pran” imposes internal order and controls illicit activities through a hierarchical power structure.
5.3.4 Massacres, Extrajudicial Executions, and Disappearances

The proliferation of these armed groups in the Orinoco Mining Arc has generated violent confrontations resulting in bloody episodes such as the Tumeremo massacre in 2016, where 28 miners are believed to have been executed.131

In addition to these armed groups, there are state security forces and the National Armed Forces that engage in excessive use of force and extrajudicial executions. The execution rate is so high, it is now the most common type of homicide in Bolívar.132 Between 2012 and 2020, at least 38 massacres occurred in mining areas. In 25 of these, 217 people were killed, mostly by state security forces, but also by “unions,” the ELN, and the FARC.133

Since mid-2019, the Corps for Scientific, Penal, and Criminal Investigations134 has become the security corps with the most extrajudicial executions followed by the Special Actions Force of the Bolivarian National Police of Venezuela135 and other official security forces.136 Between 2019 and 2020, law enforcement officials in Bolivar executed 426 people.137 Selective assassinations have multiplied, especially against people who denounce abuses and rights violations. This has led to displacement to other areas and neighboring countries. Between 2012 and August 2020, there were 77 reports of missing persons documented in the mining areas of the Bolivar,138 with most of the cases concentrated in the Sifontes municipality.139,140

5.3.5 Health and Living Conditions

Lack of access to drinking water, poor sanitation, severe power outages, and lack of health care all mark the living conditions in the makeshift mining camps in the Orinoco Mining Arc. From these camps, malaria and other diseases have spread to the rest of the country and neighboring nations.

Venezuela has surpassed 400,000 annual cases of malaria since 2017, accounting for 53 percent of South America’s cases and more than 70 percent of its deaths.141 An increase in habitats favorable to the insects that spread the illness is closely linked to gold mining activities.142 Most malaria cases are concentrated in the municipality of Sifontes, where there is the greatest mining activity in the Orinoco Mining Arc. According to the mapping of localities of malaria cases between 2016 and 2018 in Bolívar State, 94

134 Cuerpo de Investigaciones Científicas, Penales y Criminalísticas, adscrito al Ministerio de Relaciones Interiores, Justicia y Paz.
135 Fuerzas de Acciones Especiales, unidad especial de la Policía Nacional Bolivariana.
percent of the cases occurred within the scope of the Mining Arc.\textsuperscript{143}
In the Orinoco Mining Arc, the health services network, from rural outpatient clinics to city hospital facilities, is severely deteriorated and lacks sufficient personnel and equipment.

Following a 25 year absence, diphtheria reappeared in July 2016, killing children in mining and Indigenous populations in Sifontes municipality. The high mobility of the mining population facilitated the spread of the outbreak to the rest of the country.\textsuperscript{144}

Measles also reappeared in mid-2017 in the Caroni municipality of Bolívar State. It spread to the rest of the country from the epicenter of the outbreak, again due to the migratory movements of the populations associated with mining and commercial activity.\textsuperscript{145} The measles outbreak started in Venezuela and spread to Colombia, Brazil, Ecuador, Peru, Chile, and Argentina, following the migratory flow of Venezuelans carrying the virus.\textsuperscript{146}

In addition to disease, mercury poisoning levels are among the highest in the world and constitute a serious and neglected public health problem.\textsuperscript{147,148}

\section*{5.3.6 Working Conditions and Gender-Based Violence}

Working conditions in the mines are totally unacceptable and can be characterized as modern forms of slavery, with shifts of 12 hours or more and exposure to accidents and landslides without protection or compensation. The miners must hand over much of the gold they extract to the various actors who control the mines and pay excessive prices for food, water, and other goods, greatly reducing any earnings.\textsuperscript{149}

Child labor is common, as is prostitution, sexual exploitation, and trafficking of women, girls, and adolescents. At least 88 percent of teachers have left Bolívar’s public schools,\textsuperscript{150} and the dropout rate is over 40 percent. Teachers and students are joining the gold mines to make ends meet.\textsuperscript{151} There is also an increase in femicides and gender-based violence. According to the monitoring carried out by the Guayanés Observatory of Gender Violence, 28,346 cases of violence against women were registered in Bolívar during 2020, and 506 women have been killed by femicide since 2013.\textsuperscript{152}

\begin{itemize}
\item \textsuperscript{148} “Análisis sobre la concentración de mercurio en muestras biológicas y de sedimentos en la Guayana Venezolana: un estudio de campo,” SOS Orinoco, 2021, https://drive.google.com/file/d/1WqB-kbW7E6mVd7jRZpX_3qyJeDeUsiU/view.
\end{itemize}
5.4. ECONOMIC IMPACT OF THE ORINOCO MINING ARC

The official gold production in 2020 was estimated at 33.4 tons,\textsuperscript{153} the highest figure in the last three decades. Much of this increase is attributable to small-scale mining, according to the Ministry of Ecological Mining Development,\textsuperscript{154} and is estimated to be worth $1.91 billion. This production is significantly higher compared to the period from 2010 to 2016, when the average annual gold production was 2.36 tons. However, mining’s contribution to the treasury, in theory, does not balance on a macroeconomic scale the tens of billions of dollars generated by the oil industry.\textsuperscript{155} It is estimated that the officially supplied figures reflect only 30 percent of the real gold production, which is the one that reaches the hands of the BCV, given that all the production must be reported and offered to the BCV.\textsuperscript{156} This suggests 70 percent is leaked by means of smuggling.

The strategy of gold extraction, complemented with diamonds, coltan, copper, and silver has enabled the regime to raise funds for political and strategic management with allied sectors instead of assisting the country to address its serious general problems and respond to the needs of the population. Gold mining has opened up other possibilities for international negotiation and execution of another line of economic policy action, the stealthy and illegal sale (without the endorsement of the National Assembly) of the international reserves stockpiled in gold bars in the BCV and in banks located abroad. In this way, the Maduro government obtained compensation that allowed it to precariously cover some of the extreme needs required in the country, such as the purchase of gasoline.\textsuperscript{157} During 2018 and 2019, the National Assembly, the media, and NGOs publicized investigations on the shipment of gold bars to Turkey using airlines of that country. Evidence showed that the BCV illegally sent 73.2 tons, 7.4 tons\textsuperscript{158} and 1.2 tons of Venezuelan gold to Turkey, the United Arab Emirates, and Uganda, respectively. These sales, the bad management, and the internal transactions to obtain foreign currency\textsuperscript{159} have resulted in a decrease of 73.7 percent of the country’s gold reserves, which went from 372.9 tons in 2011 to 98 tons in August 2020.

Finally, an analysis of the cost structure associated with the investment of small and medium-sized miners suggests the declaration of the Orinoco Mining Arc was meant to capture the greatest amount of resources with the minimum state investment, which again makes it very difficult for the promoted activity to have a real and lasting invigorating effect on the economy of the region.

6. INDIGENOUS PEOPLES
6.1. INDIGENOUS PEOPLES IN VENEZUELA: POPULATION, ETHNIC GROUPS, LANGUAGES, LOCATIONS

According to official statistics, the population of Indigenous Peoples in Venezuela is approximately 725,000 individuals, comprising 2.8 percent of the national population. However, it is likely the current Indigenous Peoples population is actually much larger, given a decade has passed since the last census in 2011 and the past few censuses have recorded a steady trend of vigorous growth. The age structure profile also indicates a relatively young population (37 percent are <15 years old), which is consistent with a growth pattern. This demographic is found primarily in the states of Zulia (61.2 percent), Amazonas (10.5 percent), Bolivar (7.5 percent), Delta Amacuro (5.7 percent), Anzoátegui (4.7 percent), Sucre (3.1 percent), Monagas (2.5 percent), Apure (1.6 percent), Nueva Esparta (0.3 percent), and Lara (0.3 percent).

The census recognizes 52 distinct ethnic nations of Indigenous origin, as well as a generic category labeled “other Indigenous.” The population distribution is skewed, with twelve groups making up less than 90 percent of the national total. The remaining aboriginal groups have relatively small populations, including 25 groups with under 1,000 members and four groups (Arutani, Jirajara, Kaketío, and Sapé) with less than 100 living survivors. Nine of the groups are not originally from Venezuela, having migrated from neighboring South American nations, mainly Colombia and Brazil. The groups tend to have small populations and are dispersed among the general population across several states.

Language conveys many aspects of cultural expression and identity and is crucial for cultural transmission and sharing. The number of languages present is therefore interpreted as an indicator of cultural diversity. At least 34 Indigenous languages are still spoken in Venezuela, with the main ones being Arawakan, Cariban, Chibchan, Tupian, Makúan, Saliban, Yanomama, and Guahiban. Isolated or unclassified languages spoken in Venezuela include Warao and Pumé. As is the pattern globally, most of the country’s Indigenous languages are spoken by few speakers. Of these languages, there are only five (15 percent) that have more than 10,000 speakers in the country, nine (26 percent) are spoken by 1,000 to 10,000 speakers, and fifteen languages (44 percent) are spoken by fewer than 1,000. Additionally, five languages (15 percent) are spoken by fewer than 100 speakers, these include Japrería, Sáliva, Mapoyo (Wanai), Uruak, and Sapé. At least twelve living languages in Venezuela are considered severely endangered.

Most of the Indigenous Peoples population is distributed in three main geographic regions, including the northwestern border state of Zulia, the east (Anzoategui, Monagas, Nueva Esparta, and Sucre States), and the Amazonian region (the southern states of Amazonas, Bolivar, and Delta Amacuro). Zulia has the largest concentration of Indigenous populations and settlements, with 61 percent of the national total. The main groups are the Wayuu on the western coast of Lake Maracaibo, the Añú along the Sinamaica Lagoon, the Yukpa and Japreria in the Sierra de Perijá mountains, and the Bari in the Catatumbo basin (Estado Zulia). The Wayuu are by far the largest group in the country, with the majority residing in urban areas (83 percent).

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Slightly more than 10 percent of all Indigenous Peoples reside in the east, where the principal ethnic groups are the Kariña, Kumanagoto, Chaima, and Waikerí. These groups have been subjected to more intensive and lengthy colonization processes and consequently display more fragmented ethnic identities, a greater degree of cultural assimilation, reduced spaces for traditional cultural expression, and language loss. However, they also show signs of ethnic regenesis in recent years in the form of language revitalization projects and pan-tribal socio-political organizations.

The land area south of the Orinoco River, encompassing the states of Amazonas, Bolívar, and Delta Amacuro, is referred to here as the Amazonian biocultural region, reflecting shared broad biogeographic, socio-cultural, and judicial-political characteristics. This region hosts the highest degree of cultural diversity in the country, with 29 distinct ethno-linguistic groups. It is home to one out of four Indigenous persons in the country and has the highest density in relation to the total population, particularly in Amazonas and Delta Amacuro, with more than 50 percent and more than 25 percent proportional representation, respectively. Outside of the state and municipal capitals, their presence is even more dominant. Five of six municipalities in Amazonas have more than 90 percent Indigenous population, and in two of four municipalities in Delta Amacuro they make up more than two-thirds of the total. The Indigenous communities of the Amazonian biocultural region are socially and physically segregated from the non-Indigenous population, for the most part, and hence have generally experienced less transculturation than elsewhere. Three groups—Jodi, Yanomami, and Uwottúja (Piaroa) of the Cuao River—are still very isolated and have been designated as Indigenous Peoples living in relative isolation and initial contact. For this reason, a protection mechanism for these groups was ordered by the Inter-American Commission on Human Rights.

6.2. DEVELOPMENT AND ITS CULTURAL-ECOLOGICAL IMPACTS ON INDIGENOUS PEOPLES AND COMMUNITIES

The current situation and recent evolution of Venezuela’s Indigenous Peoples and local communities (IPLCs) and their relationship to the national society and natural environment, have been shaped in part by developments set into motion during the previous constitutional period. National development policy with respect to the distant south, the Amazon region, south of the Orinoco, was aimed at consolidating geopolitical control by expanding the presence and influence of the state, creating road and airstrip access, and modernizing waterway transportation. The policy also focused on social integration and cultural assimilation of the resident Indigenous population and protection of the natural environment and its rich biodiversity for future use. The main integration strategy involved offering modern social and material benefits, such as schools, medical dispensaries, vaccination campaigns, durable housing, electrical power, water treatment systems, telecommunications, public servant jobs, and economic development programs (e.g., credits and subsidies for commercial agriculture, cattle ranching, motor vehicles, and Indigenous business firms). Conservation efforts involved creating an extensive system of protected areas, which include national parks, natural monuments, biosphere reserves, forestry reserves, and protected

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watersheds. The majority of Protected Areas Under Special Administration correspond to the traditional territories and current lands inhabited by IPLCs.169,170,171

With economic integration and cultural modernization came diversification of Indigenous livelihoods and resource management patterns. This trend represents an adaptive response to the growing need for earning money to buy goods in a market economy. New strategies for generating cash incomes include agricultural intensification and experimentation, NTFP extraction, handicraft production, artisanal mining, tourism, public-sector employment, and public welfare enrollment. Small-scale cash cropping can be observed in certain peri-urban zones where a large market of consumers is within easy reach of the producers (e.g., Tucupita, Barrancas, Tumeremo, Caicara del Orinoco, Maripa, Puerto Ayacucho, and San Fernando de Atabapo). The NTFP industry involving wild species extractions has a long history in the Venezuelan south. Presently, it is relatively small in scale, but one can find localized enclaves of resource extraction for sale as a raw material or elaborated product. The most prominent ones are palm heart (Euterpe oleracea) in Delta Amacuro; tonka bean (Dipteryx spp.) in Cedeño and Sucre municipalities of Bolívar State; mamure vine (Heteropsis spruceana) in Atures and Autana municipalities of Amazonas State; chiquichiqui (Leopoldina piassaba) in Guainia and Río Negro municipalities of Amazonas State; and seje oil (Oenocarpus bataua) in Cedeño in Bolívar State and Manapiare in Amazonas State.172 Groups specializing in decorative baskets sales include the Eñepá, Yanomami, Yekwana, and Warao.173 Artisanal gold and diamond mining with direct Indigenous participation began to take root in the Amazonian biocultural region in the 1980s, fueled by a spike in international prices of the mineral commodities.174 However, before the recent mining boom, the Indigenous version of mining was relatively small in scale, carried out using hand tools, and left little lasting environmental impact.175,176 Employment as civil servants has also become an important income source for the growing cadre of Western-educated persons and their dependent families. Common salaried professions include school teacher or administrator, community health worker, microscope technician (for malaria), and power plant operator. Most of these are public administration positions at the federal, state, or municipal level, but they operate out of the fixed settlements where schools, medical dispensaries, and other public institutions are present.177

Development policy and its impacts during the Bolivarian era can be divided into two distinct periods, with the first period corresponding to the presidential rule of Hugo Chávez Frias from 1999–2012. This time saw greater government control over political institutions and the economy, as well as a significant expansion of the welfare state and its impact on the daily lives of ordinary citizens. The official discourse with regard to the Indigenous population emphasized social justice themes of political participation,

poverty elimination, overcrowding of higher education, and cultural and linguistic self-determination. Direct economic aid was provided to an expanding populace of Indigenous recipients in the form of welfare payments, social security pensions, student scholarships, subsidized food and fuel, development credits, easy-term loans, and sundry other programs. While the benefits this aid provided reduced various structural problems (e.g., corruption, bureaucratic mismanagement, chronic shortages of basic goods, spiraling inflation, and political clientelism) it increased economic dependence on the government, promoted closer contact and integration with the dominant Creole society, drew people away from their traditional livelihoods, and subverted their reliance on local natural resources and ecosystems for basic subsistence needs. In short, welfare expansion undermined Indigenous populations’ biocultural independence. Additionally, many of the state-sponsored occupational and educational programs were concentrated in and around urban centers, which may explain a surge in rural-to-urban migration by Indigenous people during this period.

In the political sphere, a similar outcome can be observed. The political inclusion of IPLCs under the chavista regime was enacted mainly by top-down measures such as the creation of political offices within the constitutional government reserved for Indigenous candidates (e.g., congressman, legislator, councilor), one-size-fits-all communal councils whose funding depended on the central government, interference of the national political parties in local politics, creation of a Ministry for the Popular Power of Indigenous Peoples whose director is named by the national executive, and co-option of Indigenous leaders by giving them paid positions in the public administration. Critics contend that, paradoxically, the Bolivarian constitution may have opened the door for greater political participation by IPLCs but, given the way it was implemented, it also led to greater “Indigenous homogenization and dependence on the nation government.”

The second development impact period during the Bolivarian era is under Nicolas Maduro (2013–present), during which petroleum production and revenue have fallen dramatically and the country has slipped into a prolonged political and economic crisis. The conventional nation-state has broken down in the sense that the material resources, institutional presence, and organizational control of the government have faded to the point of having little positive impact on people’s lives. The quantity and quality of social services and economic assistance formerly provided by the state to the citizens have collapsed, and the worth of publicly funded salaries, pensions, and scholarships has been devalued in a hyper-inflation economy to the point of being woefully insufficient to cover basic needs. Food is scarce or unaffordable for most people, health clinics and hospitals are bereft of medicines and supplies, public servants abandon their posts, school meal programs shrink, school attendance plummets, and transportation is sharply curtailed due to a shortage of fuel or passenger vehicles. After decades developing a strong dependence on the government for basic goods and services, employment and income, inexpensive food, and free medicine, a large portion of the Indigenous population is suddenly left to fend for themselves. Illegal mining has mushroomed throughout the Amazonian biocultural region during this time and become the motor of a burgeoning informal economy, as well as the main source of new employment for IPLCs and foreigners.

The failure of the current government to fulfill basic services and sustain the social welfare policies of former administrations has had several serious repercussions for Indigenous populations and habitats. The most visible impact is the unprecedented scale of human migration, including to international diasporas (Colombia, Brazil, and Guyana). Stimulated mainly by food and personal insecurity, these interregional movements reflect the search for employment, such as menial labor in the mines or its supporting occupations (porter, merchant, prostitute, soldier, smuggler). The colossal ebb of resources and economic opportunities once provided by the state has compelled many IPLCs to return to a more self-sufficient existence, including rededication to subsistence pursuits and return migrations to upriver areas where land and wild resources are still abundant. At the same time, the shrinking presence of the state has left the locals vulnerable to external threats to their land, safety, and health. Paramilitary organizations such as the ELN, dissident bands of the former FARC, and domestic criminal gangs called sindicatos, exercise effective control over much of the rural countryside south of the Orinoco and beyond. The main economic interests of these new actors are illegal mining, drug trafficking, cross-border smuggling, toll collections, and protection rackets. According to majority opinion and countless public reports or denunciations, the paramilitaries are supported or allied with the Venezuelan military in exchange for payoffs from their illicit earnings. In some areas, they have displaced the Indigenous population from their traditional lands, required them to work in the mines or leave the area altogether, imposed restrictions or “taxes” on their movements, and obstructed their resource use patterns. Hot spots of land invasion and conflict include the Cuyuni, Caroni, Caura, and Suapure rivers in Bolivar and the Sipapo, Atabapo, Lower Ventuari, Upper Orinoco, Casiquiare, and Siapa basins in Amazonas. Several different IPLCs have responded by forming their own territorial guards, but these are almost always unarmed and have not been successful in getting the armed intruders to leave their ancestral lands.

6.3. INDIGENOUS LEGAL AND INSTITUTIONAL FRAMEWORK

The legal status of IPLCs in Venezuela and the structural relationship between them and the state has changed significantly since the 1999 adoption of a new national constitution. Under the previous constitutional regime (1961–1999), there was scant recognition of the nation’s population as biologically and culturally heterogeneous and government policy toward Indigenous residents promoting progressive integration and assimilation. The Bolivarian constitution, by contrast, states explicitly that Venezuela is a multi-ethnic, pluri-cultural nation and officially recognizes the existence of Indigenous Peoples and their distinctive social-political-economic organizations, cultures, customs, languages, religions, and habitats (article 119). It also grants them special rights and guarantees, with respect to their languages, traditionally occupied lands, economic practices, political participation, cultural identity, beliefs, values, spirituality, educational regime, integral health care, and prior informed consultation regarding public policies that may affect them (articles 9, 119–126, and 186). Venezuela has also subscribed to international conventions aimed at protecting and promoting IPLCs and their unique cultures and languages, such as the 2001

The government subsequently promulgated a series of federal laws and institutional structures to put these principles into practice. The indigenous legislation included the Law of Demarcation and Guarantee of the Habitats and Lands of Indigenous Peoples (2001); Decree 1795 mandating the use of Indigenous languages in schools attended by Indigenous students (2002); Decree 2028 renaming the holiday celebrated on October 12th as “Day of Indigenous Resistance” (2002); the Law of Indigenous Identity (2003); the Organic Law of Indigenous Peoples and Communities (2005); the Law of Indigenous Languages (2008); the Law of the Cultural Patrimony of Indigenous Peoples and Communities (2008); and the Law of the Indigenous Artisan (2009). The key government agencies created to administer the Indigenous policies were the National Commission for Demarcation (2001); the National Commission for the Attention of Indigenous Peoples (2001); the Advisory Commission for policy matters affecting Indigenous education, culture, history, and language (2002); the Ministry for the Popular Power of Indigenous Peoples (2007); and the Service of Attention and Orientation to the Indigene (SAOI) within the Ministry of Health (2010).

Though this impressive armature of laws and institutions might give the impression that the rights and privileges of the IPLCs in Venezuela have progressed immeasurably during the past two decades, advancement has been mostly theoretical and symbolic. In practice, there has been little in the way of tangible results to come from all of this. The wide gap between policy on paper and practice on the ground is apparent through the lens of achievements and progress made in the areas of land tenure, language, education, and health. By 2014, only 12.4 percent of Indigenous lands, comprising approximately 28 thousand km², were demarcated and only 86 land titles benefiting 372 communities had been granted in the entire country.187 Given there were an estimated 3,000 such communities, this means close to 88 percent of the Indigenous communities were still waiting for their land rights to be legalized. Moreover, the land titles that had been granted were exclusively community-based titles of relatively small size, resulting in the fragmentation of ethnic territories.188,189 Since then, the demarcation and titling process have stalled.190

With regard to language, analysts agree the ambitious programs and mechanisms of language preservation and revitalization alluded to in the new legislation have yet to be implemented, except in isolated instances.191,192 Villalón (2011) criticizes the Law of Indigenous Languages for failing to address the main drivers of a shift in language toward Spanish, which include the national education system, rural-to-urban migration, and the linguistic requirements of social mobility (i.e., needing Spanish fluency to access certain jobs, higher education, and benefits programs).

In 1999–2000, the Ministry of Education recommitted to instituting a regimen of bilingual intercultural education (REIB) for all the country’s Indigenous students. Despite this, informed observers have

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concluded these efforts have thus far have been too timid and insufficient, with shortcomings that include a lack of special funding for the program; a failure to design and create culture-specific pedagogical materials; a dire shortage of trained teachers; an absence of training programs necessary to carry out this curricular transformation; a lack of an adequate control, evaluation, and support system; and a lack of ongoing efforts to carry out the cultural documentation or data collection of relevant cultural subject matter.\textsuperscript{193,194} Thus far, the REIB efforts so far have been limited mainly to individual schools or teachers using the local language and teaching cultural subjects in their classrooms in a haphazard and idiosyncratic fashion. In the opinion of one Indigenous observer, this stagnant situation can be traced to a lack of commitment on the part of the nation’s top educational authorities.

The right to culturally appropriate, integral health is arguably the policy matter where recent legislation has made the greatest real impact. Notable achievements include the creation of the SAOI, special health programs targeted for vulnerable groups (e.g., Yanomami, Apure, and Delta Health Plans), and intercultural health care resources and training. At the same time, large Indigenous territories and populations are considered to have been largely passed by and unaffected by these programs.\textsuperscript{195} The Indigenous health situation has deteriorated dramatically in recent years as a result of the dizzying expansion of the mining frontier in Indigenous-occupied and neighboring territories, the prolonged economic depression of the country, and the general collapse of the public health system throughout the country, including dire shortages of vital medicines, medical supplies and equipment, and logistical support for moving into and out of Indigenous territories.\textsuperscript{196,197} One clear symptom of this deterioration is the epidemic spike of malaria cases throughout the country, which are especially grave among the Indigenous populations south of the Orinoco.\textsuperscript{198,199} The Venezuelan Episcopal Conference described the current health crisis saying, “Health care assistance is precarious, the medical dispensaries and health clinics in Indigenous communities do not have even the minimum presence of professional health personnel or medical supplies that would allow them to solve the most basic medical situations.”\textsuperscript{200}

6.4. THREATS AND THEIR IMPACTS ON INDIGENOUS PEOPLES AND BIOCULTURAL DIVERSITY

The connection between IPLCs and areas of rich biodiversity has been widely documented. Such connection is also evident when considering the main threats to the region and its people through history. The destruction of culture and natural systems share a common cause in that they are each a consequence of structural political and economic asymmetries that have persisted since the beginning of European colonization. The natural environment and the Indigenous population alike have been treated as objects to be exploited rather than subjects under the law. Each can be understood as victims of the


same pursuit of wealth and power. In Venezuela, over time the extraction of natural products has shifted from copaiba oil to river turtle fat, rubber, tonka bean, oil, gold, diamonds, coltan, and hardwoods. But all the while, outsiders continue to value Indigenous territories as rich resource frontiers and the Indigenous people as cheap sources of labor and information. Control and exploitation of the biological and human resources have been exercised through a myriad of legal and illegal means that have also changed over time. This analysis focuses on the primary threats to Indigenous populations and cultures, biodiversity, and ecosystem services during the past several years. Five major threats south of the Orinoco were identified, including extractivism, land insecurity, health threats, violence, and biocultural assimilation (see Section 8.2). Although these are described separately, they are all interrelated in terms of cause and consequence.

6.5. RECOMMENDED ACTIONS

In view of the close and interdependent relationships among IPLCs and their local environments, it should be emphasized that factors that disrupt the habits and wellbeing of these people will also impact the tropical forests and biodiversity connected to them. The threats and problems affecting IPLCs are varied, complex, and interconnected; therefore, possible solutions or mitigation measures must take into account such complexity. No single policy action will solve all problems, but rather there are multiple actions that can be taken. We make six concrete recommendations here, including land rights vindication, ethno-cultural education, health care, security restoration, economic alternatives to predatory extractivism, and cultural conservation (see Section 11.2 for more details).
7. OIL SPILLS IN VENEZUELA
7.1. INTRODUCTION

Venezuela’s marine ecosystems are typical of those found in the Caribbean Sea bioregion. There are important extensions of mangrove forests, sandy beaches, and coral reefs that are in a relatively good state of conservation, especially those located in the ecoregion of the oceanic islands. In Venezuela, 3,409 marine species have been recorded out of 8,350 species reported for the southern Caribbean.

These ecosystems, however, are subject to distinct pressures from different sources. The activities of the oil industry are considered the main threat, followed by pollutants discharged from rivers, resulting from artisanal and industrial fishing. The intensity and extent of these threats have increased in response to Venezuela’s current situation. In the case of the oil industry, the lack of facility maintenance, the shortage of trained personnel, and the lack of operability of the National Contingency Plan; in the case of pollutants discharged from rivers, the lack of legislation for the control of discharges and treatment of liquid waste; and in the case of pollutants resulting from fishing, the increase in food demand. All of these are exacerbated by the lack of independence between the state’s inspection and control agencies and PDVSA.

A geographic analysis of oil infrastructure locations shows the refineries, loading, and storage centers are all less than 50 km from the nearest Protected Natural Area, and many of them are less than 10 km away (see Figure 6). This implies a significant environmental risk, exacerbated by the current state of the industry. Oil spill impacts result from oil exploration, production, refining, transportation, and distribution activities, which may be larger but tend to be less frequent. Additionally, impacts result from oil leaks from obsolete vehicles and inappropriate handling of used oils, spills from Trinidad and Colombia, fuel spills from oil and non-oil ships and vessels, fuel leaks at service stations, and natural minerals. Globally, it is estimated that between 11 and 60 percent of the oil that reaches the sea comes from human activities on land. In Venezuela, due to the obsolescence of the vehicle fleet, the lack of used oil recycling programs, and the almost total absence of industrial and domestic effluent treatment, it is possible to assume percentages equal to or higher than the global ones.

The history of oil spills in Venezuela is as old as the industry itself. In recent decades, there have been several significant spills, including the Nissos Amorgos spill in the Gulf of Venezuela (25,406, 22,940 barrels of Bachaquero crude oil, March 1997), which affected bivalve communities and tourism in the area; the Maritza Sayalero tanker spill in Higuerote (7,100 barrels of diesel in Carenero, Higuerote, 1998), which killed a large number of bivalves and other coastal organisms and affected tourism and the local economy for several months; and the Guarapiche River, Monagas State spill (40,000–120,000 barrels of oil, February 2012), which impacted a state capital water treatment plant serving 500,000 inhabitants and the fauna and flora along some 200 km of the river that flows into the Gulf of Paria, where it also affected a large number of mangroves.

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205 Informe sobre las actividades de los Fondos Internacionales de Indemnización de daños debidos a la contaminación por hidrocarburos en 2001.
206 bbl: Standard petroleum barrel (1 bbl = 42 galones = 158.98 litros).
PDVSA’s latest management report and the report of its commissioner state that in 2016, there were 8,250 spills, involving 182,317 barrels of oil, of which only 33 percent was collected.\textsuperscript{207} In 2013, spill events peaked at 10,722. Between 2010 and 2016, there were 46,820 spills of hydrocarbons and other substances and 856,723 barrels of crude oil spilled, according to PDVSA’s data. Of the barrels spilled, 236,286 (more than 37 million liters) fell into bodies of water, having a detrimental effect on marine species and flora and directly affecting economic activities, such as fishing and the health of nearby residents. Currently, and thanks to the satellite monitoring dating from 2015, spills of oily water and crude oil have been detected in Lake Maracaibo, Gulf of Venezuela (Ulé-Amuay submarine pipeline, Cardón Refinery, Amuay Refinery), and Golfo Triste (El Palito Refinery). The spill from the El Palito refinery in July 2020 was estimated at 26,000 barrels of crude oil and affected the beaches of Falcón State and the Morrocoy National Park.\textsuperscript{208} A week later, an oil tanker collapsed on a coral reef off the coast of Mauritius Island resulting in a spill that was estimated to be more than double the El Palito refinery spill and listed as one of the largest ecological disasters of 2020.\textsuperscript{209} The Ulé-Amuay submarine gas pipeline leaked at least seven times between July 2020 and November 2021, and the Paraguana Center Refineries continually discharged oily water or varying amounts of crude oil. Almost none of the recent cases have been acknowledged by the industry, and little has been done to rectify and remediate the environmental damage. The case of Lake Maracaibo can be considered chronic. With hundreds of platforms and thousands of wells on the lake, thousands of wells on land, and a more than 70 years old network of

\textsuperscript{207} PDVSA, “Informe del Comisario,” 2017.
\textsuperscript{208} Klein E., “Informe técnico del derrame en Golfo Triste julio-agosto 2020,” (Universidad Simón Bolivar - Sociedad Venezolana de Ecología).
sub-lacustrine pipelines of thousands of kilometers, spills are continuous and numerous. In many cases, they continue for several weeks before being addressed or are never addressed at all. The nearly complete stoppage of production reduces the capacity to deal with spills. Figure 7 shows the areas at risk of being affected by oil spills, estimated at a potential surface area of 58,000 km².

Contingency plans are fundamental to the reduction of environmental impacts generated by oil spills. In 1986, Decree 1164 was enacted and the National Contingency Plan against Massive Hydrocarbon Spills in Waters was prepared and implemented. This plan covered marine, river, and lake areas and delegated the responsibility for the general coordination of the plan to PDVSA.

In 2002, the Organic Law of Aquatic and Insular Spaces was enacted. This Law assigned the National Institute of Aquatic Spaces (INEA) the responsibility of coordinating response operations aimed at controlling and mitigating contamination and consolidating emergency responses in a coordinated, standardized, and coherent manner. The INEA prepared the National Contingency Plan against Oil and Hazardous Substances Spills in the Maritime, Coastal, River, and Lake Area, resulting in PDVSA's National Contingency Plan being contingent on INEA's. However, INEA's plan was developed somewhat independently from PDVSA, generating uncertainty in the latter as to which entity would have the “power” to manage the plan, who would buy equipment and materials, who would train and employ qualified personnel, who would pay international support entities in case of massive spills, etc. The

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210 Gaceta Oficial No. 33.508, 1986.
211 Gaceta Oficial No. 37.596, 2002.
uncertainty over what INEA would develop weakened PDVSA’s National Contingency Plan management for several years. As of March 2022, it is still not known whether the INEA finished preparing the document that specifies its plan. This analysis found evidence of the lack of operability of the National Contingency Plan since at least 2015, because coordinated actions for containment, collection, and remediation of damages caused by industry spills do not exist. This is one of the main sources of threats to the coastal, marine, and terrestrial environments.

Although oil production has been reduced to one-third of what it was in 2000, spills continue to occur and the likelihood of these events increases as oil facilities continue to deteriorate due to lack of confidence in the government and PDVSA’s lack of resources and new investors. Any attempt to increase oil production without adequate investment will generate more spills.

Since most of the current oil production comes from joint ventures, PDVSA’s transnational partners could represent the actors with the greatest chance of promoting actions to mitigate the occurrence and impact of oil spills in Venezuela through research programs, technological development, education, and remediation of affected areas.

7.2. STAKEHOLDER ANALYSIS

In the context of the oil spill issue, the actors (stakeholders) include any person, group, or entity that may in some way be responsible for the spill or affected by the spill. This could be a third party, such as legislators, researchers, media, or environmental service companies. These actors can be categorized according to a typology that defines their role in the problem (see Figure 8) and can be evaluated in terms of their current interest in the problem and the influence they may have to contribute to its solution (see Figure 9).

Venezuela is an oil-producing country and PDVSA is the state-owned company in charge of oil exploitation, production, refining, marketing, and transportation. For this reason, PDVSA is considered primarily responsible for oil spills that occur in the country. Foreign oil companies that operate under the figure of mixed companies are key actors in terms of responsibility for spills occurring in their operational areas. High-populated centers are another actor of oil spills, due to their poor management of used oil from the vehicle fleet and small industries. Additionally, fishermen, individuals, and tourism operators contribute hydrocarbons to the marine environment from the use of outboard engines.

Regulatory entities, such as state institutions and ministries, could put pressure on those responsible for the spills, especially PDVSA. However, the lack of independent powers (lack of rule of law) has caused PDVSA’s spills to be considered normal events of little significance or simple accidents with no responsible parties and, therefore, no sanctions.

Companies and organizations that provide services to the oil industry (e.g., Weatherford, Petroalianza, Halliburton, Schlumberger, Baker Hughes, Petrex) could also contribute to solving the problem. However, given the precarious situation of the country, the lack of investment in service infrastructure limits the possibility of these actors to actively participate in the search for solutions.

In addition to the direct effects on marine biodiversity, oil spills affect people and their activities. Particularly relevant are those actors affected in the fishing, aquaculture, and tourism sectors. The temporary cessation of their activities implies a decrease in their income, which may eventually diminish their quality of life.
In a country where information is controlled by the government and the regulatory agencies do not fulfill their function due to a lack of independence of powers, it is left to the general public to denounce spill events. These actors are opinion makers in the context of the problem and include universities, research institutes, some ministries, NGOs, civil associations, environmental service companies, academia, former PDVSA workers, environmental consultants, etc. Their actions include, but are not limited to, the publication of their opinions on social networks, training activities, advice, and field remediation activities. These activities can have a significant positive impact on the other actors, especially those who are the cause or on regulators.

An analysis of 16 interviews with people associated with different sectors related to the oil industry and the socio economic and environmental media showed that oil spills have increased in the last five years, with PDVSA being the main cause. Two-thirds of spills have been reported with only 50 percent attended to. Those interviewed agree the main causes of spills are the deterioration of the oil industry, lack of trained personnel, and negligence on the part of PDVSA. The necessary actions to prevent spills are associated with infrastructure improvements, training of personnel, and depoliticizing the state-owned company.

Through an analysis of responsibilities and the interrelationships of these actors, actions could be designed to generate solutions in the near future to address the current problem of oil spills and their impacts on the environment in Venezuela. It is a matter of shifting the actors toward the sector of high interest and high influence (see the shaded quadrant in Figure 9) and effectively coordinating actions among them.
7.3. THREATS DERIVED FROM OIL ACTIVITY

Oil spills or their derivatives continually impact the marine ecosystems of Venezuela. The direct threats of the oil industry on marine ecosystems are:

- Spills from oil exploration, production, refining, transportation, and distribution activities
- Oil leaks from obsolete vehicles
- Improper handling of used oil from the vehicle fleet
- Spills from Trinidad and Colombia
- Oil tankers in transit through Venezuelan marine areas
- Illegal discharge of bilge water from ships
- Spills or leaks of fuel and oil from ships and non-oil vessels
- Leaks at service stations
- Illegal fuel tapping
- Vandalism
- Colombian guerrillas and drug trafficking in border areas (Apure and Zulia)
- Natural emanations (referred to as “menes” by the Venezuela Incas Copey)
In Section 8.3 Direct Threats and Drivers Related to Oil Spill, there is a description of each threat and associated drivers in the context of oil spills.

7.4. ANALYSIS OF POSSIBLE ACTIONS TO REDUCE BIODIVERSITY LOSS CAUSED BY OIL SPILLS

It is important to emphasize the impacts oil spills can have on the environment, people, or goods that depend on its scope and the capacity to contain and collect the spilled product. This is why proper maintenance of facilities, the execution of reliable operations, and an effective and efficient National Contingency Plan are so important.

Before the year 2000, PDVSA maintained its facilities in good condition and carried out all operations in strict compliance with safety protocols. Spills still occurred, but PDVSA had an operational, effective, timely, and efficient contingency plan to reduce the impact these spills had on the environment. At that time, the technical and management staff of the National Contingency Plan were highly qualified, well trained, and had the most modern spill containment and control materials and equipment of the time, including specialized vessels. These staff carried out operational drills using real tankers, maintained bilateral agreements and agreements with international associations for assistance in case of major spills, contracted insurance companies, and published and presented technical papers in journals and at important international conferences on oil spills. They also prepared environmental sensitivity maps covering the entire coast of Venezuela, which were used with mathematical models of spill behavior to generate probable scenarios and to prepare for emergencies. The National Contingency Plan was directed by a Central Committee, which managed policies, guidelines, finances, and national and international relations. The committee was made up of a representative from each related ministry and led by a PDVSA corporate manager with high decision-making power.

The current 2022 PDVSA suffers from almost all of the weaknesses this analysis has documented, which is the reason a large number of oil spills in the last two decades have not been adequately addressed and are having a detrimental effect on biodiversity and the environment in general. The future outlook regarding the occurrence and impact of oil spills in Venezuela is uncertain under the political, social, and economic reality the country is currently experiencing. The current situation is characterized by the absence of the rule of law, lack of independence of the public powers, an obsolete and deteriorating oil infrastructure, a lack of trained personnel and economic resources, multi-million dollar debt with oil service companies, and a lack of confidence to attract new investors, and more.

Estimating the volumes of oil and oil derivatives spilled and their impact on marine-coastal ecosystems is not easy. The blocking of information on spills and any industry operational data by the state-owned company, makes it impossible to quantify spill accidents. The latest information available was presented in the 2016 management reports, which are official company documents. Equally difficult is estimating the magnitude of the harm caused. This requires field monitoring programs carried out by trained personnel using appropriate equipment and techniques. With Venezuela’s services and research infrastructure dismantled, the current situation does not allow for proper damage assessments.

United States Office of Foreign Assets Control imposed sanctions have worsened the problems, because they make it practically impossible to purchase spare parts, equipment, and consumables to maintain production. Additionally, the limitations to commercialize the crude oil produced have led PDVSA to
trade under conditions that are not transparent, which has caused the total or partial paralysis of fields and refineries. Under these circumstances the frequency of spills increases and the capacity to deal with them decreases.

Corrective actions to improve the industry’s infrastructure are extremely expensive. While Venezuela needs to increase its production, it lacks prepared staff to accomplish this, making it likely that corrective actions will not be carried out and attempts will be made to increase production with a minimum investment in the current infrastructure. As a consequence, spills will continue to occur.

Under this reality—with little probability of change, at least in the short term — viable actions could be proposed aimed at achieving a radical change in the relations between the state, universities, civil society, and private companies to address oil spills and their impacts.

The main actions suggested to address oil spills include: (1) training of oil industry personnel in spill contingency issues and environmental education of the communities; (2) strengthening the industry in environmental matters; and (3) promoting systematization and free access to information on spills. It is evident that the necessary actions to solve the problem of spills should be focused directly on the industry. However, because PDVSA is a highly politicized Venezuelan state company with minimal investment and income generation capacity, it is not feasible to act at this level, at least not at present.

Under Venezuela’s complex political scenario, one of the viable actions to protect biodiversity could be the creation of a cooperation triangle between USAID (or other donors) and one or several oil companies that are partners of PDVSA, such as Chevron or others. This association could carry out training, provide environmental education, and strengthen joint ventures, NGOs, and research centers. Establishing environmental remediation programs with these partners, including universities, civil society, private companies, MINEC, and governor and mayor offices, is a viable alternative within the current conditions of the country.

The creation of a National Oil Spill Observatory, where information from citizens can be systematized and tools can be provided for the effective recording of events, would be a high-impact action and a relatively simple one to implement. Information management can be effective when communities are involved. In fact, it is the communities that have been reporting spill events through social networks. Verifying in the field the findings of spills shown in satellite images is an important way to document what is happening in Venezuela in relation to this threat. Maintaining environmental monitoring of hydrocarbon detection in water, sediments, and coasts is key, and projects that promote this type of action would highlight the scope and impact spills have on Venezuela’s coastal ecosystems.

Another possible mechanism for action is through the multilateral organizations involved in environmental issues and to which Venezuela is a signatory. Agreements such as MARPOL of the International Maritime Organization and the Cartagena Protocol of the Convention on Biological Diversity could be effective means to exert pressure on the country and the industry. Similarly, Venezuela’s border treaties with Trinidad and Tobago and the Netherlands could be effective, especially if an oil spill transcends national borders.

As mentioned, since 2015, the United States Office of Foreign Assets Control has established sanctions on individuals associated with the government and later on government companies, specifically PDVSA
(Executive Order 13857 of January 25, 2019). Although these sanctions are not the root cause of the deterioration of the oil industry, they are a potential obstacle to its recovery, because any financial support initiative for any state company, including PDVSA, risks being aborted due to the implications of these sanctions. Within this framework, a review of these sanctions is suggested to explore if any can be made more flexible, especially if they are impeding conservation of biodiversity (e.g., investment for recovery actions after a spill).

Funds could be channeled through foreign oil operators that are members of PDVSA to advance these actions. Likewise, the governments of Zulia, Nueva Esparta and Cojedes, Barinas, and some municipalities could be used to leverage projects.
8. THREATS TO BIODIVERSITY AND TROPICAL FORESTS
8.1. DIRECT THREATS TO TROPICAL FOREST ECOSYSTEMS

Below are the most important threats to the forests north and south of the Orinoco.

8.1.1 Mining of Gold and Other Strategic Minerals

Mining is undoubtedly the main threat to biodiversity in southern Venezuela, not only because of the strong and irreversible environmental and social impacts inherent to the activity but also because it is now government policy to extract resources to bolster the weakened national economy. This means the government’s environmental and social policies are subordinate to the mining policy. The Mining Arc section of this analysis contains detailed information on the environmental and social impacts of mining, particularly in southern Venezuela.

For example, in the Venezuelan Guyana, the impact of mining is significant due to the fragility of the ecosystems and the lack of knowledge of the region’s biodiversity. The Venezuelan government’s mining policy is having serious impacts on the protected areas south of the Orinoco (Canaima National Park, Guaiquinima Natural Monument, Caura National Park, and Yapacana National Park), not only because of the damage caused by deforestation and soil removal but also because of pollution due to the illegal use of mercury.

It should be noted that mining does not only exist in the south of the country; other regions and tropical forests of Venezuela are experiencing the impact, including: coal mining in the Perijá mountain range, Zulia State, where Indigenous populations are the main ones affected; nickel mining in Aragua State; and silica mining in Lara State.

8.1.2 Agricultural Expansion

In Venezuela, land is frequently and historically transformed for agricultural and livestock use, which represents the main cause of forest loss in the country. Agricultural expansion takes place mainly in the foothills of mountain ranges, and along road corridors, for the purpose of generating or extending small- to medium-sized farms.

Today, this threat affects 11 natural protected areas on the northern and eastern flank of Bolívar State and on the northern flank of Amazonas State. Within the Mining Arc, the surface area of agricultural activity increased from 7,400 km² to 17,000 km² in 2020. North of the Orinoco, agricultural expansion affects both the Andean zone and the plains of Apure and Guárico, as well as the Maracaibo Lake depression. In the Sierra de Perijá, Zulia State, invasions of Yukpa Indigenous lands by cattle ranchers have been reported. Similarly, the ecosystems of the Lara-Falcón Hills System have lost 90 percent of its historical distribution due to agricultural expansion.

216 “Caracterización y Análisis de algunas variables Socioambientales Clave en el Arco Minero del Orinoco,” SOS Orinoco, Febrero 2021
Among the factors contributing to agricultural expansion are soil depletion and the fertilizer production crisis in the country (a consequence of the dismantling of the oil industry). This has forced many farmers to migrate their crops or expand their lands at the expense of virgin lands to maintain certain production levels. Contradictory and uncoordinated policies between the agencies in charge of Agriculture and Lands and the Environment, subordinated to “social vindication” policies, have favored the invasion of unsuitable lands, which are better suited for conservation than for agricultural production. In general, Venezuela’s agrarian policy has promoted the occupation of land for agricultural purposes and the protection of land occupants. A clear and recent example is the Agro-Venezuela Mission, which provided credit and supplies to producers.

8.1.3 Forest Fires

The use of fire as a tool for clearing agricultural and livestock lands without proper control has led to a sustained increase in the number of forest fires in many protected areas. According to a study published in 2021, since 2005 Venezuela has been among the top-three Amazonian countries with the highest density of hot spots; in 2020, Venezuela’s center-north axis was considered the most-affected region. Ninety-nine percent of these fires are of anthropic origin. There is no evidence that the fires are natural or spontaneous, and they occur both inside and outside the country’s protected natural areas. In fact, most of the country’s 106 protected natural areas have a high density of hot spots, some with an increase of 130 percent to 240 percent in the last 20 years. With the exception of 2020, the years with the most fires (2003, 2007, and 2016) coincide with the El Niño phenomenon, which generates intense droughts throughout the country. The El Niño phenomenon, the effects of climate change, changes in vegetation types due to historical threats (e.g., from forest to savanna), and human activities are the main causes of fires in the country.219

In the past, Venezuela had better fire control capabilities, but the loss of investment and of environmental institutions led to the deprofessionalization of the forest fire department, the shortage of equipment, and the loss of capacity to respond to fire events. Venezuela does not have a public fire-monitoring system, and the number of forest firefighters is currently low. Approximately 70 percent of INPARQUES forest firefighters have resigned.220 Neighbors support the firefighters and park rangers that remain in the national parks to mobilize and control the fires, but they do not have enough hands or equipment for effective control.

8.1.4 Unplanned Urban Growth, Including Roads and Linear Infrastructure

Since the beginning of the 21st century, Venezuela’s social policy has favored the anarchic growth of its cities, without provision of services and at the expense of natural areas, whether they are legally protected for their natural value or restricted by their poor habitability. An accentuated and growing socio-economic crisis has promoted migration to the cities in search of jobs, increasing unplanned and unregulated growth in the country’s main cities. At the same time, the institutional capacities of INPARQUES and the Ministry of the Environment continue to diminish (smaller budgets and less-qualified personnel), making it difficult, at best, to control encroachment in the protected areas and zones surrounding the cities, and encouraging the occupation of these spaces. Such is the case of the recent invasion and construction in El Avila National Park near Caracas and the Aristides Rojas Natural Monument, as well as the intrusion into adjacent natural areas resulting from the growth of San Juan de los Morros. All of these encroachments, which are the result of population growth, do not comply with the regulations for these areas and promote activities that are incompatible with environmental


VENEZUELA FAA118/119 TROPICAL FOREST AND BIODIVERSITY ANALYSIS
conservation, including road construction, illegal water withdrawals, high-impact tourism, sewage dumping in tributaries, and noise pollution, among others. This threat affects at least 11 protected natural areas in Venezuela.

An additional threat is lack of urban planning, which is reflected in the development of marginal strips and construction on risky sites such as ravines or sloping terrain. On the other hand, growing corruption has created a new exclusive market for waste and money laundering; permits are given or not required and construction is carried out in remote areas, considered exclusive because of their natural attractions. In all of these cases, the administration ignores complaints from local residents or park users.221

8.1.5 Fuelwood Collection

Gas shortages and severe power failures, which have become frequent in Venezuela, have motivated people in certain socio economic sectors to start cooking with firewood, especially in the west and east of the country, but also in the central region. A study shows that as of 2020, 90 percent of the 54 municipalities surveyed in 21 states used firewood as one of the main fuels to prepare meals. Although people with more resources have opted to buy electric stoves, these cannot always be used due to frequent power outages, which in larger regions of the country—such as Zulia, Táchira, and Nueva Esparta—can occur daily and last for eight hours or more. To alleviate this lack of cooking fuel, many people remove trees from sidewalks, urban green areas, vacant lots, and even national parks.222,223 A key indicator of the severity of the problem is the number of gas protests. Between January and June 2020, 511 demonstrations occurred in the country due to the lack of gas, according to the Venezuelan Observatory of Social Conflict.224

Availability of gas cylinders is a problem that was accentuated in 2020 and worsened with the pandemic, but it dates back to 2007, when the government expropriated and nationalized Tropigas and Vengas, the two most important liquefied petroleum gas companies in Venezuela. Since then, state-managed PDVSA has been in charge of 100 percent of the country’s gas distribution. The current shortage is due to low production, which has decreased from 142,000 barrels of gas per day in 2006 to 15,000 barrels per day in 2020 (80–90 percent). The shortage is also due, in part, to the fact that the only active plant capable of processing and distributing gas has greatly deteriorated. As a result, thousands of Venezuelan families have resorted to firewood as a substitute for cooking or boiling water.225

8.1.6 Poaching and Trafficking of Species

In Venezuela, illicit trafficking of individuals, parts, or products of wild flora and fauna is a crime under the Environmental Criminal Law (2012).226 However, illegal hunting and trafficking of animal and plant species are widespread.

223 “La lucha del pueblo Yukpa por la defensa y recuperación de su territorio,” Movimiento Regional Por La Tierra 2020, https://porlatierra.org/casos/146/georeferencial.
for commercial purposes has become an alternative for survival, and some Indigenous communities cannot avoid it. A report indicates that from 1981 to 2015, 641,000 birds were trafficked in the country, on average 18,334 per year, and those numbers continue to increase. Wildlife trafficking, especially birds, is particularly intense in the Orinoco Delta, bound for Trinidad-Tobago and Guyana. Sea and air trafficking also occurs from other regions of the country. The impact of illegal bird hunting in Venezuela has reduced the population of several species, especially the endangered red siskin (Carduelis cucullata), which has been trafficked for decades. Illegal fishing and trafficking of fish, lobsters, and mollusks (Botuto or Queen of the Caribbean, Strombus gigas) is frequent. Artisanal fishermen are not rigorously supervised and can trade endangered species with impunity. It has been estimated that more than 900,000 individuals of 426 different species are trafficked each year in Venezuela, with a net worth of more than $321 million, which is probably an underestimate.\textsuperscript{227} Illegal animal trafficking in Venezuela ranks third, after arms trafficking and human trafficking. The economic crisis has even led to the killing of wild animals in zoos. Reports indicate the Gulf region of Venezuela and the Guajira Peninsula as the second-largest sea turtle capture area in the Caribbean, after Nicaragua. There are also reports of manatee hunting in the Gulf of Paria in Turúpeno National Park,\textsuperscript{228} which is particularly serious given the presumed low populations of this species.\textsuperscript{229,230,231,232,233,234}

\subsection*{8.1.7 Climate Change\textsuperscript{235,236,237}}

Venezuela does not have carbon inventories for any natural ecosystem, although scattered studies provide data that could be included in a national database. For example, species of the high-Tepuyan communities could experience high rates of extinction related to climate change due, in part, to their inability to migrate to higher elevations in response to an increase in temperature.

On the other hand, the levels of greenhouse gas emissions from the country's oil, gas, coal, and thermoelectric industries are considerable. Other sources with significant emissions are transportation; construction; and the forestry, agricultural, and solid waste management sectors. The oil industry continues to be the main source of greenhouse gas emissions in the country from venting into the atmosphere, gas burning (flaring), and problems associated with preventive and corrective maintenance.

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\textsuperscript{228} Jeanfreddy Gutiérrez Torres, “¿Por Qué Los Manatíes Corren Peligro En Las Zonas Costeras De Venezuela?” Mongabay Noticias ambientales, July 2, 2021, https://es.mongabay.com/2021/03/caza-illegal-de-manati-en-costas-de-venezuela/.
in the industry’s facilities and equipment. The transportation sector is identified as the second most important source of emissions, particularly due to the obsolescence and lack of maintenance of the vehicles in the fleet.

The relationship between thermal anomalies and coral health (bleaching) in Venezuelan marine systems has been widely demonstrated. The decrease in sardine fishing, an important economy for a large sector of the country, has been associated with the weakening of trade winds and their impact on coastal upwelling.

Venezuela’s commitment to climate change, as defined in its National Determined Contribution, requires an institutional framework that the country lacks. The weakness of the regulatory framework on climate change, disconnected from the rest of the national regulations, is evident in the lack of compliance with international agreements and leaves the country unassisted to face the risks derived from the problem.

8.2. DIRECT THREATS AND DRIVERS TO INDIGENOUS PEOPLES

8.2.1 Extractivism

One of the biggest threats to the biological and cultural integrity of IPLCs is extractivism, understood in a broad sense as the process of extracting natural resources, whether biotic or abiotic, from the Earth to sell on the world market. Mining (of gold, diamonds, coltan, bauxite, copper, kaolin, dolomite, and iron) is by far the most detrimental and destructive extractive activity for Indigenous territories and communities in terms of scale, frequency, and intensity.

Small groups of Indigenous and non-Indigenous miners in isolated pockets of the region practiced artisanal mining with hand tools, mainly of gold and diamonds, since at least the 1980s. However, the scale and technology of informal mining underwent an extraordinary expansion in the mid-2000s. The Chávez government legalized mining in the Imataca Forest Reserve in 2004, and mining operations were also widely tolerated in other regions, despite being technically illegal because they were consistent with the government’s drive to stimulate economic growth beyond hydrocarbon extraction. Ironically, the mining boom took off when huge areas of the Amazonian biocultural region were put under military administration. Thousands of miners from Brazil and Colombia rushed in to exploit the opening, invading many Indigenous territories in the process. The areas most affected were the Ventuari, Sipapo, Negro, and the upper Orinoco basins in Amazonas, and the Cuyuní, Caroni, Paragua, and Caura in Bolívar. The use of chemicals and heavy, mechanized equipment increased the scale and output of such operations, and the environmental impact was also far more damaging.

The declaration of the Orinoco Mining Arc in 2016 expanded the intensity and impact of mining even further. Mining in the Arc directly affects 16 distinct Indigenous groups distributed among 200 communities. Indigenous organizations, communities, and defenders have lodged numerous public
denouncements and complaints against the Orinoco Mining Arc to no avail. The number of miners in this area has increased exponentially in the last decade, from 50,000 in 2012 to 150,000 in 2016 to 500,000 today. The mining operations also continue to grow in size and intensity and can no longer be considered an artisanal activity. Many of them are effectively controlled by armed criminal organizations originating from Colombia and whose legal status in Venezuela is murky, although in many cases they count on support or protection from the Venezuelan military. Many public statements have brought this situation to light, including horrifying tales of violence, coercion, enslavement, child labor exploitation, and sexual abuse committed by armed gangs against nearby Indigenous communities or the Indigenous laborers who work there. Thus far, government authorities have issued no official or public acknowledgment regarding the presence of the irregular armed forces or their de facto control over the mines and territories. Thus, the line between legal and illegal mining is effectively blurred by the government policy of non-recognition, which seems to be consciously designed to avoid accountability.

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244 Teran Mantovani, E., “Las luchas contra el mega-proyecto del Arco Minero del Orinoco. Insumo básico para organizaciones sociales y ciudadanía en general promovido por la Plataforma por la Nulidad del decreto del Arco Minero del Orinoco.” (Expediente, 2016).


In sum, mining transgresses all cultural patterns and erodes the traditional customs and knowledge of IPLCs. The activity’s damage often extends far beyond the specific locations of the mines, especially with regard to its negative impact on human health. A recent study found that >90 percent of Yek’wana and Sanemá women in the Caura basin have levels of mercury in their bodies exceeding internationally accepted limits, while more than one-third exhibited levels of contamination high enough to pose a significant risk of causing neurological disorders in unborn babies. Other Indigenous groups severely impacted by mining in their territories include the Akawayo, Arawak, E’ñepa, Jodi, Kariña, Mapoyo, Pemón, Shiriana, Piaroa, and Warao. The malaria epidemic in recent years is in large part attributable to the expansion of mining.

### 8.2.2 Land Insecurity

Fulfillment of the constitutional mandate of land rights recognition (Article 119), as ratified in subsequent legislation (the Law of Demarcation and Guarantee of Habitat and Territory of Indigenous Peoples and the Organic Law of Indigenous Peoples and Communities), has been woefully inadequate, with 88 percent of Indigenous communities still without title to their land. In Amazonas State, only one community land title has been awarded out of a total of 639 Indigenous communities belonging to 13 different aboriginal ethnic groups. In Bolívar State, there are 551 Indigenous communities corresponding to 18 aboriginal groups, but only five communities have been granted a land title. Thus far, the state has refused to grant large, multi-community, ethnic territorial titles in the Amazonian biocultural region, even though several groups, such as the Yek’wana, Piaroa, Yabarana, Jodi, and Pemón, have filed the necessary paperwork and complied with all the regulations in force.

The state-sponsored extractivism and mining projects, as well as the extensive Protected Areas Under Special Administration system, constitute major impediments to Indigenous land titling because these activities and land use designations occur mainly on territories inhabited by IPLCs. Since the institution of the Orinoco Mining Arc in 2016, no progress whatsoever has been made in terms of land demarcation or titling. In some cases, IPLCs have been displaced from their traditional territories or forced to work in the mines, thus removing them from their traditional livelihoods and ecosystems, hindering their ability to produce sufficient food, negatively affecting their health status, impelling them to migrate out to cities or other countries, and further diminishing their capacity to claim their land rights. The Protected Areas

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Under Special Administration are protected, public lands formally administered by different divisions of the Ministry of Environment (e.g., INPARQUES) according to the category, and human activities are supposedly restricted in these areas, including those of IPLCs. But the government administrators are often based in locations distant from the Protected Areas Under Special Administration and lack the capability to monitor or safeguard these areas. The reality on the ground is that Protected Areas Under Special Administration in the Amazonian biocultural region are hot spots of mining activity, both legal and illegal, even in areas where land use restrictions are greatest, such as the national parks. In Bolívar, legal provisions have permitted mining to flourish in the Canaima and Caura National Parks, while in Amazonas, mining unsanctioned by any existing law or official policy is rife in Yapacana, Parima-Tapirapecó, Duida-Marahuaca, and La Neblina National Parks. The non-recognition of Indigenous land rights in this context effectively squanders a human resource that is already in place, possesses an intimate knowledge of the landscape, has a vested interest, and therefore is capable of keeping a vigilant watch over it. Assigning this responsibility to absentee administrators, by contrast, facilitates the expansion of mining and consequent environmental destruction. Where local people have been put in charge of their own land security, the results have been excellent, as in the case of the Kariña women guardians of the forest in the Imataca Forest Reserve.

8.2.3 Health Threats

Health is a critical problem for basically all Indigenous Peoples in the country, and the most dire situations are found in the south. Infant mortality is presently 10 times higher among the Yanomami than the national average and affects 30 percent–50 percent of live births among the Pumé of Apure State. The Warao suffer an extraordinarily high incidence of tuberculosis, and one in 10 are infected with HIV/AIDS; their inability to find medicines to treat these and other diseases is cited as a main reason for their migration to Brazil and Guyana (>1,000 persons). Indigenous Peoples also experience high levels of cardiovascular disease, type 2 diabetes, hepatitis B, malaria, dengue, diarrhea, gastroenteritis, respiratory ailments, skin infections, malnutrition, anemia, and other ailments.

The rise of mining in Amazonas and Bolívar States correlates with increased rates of malaria, hepatitis, measles, gastrointestinal diseases, and, most recently, COVID-19. The environmental conditions at the mines—standing water, water pollution, unsanitary conditions, and high densities and circulation of people—foster disease spread. Malaria in Venezuela increased by 359 percent between 2000 and 2015. The increase in 2017 alone, half a million new cases, was 71 percent greater than the previous year. Among Indigenous Peoples, malaria is the most prevalent cause of morbidity and mortality, affecting 92 percent of Indigenous communities in a recent survey. Reports often cite the critical shortage of malarial medicine, diagnostic facilities, and trained medical personnel as conditioning factors for the disease’s spread. The same survey found that 85 percent of respondents had no access to standard malarial medications and instead depended on traditional medicines and homemade cures to treat the disease.

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In 2018, measles epidemic ravaged the Yanomami, although the exact death toll is unknown, in part because the government health authorities refused to admit that a measles outbreak had, in fact, occurred and thus released no data about it. According to the Venezuelan NGO Wataniba, the measles outbreak coincided with the arrival of a settlement of illegal miners from Brazil in the area, and it is thought that the disease originated among Yanomami who had visited the mining camp.275,276 The Orinoco Mining Arc has some of the highest rates of COVID-19 in the country, and Indigenous Peoples have died from the disease at a higher rate than non-Indigenous Peoples. The full extent of COVID-19 on Indigenous health is unknown because medical facilities established to test and treat this disease are located far from any Indigenous communities.

8.2.4 Violence

Violence in different forms represents a significant threat to IPLCs that may be growing as the national political and economic crisis deepens, government institutions and the rule of law break down, the formerly constructed social safety net disintegrates, more and more people cope with poverty and scarcity, armed bands take control over wide swaths of territory, unregulated mining spreads, land conflicts arise between the miners and local communities, environmental alterations degrade resource bases and spread sickness, and deaths or migrations fracture communities and families. Fear of violence is one of the most commonly cited reasons for migration to another country.

The violence perpetrated upon IPLCs can take different forms. The most serious violent threat is directly attributed to mining and the armed forces that control it. It is frequently the case that ex-guerrilla or mafioso paramilitary groups are present alongside the Venezuelan state military, and both groups depend on the income from the mines. Occasionally, violent clashes arise among them or different irregular groups fight over a single area, and Indigenous Peoples get caught in the crossfire, as happened in the Massacre of Ikabarú in 2019.277 Obedience to their authority is often enforced by brutally violent actions. For example, persons accused of breaking the “rules” imposed by these groups may be subject to summary execution or amputation. One type of violence directed at IPLCs is dispossession of their land. The multi-community Indigenous organization Piaroa Indigenous Organization of the Sipapo has been engaged in a years-long struggle against a Colombian guerrilla outfit opaquely identified as FARC/ELN over the Guayapo River, where a large mine is located. Attempts to restrict the miners’ movements have been met with violent reactions and casualties.278 In 2012, Brazilian gold miners attacked the Yanomami village of Irotatheri in the Upper Orinoco, allegedly wiping out nearly the entire community.279 In 2019, Venezuelan security forces opened fire on Pemón villagers at Kumarakapay after they attempted to impede their passage through the community. Several Indigenous Peoples spokesmen (Warao, Kariña, Jiwi, Yanomami, Jotï) interviewed for this report concurred that one of the biggest fears for their peoples was armed intruders—whether the foreign paramilitary or Venezuelan military forces—invasions their lands.

Another kind of violence involves coerced labor or exploitation of child and adolescent labor in mining work or auxiliary tasks. The latter includes women and girls compelled to work as prostitutes or domestic

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workers in shantytowns constructed next to the mines.280,281 Young men may escape the mines but instead are drawn into the smuggling business, which operates along the Colombian and Brazilian borders. Indigenous families who migrate to the cities usually end up in poor, crime-infested neighborhoods. Persons brought up in that environment are often exposed to an urban subculture marked by clashes between rival youth gangs, drug and alcohol consumption, and street violence.282

8.2.5 Biocultural Assimilation

The Venezuelan government’s treatment and policy toward the nation’s IPLCs has long been oriented toward their biocultural assimilation, which some analysts portray as the project of imposing “civilization” (i.e., culture) on “others” (i.e., people who are different) as a way of establishing political hegemony over them.283 Though the specific policies may vary over time, this general position has been consistent throughout different historical periods and under different government administrations. Some of the major facets of culture change that have produced systemic changes in the relationships and interactions between Indigenous Peoples and natural habitats are territorial range, settlement pattern, subsistence systems, diet, market integration, monetization, dependence on industrial technology, education, language, religion, worldview and values, leadership, health and medicine, contact with outsiders, media access, and more. From an ecological perspective, all of these things can affect peoples’ traditional environmental knowledge and resource management practices. Such processes and factors become threats to cultural and biological conservation when they imply drastic and irreversible change or erosion, which in turn affect peoples’ abilities to use nature in sustainable ways or alter their perception and valuation of nature. Different empirical studies confirm the general hypothesis that ethno-ecological knowledge is vulnerable to erosion in situations of rapid culture change. For example, Piaroa adolescents and young adults raised in a modernized context display significantly lower knowledge of forest trees than men who grew up in more traditional surroundings.284,285 Loss of specialized knowledge of fire application among school-educated Pemón youth has been tied to an increase of catastrophic wildfires in the Gran Sabana in recent decades, which in turn has fostered the common misperception that the Pemón are responsible for much of the fire damage occurring in this region.286

Despite the official discourse to the contrary and the robust indigenist legislation that has been passed under the Bolivarian revolution, which remain more de jure than de facto, assimilation of Indigenous Peoples is the dominant policy direction under the current regime, as well as the one that preceded it. The educational and ideological requirements for achieving social, economic, and political mobility in contemporary Venezuelan society militate against the preservation of traditional culture and lifestyles. The policies of political incorporation, economic nationalization, and social welfare expansion under Chávez amounted to drivers of cultural integration for IPLCs. Meanwhile the rapid disintegration of the welfare state, expansion of the informal economy dominated by extractivism, and breakdown of conventional law

and order under Maduro have created social, cultural, and ecological disruptions that put further pressure on the capacity of IPLCs to transmit and maintain traditional cultures.

8.3. DIRECT THREATS AND DRIVERS RELATED TO OIL SPILLS

The following is a brief description of the most important drivers identified in the context of oil spills. These can be interpreted as the constraints, opportunities, actions, or other variables that cause these spills to occur, or, once they do occur, these can determine whether their impact on the environment is large, small, or nonexistent.

8.3.1 Lack of Oil Facilities Maintenance

The risk of accidents that result in spills is due, in part, to broken pipes (mainly due to corrosion), joints, valves, and tanks (process and storage); control system failures; broken hoses during loading and unloading of tankers; and cracks in the hulls of tankers. The excessive use of PDVSA resources in social programs and unfinished mega projects are the main causes of disinvestment in facility maintenance, which has generated a debt with service providers that currently amounts to approximately $18 million, forcing these companies to stop their activities. This disinvestment accelerated from 2015 to 2016, when oil production began to decline even more, limiting available resources and preventing the arrival of new investors due to the environment of mistrust.

8.3.2 Lack of Trained Technical and Managerial Staff

In 2001, after the government introduced new regulations on land, fishing, hydrocarbon production, and more, businessmen and the political opposition plotted to remove President Chavez from power. After two national strikes and a coup d'etat President Chavez was removed from power for a few days, but then he returned, and polarization hardened. A third strike took place, and finally a fourth strike was called on December 2, 2002, with the participation of PDVSA's management and the conviction that this would lead to the resignation of Chavez. However, in spite of the critical situation experienced in the country during the general strike, after two months Chavez fired some 10,000 oil workers who joined the strike, which was called Paro Petrolero (Oil Strike). This oil strike was not successful mainly because a large number of operating technicians, who knew the operations, did not join the strike and managed to recover production and refining activities. Due to the strike, PDVSA lost many of its specialists; however, those who remained in the company gradually retired or resigned and were replaced by poorly qualified personnel and some with no training whatsoever but with political affinity to the government. This led to technically erroneous decisions or decisions that were folded into political interests, to the detriment of PDVSA's development.

8.3.3 Lack of Effective Control of Spills Due to the Inoperability of the National Contingency Plan

The disinvestment affected both the training of technical and managerial personnel and the acquisition of materials, equipment, and marine and land transport units for spill control, weakening the structure of PDVSA's National Contingency Plan. The National Contingency Plan's actions have not been evident in recent years, suggesting they are almost inoperable. The lack of action on the part of those responsible for spills or the agencies involved has the potential for longer lasting impacts on coastal marine zones.
8.3.4 Lack of Independence of Public Powers

The lack of independence of the public authorities in Venezuela means that the agencies in charge of oversight and management do not act in accordance with the current legislation (especially the Environmental Criminal Law), usually protecting the party responsible for the impact. The knowledge that any act that damages the environment will not be prosecuted through the regular channels established by law creates an environment of impunity and no incentive to take action to prevent spills.

8.3.5 Oil Leaks From the Obsolete Fleet and Management of Vehicle Fleet Used Oil

Several studies\textsuperscript{287,288,289,290} report that worldwide approximately 35 percent to 50 percent of the hydrocarbon that reaches the seas is of urban origin, and Venezuela is no exception. The authors estimate that between 150,000 and 300,000 barrels of used lubricating oil are discarded each year, and only a small amount is recycled; the rest is probably dumped into drainage systems or soils. These eventually reach the sea through natural runoff and untreated domestic and industrial discharges into rivers.

8.3.6 Spills From Trinidad and Colombia

Spills originating in Trinidad (Gulf of Paria) and Colombia (Catatumbo River) frequently reach Venezuelan territory. A combination of lack of surveillance, control, and monitoring of water quality in the Gulf of Paria and Catatumbo River by PDVSA, and MINEC, along with inaction on the part of the Ministry of Foreign Affairs, leaves the nation without an effective system of prevention and control of spills from neighboring countries.

8.3.7 Fuel Spills or Discharges from Oil and Non-Oil Ships and Vessels

Most fishing vessels, tour operators, private yachts, recreational boats, and PDVSA service vessels leak oil and fuel, representing a chronic pollution problem in many environmentally sensitive locations, such as national parks and tourist areas. Large vessels sometimes illegally dump their bilge water offshore. There is currently a lack of monitoring and control to detect and correct oil and fuel leaks from fishing vessels, tour operators, recreational boats, yachts, and PDVSA vessels.

8.3.8 Service Stations Fuel Leaks

In many of the approximately 1,600 service stations throughout the country, fuel leaks occur due to ruptured underground tanks, which end up contaminating groundwater. There is no systematic inspection plan by PDVSA to detect and correct cracks in the storage tanks of service stations in a timely manner, nor is there capacity to remediate contaminated soils and aquifers. Hydrocarbons seep into the phreatic system and can eventually reach coastal areas.

Although catastrophic events are perhaps the most newsworthy, they are infrequent and their effect may be limited in time. Other threats to marine biodiversity are associated with recurring low-volume but relatively high-frequency processes whose cumulative effects may be even greater than those of catastrophic spills.

\textsuperscript{287} Australian Petroleum Production and Exploration Association, “Discovery: Explore the world of oil and gas: Oceans and oil spills.”


\textsuperscript{289} U.S. National Academy of Sciences, “Report 2002 by the National Research Council (NRC) Committee on Oil in the Sea: Inputs, Fates, and Effects.”

\textsuperscript{290} Freedman, Bill, Oil Pollution in Environmental Ecology, (Second Edition (1995).}
8.4. SOCIO POLITICAL AND ECONOMIC THREAT DRIVERS

The following is a description of factors in the socio-political and economic context that profoundly impact all conservation, science, and research efforts in the country and are important to understand when analyzing the current state of biodiversity. In 2015, Venezuela entered a complex humanitarian crisis. As the statement made by Venezuelan human rights organizations before the United Nations Human Rights Council voices: "It is complex because it has its origin in political factors that undermined the structures of the state, the economy and the welfare of the population. It is an emergency because, due to the collapse of the structures, the majority of the population is suffering from a situation of arbitrariness and insecurity as a product of a systemic violation of human rights through abuse, deliberate deprivation and violence. And it is humanitarian because, when the structures collapsed, the internal capacities to guarantee the most basic living conditions collapsed too, creating a massive scale of humanitarian needs, which we estimate affects more than 10 million people inside the country, and the largest refugee crisis in the history of Latin America with more than 4 million people; 2 million more could be added to this figure in the short term."

8.4.1 Absence of Rule of Law

The rule of law is the situation in which a society finds itself when the law prevails and is applied without privileges. When the rule of law is nonexistent, discretion, anarchy, and a lack of democracy prevail, leading to corruption, abuse of power, poverty, and violation of human rights. The absence of a rule of law favors those who transgress the rules and favors the powerful.

Venezuela is among the worst-ranked countries in the world in this respect, and it has the lowest “rule of law index” in South America, according to the World Justice Project. This is the root cause of the profound humanitarian crisis the country is suffering today. In particular, the absence of rule of law has led to a breakdown in separation of powers between the independent branches of government. This means that political interests dictated by the Executive Branch usually influence the decisions of the courts. In this situation, there is also no real control of the Legislative branch over the government’s actions. Either the Legislative branch is unacknowledged and ignored by the Executive or the Legislative branch acts only by mandate of what the Executive dictates. These are the situations that have prevailed in the last two decades in Venezuela. Another important aspect is that the environmental regulators are mainly controlled by the Bolivarian National Guard, a military entity that is inherently politicized. Therefore, the absence of the rule of law in Venezuela also constrains environmental law enforcement.

8.4.2 Precarious Situation of the Environmental Administration

An institutional framework—laws, organizations, personnel, operative capacities—regulates the administration of environmental policies. This institutional apparatus is centralized and in the hands of the national government, which exercises the National Environmental Authority (ANA) through the current Ministry of Ecosocialism (MINEC). ANA has undergone a palpable involution since 1999. This can be seen in the number of changes this Authority has undergone, including four name changes as well as structural changes.
adjustments. This demonstrates a lack of political clarity on environmental issues, and furthermore, an underestimation of the importance of environmental policy. The very word “ecosocialism”\textsuperscript{296} reflects a change in the philosophy of environmental management, now totally mediated by a political ideology and not by an objective environmental interest.\textsuperscript{297} Some institutions that depend on ANA, such as INPARQUES, have not undergone nominal changes, but they have gone through changes in structure, operation, and—worse—professional technical capacities. The case of INPARQUES\textsuperscript{298} is emblematic of what the entire environmental management framework has suffered, with deficient budgets and loss of human capital.\textsuperscript{299} An example of this is the scarce institutional capacity to manage conflicts and invasions on the borders and inside protected areas and forest fires.\textsuperscript{300} Internally, MINEC officials have poor professional training. Many of them come from the Bolivarian University of Venezuela, an entity with little experience in this sector and structured around political interests,\textsuperscript{301,302} with a reputation of disdaining environmental professionals coming from universities with more relevant experience (e.g., Central University of Venezuela, University of Los Andes, Simón Bolívar University). They are civil servants who also receive extremely low salaries.

Another aspect of this precarious situation is the absence of a true environmental regulatory system at the local and urban level. According to the Constitution, urban environmental management should be the responsibility of the municipalities. However, almost no municipality in the country has the structure to deal with environmental issues.\textsuperscript{303} On the other hand, an environmental institutional framework implies managing information and scientific knowledge, and in the Venezuelan case, scientific activity related to environmental management is almost nonexistent due to the country’s current crisis.\textsuperscript{304}

### 8.4.3 Permissive Extractive Public Policies

Extractivism can be defined as the exploitation of relatively large volumes of natural resources, which are exported as commodities and generate enclave economies with almost no value added to the country. Extractivism presents a dynamic of intensive occupation of the territory, generating the displacement of other forms of production (local/regional economies) with negative impacts on the environment and livelihoods of local populations.\textsuperscript{305} The extractivist economies promoted in Venezuela in recent years include the exploitation of raw materials such as gold and other strategic minerals,\textsuperscript{306} which have been prioritized over land use planning and environmental protection. Another facet related to extractivism is the creation of tourist spaces in protected areas oriented toward an elitist public with high purchasing power and/or foreigners. Palpable examples of this are occurring in the Canaima, Los Roques Archipelago, and...
El Ávila, and Morrocoy National Parks, where high-value housing is being built without permits or adequate socio environmental studies.\textsuperscript{307,308} The rights of Indigenous communities and their territories also end up being violated and their leaders coerced into accepting governmental decisions in exchange for gifts or privileges.\textsuperscript{309}

### 8.4.4 Financial Crisis from the Oil Industry Collapse

Venezuela's fiscal revenues, which supported the country's development over the last 80 years, came from the oil industry.\textsuperscript{310,311} It is evident that the collapse of the Venezuelan oil industry, and therefore of its fiscal revenues, has occurred in the last 10 years.\textsuperscript{312}

A search for tax revenues has led to the political facilitation of extractivist activities, such as gold mining in the south of the country. At the same time it has also led to the defunding of areas of public administration—in particular the ones related to environmental, biodiversity, and natural resources management—as well as of higher-education spaces such as universities, which are not only considered unimportant but might in fact represent obstacles to the economic and financial objectives of the state.

### 8.4.5 Humanitarian Crisis and Explosion of Human Rights Abuses

For the most part, armed conflicts or natural disasters cause humanitarian crises. In the case of Venezuela, human beings themselves are to blame for the "complex political emergency."\textsuperscript{313} This has become a synonym for the Venezuelan crisis and makes reference to the serious situation in the country—from a shortage of medicines and food, to the increase in crime rates and violence, and legal insecurity and institutional weakness.\textsuperscript{314} Added to this reality is a serious crisis of massive human rights violations reflected in the loss of quality of life, unattainable access to the rights of food and health, legal and personal insecurity, and institutional violence and repression of protests unquestionably perpetrated by the state. In the context of the humanitarian and human rights crisis, it is natural that the concerns regarding environmental quality management or biodiversity conservation are a low priority. This strongly contributes to the fact that environmental institutions in Venezuela are almost nonexistent.\textsuperscript{315,316}

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8.4.6 Migration Phenomenon

It is well known that the humanitarian crisis and the complex political emergency in the country is causing significant migration of Venezuelans. For the first time in Venezuela’s history, United Nations estimates indicate that by 2021, 6 million Venezuelans had emigrated. This represents an immense decapitalization of the country’s human talent, which translates into few qualified professionals working in environmental administration and in general in management and research. Much of this talent had been trained not only within Venezuela, but also in foreign technical and academic institutions. This implies a significant loss of human capital specialized in environmental management, which is also not being harnessed in the destination countries of this emigration. In particular, the flight of university professors is having a negative impact on the country’s capacity to develop professionals, technicians, and scientists suitably trained to face the challenges of biodiversity conservation and environmental management in general, as well as in the much needed inventory, research, and monitoring processes. A demographic analysis exploring the dynamics of the country’s loss of talent revealed that the science and technology system has an increasingly aging human resource and that more people are leaving the profession than entering it, a phenomenon that is wreaking havoc on the national science system. Eighteen percent of this community, which was responsible for 34 percent of the publications in Venezuela, has left the country. The loss of talent in Venezuela is similar in magnitude for all fields of knowledge, but the group of researchers in the area of oil and energy stands out. It seems that the Venezuelan science and technology system is in a deep crisis due to the implementation of erroneous public policies, most of the time contrary to the spirit and praxis of science and technology.

8.4.7 Corruption

Venezuela has one of the highest corruption rankings in the world. An enormous lack of transparency, concealment of information, and withholding of statistics all enable corruption and censorship. These undemocratic practices drive societal and institutional indifference, leading to a lack of accountability and confidence in the integrity of public institutions, which translates into impunity for crimes, including environmental crimes. This is particularly evident in cases of oil spills, which are known to be associated with the technological and operational weaknesses of the national oil industry. Through its “Corruptometer” platform, Transparency Venezuela in 2021 identified at least $42,742 million from PDVSA involved in acts of corruption, most of which remain unpunished.

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324 In Venezuela an environmental crime is any violation to the Environmental Criminal Law. In the context of Venezuela, the environmental crimes of biggest concern as of 2022 are those related to mining in the Orinoco Mining Arc and the lack of remediation to oil spills. Other environmental crimes also occur in the country, such as wildlife trafficking and illegal logging, but their impact in terms of scope, severity and irreversibility are lower.

9. ACTIONS NEEDED TO CONSERVE AND SUSTAINABLY MANAGE BIODIVERSITY AND TROPICAL FORESTS
### 9.1. ACTIONS NEEDED TO CONSERVE TROPICAL FORESTS

The majority of the Actions identified in this section were mainly thought to be implemented by civil society and in some instances by the legitimate National Assembly. There are some instances in which it may be necessary to work with the central and/or local governments, but this may be on a case-by-case basis.

#### TABLE 3. Drivers and Actions Needed to Conserve Biodiversity in Tropical Forests

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<thead>
<tr>
<th>DRIVERS</th>
<th>ACTIONS NEEDED TO CONSERVE BIODIVERSITY IN TROPICAL FORESTS</th>
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<tbody>
<tr>
<td><strong>Mining Of Gold And Other Strategic Minerals</strong></td>
<td>• Promote international campaign against illegal gold. Take international actions to deter trafficking and consumption of blood-gold.</td>
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<tr>
<td>Sustained increase in gold prices and in global demand for other minerals.</td>
<td>• Document and raise awareness of illegal mining and mining policy in Venezuela on the national and international level (general public, multilateral organizations, NGOs, etc.).</td>
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<tr>
<td>The Orinoco Mining Arc Special Development Zone, which gives a supposedly legal framework to illegal mining.</td>
<td>• Propose new land use planning and zoning based on updated and scientific data and diagnosis.</td>
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<tr>
<td>• Lobby for the communication and outreach of the Mega Reserve Law approved by the 2015 (legitimate) National Assembly. This would require working with the legitimate authorities and civil society organizations.</td>
<td>• Devise and promote replacement of the Orinoco Mining Arc scheme with other mining approaches that are more respectful of environment, biodiversity, and sustainable development.</td>
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<tr>
<td>• Repeal the legal basis of the Orinoco Mining Arc.</td>
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<tr>
<td>The incursion of irregular armed groups into Indigenous territories with mining potential, which is linked to the growing use of gold in money laundering, smuggling, and financing armed groups.</td>
<td>• Support information gathering and awareness raising with NGOs and international organizations.</td>
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<td>• Provide equipment (e.g., cell phones) to communities for environmental monitoring and awareness raising.</td>
<td>• Support networks of local journalists in the Amazon, including local people from communities in mining areas, to report on irregularities in the Orinoco Mining Arc.</td>
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<tr>
<td>• Launch prevention campaigns to warn communities of the risks of mining and working with armed groups.</td>
<td>• Discourage and block international trade of Venezuelan gold and other Guiana Shield minerals based on their categorization as “blood” gold and minerals.</td>
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### TABLE 3. Drivers and Actions Needed to Conserve Biodiversity in Tropical Forests (continued)

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<tr>
<td><strong>Mining Of Gold And Other Strategic Minerals</strong></td>
<td><strong>Corrupt involvement of military officials in sanctioning, protecting, and even managing illegal mining activity.</strong>&lt;br&gt;• Support networks of local journalists in the Amazon, including incorporating local people from communities in mining areas as reporters of these illegal activities.&lt;br&gt;• Launch prevention campaigns to warn communities of the risks of mining and working with armed groups.</td>
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<tr>
<td><strong>Poverty, lack of employment options, and loss of previously important industries.</strong></td>
<td>• Develop and encourage economic alternatives to mining, in partnership and consultation with Indigenous and local communities and organizations.&lt;br&gt;• Develop conservation projects that can offer economic incentives to indigenous and local communities, either through payment for ecosystem services, water funds, alternative livelihoods or other mechanisms.&lt;br&gt;• Educate local decision-makers on alternative economic activities.</td>
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<td><strong>Lack of demarcation of Indigenous lands, which prevents them from restricting incursions onto their land.</strong></td>
<td>• Incentivize and support the self-delimitation and formal recognition of Indigenous Peoples' lands.</td>
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<tr>
<td><strong>Agricultural Land Expansion</strong></td>
<td><strong>Absence of updated land-use plans accompanied by limited capacity to enforce them in the face of pressures such as increased demand for food and other resources.</strong>&lt;br&gt;• Support updating and implementing land-use plans within the current legal framework.&lt;br&gt;• Build capacity in land-use planning and management.</td>
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<tr>
<td><strong>Limited government capacity to promote efficiency of land use and sustainable livelihoods.</strong></td>
<td>• Ensure access to inputs for small- and medium-scale farmers and build their capacity in alternative means of income generation and value chains.&lt;br&gt;• Offer extension programs on sustainable agricultural options, including access to agricultural inputs such as fertilizers and pesticides.&lt;br&gt;• Build capacity in sound environmental agricultural practices.</td>
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<tr>
<td><strong>Lack of compliance with an outdated penal law to sanction environmental crimes.</strong></td>
<td>• Strengthen social monitoring capabilities.&lt;br&gt;• Build capacity of environmental law enforcement officers.</td>
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<tr>
<td><strong>Land expropriation from experienced producers and their replacement with less-efficient producers.</strong></td>
<td>• Support networks of landowners, recognize their work, and create linkages with local authorities to avoid expropriation.&lt;br&gt;• Build capacity for conflict management and resolution.</td>
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<tr>
<td><strong>Agricultural Land Expansion</strong></td>
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<tr>
<td>Low productivity due to fertilizer shortages and deterioration of agricultural equipment, which leads to the expansion of uncultivated land.</td>
<td>• Enhance the efficient and sustainable production of agricultural lands.</td>
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<td></td>
<td>• Implement soil conservation and sustainable use programs.</td>
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<td>Land squatting.</td>
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<td></td>
<td>• Promote, recognize, and support conservation efforts from private landowners.</td>
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<td>• Establish legal framework for private conservation areas.</td>
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<td><strong>Forest Fires</strong></td>
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<tr>
<td>Use of fire as a tool to clear and fertilize lands without appropriate control measures.</td>
<td>• Build capacity in agriculture and fire management best practices.</td>
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<tr>
<td>Use of fire as a hunting technique (especially in the southern part of the country).</td>
<td>• Recover ancestral knowledge on the proper use of fire for hunting to avoid wildfires.</td>
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<tr>
<td>Lack of clear policies, institutional capacity, and financial investment (trained personnel, equipment) to prevent and fight wildfires and to manage fires; lack of policies and institutionality regarding fire management; lack of compliance with outdated penal codes sanctioning environmental crimes.</td>
<td>• Support INPARQUES and firefighter brigades to make them more efficient in their response to fire.</td>
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<td>• Promote policies to incentivize local prevention and firefighting brigades.</td>
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<td></td>
<td>• Develop a national fire management policy.</td>
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<td>• Maintain and expand firewalls and firebreaks in protected areas.</td>
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<tr>
<td>Lack of education and awareness-raising programs promoting conservation.</td>
<td>• Provide education directed at communities on socio environmental risks.</td>
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<tr>
<td></td>
<td>• Support community fire prevention and firefighting brigades.</td>
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<td></td>
<td>• Provide capacity building in preventing and fighting forest fires.</td>
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<tbody>
<tr>
<td><strong>Unplanned Urban Growth and Expansion of Roads</strong></td>
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<tr>
<td>Abandonment of forests and countryside in favor of cities.</td>
<td>• Work with local communities in protected areas, despite the lack of state recognition of their territorial rights, to reduce impacts and inflows of miners and other outsiders.</td>
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<td>• Strengthen or provide basic services in rural and Indigenous communities to reduce motives to migrate to urban areas. Offer alternative health care options and strengthen local medical systems.</td>
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<td></td>
<td>• Develop sustainable economic alternatives for rural communities that enable them to increase their income (non-timber forest products, small-scale agriculture, etc.).</td>
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<tr>
<td><strong>Indigenous migration to cities driven by a complete lack of health care options.</strong></td>
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<td></td>
<td>• Create mobile medical units that can bring care to communities and relieve pressures to migrate. The Yanomami health program is an example.</td>
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<td>• Lobby to orient existing humanitarian response efforts to rural communities, reducing their concentration in large cities.</td>
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<td><strong>Clearing to lay electrical cables and oil and gas pipelines, including within protected areas.</strong></td>
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<td>• Build technical capacity and awareness of the importance and obligatory nature of environmental impact studies among officials and civil society.</td>
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<td><strong>Disregard for recommendations of environmental impact studies for political reasons.</strong></td>
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<td></td>
<td>• Provide education for community leaders and decision-makers on environmental management, land use, and socio environmental risks.</td>
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<td></td>
<td>• Strengthen social monitoring initiatives. Provide equipment for monitoring, reporting, and dissemination.</td>
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<td><strong>Impunity for environmental violations.</strong></td>
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<tr>
<td></td>
<td>• Provide capacity building and equipment for research, documentation, and dissemination to civil society and people affected by these environmental violations.</td>
</tr>
<tr>
<td></td>
<td>• Set up networks for anonymous reporting to authorities and news outlets as part of a social monitoring system.</td>
</tr>
<tr>
<td><strong>Fuelwood Harvest</strong></td>
<td></td>
</tr>
<tr>
<td>Unsustainable harvesting of fuelwood for cooking due to state mismanagement of gas distribution and resulting shortages.</td>
<td>• Promote the use of simple and accessible technological alternatives to fuelwood for cooking.</td>
</tr>
<tr>
<td></td>
<td>• Develop and incentivize locally the use of alternative sources of energy.</td>
</tr>
<tr>
<td></td>
<td>• Expose the government for its poor management of the gas industry, including flaring.</td>
</tr>
<tr>
<td></td>
<td>• Promote the use of biodigesters to convert solid waste to gas.</td>
</tr>
</tbody>
</table>

continued on the following page
### TABLE 3. Drivers and Actions Needed to Conserve Biodiversity in Tropical Forests (continued)

<table>
<thead>
<tr>
<th>DRIVERS</th>
<th>ACTIONS NEEDED TO CONSERVE BIODIVERSITY IN TROPICAL FORESTS</th>
</tr>
</thead>
</table>
| Illegal Hunting and Wildlife Trafficking | • Strengthen local monitoring and efficient whistleblowing mechanisms.  
| | • Improve official systems for environmental control, monitoring, and law enforcement through greater diligence and effectiveness.  
| | • Educate local communities and consumers on these issues.  
| | • Support research to assess these threats, as well as their consequences, actors, and drivers at the local and regional level.  
| | • Create local ranger programs.  
| | • Provide extension programs for communities on alternatives such as sustainable agriculture, animal nurseries, fish farms, chicken farms, and sustainable wildlife management. |
| Increased demand for food by mining settlements, which is met by illegal hunting and fishing in protected areas. |  |
| Demand on wildlife for non-food reasons (pets, medicinal uses, etc.). |  |
| Non-existent wildlife law enforcement in remote areas. |  |
| Increase in wildlife trade in response to the economic crisis and the lack of legal economic opportunities. |  |

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*Photo: Vilisa Morón Zambrano*
9.2. ACTIONS NEEDED TO CONSERVE TROPICAL BIODIVERSITY FROM THE THREAT OF OIL SPILLS

As in Section 9.1, actions outlined here are those that can be implemented by civil society and mainly related to monitoring and lobbying. In some instances the legitimate National Assembly could intervene. Another potential partner is the private sector and foreign oil companies that are not partners of PDVSA. In addition to the actions outlined below, please see Annex C for a more detailed description and list of the actions needed to address the drivers of oil spills in Venezuela. These actions are differentiated by those that can be carried out by civil society versus the Maduro government.

TABLE 4. Drivers and Actions Needed to Conserve Biodiversity from the Threat of Oil Spills

<table>
<thead>
<tr>
<th>DRIVERS</th>
<th>ACTIONS NEEDED TO CONSERVE TROPICAL BIODIVERSITY FROM THE THREAT OF OIL SPILLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil Spills (including those from Trinidad and Colombia)</td>
<td></td>
</tr>
<tr>
<td>Lack of oversight of water quality in the Gulf of Paria (to detect spills from Trinidad) on the part of PDVSA and MINEC.</td>
<td>• Maintain environmental monitoring systems that detect hydrocarbons in water, sediment, and along coasts.</td>
</tr>
<tr>
<td></td>
<td>• Conduct assessments of environmental damage for claims and indemnification purposes.</td>
</tr>
<tr>
<td>Lack of action by the Ministry of External Relations on formal claims, indemnification, and demands that such spills be reduced.</td>
<td>• Lobby for action by the Ministry of External Relations on claims, both for compensation purposes and to reduce spills.</td>
</tr>
<tr>
<td>Lack of oversight of water quality in the Venezuelan part of the Catatumbo River (to detect spills from Colombia) on the part of PDVSA and MINEC.</td>
<td>• Maintain environmental monitoring systems that detect hydrocarbons in water and sediment.</td>
</tr>
<tr>
<td>Lack of communication with Trinidad and Colombia.</td>
<td>• Update or promote bilateral agreements to attend to spills such as that between Ecopetrol (Colombia) and PDVSA.</td>
</tr>
<tr>
<td></td>
<td>• Increase international pressure on environmental issues and review noncompliance with international agreements.</td>
</tr>
<tr>
<td></td>
<td>• Invoke border treaties with Trinidad and Tobago, which include clauses related to pollution and environmental preservation.</td>
</tr>
<tr>
<td>Acts of terrorism by FARC on Colombian pipelines in the Catatumbo River basin result in environmental effects that eventually reach Venezuela.</td>
<td>• Maintain environmental monitoring systems that detect hydrocarbons in water and sediment.</td>
</tr>
</tbody>
</table>
**9.3. CROSS-CUTTING ACTIONS NECESSARY FOR BIODIVERSITY CONSERVATION**

<table>
<thead>
<tr>
<th>DRIVERS</th>
<th>CROSS-CUTTING ACTIONS NECESSARY FOR BIODIVERSITY CONSERVATION**</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strengthen Civil Society</strong></td>
<td></td>
</tr>
<tr>
<td>Lack of civil society capacity and resources to address environmental problems.</td>
<td>• Invest in building capacity and transparency of NGOs.</td>
</tr>
<tr>
<td></td>
<td>• Promote the strengthening and development of local leadership in the defense of environmental human rights.</td>
</tr>
<tr>
<td></td>
<td>• Support local NGOs through sister programs with NGOs in neighboring countries.</td>
</tr>
<tr>
<td></td>
<td>• Strengthen civil society and community organizations to monitor and watch for good environmental management.</td>
</tr>
<tr>
<td><strong>Strengthen Universities and Research Centers</strong></td>
<td></td>
</tr>
<tr>
<td>Lack of resources and opportunities for universities and research centers.</td>
<td>• Invest in making the internet and academic journals accessible to professors, students, and researchers.</td>
</tr>
<tr>
<td></td>
<td>• Provide financing for the maintenance and recovery of conservation facilities, both ex situ (biological stations) and in situ (herbariums, museums).</td>
</tr>
<tr>
<td></td>
<td>• Foster the exchange of researchers and students in regional forums (Andean, Amazonian, Caribbean). Promote meetings among environmental organizations and activists.</td>
</tr>
<tr>
<td></td>
<td>• Provide support to rescue the memory of Venezuela’s biodiversity science by digitizing and banking gray literature, such as theses and technical reports, as well as local scientific journals that are only published in print.</td>
</tr>
<tr>
<td></td>
<td>• Support scholarships, internships, graduate work, and partnerships with U.S. universities.</td>
</tr>
<tr>
<td></td>
<td>• Build and strengthen the capacities of young conservation professionals to develop proposals and secure funding for work in Venezuela.</td>
</tr>
<tr>
<td><strong>Support Policy Reform</strong></td>
<td></td>
</tr>
<tr>
<td>Lack of specific key policy frameworks to safeguard natural resources and represent the forefront of conservation.</td>
<td>• Support drafting and proposing, through civil society organizations, a Law on Conservation of Private and Communal Lands.</td>
</tr>
<tr>
<td></td>
<td>• Support drafting and proposing, through civil society organizations, new laws on climate change, ecosystem services, and other neglected biodiversity themes.</td>
</tr>
<tr>
<td></td>
<td>• Support drafting and proposing, through civil society organizations, Municipal Environmental Management Laws within their legal remit.</td>
</tr>
</tbody>
</table>
10. MEETING THE IDENTIFIED NEEDS TO CONSERVE AND SUSTAINABLY MANAGE BIODIVERSITY AND TROPICAL FORESTS
This section describes how the Mission is addressing actions necessary to conserve and sustainably manage biodiversity and tropical forests. However, Venezuela does not have a Mission. Instead, USAID has an Operating Unit managed from Washington, D.C., by the LAC South America Office that supports and maintains democratic change by strengthening civil society, building up the media, and enabling other democratic stakeholders to serve as watchdogs and human rights defenders and advocate for democratic rights. The work of the Venezuela Operating Unit is divided into five major categories: defending human rights, civil society, governance, independent media, and transparent electoral processes and consensus building. There are potential areas of overlap between the recommendations made in Section 11 and the themes under which the current Venezuelan Operating Units work. Table 6 includes high level connections between themes and recommendations (see Section 11).

**Table 6.** Section 11 Recommendations and Themes from the Venezuelan Operating Units

<table>
<thead>
<tr>
<th>CATEGORIES</th>
<th>CURRENT PROGRAMMING IN VENEZUELA</th>
<th>RATIONALE FOR INCLUDING THE RECOMMENDATION UNDER THIS THEME</th>
<th>RECOMMENDATIONS (SEE SECTION 11 FOR FULL DESCRIPTION OF EACH RECOMMENDATION)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defending Human Rights</td>
<td>Defending human access to land rights and natural resources is a human right, especially to Indigenous and local communities. Likewise, having access to clean water, energy, and a livelihood is also a human right. Therefore, the recommendations (or goals) aligned under this theme promote the defense of human and environmental rights.</td>
<td>GOAL 2: IMPROVE NATURAL RESOURCES MANAGEMENT AND LOCAL LIVELIHOODS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>GOAL 3: SUPPORT LANDSCAPE-LEVEL CONSERVATION</td>
<td></td>
</tr>
<tr>
<td>Civil Society</td>
<td>Currently, the Venezuela Operating Unit supports civil society in multiple ways, from improving access to health to civil society strengthening. Here we have included recommendations where civil society is a key actor for advancing conservation goals in Venezuela and protects its biodiversity.</td>
<td>GOAL 2: IMPROVE NATURAL RESOURCES MANAGEMENT AND LOCAL LIVELIHOODS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>GOAL 3: SUPPORT LANDSCAPE-LEVEL CONSERVATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>GOAL 4: EMPOWER LOCAL STAKEHOLDERS TO IMPROVE THEIR ABILITY TO SAFEGUARD BIODIVERSITY AND PROTECT TROPICAL ECOSYSTEMS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>GOAL 5: IMPROVE HEALTH AND BASIC SERVICES IN REMOTE COMMUNITIES</td>
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</tbody>
</table>

*continued on the following page*
<table>
<thead>
<tr>
<th>CATEGORIES</th>
<th>CURRENT PROGRAMMING IN VENEZUELA</th>
<th>RATIONALE FOR INCLUDING THE RECOMMENDATION UNDER THIS THEME</th>
<th>RECOMMENDATIONS (SEE SECTION 11 FOR FULL DESCRIPTION OF EACH RECOMMENDATION)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance</td>
<td>Venezuela Legislative Processes Assistance</td>
<td>Recommendations that fall under this theme are related to improvements in the Venezuelan legal framework and policy, as well as large-scale management planning to support conservation goals.</td>
<td>GOAL 3: SUPPORT LANDSCAPE-LEVEL CONSERVATION</td>
</tr>
<tr>
<td></td>
<td>Support to the Interim Government of Venezuela</td>
<td></td>
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<tr>
<td></td>
<td>Build Interim Government's Capacity to Develop/Implement Communications Strategy</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Venezuela Sectoral Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interagency Agreement with Department of Commerce/Commercial Law Development Program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent Media</td>
<td>Assisting Independent News Supply #1</td>
<td>Similar to what USAID is currently funding under Independent Media, this recommendation would support independent media and civil society to document and report on environmental crimes and threats that are altering and destroying Venezuela’s forest and biodiversity. In the case of Indigenous Peoples, reporting on environmental degradation is also closely linked to their right to land and self-determination.</td>
<td>GOAL 1: INCREASE TRANSPARENCY AND INFORMATION ABOUT THREATS TO BIODIVERSITY</td>
</tr>
<tr>
<td></td>
<td>Assisting Independent News Supply #2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interagency Agreement with the U.S. Agency for Global Media</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transparent Electoral Processes and Consensus Building</td>
<td>Transparent Electoral Processes</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interagency Agreement with Department of State/Conflict and Stabilization Office</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
II. RECOMMENDATIONS TO CONSERVE AND SUSTAINABLY MANAGE BIODIVERSITY AND TROPICAL FOREST
The main recommendation of this report is to stay and work alongside the many Venezuelans that continue to do great conservation and development work. While the situation in Venezuela is dire and it seems impossible to advance goals and activities that are not aligned with the regime, it is possible. Venezuela is part of the Amazon Biome and harbors great extensions of tropical forests that are necessary to achieve global climate change goals. There are also numerous Indigenous and local communities, including uncontacted tribes, researchers, social change agents, and environmental champions, that are there to defend, investigate, and work alongside new partners and protect Venezuela’s valuable natural resources. Investing in Venezuela’s biodiversity conservation will pay off significantly in the immediate, intermediate, and long term.

Below is a series of goals and actionable recommendations that could be implemented now to sustainably manage biodiversity and protect Indigenous Peoples. The list includes a few practical considerations to work more effectively in Venezuela and increase the likelihood of success. The main implementer and partner for most of these actions is civil society, including indigenous organizations, indigenous leaders and local communities. The legitimate National Assembly is also a potential partner that could support, to some degree, some of the recommendations mentioned below. Local governments and the private sector are potentially other allies but again the main actor identified to lead biodiversity conservation work and support indigenous communities in Venezuela is civil society.

II.1. RECOMMENDATIONS TO CONSERVE AND SUSTAINABLY MANAGE BIODIVERSITY AND OIL SPILLS

GOAL 1: INCREASE TRANSPARENCY AND INFORMATION ABOUT THREATS TO BIODIVERSITY
The lack of reliable and timely information to inform decisions, understand trends, and measure changes over time is a common theme across all threats and ecosystems in Venezuela. This is a basic need in the country to advance science, protect Venezuela’s unique biodiversity, and support environmental justice.

Action 1: Establish Threat Observatories (Data Collection, Citizen Advocacy, and Monitoring) This action includes the creation of a series of national observatories (or watchdogs) to monitor oil spills, mining, wildfires, poaching, deforestation, and any other significant threat and report on human and environmental rights abuses to promote environmental justice. The observatories would use a combination of citizen science, citizen advocacy, online reporting, and remote sensing imagery analysis to document, file complaints, monitor; and make more visible the occurrence of illegal activities on the ground. Field validation by local stakeholders using accessible technologies (e.g., cell phones) is essential to confirm satellite imagery findings and therefore allow for a more robust, credible, and opportune source of information. Information should be made publicly available though simple and accessible high-impact reports.

Action 2: Support Independent Media and Journalism
Journalists on the ground in Venezuela are documenting environmental threats and human rights abuses. Supporting their work and establishing platforms and outlets to make their reports and data more frequent and visible, is key to increasing transparency and creating awareness about Venezuela’s biodiversity and its current status.

Action 3: Advance Communication Campaigns (From Local to International)
Using the information gathered by journalists and the observatories, impactful campaigns can be put
GOAL 1: AVOID MINE AND ARMS EMERGENCE

This goal seeks to avoid the economic and social consequences of extractive activities, as well as the proliferation of armed bands and paramilitary groups. Efforts would involve promoting campaigns within local and Indigenous communities to raise awareness of the dangers and consequences of participating in mining and working with paramilitary and armed gangs, and international campaigns can expose environmental crimes or discourage purchase of blood minerals from Venezuela’s forest and Indigenous lands. The campaigns could also serve as pressure for Venezuela to comply with international agreements (in the oil, mining, and environmental sector).

GOAL 2: IMPROVE NATURAL RESOURCES MANAGEMENT AND LOCAL LIVELIHOODS

This goal seeks to promote alternate sources of energy, to promote the adoption of sustainable natural resources management practices, and to diversify income as a means to adapt to the current crisis the country is experiencing, including shortages of gas, food, and basic assets to practice viable economic activities.

Action 1: Establish Conservation Enterprises

This action focuses on establishing sustainable economic activities that support rural and Indigenous communities at the local level through natural resources management, including timber and non-timber forest products, agroforestry, and agriculture.

Action 2: Promote Alternative and Reliable Sources of Energy

Given the current energy crisis in Venezuela, use of alternative and sustainable sources of clean energy—especially for cooking—can avoid fuelwood harvesting and improve the quality of life of many remote communities in Venezuela. This action could include fuel-efficient cookstoves and solar energy targeted in rural and Indigenous communities.

GOAL 3: SUPPORT LANDSCAPE-LEVEL CONSERVATION

This goal seeks to promote large-scale conservation by supporting civil society (including Indigenous communities) to be active guardians of the forest. Actions also include strengthening tenure and resource rights.

Action 1: Promote Indigenous land titling and conservation

Venezuela has the legal framework to support Indigenous land titling, but little has been done to advance it. Given the current political situation, a first step in this process is to support self-demarcation. This is not only a prerequisite for tenure but helps empower Indigenous Peoples to defend their land rights from outsiders. Self-demarcation helps establish responsibility through a bottom-top approach. Most Indigenous habitat and land are in protected areas, therefore it is important to strengthen capacity to push for better governance and co-participatory mechanisms, and enhance protected area management effectiveness. For more detailed information, see recommendations under Section 6 Indigenous Peoples.

Action 2: Establish a Network of Private and Community Conservation Areas and Local Forest Guardians to Protect Critical Ecosystems

This action focuses on supporting Venezuela’s network of landowners that protect more than 400 km² of tropical forests and other valuable ecosystems by building capacity of fire brigades and supporting grassroot efforts such as local guardians who defend forest and natural resources in the places they live and manage.

Action 3: Support Restoration and Reforestation Efforts at the Community Level

This includes efforts inside and outside protected areas and in partnership with rural and Indigenous communities and civil society.
GOAL 4. EMPOWER LOCAL STAKEHOLDERS TO IMPROVE THEIR ABILITY TO SAFEGUARD BIODIVERSITY AND PROTECT TROPICAL ECOSYSTEMS

Conservation is carried out by members of civil society, researchers, students, and local/Indigenous leaders and community members. This goal supports their ability to be the leaders in biodiversity conservation, keep the government accountable, collect data, and ultimately to foster human well-being and environmental protection in Venezuela.

Action 1: Strengthen Civil Society
Strengthening civil society includes support for implementing projects, collecting baseline data, and monitoring protected areas and threats, strengthening operations, and building networks to improve capacity to manage funds and contribute to regional efforts to protect biodiversity. Fire brigades, Indigenous organizations, and local forest guardians fall under this type of civil society.

Action 2: Strengthen Universities and Research
Actions to strengthen universities and research include funding professors, researchers, and students to advance their education and use investigation as the basis for good environmental practice. Providing scholarships and internships to study abroad or in the country, resources to get access to peer reviewed journals, or resources to renovate equipment and laboratories are some of the ways to strengthen the academic capacity of Venezuela and enable universities to continue to practice conservation and advance science.

GOAL 5. IMPROVE HEALTH AND BASIC SERVICES IN REMOTE COMMUNITIES

There is undeniable evidence that Indigenous territories are areas of great biodiversity and one of the best conservation strategies to avoid encroachment. The people-nature relationship is bidirectional: healthy ecosystems support healthy people, and healthy people ensure healthy ecosystems. To the degree that remote communities have access to basic services that allow them to have a dignified life, they will be able to defend their ancestral lands and protect biodiversity.

Action 1: Improve Access to Health Care in Remote Communities
Indigenous communities in Venezuela are dying of preventable diseases at a faster rate than any other population in the country. Access to healthcare is a human right as well as a conservation strategy. Interventions such as telemedicine and mobile health care in remote villages are paramount to the survival of Indigenous Peoples and the forest where they live (see Section 8.2).

Action 2: Improve Access to the Internet, Clean Water, and Clean Energy
Internet access, clean water, and clean energy are all interrelated. They are necessary to increase economic opportunities and well-being in rural and remote areas, benefitting particularly women, children, and Indigenous Peoples.

GOAL 6. IMPROVE THE RULE OF LAW THROUGH CIVIL SOCIETY ACTION
Currently, the Venezuelan legal framework has some gaps that put the country behind in comparison to other countries in Latin America. This goal seeks to highlight certain laws related to the Orinoco Mining Arc and create proposals for new laws to strengthen the legal framework, including the framework for Payment for Ecosystem Services and in situ conservation conducted by civil society organizations (see Section 4.4.2).
11.1.1 Conservation Programs Considerations in Venezuela

Below are a series of recommendations to consider when working in Venezuela.

• Invest in local partnerships, pursuing long-term changes on a small scale.
  • Working with the national government (and regional governments, besides a few opposition governors) is almost impossible, so, in addition to the importance of discretion, engage with local partners, including local governments, universities, civil society, community organizations, religious groups, etc.
  • Understand that the existing technical and administrative capacity of such partners may be quite low in many cases, so financial mechanisms should be flexible and accommodating (see below).

• Be flexible with financing strategies and methods.
  • While still requiring indicators and verifiable results, keep in mind that detailed accountability requirements can be challenging given the informal/discreet ways of conducting business in Venezuela.
  • Be cautious when calculating costs, keeping in mind that national price/salary benchmarks may not actually constitute decent or reasonable compensation given the economic crisis.
  • Keep ad hoc funds on hand to take advantage of emerging opportunities.
  • Coordinate efforts with other foreign donors.

• Ensure donors and implementing partners working in Venezuela are knowledgeable about the realities of the country’s situation.

11.2. RECOMMENDATIONS TO PROTECT INDIGENOUS PEOPLES’ RIGHTS

11.2.1 Indigenous Land Rights Vindication

Considering the favorable track record of IPLCs as sustainable users and managers of biodiversity and ecosystem services, turning the constitutional promise of Indigenous land rights into real practice represents a promising conservation strategy. Eighty-eight percent of all Indigenous communities currently have no title, which strips them of legal authority and leaves them and their habitat vulnerable to invasions by outsiders. Keeping in mind that Indigenous populations are dynamic entities, more emphasis should be placed on relatively large, ethnic-based territories encompassing multiple communities instead of relatively small, single-community-based lands.

A first step toward making this happen is to revive the dormant process of Indigenous land demarcation. Because the current government has shown little or no interest in promoting this process, the best option for advancement lies with support for ethnic- or community-based self-demarcation projects in which local actors take on a leading role in the mapping of land areas and definition of borders. At the same time, it should be acknowledged that many IPLCs currently lack the tools and technical knowhow to produce georeferenced maps or fulfill other documentary requirements on their own. If these requirements cannot be simplified, then
collaborations should be established or encouraged between IPLCs and outsiders (e.g., academics or NGOs) who have the required expertise and resources. The most impressive auto-demarcation projects in Venezuela have been those involving such collaborative arrangements. Ideally, project managers should seek a broad base of national and international supporters as witnesses and advocates in order to strengthen their claim of legal land title, especially in the face of governmental resistance.

Where Indigenous territories overlap with national parks and other Protected Areas Under Special Administration, co-management partnerships between IPLCs and state environmental protection agencies should be considered. IPLCs have a year-round presence, possess intimate knowledge of their territories, and have direct interests in preserving environmental quality, making them well-suited to be park rangers or guards. State environmental protection agencies control different technical and administrative resources and are in a better position to coordinate actions with other government agencies.

11.2.2 Health Care

Human health is directly associated with ecosystem health and vice versa. Health problems related to the introduction or spread of diseases as a result of mining or other environmental changes, or to deficient access to essential medicines and health care services, are a principal driver of migration among IPLCs. In that sense, recuperation and reinforcement of the public health care system for all IPLCs is a high priority action. Guaranteeing the local availability of quality health care at different scales, from the local (e.g., well-equipped medical dispensaries, well-trained community health workers, regular vaccination and vector control campaigns, traveling doctors, and dentists) to the regional (functional hospitals, access to specialists, emergency medical equipment) levels, is necessary to minimize rapid population movement and crowding, which often lead to destructive ecological impacts.

More equitable distribution of modern health care and other vital services that do not discriminate against the more isolated groups or those living in smaller, less-permanent communities is an important aspect of this issue. Given the logistical constraints of servicing dispersed or isolated communities, one possibility for extending coverage is expanding telemedicine systems. Satellite communication systems set up for medical purposes are already available in a few places, run by the SAOI or by private organizations such as the Maniapure Foundation, so some technical infrastructure and experienced practitioners already exist in Venezuela. Another enhancement would be regular visits by medical specialists or teams (e.g., malaria control, dentistry) to communities on a rotating basis. Some special health programs designed for isolated groups, like the Yanomami health program, are currently in operation, but such programs need to be expanded and adapted to different biocultural contexts. Greater efforts should also be made to incorporate and strengthen traditional medical resources and capabilities, such as the planting of community medicinal gardens as annexes to the local medical dispensary or apprenticeships with local expert healers.

11.2.3 Security Restoration

Recovering the safety and security of the IPLCs is a prerequisite for establishing sound environmental protection practices over the long term. This starts with the expulsion of the armed predatory gangs—whether guerrillas, paramilitary, or common criminals—that operate with impunity in many Indigenous territories. The gangs are the primary purveyors or promoters of illegal mining and its deleterious effects. They are also often involved in the illegal narcotics trade and have been known to distribute drugs among local user groups. In some cases, they have taken over the lands of IPLCs by force or bribery, have coerced the people to work for them, and have created divisions within the communities by cultivating the loyalties of certain members and then turning them against their own people. Such conflicts are in turn some of the key drivers of Indigenous migration to cities or abroad and hence of loss of connection to traditional habitat. Driving out these belligerent forces would likely require a police or military operation on a scale that seems unthinkable under the present regime, especially considering all the evidence of cooperation or collusion between them and the Venezuelan military. Fundamental changes in the national government or the policy would probably have to occur to restore the peace and security that IPLCs so desperately need.

In the meantime, however, IPLCs can use certain measures in their own defense, with external help. One would be amplifying the visibility of illegal activities and actors wherever they occur. Setting up a communications network among Indigenous organizations, communities, journalists, activists, and any other interested parties would be an effective means for spreading the information. The network could begin by distributing smart phones equipped with cameras and GPS with satellite communication capability to IPLC members. A web page or social media site could be set up or partnered to disseminate the information to national and international public audiences (see https://mineria.amazoniasocioambiental.org/ and https://watanibasocioambiental.org/problematicas/ for relevant examples). Influencing public opinion through information sharing is a first step to changing the policy. The network could also raise awareness within the Indigenous population. A related effort would be to organize awareness campaigns among affected IPLCs regarding the risks associated with the paramilitary groups, mining, narcotics, and their social and environmental effects through workshops or literature distribution.

11.2.4 Economic Alternatives to Predatory Extractivism

Predatory extractivism has risen in the wake of the collapse of the petrostate and rentier economy in Venezuela. Reducing the allure of working in the mines, as well as the power of the interest groups that profit from them, will require viable economic alternatives. IPLCs constitute a valuable human resource for developing such alternatives in that they possess knowledge of the tropical forest environment and how to extract economic products from it on a sustainable basis. Many examples of innovative enterprises based on traditional occupations already exist: gastronomic creations (e.g., catara sauce, moriche confections, pineapple preserves), native tree species plantations (e.g., tonka bean, seje, copoazu), artwork (e.g., decorative basketry and ceramics, wood carvings, jewelry), wicker furniture manufacturing, medicinal or adaptogenic remedies, honey production, cosmetics (e.g., perfumes), animal husbandry (e.g., capybara, arrau turtle, poultry, water buffalo), and more. At the same time, efforts to commercialize local products face several infrastructural, organizational, informational, and technical limitations that


may require external assistance to achieve their full economic potential.\footnote{Van Looy, T., Carrero, G.O., Mathijs, E., and Tollens, E., “Underutilized agroforestry food products in Amazonas (Venezuela): a market chain analysis,” Agroforestry Systems 74 (2008): 127–141.} One helpful action would be to provide financial and technical support for socially equitable, economically viable, value-added, environmentally friendly development initiatives, in particular those involving agroecology and NTFP utilization. Offering small, low-interest business loans to enterprising individuals or cooperatives would go a long way toward jump-starting the Indigenous economy. A supporting action would be to offer vocational educational programs.

### 11.2.5 Cultural Conservation

IPLCs adapt symbiotically to their biodiverse-rich habitats through unique cultural knowledge and practices that have been tried and tested over many generations, yet they are also open to incorporating new information. However, Indigenous Peoples of the Amazonian biocultural region have also been subject to strong forces of cultural modernization and assimilation over several decades, which have intensified in recent years, leading to the erosion of traditional knowledge. Tribal elders and leaders have expressed concern for the loss of this intellectual heritage and have requested that special cultural conservation projects be undertaken.\footnote{Arvelo Jiménez, N. and Jiménez, S., eds., Atlas Dekuana (Caracas: Asociación Otro Futuro, 2001).} This will require going beyond the merely rhetorical right to maintain cultural differences expressed in the Bolivarian Constitution and subordinate laws and instead adopting concrete actions. Traditional culture is closely associated with local language and therefore, initiatives to preserve culture should include language and vice versa. Cultural knowledge documentation efforts, especially among groups that are most endangered, should be supported, such as small groups and those under more-intensive acculturation pressures. A relevant example would be the Murúkuni Community Museum of the Mapoyo people.\footnote{Zent, E., S. Zent, S., Jodï, Nï, and Jodena, U, Jkyo Jkwainï: Nï Jotï Aiye/Libro Comunitario Jotí: Historia, Territorio y Vida (Caracas: Ediciones IVIC, 2019).} Special attention could also be directed to promoting the transmission of strategic ethno-ecological knowledge from elder to younger generations, such as the expert pyrotechnic skills employed by Pemón resource managers in the fragile Gran Sabana ecosystem. The REIB could play a key role in this type of action.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{photo}
\caption{Photo: Jorge Salvador, Unsplash}
\end{figure}

11.2.6 Ethno-Cultural Education

Formal education continues to be a major driver of Indigenous language and culture change and thus alteration of ethnoecological relationships. The REIB needs to be implemented in a more systematic and universal fashion, yet it must also be tailored appropriately to distinct ethnolinguistic and cultural contexts. A preliminary step toward achieving this goal would be the preparation of language- and culture-specific educational and other pedagogical materials. Relatively few of these materials have been produced, and fewer still have involved the collaboration of local teachers and cultural experts along with academy-trained educators. A related endeavor is language and cultural documentation, which would optimally have cultural researchers working together with local consultants. Given the importance of IPLCs as biodiversity stewards moving forward, REIB curricula should include environmental education along with elements of traditional environmental knowledge.

Beyond making school curricula more culturally compatible, educational alternatives that do not require migration to larger settlements, towns, or cities could be explored, including itinerant Indigenous teachers who move among a cluster of small villages, remote learning venues (e.g., online courses), short-term intensive classes, or expert-apprentice arrangements for certain skill-based subjects. Remote learning depends on internet access, which many communities in the Amazonian biocultural region do not have at the present time. However, the Internet is a double-edged sword; although it is a powerful educational resource, it may also be a powerful force for eroding traditional knowledge. Therefore, community decision-makers should carefully consider and regulate internet access and usage.
ANNEX A.
STATEMENT OF WORK
STATEMENT OF WORK
USAID/Venezuela Tropical Forest and Biodiversity Analysis

I. BACKGROUND

As part of the documentation for strategic planning for activities in Venezuela, USAID is required by Sections 118 and 119 of the Foreign Assistance Act, as amended, to prepare an analysis of tropical forests and biodiversity in Venezuela.

By mandating a FAA 118/119 analysis (hereafter referred to as “the analysis”), the U.S. Congress recognizes the fundamental role that tropical forest and biodiversity play in supporting countries as they progress along the journey to self-reliance. Based on this analysis, USAID will define to what extent the Agency activities contribute to biodiversity conservation needs in Venezuela. The analysis will assist in strengthening USAID’s role in biodiversity conservation by integrating biodiversity and tropical forest conservation in strategic planning documents.

1.1 Summary of Relevant Parts of FAA Sections 118 And 119

FAA Sections 118 and 119, as amended, require that USAID missions address the following:

1) FAA Sec 118 Tropical Forests

(e) COUNTRY ANALYSIS REQUIREMENTS. Each country development strategy, statement or other country plan prepared by the Agency for International Development shall include an analysis of:

1) The actions necessary in that country to achieve conservation and sustainable management of tropical forests, and
2) The extent to which the actions proposed for support by the Agency meet the needs thus identified.

2) FAA Sec 119 Endangered Species

(d) COUNTRY ANALYSIS REQUIREMENTS. Each country development strategy, statement, or other country plan prepared by the Agency for International Development shall include an analysis of:

1) The actions necessary in that country to conserve biological diversity, and
2) The extent to which the actions proposed for support by the Agency meet the needs thus identified.

The FAA 118/119 analysis for Venezuela must adequately respond to the two questions for country strategies, also known as “actions necessary” and “extent to which.”

1.2 Purpose

The primary purpose of this task is to conduct an analysis of tropical forest and biodiversity in compliance with Sections 118 and 119 of the FAA of 1961, as amended, and USAID’s Automated Directives System (ADS) guidelines. The analysis will inform USAID in the development of strategic planning for Venezuela. USAID’s approach to development requires that the Agency examine cross-sector linkages and opportunities to ensure a robust development hypothesis. Biodiversity conservation is a critical
approach for achieving sustainable development and should be considered in USAID strategic approaches to improve development outcomes. The analysis therefore is an opportunity for USAID to better understand the strategic linkages between the conservation of a country’s tropical forest and biodiversity and development, so that it can structure a sound results framework to support future programming. Notably, the analysis will identify strategic linkages at the results framework level, highlighting opportunities to integrate tropical forest and biodiversity conservation into priority development sectors identified.

While the analysis should not be used as a climate-risk assessment, climate change is a global concern, and as such, the analysis will evaluate the threat, if information exists, to Venezuela’s tropical forest and biodiversity from climate change, as this is a concern in Venezuela. In addition to evaluating the climate change threat to biodiversity and tropical forests, the analysis team should consider climate change as a cross-cutting theme and should analyze and incorporate climate change, as appropriate, throughout the report. Climate change vulnerabilities should also be considered when developing the report’s recommendations.

The analysis team should identify innovative, integrated strategic approaches that link tropical forest and biodiversity conservation to all USAID programming sectors, and to environmental degradation, for example where possible identifying cost-effective opportunities for mitigating the environmental damage caused by the oil sector. The analysis team should also include a review of other sources of climate information available such as the World Bank Climate Change Knowledge Portal and the United Nations Climate Change website.

According to the Caracas-based human rights group PROVEA, between 2010 and 2016, the state oil giant PDVSA was responsible for more than 46,000 spills of crude and other pollutants. At the same time, analysts are warning that ruptured pipelines, rusting tankers and rickety refineries are contributing to a mounting ecological disaster in Venezuela, and environmentalists say it could affect populations of dolphins, crocodiles, seabirds and green turtles. Many of Venezuela’s oil spills are the result of ruptures and leaks from aging crude oil pipelines as well as decaying refineries that have not been adequately maintained or overhauled for nearly a decade, due to a lack of spare parts, a brain drain of technicians and widespread corruption that have crippled oil production and fuel refineries.

Oil generates strong environmental impact, also given the residue of coke and other minerals co-product of several processes used during petroleum refining, affecting the livelihood and health of surrounding communities. Moreover, Venezuela’s refineries, when operating, aside from emitting crude oil are known to belch toxic fumes into the atmosphere. Airborne pollution in Venezuela is being worsened by PDVSA continuing to engage in the controversial process known as flaring. The World Bank, in an April 2021 report, identified that Venezuela is the sixth top country by gas flaring after Algeria, the U.S., Iran, Iraq, and Russia (source: Global Gas Flaring Tracker Report). Meanwhile, PDVSA, the national oil company, stopped releasing operational information from 2016.

The heavily corroded state of PDVSA’s energy infrastructure, coupled with a lack of regulation, skilled technicians, and environmental protections in Maduro’s Venezuela, is not a problem solely for that country.

337 https://www.jstor.org/stable/24919592
338 worldbank.org
339 Venezuela’s Crumbling Oil Industry Is An Environmental Nightmare | OilPrice.com
It is impacting many countries in South America and the Caribbean, notably Trinidad and Tobago, Brazil, and Colombia.  

In addition to this situation, in 2016, to compensate for a lack of oil revenue, Maduro’s regime decreed 12 percent of the Venezuelan Amazon as a “mining development region” known as the Arco Minero. This unique rainforest ecosystem, rich in biodiversity, also contains vast reserves of coltan, iron, bauxite, diamonds and, most importantly, gold. Hundreds of mining sectors have been detected, including 59 illegal gold mining clusters in Canaima National Park, a UNESCO World Heritage site, and other protected areas, which are home to 27 indigenous communities.  

Specific areas of interest during the development of this analysis will be the oil industry and the mining sector, as potential main sources of environmental degradation in Venezuela.

1.3 USAID Program

Venezuela is currently a non-presence country for USAID. Current programming managed out of the LAC Bureau in Washington DC, focuses on Democracy, Human Rights and Governance (DRG) programs. In addition, small activities focusing on agriculture, food security, and health are managed by other bureaus.

Appendix C provides additional information on USAID’s activities in Venezuela.

II. STATEMENT OF WORK

To achieve the above-stated purpose, the analysis team, under the direction of Environmental Incentives (EI), will proceed as described in this section. This assessment is based on synthesis and analysis of existing information (including media analysis) coupled with key stakeholder and expert consultations. Findings will be provided to USAID at several steps during the analysis process, as described below under deliverables. Information will be collected through research and review of published and unpublished literature and reports, interviews and geospatial analysis. In Venezuela, the generation of original primary data is necessary for certain sections of the analysis for the following reasons:

1. Official data (data from the regime) is skewed and should not be fully trusted.
2. Due to the lack of funding for research, there is very little information on some topics, which requires consultants to be resourceful and generate, for some sections of the report, information.
3. Venezuela does not have a previous 118/119 to use as a baseline.
4. The trusted, available data is very outdated and in some cases only accessible to a few.

Under the direction of Environmental Incentives, the analysis team will evaluate the status of tropical forests and biodiversity in Venezuela. The focus of all activities undertaken will be twofold:

A) Identify actions necessary to conserve tropical forests and biodiversity and the extent to which the mission meets the actions necessary, and

B) Develop recommendations that will guide USAID in addressing the “extent to which” in the strategic planning for Venezuela.
To accomplish this task, the analysis team with the leadership of EI will perform the activities in Sections 2.1, 2.2, and 2.3:

### 2.1 Work Actions: Planning/Logistics, Desk-Based Data Collection, Analysis, and Preliminary Report

1. Within one week of contract signing, the analysis team will **hold an initial meeting with staff from USAID** to include the Activity Manager and other available staff such as Program, Technical, and Desk Offices. Participants will discuss USAID’s interests with respect to ongoing and potential Venezuela programming, the approach the team will take to conduct the analysis, and recommendations for potential biodiversity linkages with various sectors, including DRG, agriculture, and health. Discussions will include whether and how to revise the team’s approach to the “extent to which” section, given USAID’s non-presence in Venezuela and current funding and programming. USAID staff also will brief the analysis team on any sensitivity related to the exercise (i.e., political constraints, USG challenges in conducting programming in Venezuela, protection of sources, the potential for raising expectations and the need to be clear about the purpose of the analysis, or other generalized in-country implementation challenges that could refine the analysis team’s consultations and strategic or programming recommendations) and relevant Agency guidance on approaching suggested stakeholders and experts with respect to this assignment.

2. Gather and begin to **analyze existing information** to identify tropical forest and biodiversity status, key biodiversity issues, stakeholders, policy and institutional frameworks and gaps in the available information. There is no previous 118/119 analysis for Venezuela. Reports and documentation to be reviewed include, but are not limited to, closed and ongoing USAID activity documents, evaluations and relevant documents from the Development Exchange Clearinghouse, information available online (expert analyses, websites of government ministries, other donors, and NGOs) on environmental degradation, biodiversity conservation and tropical forest conservation, and the impact that the oil sector and mining industry have had on the Environment in Venezuela.

3. **Stakeholder and expert consultations**. The team should begin planning stakeholder and expert consultations, based on USAID’s suggestions and on the team’s preliminary review of key topics and information gaps.

4. Develop and submit a **draft work plan (Deliverable 1)**. Fifteen working days after the start of the period of performance, submit a draft work plan.

5. Analyze the information gathered during the desk-review phase and **prepare an initial, abbreviated analysis in Spanish (Deliverable 4)** in accordance with the outline attached to the SOW.

### 2.2 Data Collection, Analysis, and Progress Briefing

6. Continue to obtain, review and analyze existing reports, online information and other data. In coordination with USAID, identify relevant geospatial data to apply geographical perspectives, spatial data analysis and map-based communication to the analysis. This would be part of the original data generated that can show the impacts threats, like mining, have on tropical forests and protected areas in Venezuela. All references should be documented in the final report. Documents used in the analysis should be referenced, including URL whenever possible. To the extent possible, all geospatial information analyzed should be delivered to USAID in GIS format.
7. Interview stakeholders and experts as identified in the work plan. These consultations will be held if necessary on-line, via telephone, signal, etc., and the contractor will follow USAID’s guidance on approaching suggested key stakeholders and experts, and reporting on their inputs.

8. Conduct a **progress briefing with USAID using a PowerPoint presentation (or similar)**, to provide an overview of the analysis and preliminary report findings (Deliverable 5).

### 2.3 Preparation of the FAA 118/119 Analysis

9. Prepare and submit a **draft report in Spanish (Deliverable 6)**. The analysis team will analyze the information gathered and will prepare a draft analysis report in accordance with the outline attached to the SOW and responsive to the legislative requirements listed in Section 1.1 above. USAID will have 15 working days to review the draft report and provide comments and edits.

10. Submit **revised report in English (Deliverable 7)**. Following receipt of USAID comments on the draft report, the analysis team will prepare and submit a final analysis in English within 30 days that incorporates USAID comments, translates the report to English, and includes formatting and design, and compliance with 508 in accordance with the schedule of deliverables below.

### III. SCHEDULE AND LOGISTICS

The assignment is expected to last **20 weeks** from date of contract signing to submission of the final deliverable.

**Table 7: Weekly activities and milestones**

<table>
<thead>
<tr>
<th>WEEK</th>
<th>ACTIVITY/MILESTONE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHASE 1: DESK-BASED DATA COLLECTION, ANALYSIS, AND PRELIMINARY REPORT</strong></td>
<td></td>
</tr>
<tr>
<td>Week 1</td>
<td>Initial planning meeting with USAID/Washington.</td>
</tr>
<tr>
<td>Week 2</td>
<td>Begin desk review and compile list of references reviewed and bibliography of consulted sources.</td>
</tr>
<tr>
<td>Week 3</td>
<td>Submit a draft work plan for USAID approval (Deliverable 1). Submit an interview guide and draft report outline for USAID approval.</td>
</tr>
<tr>
<td>Week 4</td>
<td>Begin to obtain, review and analyze existing reports, online information and other data, including data collection, and analyses.</td>
</tr>
<tr>
<td>Week 5</td>
<td>Submit a draft preliminary report (Deliverable 4) based on desk review and initial analysis and recommendations.</td>
</tr>
</tbody>
</table>

*continued on the following page*
Table 7: Weekly activities and milestones (continued)

<table>
<thead>
<tr>
<th>WEEK</th>
<th>ACTIVITY/MILESTONE</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHASE 2: DATA COLLECTION, ANALYSIS, AND PROGRESS BRIEFING</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 6</td>
<td>Continue to obtain, review and analyze existing reports, online information and other data, including data collection, and analyses. Start interviews with stakeholders and experts, including data collection, compilation, tabulation, and analyses.</td>
<td></td>
</tr>
<tr>
<td>Week 7 and 8</td>
<td>Continue to obtain, review and analyze existing reports, online information and other data, including data collection, and analyses. Continue to conduct interviews with stakeholders and experts, including data collection, compilation, tabulation, and analyses.</td>
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<tr>
<td>Week 9</td>
<td>Continue interviews with stakeholders and experts, including data collection, compilation, tabulation, and analyses.</td>
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<tr>
<td><strong>PHASE 3: PREPARATION OF THE FAA 118/119 ANALYSIS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 10</td>
<td>Continue interviews with stakeholders and experts, including data collection, compilation, tabulation, and analyses. Collect additional documents and other material identified. Interviews and data summarized.</td>
<td></td>
</tr>
<tr>
<td>Week 11</td>
<td>Meet with USAID to debrief on preliminary findings and recommendations and solicit feedback (Deliverable 5) Begin to prepare first draft of final report</td>
<td></td>
</tr>
<tr>
<td>Week 12</td>
<td>Submit the first draft of the final report (Deliverable 6). The date of submission of the first draft will be set in the work plan. (USAID staff may review and provide comments on draft versions of the report until the analysis is considered sufficient and final)</td>
<td></td>
</tr>
<tr>
<td>Week 13</td>
<td>(USAID staff may review and provide comments on draft versions of the report until the analysis is considered sufficient and final)</td>
<td></td>
</tr>
<tr>
<td>Week 14</td>
<td>(USAID staff may review and provide comments on draft versions of the report until the analysis is considered sufficient and final)</td>
<td></td>
</tr>
<tr>
<td>Week 15, 16</td>
<td>EI incorporate recommendations in final report (Deliverable 7), and translates to English</td>
<td></td>
</tr>
<tr>
<td>Week 17, 18 and 19</td>
<td>EI submit final report to USAID (week 17) USAID completes review and approves report (week 17 and 18) EI completes the 508 compliance and formats the report with photos etc (18 and 19)</td>
<td></td>
</tr>
<tr>
<td>Week 20</td>
<td>Submit Final report to USAID</td>
<td></td>
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</tbody>
</table>
Week 1 commences the first Monday after the final SOW has been approved. Data collection and analysis will start immediately and will be informed by additional data provided by stakeholders and experts during interviews. Interviews may be conducted in the language the interviewee feels more comfortable with, either in English or Spanish. Similarly, gaps identified while constructing the draft report may be filled by additional stakeholder consultations or other data. Therefore, data analysis of both reports and interviews may continue during report drafting.

Please see the Gantt chart below.

**TABLE 8.** Production Gantt Chart

| PRODUCT                                              | WHO | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|------------------------------------------------------|-----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|
| Initial planning meeting with USAID/Washington.       | EI  |   |   |   |   |   |   |   |   |   | x  |    |    |    |    |    |    |    |    |    |    |    |
| Annotated Bibliography                                | EI  | x | x | x | x |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| Deliverable 2: Stakeholder analysis and interviews    | EI  |   |   |   |   |   |   |   |   |   | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  |    |    |
| Deliverable 1. Draft work plan and schedule          | EI  | x |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Deliverable 4. Submit a draft preliminary report     | EI  |   |    |    |    |    |    |    |    |    | x  |    |    |    |    |    |    |    |    |    |    |    |
| USAID reviews                                        | USAID | x | x |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| EI add comments and continues working on draft       | EI  |   |   |   |   |   |   |   |   |   | x  | x  | x  | x  | x  |    |    |    |    |    |    |    |
| Deliverable 5. Progress briefing and media           | EI  | x |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Deliverable 6: USAID Final report draft 1            | EI  | x |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| USAID provides comments                              | USAID | x | x |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| EI addresses comments and translates                 | EI  |    |    |    |    |    |    |    |    |    | x  | x  |    |    |    |    |    |    |    |    |    |    |
| Deliverable 7: USAID Final report                    | EI  | x |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| USAID reviews and approves                           | USAID | x | x |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Compliance and design                                | EI  |    |    |    |    |    |    |    |    |    | x  | x  |    |    |    |    |    |    |    |    |    |    |
| EI submits final report                              | EI  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | x  |
| Deliverable 3: Email progress reports                | EI  | x | x | x | x | x | x | x | x | x |    |    |    |    |    |    |    |    |    |    |    |    |
IV. DELIVERABLES

The following are the deliverables for this task:

**Deliverable 1. Draft work plan and schedule** submitted within fifteen working days after the start of the period of performance. The draft work plan will include:

- a schedule of tasks and milestones,
- assessment methods,
- a brief discussion of information gaps,
- a list of the type of information to be obtained through further desk research and through consultation, and
- a report outline based on the outline attached to the SOW (refer to Annex B: Analysis Report Annotated Outline in the FAA 118/119 Best Practices Guide), with any difference noted and explained.

**Deliverable 2. Conduct stakeholder mapping, key informant interview guides, and interviews.** The Deliverable 2 will include:

- Mapping of key stakeholders and experts to engage throughout the analysis process. This list will include, but not be limited to, stakeholders and experts on the two specific areas of interest, mining and oil sectors. USAID will provide a suggested list for possible interviews as a separate draft document.
- Key informant interview guides to be used for stakeholder and expert consultations (in Spanish).
- Conduct interviews with stakeholders and experts, including data collection, compilation, tabulation, and analyses.

**Deliverable 3. Email progress reports** to the activity manager and USAID staff as applicable at key decision points and not less than bi-weekly. The Deliverable 3 will include:

- Schedule for emailed progress reports to, or calls with, the Activity Manager and USAID staff, starting on day 15 and bi-weekly thereafter during the data collection and analysis segment. If calls are chosen, they will be documented with written call notes provided to the USAID Activity Manager and USAID staff.

**Deliverable 4. Initial, abbreviated analysis** submitted in Spanish within 5 weeks of the start of the contract. Analysis should be drafted in accordance with the outline attached to the SOW and based upon information collected during the desk-review and initial interviews. The analysis report will be approximately 15-25 pages in length, will respond to the legislative requirements listed above including, to the extent possible based on the preliminary data gathered:

- the most important threats to biodiversity
- the most important drivers of those threats (including major governance, policy and economic drivers),
- an initial analysis of the key institutions that play a role in managing natural resources

**Deliverable 5. Progress briefing and associated media such as PowerPoint, hand-outs, etc., to provide an overview of the analysis and preliminary report findings**
Deliverable 6. Draft FAA 118/119 analysis report in Spanish, conforming to all requirements specified in Section 2.3, submitted by week 12 after the start of the period of performance. The report will:

- Follow the outline and include the information recommended in Annex B of the SOW.
- Reflect the findings presented in the initial, abbreviated report, supplemented and modified based on findings from field work and any additional analysis.
- Be between 35-45 pages (excluding annexes), for review by USAID.

USAID will have 15 working days to review the draft report and provide comments and edits.

Deliverable 7. Final report incorporating all comments, conforming to all requirements specified in Section 2.3, submitted within 30 working days of the receipt of all USAID review comments on the draft analysis. This final report should be translated, copy edited, formatted, and in compliance with USAID branding requirements.

- The analysis report should be sent to the relevant bureau in Washington for review and concurrence. EI will provide up to two rounds of USAID reviews. USAID may request that the final report is produced in two versions, an internal and a public version, depending on the information and key findings gathered for the final report. EI will produce the English version of the report copy edited and formatted and a Spanish manuscript (without the copy editing and formatting).

V. ROLE OF USAID

USAID acknowledges that substantial engagement is required in support of the analysis team. To this end, such support includes providing the analysis team with the following:

- A list of suggested key documents to review with links to documents, expert reports and articles for media analysis.
- A draft list of suggested key and/or recommended stakeholders and/or experts (with contact information). The contractor will try to the best of their ability to interview all suggested key and/or recommended stakeholders/experts. The contractor may interview additional key stakeholder and/or experts that would consider relevant for the analysis. USAID will provide this list as a separate draft document.
- Review and feedback on the initial draft analysis report and the final draft analysis report.
- Guidance on country specific context and sensitivities.
- Participate in workshop led by EI with USAID to advance the section “extent to which”

To ensure continued coordination with USAID over the course of the analysis, the analysis team will provide biweekly progress reports to USAID which discuss progress, challenges, issues, and key findings to-date. These may be submitted as written memos or conducted by phone with summary subsequently provided, as determined by the USAID Activity Manager and the analysis team.

VI. QUALIFICATIONS OF THE CONSULTANTS

The assembly of the team to carry out this work needs to consider the social, political and economic challenges to produce a high quality report, including the fact that USAID has never developed a 118/119 Analyses for Venezuela and that it is a non-presence country. Venezuela is also experiencing one of the biggest humanitarian crises in Latin America, affecting the availability of resources and updated data related to the country’s
biodiversity. Given this scenario, a team of highly qualified Venezuelan professionals that are the top experts on various topics, including gold mining at the Arco Minero, oil spills in coastal ecosystems, indigenous peoples vulnerability to environmental threats among others, will be hired to produce a report that truly represents the current status of Venezuela’s tropical forests and biodiversity, including realistic paths to protect it. It is important to note that many of these consultants prefer to remain anonymous in fear of political and social persecution.
ANNEX B. RELEVANT INTERNATIONAL TREATIES FOR THE CONSERVATION OF BIODIVERSITY
TABLE 10. International Treaties for the Conservation of Biodiversity

<table>
<thead>
<tr>
<th>NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law Approving the Convention for the Protection of Flora, Fauna, and Natural Scenic Beauty of the Countries of the Americas (Washington Convention), 1941</td>
<td>Fundamental law for the definition of National Parks and Natural Monuments and the protection of migratory species. These two categories of protected areas constitute the fundamental axis of Venezuela’s in situ conservation policy.</td>
</tr>
<tr>
<td>Law Approving the Amazon Cooperation Treaty, 1980</td>
<td>The member countries assumed a common commitment for the preservation of the environment and the rational use of the natural resources of the Amazon. Venezuela participates in all its programs and projects as part of the treaty.</td>
</tr>
<tr>
<td>Law Approving the Agreement for the Protection and Development of the Marine Environment of the Greater Caribbean Region, 1986</td>
<td>Also called the Cartagena Convention, this law provides the regional framework to agree on actions for pollution prevention and environmental protection in general, including biodiversity and protected areas.</td>
</tr>
<tr>
<td>Law Approving the Convention on Wetlands of International Importance as Water-fowl Habitat (Ramsar Convention) and its amending protocol, 1988</td>
<td>Important law for the identification of the most relevant sites for the conservation of wetlands and their biodiversity at the international level.</td>
</tr>
<tr>
<td>Law Approving the Convention on Biological Diversity, 1994</td>
<td>This law’s objectives are the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising from the use of genetic resources. It integrates genetic resources, species, and ecosystems, as well as all aspects of biological diversity. It establishes commitments to maintain biological diversity as a global asset for the survival of humankind and recognizes that the conservation of biological diversity is an integral part of the development process.</td>
</tr>
<tr>
<td>Law Approving the United Nations Framework Convention on Climate Change, 1994</td>
<td>The objective of the Convention is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.</td>
</tr>
</tbody>
</table>

continued on the following page
### TABLE 10. International Treaties for the Conservation of Biodiversity (continued)

<table>
<thead>
<tr>
<th>NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law Approving the Protocol Concerning Specially Protected Areas and</td>
<td>The SPAW Protocol has the following objectives:</td>
</tr>
<tr>
<td>Wildlife (SPAW) of the Convention for the Protection and Development</td>
<td>• To protect, conserve, and sustainably manage areas that present ecological value, such as coral reefs and mangroves, and to safeguard their special value for their ecological health and the economic well-being of the communities.</td>
</tr>
<tr>
<td>of the Marine Environment of the Wider Caribbean Region, 1996</td>
<td>• To protect threatened or endangered species by taking conservation measures to protect threatened and endangered species of flora and fauna, as well as measures to prevent species from becoming threatened or endangered and to ensure their recovery and restoration.</td>
</tr>
<tr>
<td>Law Approving the Inter-American Convention for the Protection and</td>
<td>Law of importance for the protection of migratory species that nest in Venezuela, in particular to protect them from fishing.</td>
</tr>
<tr>
<td>Conservation of Sea Turtles, 1998</td>
<td></td>
</tr>
<tr>
<td>Law Approving the International Convention to Combat Desertification</td>
<td>The convention focuses specifically on arid, semi-arid, sub-humid, and dry areas, where some of the most vulnerable ecosystems are found. The importance of ensuring the participation of men and women in programs to combat desertification and mitigate the effects of drought is emphasized.</td>
</tr>
<tr>
<td>and Drought, 1998</td>
<td></td>
</tr>
<tr>
<td>Law Approving the Cartagena Protocol on Biosafety to the Convention</td>
<td>The objective of this protocol is to ensure the safe handling, transport, and use of living modified organisms resulting from modern biotechnology that may have adverse effects on conservation.</td>
</tr>
<tr>
<td>on Biological Diversity, 2002</td>
<td></td>
</tr>
<tr>
<td>Law Approving the Kyoto Protocol to the United Nations Framework</td>
<td>This law’s objective is to reduce the emissions of six gasses that cause global warming.</td>
</tr>
<tr>
<td>Convention on Climate Change, 2004</td>
<td></td>
</tr>
<tr>
<td>Law Approving the International Tropical Timber Agreement, 2015</td>
<td>This law promotes the expansion and diversification of international trade in tropical timber from sustainably managed and legally harvested forests and promotes the sustainable management of tropical timber-producing forests.</td>
</tr>
<tr>
<td>Paris Agreement of the United Nations Framework Convention on</td>
<td>This legally binding agreement aims to limit global warming. To achieve this goal, countries aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate-neutral world by mid-century.</td>
</tr>
<tr>
<td>Climate Change, 2017338</td>
<td></td>
</tr>
<tr>
<td>Nagoya Protocol on Access to Genetic Resources and the Fair and</td>
<td>The objective is the fair and equitable sharing of benefits arising from the utilization of genetic resources.</td>
</tr>
<tr>
<td>Equitable Sharing of Benefits Arising from their Utilization to the</td>
<td></td>
</tr>
<tr>
<td>Convention on Biological Diversity, 2018</td>
<td></td>
</tr>
</tbody>
</table>
ANNEX C. ACTIONS ORGANIZED ACCORDING TO MAIN OIL SPILL THREATS
The following are specific substantial actions to address oil spill threats that are divided into two groups: those that depend on the state and those that are feasible according to the reality of the country. These are proposed for each threat to reduce the number of spills, to reduce their volume and impact on biodiversity, and to provide actions for control, mitigation, and restoration of affected areas.

**Threat: Oil exploration, production, refining, transportation, and distribution activities**

**Substantial actions (depend on the State):**

- Perform facility maintenance activities as required by existing standards and procedures.
- Properly select technical and management personnel and provide them with training on decision-making, environment, laws, and spill control.
- Provide materials and equipment to personnel and management involved in the National Contingency Plan.
- Protect sensitive areas in the zone of influence of oil facilities.
- Maintain accurate spill statistics in order to plan and execute continuous improvements.
- Conduct operational drills of real and theoretical spills.
- Elevate PDVSA’s National Contingency Plan management to senior PDVSA management levels.

**Feasible actions (civil society):**

- Establish environmental remediation programs with universities, civil society, private companies, MINEC, governors’ and mayors’ offices, among others (aid could be channeled through foreign oil companies that are partners of PDVSA; the governors of Zulia, Nueva Esparta and Cojedes, Barinas, and some mayors’ offices could be used to leverage projects).
- Invoke international treaties ratified by Venezuela, for example OMI-MARPOL, which dictates the rules to prevent pollution from oil spills derived from ships, and the Convention on Biological Diversity, which establishes the commitment of the member states in the conservation of biodiversity and the protection and restoration of ecosystems.

**Threat: Spills from Trinidad and Colombia**

**Substantial actions (depend on the state):**

- Update or promote bi-national agreements to deal with spills, such as the Ecopetrol–PDVSA agreement between Colombia and Venezuela.
- Maintain environmental monitoring systems to detect hydrocarbons in water, sediments, and along coasts.
- Carry out environmental damage assessments for claims and compensation.
- Increase surveillance and control by MINEC.
- Lobby for action by the Ministry of Foreign Affairs, both for compensation purposes and to reduce spills at the source.
Feasible actions (civil society):

• Establish environmental remediation programs with universities, civil society, private companies, MINEC, governors’ and mayors’ offices, among others (aid could be channeled through foreign oil companies that are partners of PDVSA; the governors of Zulia and Nueva Esparta and some mayors’ offices could be used to leverage projects).

• Invoke the border treaties between Trinidad and Tobago and the Kingdom of the Netherlands, which include clauses related to pollution and environmental preservation.

**Threat:** Spills or discharges of fuel from oil and non-oil ships and vessels

Substantial actions (depend on the state):

• Conduct assessments of environmental damage for claims and compensation purposes.

• Increase surveillance and control by MINEC.

• Take severe actions against the captains and owners of the responsible ships and vessels.

Feasible actions (civil society):

• Maintain environmental monitoring systems that detect hydrocarbons in water, sediments, and along coasts (aid could be channeled through foreign oil companies that are partners of PDVSA; the governors of Zulia and Nueva Esparta and some mayors’ offices could be used to leverage projects).

• Invoke international treaties ratified by Venezuela, for example IMO-MARPOL and Convention on Biological Diversity-Cartagena Protocol.

**Threat:** Lack of information on spills

Feasible actions (civil society):

• Promote the creation of a National Oil Spill Observatory, managed by an NGO and/or research center.

Taking aim directly at the state as owner of the oil industry seems unfeasible. Actions should therefore focus on strengthening civil society, organizations, and aligned local and regional governments. This could guarantee a lateral and indirect action on the drivers that are producing the threats, improving information, increasing response capacity, and keeping the problem of spills within a framework of broad and continuous national and international attention.