



**USAID**  
FROM THE AMERICAN PEOPLE

# Environment and Energy Landscape in Latin America and the Caribbean: An Analysis of Trends 2020-2030

Increased Exploitation of Natural Resources

December 2020

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# The Latin America and Caribbean region is one of the world's largest sources of natural resources

## Renewable Resources

LAC Endowment (as a % of World Total)



33%

Of water resources

30%



Of animal and plant species

25%



Of forests and arable land

## Non-renewable Resources

Reserves (as a % of World Total)



61%

Lithium



39%

Copper

32%

Silver



25%

Oil











11%

Gold

Sources: 1. FAO, "Latin American agriculture: prospects and challenges," 2019; 2. World Bank Indicators 2016; 3. ECLAC, "Estado de situación de la minería en América Latina y el Caribe: desafíos y oportunidades para un desarrollo más sostenible," 2018; 4. The Nature Conservancy, "Latin America's Natural Resources and Climate Change," 2019; 5. IOGP, "Oil & gas production in Central & South America: Investment needed to meet rising regional demand," 2018; 6. Iberdrola, "What are the consequences of the overexploitation of natural resources?," 2020.

## LAC's resources are critical for U.S. and global value chains, and play a crucial role in local economies

	Type	% of LAC Exports to US	% of LAC Exports Globally	% of LAC GDP
Renewable	 Agriculture	36.3%	15.5%	4.8%
	 Seafood	18.2%	9.3%	
	 Forestry	13.9%	7.6%	
	 Livestock/Poultry	1.2%	2.4%	
Non-renewable	 Lithium	75.2%	67.0%	3.1%
	 Silver	25.6%	5.0%	
	 Oil	20.7%	8.8%	
	 Gold	10.3%	5.2%	

LAC accounts for 26% of US food imports

Agriculture represents more than 10% of GDP in Belize, Bolivia, Dominica, Ecuador, Guatemala, Guyana, Haiti, Nicaragua, and Paraguay

LAC accounts for 29% of US mineral imports and 21% of ores and metal imports

In Peru and Guyana, mineral rents are equivalent to 8% and 15% of GDP, respectively

Sources: 1. FAOSTATS, "Forestry Trade Flows," 2017; 2. Statista, "Share of economic sectors in GDP in Latin America and Caribbean," 2019; 3. WITS, "Carbonates; lithium carbonate exports by country in 2018;" 4. World Bank Data, "Mining rents (% of GDP)," 2017; 5. WITS, "Gold (including gold plated with platinum) unwrought or in semi-manufactured forms, or in powder form," 2019; 6. WITS, "Silver (including silver plated with gold or platinum); unwrought or in semi-manufactured forms, or in powder form," 2019; 7. WITS, "Fish and crustaceans, mollusks and other aquatic invertebrates," 2019; 8. World Bank Data, "Oil rents (% of GDP)," 2017; 9. WITS, "Animals live," 2019. 10. FAOSTATS, "All elements included in detailed trade matrix excluding live animals, beverages and cigars," 2018; 11. US Energy Information Administration, "Crude oil imports by country," 2019; 12. WITS, "Oils; petroleum oils and oils obtained from bituminous minerals, crude exports," 2019; 13. World Integrated Trade Solution World Bank, "United States Food Products Imports By Region 2018," 2020; 14. OECD-FAO, "Latin American Agriculture: Prospects and Challenges," 2019; 15. World Integrated Trade Solution World Bank, "United States Minerals Imports By Country and Region 2018," 2020; 16. World Integrated Trade Solution World Bank, "United States Ores and Metals Imports By Region 2018," 2020; 17. World Bank, "Mineral rents (% of GDP)," 2018.

# A host of factors are leading to increasingly unsustainable exploitation of LAC's resources

## Demand for Natural Resources



Population growth of 10% in the past decade



Middle class expansion to 30% of the population



Increased global trade and demand for local products (e.g., lithium, wildlife); deeper commercial ties with China have amplified demand for these resources

## Economic Incentives



Natural resource trading is increasingly lucrative (e.g., gold price increased 80% 2015-2020)



Criminal organizations are looking to diversify revenue sources (e.g., via trade in timber, minerals, agriculture)



The natural resource sector is a major source of employment (e.g., 1.3 million people employed in forestry)

## Corruption & Poor Governance



Monitoring and surveillance systems are inadequate



Policies and regulation are weak or poorly enforced



Administrative systems to regulate legal markets are ineffective (e.g., fake permits to sell illegal timber)



Bribery and corruption are rampant (LAC avg. corruption index: 42 vs. EU 61)

**COVID-19 is likely to impact the trajectory of some drivers as, for example, the middle class may recede, and environmental enforcement may also decrease given focus on economic crises**

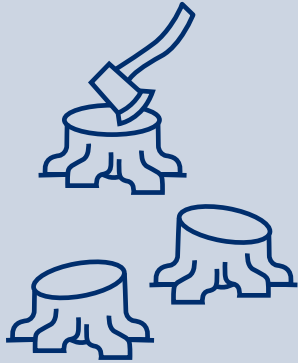
Notes: Includes people employed in forestry, logging, sawn wood and wood-based panels, pulp and paper; 5. Scale is 0-100, where 0 = highly corrupt.

Sources: 1. FAO, "Growing momentum to close the net on illegal fishing," 2018; 2. World Bank, "Latin America: Middle class hits historic high," 2019; 3. Goldprice, "Gold Price Performance USD," n.d.; Corruption Perceptions Index 2018; FAO, "The state of the Forest Sector in the Region," 2017; ELLA and DFID, "Mining in Latin America: Attracting Quantity and Quality in FDI," n.d.; Global Environment Facility, "Illegal Wildlife Trade," n.d.; Eurasia Review, "Illegal Logging: An Organized Crime That Is Destroying Latin American Forests," 2018.

# Increased deforestation, mining, wildlife, and fishing are particularly problematic, driven partly by a surge in illegal activities (1 of 2)

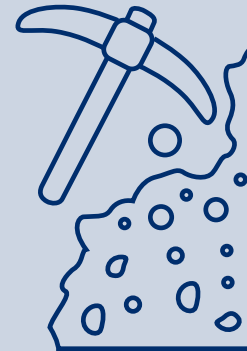
## Trend Highlights

### Deforestation



- LAC lost 2.7 million ha/year between 2010-2020, but at a slower rate (50% less per year) than previous decade
- Clearing for food production (cattle ranching, agriculture and timber are main drivers of deforestation)
- Scale and impact of illegal activities are exacerbated in forest-rich countries (e.g., Brazil, Mexico) by weak enforcement of regulations and anti-conservation policies

### Mining



- Mineral production in LAC increased by 60% between 2000-2017
- Illegal mining is on the rise, particularly in gold, as criminal organizations diversify their portfolios
- Demand for minerals from LAC is expected to grow due to large reserves and increasing demand of mineral-dependent products (i.e., lithium ion batteries)

**Given these complexities, USAID's priorities, and the scale and rate of acceleration of illegal trade, this report will highlight illegal deforestation, mining, and wildlife trafficking**

Note: Illegal, unreported, and unregulated (IUU).

Sources: I. FAO, "Global Forest Resources Assessment 2020," 2020; FAO, "Growing momentum to close the net on illegal fishing," 2018; UN, "The toll of Illegal, Unreported and Unregulated Fishing," n.d.; Global Americans, "Organized crime and illegal gold mining in Latin America," 2018; InSight Crime, "GameChangers 2019: Illegal Mining, Latin America's Go-To Criminal Economy," 2020; FAO, "The State of World Fisheries and Aquaculture," 2020; Mongabay, "¿Qué está provocando la deforestación? Un estudio revela factores mundiales," 2018; Mongabay, "Latin American illegal wildlife trade exploding in scope and scale," 2015.

# Increased deforestation, mining, wildlife, and fishing are particularly problematic, driven partly by a surge in illegal activities (2 of 2)

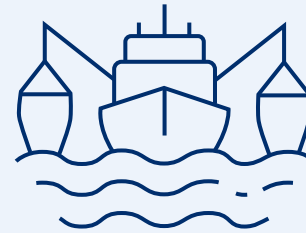
## Trend Highlights

### Wildlife Trafficking



- Wildlife trafficking of select species is increasing in LAC (e.g., totoaba, shark fins, jaguar, birds)
- Birds account for 80% of trafficked animals in Brazil
- Trans-Pacific organized crime and demand for wildlife have exploded in recent years as China-LAC trade has expanded

### Fishing



- IUU fishing has increased in LAC, affecting 2.4 million people who depend on fishing / aquaculture for their livelihoods
- Increase in IUU fishing has been driven in part by increased unauthorized Chinese operations
- Overall fish production (including legal and IUU fishing) in LAC is expected to increase by 24% by 2030

**Given these complexities, USAID's priorities, and the scale and rate of acceleration of illegal trade, this report will highlight illegal deforestation, mining, and wildlife trafficking**

Note: Illegal, unreported, and unregulated (IUU).

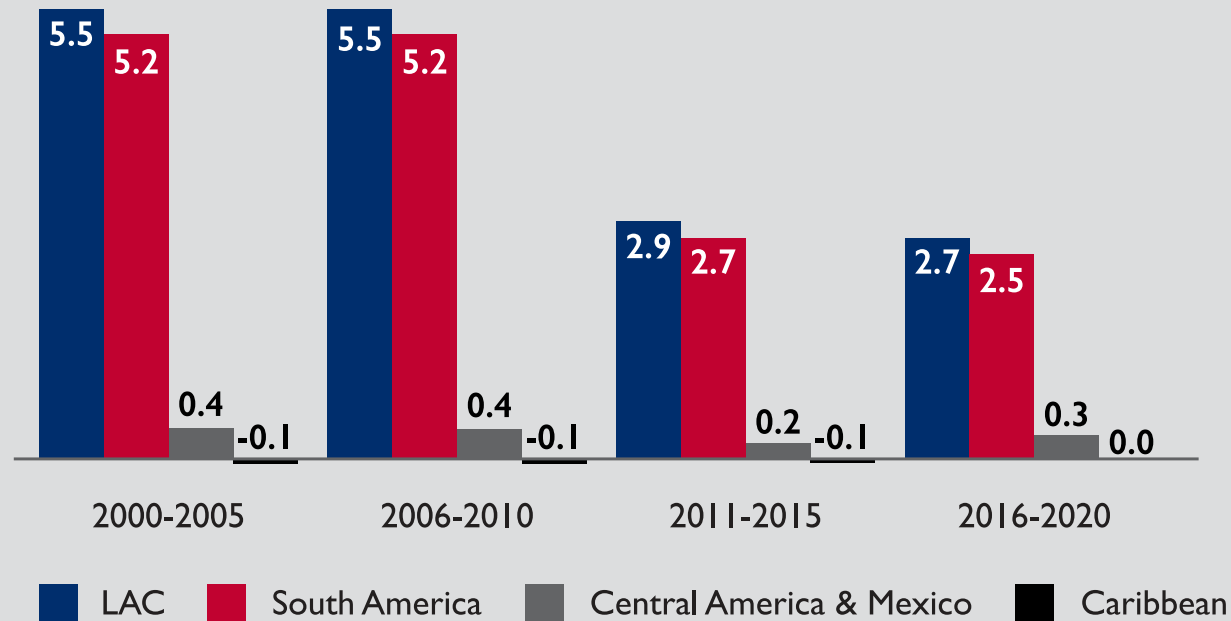
Sources: 1. FAO, "Global Forest Resources Assessment 2020," 2020; FAO, "Growing momentum to close the net on illegal fishing," 2018; 2. UN, "The toll of Illegal, Unreported and Unregulated Fishing," n.d.; Global Americans, "Organized crime and illegal gold mining in Latin America," 2018; 3. InSight Crime, "GameChangers 2019: Illegal Mining, Latin America's Go-To Criminal Economy," 2020; 4. FAO, "The State of World Fisheries and Aquaculture," 2020; 5. Mongabay, "¿Qué está provocando la deforestación? Un estudio revela factores mundiales," 2018; 6. Mongabay, "Latin American illegal wildlife trade exploding in scope and scale," 2015.



# DEFORESTATION

# Deforestation | Between 2010-2020, LAC lost 2.7 million hectares of forest per year

Average Hectares of Forest Land Lost per Year (Million ha)



Lower rate of forest loss between 2010-2020 relative to the previous decade suggests that mitigating deforestation is achievable despite all the obstacles

## Key Facts

- Despite overall progress in decreasing the rate of deforestation, deforestation continues to be a major problem in LAC
- **55%** of global forest area losses between 2015-2020 were from LAC
- Deforestation in the Amazon increased **85%** in 2019, reaching its highest level in 10 years
- Projections suggest **27%** of the Amazon will have no trees by 2030; LAC is projected to reach a **tipping point** (where forests will be unable to regenerate) in the next 15-20 years
- From 2000-2017, three of the five largest forests in Central America shrank **23%**
- However, forest land per year increased **1%** per year in the Caribbean from 2000-2010 and **0.5%** per year from 2011-2020

Sources: 1. FAOSTAT, "Forest Land," n.d.; 2. Ibid; 3. Reuters, "Amazon deforestation could speed up in 2020," 2020; 4. WWF, Amazon deforestation, n.d.; 5. Nature, "When will the Amazon hit a tipping point?," 2020; 6. Global Wildlife Conservation, "Critical New Initiative to Protect Mesoamerica's Five Great Forests Launches During UN Climate Summit," 2017; 7. FAOSTAT, "Forest Land," n.d.



# Deforestation | Deforestation in LAC is driven primarily by land clearing for food production and logging, much of which is illegal (1 of 2)

## Clearing for Food Production

- **88%** of tree cover loss is driven by illegal land clearing for subsistence agriculture and commodity production
- **24%** for subsistence agriculture and **64%** for commodities
- Most of these activities are illegal

## Illustrative Illegal Clearing Cases



Note: Commodities include beef, minerals, palm oil, soy, and oil and gas.

Sources: 1. Mongabay, "¿Qué está provocando la deforestación? Un estudio revela factores mundiales," 2018; 3. World Resources Institute, "Release: New Study Finds More Than a Quarter of Global Tree Cover Loss is Commodity-Driven Deforestation," 2018; 4. Earthsight, "Global appetite for avocados drives deforestation in Mexico," 2019; 5. Earthsight, "Fires rage in Bolivia as deforestation for beef and soy continues to surge," 2017; 6. The Guardian, "Tropical forests illegally destroyed for commercial agriculture," 2014; 7. University of Maryland, "Deforestation in Honduras," n.d.

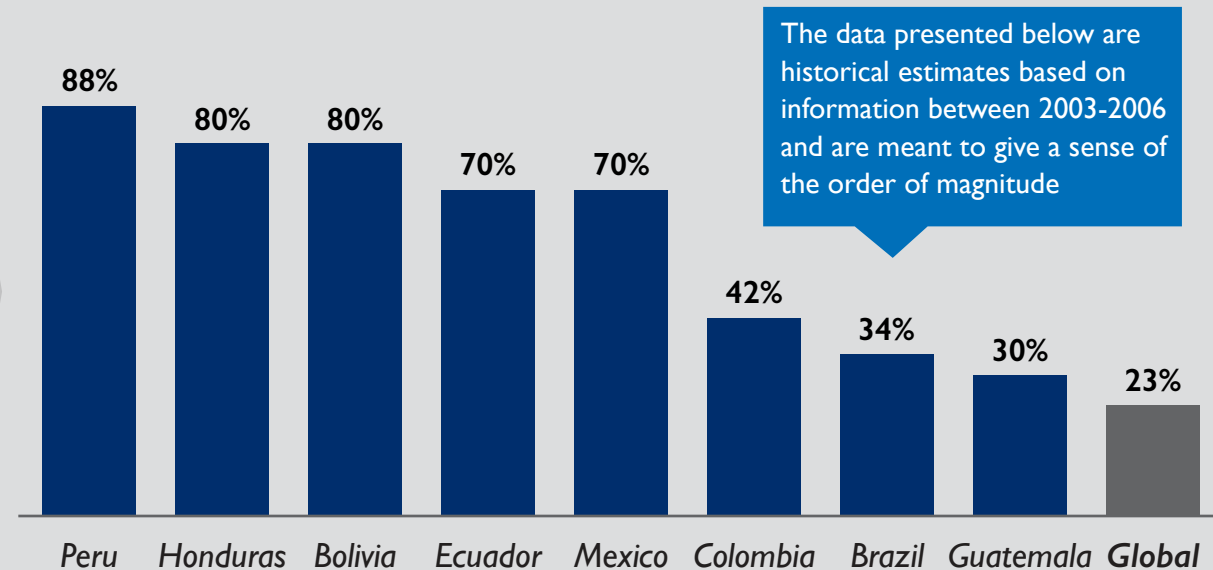
# Deforestation | Deforestation in LAC is driven primarily by land clearing for food production and logging, much of which is illegal (2 of 2)



## Expansion of Timber Trade

- 12% of deforestation is driven by logging
- 75% of the region's timber exports are illegal
- In 2014, illegal timber exports from South America were valued at **\$387 million**
- Top destinations for forest exports (Includes forest products, fibreboard, wood pulp, paper and paperboard) are USA (23%), Netherlands (10%), Italy (8%), South Korea (5%), and Mexico (5%)
- Timber trade is projected to continue rising with construction from urbanization

## Estimates of Illegal Logging by Country (% of Total Logging)



**It is difficult to clearly distinguish between illegal and legal activities given lack of data, high corruption, and the incorporation of goods into legal supply chains**

Note: For Peru, Honduras, Brazil and Guatemala, the estimate included is an average of the range of estimates (average of upper and lower bounds), while for Bolivia, Ecuador, Mexico, and Colombia, the estimate included is a concrete data point.

Sources: 1. Mongabay, "¿Qué está provocando la deforestación? Un estudio revela factores mundiales," 2018; 2. World Resources Institute, "RELEASE: New Study Finds More Than a Quarter of Global Tree Cover Loss is Commodity-Driven Deforestation," 2018; 3. Latinamerica Press, "Illegal logging: An organized crime that is destroying Latin American forests," 2018; 4. Ibid; 5. FAOSTATS, Forestry Trade Flows, 2017; 6. Latinamerica Press, "Illegal logging: An organized crime that is destroying Latin American forests," 2018; 7. World Resources Institute, "An Inside Look at Latin America's Illegal Logging – Part One," 2012; 8. Reuters, "Mexican crime gangs branching into illegal logging, researchers warn," 2020.

# Deforestation | Forest loss in LAC has enormous environmental, economic, health, and social implications (1 of 2)



## Environment

- Decreased biodiversity due to habitat destruction
- Increased soil erosion and siltation, resulting in lower crop yields, damages to infrastructure, greater water scarcity, increased flooding, and declines in fisheries
- Lower rainfall, resulting in increased drought
- Decreased carbon stock resulting in greater carbon in the atmosphere, which increases the impacts of climate change (i.e., carbon stock in South America decreased from 162 Gt in 1990 to 145 Gt in 2020)



## Economy

- Continued deforestation in the Amazon could result in losses of \$3.5 trillion over 30 years, risking some of the \$2 billion produced per year from forest-related economic activities<sup>(</sup>
- Reduced agricultural productivity over time due to biodiversity loss

Note: Includes formal sector activities, informal activities, medicinal plants, plant-based non-wood forest products, animal-based non-wood forest products, payment for ecosystem services.  
Sources: 1. FAO, "The State of the World's Forests," 2020; 2. Al Jazeera, "What is the Amazon rainforest worth?," 2019; 3. UNEP, "The State of Biodiversity in Latin America and the Caribbean," 2016; 4. FAO, "Global Forest Resources Assessment," 2020; 5. Mongabay, "Consequences of Deforestation," 2019.

# Deforestation | Forest loss in LAC has enormous environmental, economic, health, and social implications (2 of 2)



## Health

- Decreased food security and nutrition for local and broader populations due to the depletion of forests
- Expanded emergence and spread of infectious diseases as humans expand into forest areas
- Reduced forest-related health benefits (i.e., medicines, clean water and air, shade, green spaces for recreation)



## Social

- Lost livelihoods for indigenous and rural communities, particularly women, who play a key role in forest management and agricultural production
- Increased displacement of populations due to environmental degradation
- Additional land grabs and violence against environmental activists, including killing indigenous leaders

Note: Includes formal sector activities, informal activities, medicinal plants, plant-based non-wood forest products, animal-based non-wood forest products, payment for ecosystem services.  
Sources: 1. FAO, "The State of the World's Forests," 2020; 2. Al Jazeera, "What is the Amazon rainforest worth?," 2019; 3. UNEP, "The State of Biodiversity in Latin America and the Caribbean," 2016; 4. FAO, "Global Forest Resources Assessment," 2020; 5. Mongabay, "Consequences of Deforestation," 2019.

# Deforestation | Solutions in forestry management are leading the way for reduced illegality and sustainable commercial activity



## Agroforestry Practices

**Solution:** Land-use systems, such as agroforestry, that integrate agricultural activity and woody perennials in order to increase commercial activity while protecting forests

**Example:** Organic coffee production in Colombia using agroforestry systems and transitory crops, as part of the *Pur Projet* (launched in 2018)

### Impacts:



**994** farmers impacted to date, will benefit 1,500 families; decreased rural poverty through revenue diversification



Two million trees planted, reduced soil erosion, protection of uphill areas, which improves water supply



## Technological Solutions

**Solution:** Tracking technologies such as radio-frequency identification (RFID), Internet of Things, and blockchain technology to monitor supply chains in real-time from tree to the final user

**Example:** DataBosque open-code software that tracks the origin of wood in Peru; CargoTrack machine-to-machine technology that is installed inside trees and detects illegal movements in the Brazilian Amazon

### Impacts:

Technology is still at an early stage and requires greater government investment



Peru: as of January 2020, only 50 logging companies out of 3,651 used DataBosque



Brazil: CargoTrack piloted 20 devices in 2012. As a result, one sawmill was shut down and several people were arrested



## Innovative Governance Models

**Solution:** Business partnerships with rural communities to create community forest enterprises in order to improve resiliency and forest management

**Example:** Community concessions<sup>1</sup> in the Maya Biosphere Reserve in Guatemala for multiple uses, but with specific conservation objectives. To maintain a concession, communities have to maintain Forest Stewardship Council certifications

### Impacts:



Reduced emigration, higher income (1.6–2.8x poverty line, \$473–10,135 per year)



Sustainable timber production, reduced and controlled fires, maintenance of jaguars, increase in forests – 0.1% (2016–17) vs. previous decline

Notes: A community concession is a “contract between a forest owner [usually government] and another party [local community] permitting the harvesting (forest utilization contracts) and/or managing (forest management services contracts) of specified resources from a given forest area” – FAO, “Making forest concessions work to sustain forests, economies and livelihoods in tropical timber producing countries,” n.d.

Sources: 1. Forest Trends, “Two Decades Partnering With Indigenous Communities,” 2020; 2. FAO, “The State of the World’s Forests,” 2020; 3. FAO, “Time is running out for the world’s forests: total area is shrinking by the day,” 2018; 4. AWS, “Tackling deforestation in Colombia with IoT at the 2019 Zoo Hackathon,” 2020; 5. Forest Trends, “Peeling Back The Bark: Timber Tracking And Regulations Controlling The Peruvian Forest Supply Chain,” 2020; 6. Financial Times, “M2M case study: Trailing Brazil’s illegal loggers,” 2013; 7. Pur Project, “Coffee For Peace,” n.d.



# MINING

# Mining | LAC has immense mineral wealth and is a leader in the global production of important minerals

LAC has some of the world's largest reserves of minerals in high demand and has become a leader in the global production of several of these minerals, with significant increases in recent years

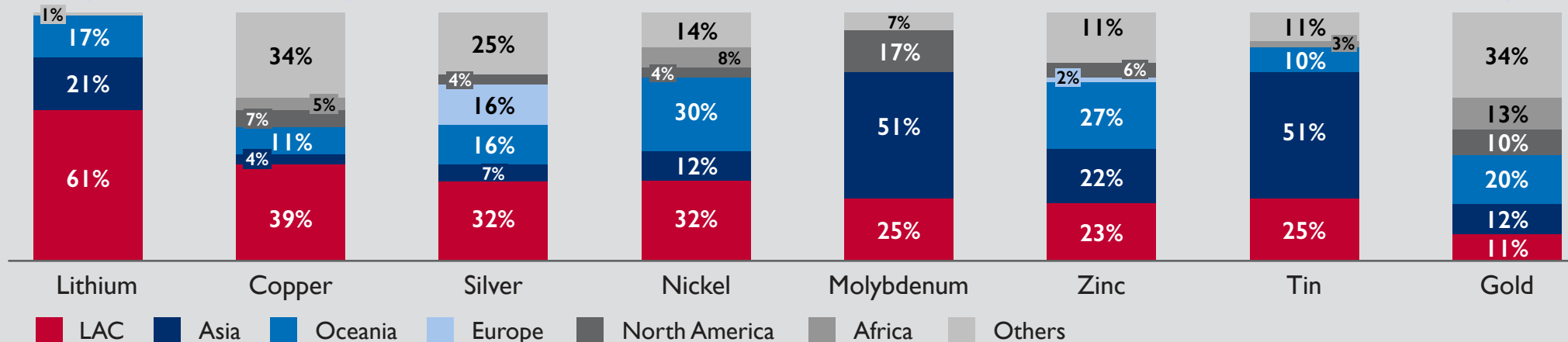
## Global Mineral Reserves 2017

LAC produces **26%** of the world's lithium; e.g., Chilean lithium production increased **52%** from 2010-2018

LAC produces **32%** of the world's copper; e.g., Peruvian copper production increased **77%** from 2013 to 2018

LAC produces **35%** of the world's molybdenum; e.g., Peruvian molybdenum exports increased **55%** from 2013 to 2019

LAC produces **12%** of the world's gold; e.g., Brazilian gold exports increased **31%** from 2012 to 2019



This report focuses primarily on small-scale mining, much of which is illegal, although large-scale mining is also degrading the environment across LAC

Sources: 1. CEPAL, "Estado de situación de la minería en América Latina y el Caribe: desafíos y oportunidades para un desarrollo más sostenible," 2018; 2. Reuters, "Chile, once the world's lithium leader, loses ground to rivals," 2019; 3. Ibid; 4. U.S. Geological Survey, "Mineral Commodity Summaries – Copper," 2020; 5. A.T. Minerals, "Outlook for Latin America," 2019; 6. U.S. Geological Survey, "Mineral Commodity Summaries – Molybdenum," 2019; 7. U.S. Geological Survey, "Mineral Commodity Summaries – Molybdenum," 2015; 8. U.S. Geological Survey, "Mineral Commodity Summaries – Gold," 2020; 9. U.S. Geological Survey, "Mineral Commodity Summaries – Gold," 2014.

# Mining | Illegal small-scale mining includes both informal and criminal operations, which at times are difficult to distinguish

## Illegal Small-scale Mining

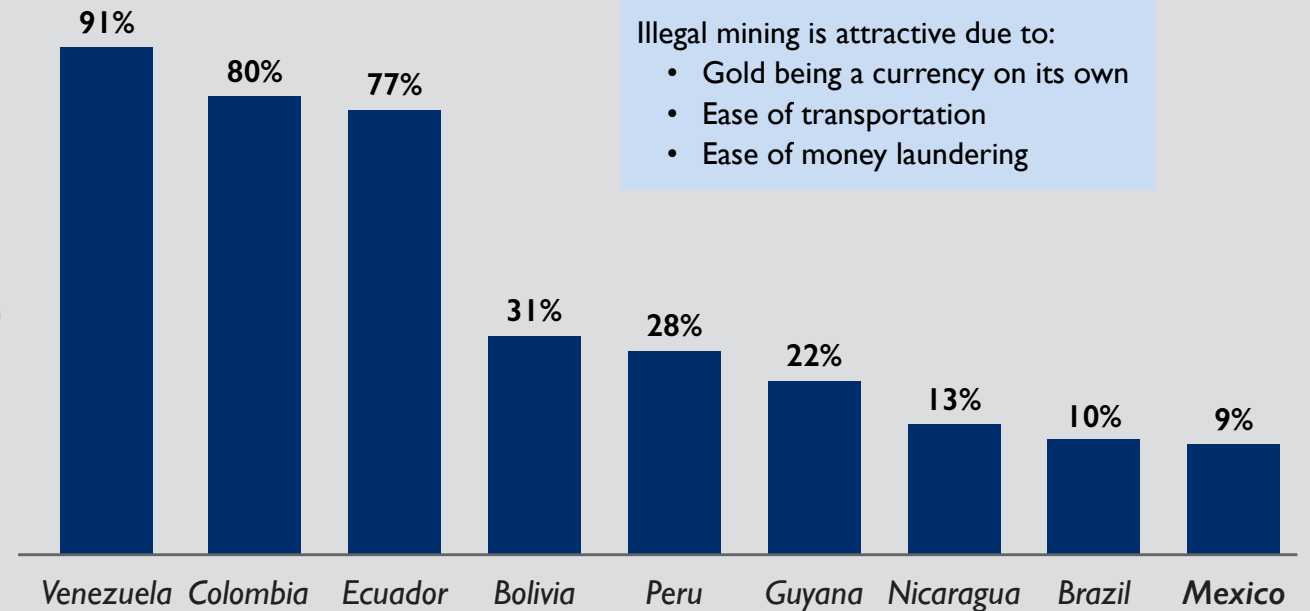
### 1 Informal Mining

- Artisanal miners or small-scale miners who operate without licenses or who have not formalized their operations, but are in the process of doing so and operate in permitted areas in the meantime

### 2 Criminal Mining

- Linked to organized crime
- Operates in prohibited areas and/or fails to meet environmental, tax, and labor laws

## Illegal Gold Mining by Country (% of Total Mining)



**It is difficult to clearly distinguish between illegal and legal activities given lack of data, high corruption, and the incorporation of goods into legal supply chains**

Source: The Global Initiative Against Transnational Organized Crime, "Organized Crime and Illegally Mined Gold in Latin America," 2016.



# Mining | Illegal small-scale mining has largely been driven by increased demand, economic incentives, and weak governance

## Increased Demand



Global demand for minerals has increased due to growing populations and middle-class expansion



International demand for gold rose (2008-18) due to jewelry demand from emerging markets, such as China and India, yet demand has recently fallen due to price increases during COVID-19



Increased demand for electric vehicles and electronic devices using lithium and nickel batteries has resulted in growing demand for these metals

- Global lithium demand is expected to grow 485% by 2025 and 965% by 2050 (i.e., LAC holds 61% of the world's lithium reserves)
- Global demand for nickel is expected to increase 108% by 2050 (i.e., LAC holds 32% of world nickel reserves)



As demand for green technology (e.g., solar and wind power) grows, there will be greater demand for inputs like copper (Colombia, Peru) and iron ore and bauxite (Brazil, Guyana, Jamaica)

## Economic Incentives



Mining has become extremely lucrative, particularly gold mining, given recent increases in the price of gold (e.g., gold price increased 80% 2015 - 2020)



Poverty has driven many vulnerable groups to take riskier jobs and seek employment in mining



Organized criminal groups have rushed to enter the industry to diversify their revenue streams



Gold mining is among the simplest and most profitable ways to launder money: it easily passes as legally sourced and does not need to enter the financial system (can be used as a currency itself)

## Weak Governance



Local governments have been unable to regulate mining due to corruption by officials (bribery and intimidation) or lack of resources (funding, qualified personnel); mines also tend to be located in remote areas with little government presence



Transnational organized criminal groups have grown stronger, further weakening government authority and enforcement capacity



Burdensome legalization procedures have made it difficult to regulate mining activity (e.g., in Peru formalization of small-scale mines requires 22 steps)

Note: 6. Green technologies such as solar and wind power require 12 times more copper than traditional energy systems according to the European Copper Institute, "Copper and the Circular Economy," n.d.

Sources: 1. CEPAL, "Estado de situación de la minería en América Latina y el Caribe: desafíos y oportunidades para un desarrollo más sostenible," 2018; 2. OCMAL, "Minería, una industria inhumana en Latinoamérica," 2019; 3. Goldprice, "Gold Price Performance USD," n.d.; 4. FBI, "Illicit Mining: Threats to U.S. National Security and International Human Rights," 2019; 5. Ibid; 10. World Gold Council, "Gold Demand Trends Full year and Q4 2018," 2019; 6. The Global Initiative Against Transnational Organized Crime, "Organized Crime and Illegally Mined Gold in Latin America," 2016; 7. ELLA, "Small-scale and Informal Mining: A Big Problem For Latin American States," n.d.

# Mining | Illegal small-scale and artisanal mining in LAC has enormous environmental, economic, health, and social implications



## Environment

- Increased deforestation, including the destruction of habitats and protected areas (e.g., from 2001-2013, 1,680 square kilometers of forest were cleared in South America due to small-scale gold mining)
- Greater water, air, and soil pollution from extraction, production of molten metal, and transportation, including mercury poisoning (e.g., 1.3 kilograms of mercury are released for each kilogram of gold produced, contaminating water and food sources; in Colombia higher mercury levels have been found in 17 fish species)
- Increased sedimentation resulting in decreased aquatic ecosystem productivity and biodiversity losses
- Reduced soil fertility and access to agricultural land



## Economy

- Reduced livelihoods for rural communities from cracking down on illegal mining (e.g., in Colombia, illegal mining is valued at \$7 billion per year)
- Loss of significant tax revenue given informality
- Increased corruption, which undermines the financial system

Sources: 1. Global Americans, "Organized crime and illegal gold mining in Latin America," 2018; 2. InSight Crime, "Illegal Mining Behind Mercury Contamination Harming Colombia's Indigenous," 2019; 3. EcoWatch, "Colombia Is Still the Deadliest Place to Be an Environmental Activist, Report Finds," 2020; 4. Al Jazeera, "Illegal gold mining fuels violence in Colombia," 2017; 5. CEPAL, "Estado de situación de la minería en América Latina y el Caribe: desafíos y oportunidades para un desarrollo más sostenible," 2018; 6. WWF, "41 % of Amazon deforestation caused by gold mining between 2001 and 2013 took place in the Guianas," 2016; 7. National Geographic, "Amazon gold mining drives malaria surges among Indigenous peoples," 2020; 8. Niwa, "Sediment and mining," n.d.

# Mining | Illegal small-scale and artisanal mining in LAC has enormous environmental, economic, health, and social implications



## Health

- Increased mercury poisoning, particularly among women, children, and indigenous communities, since women tend to wash minerals, which is where mercury is used
  - Women: e.g., mercury levels in the Amazon are 34 times the safe level for women
  - Children: e.g., increase in birth defects and increased levels of mercury in children under two
  - Indigenous communities: e.g., poisoning in 66 indigenous communities in Colombia
- Mining-driven disruption of vectorial ecosystems generates an increased transmission of diseases carried by mosquitoes, such as malaria



## Social

- Increased human and sex trafficking, forced labor, and child labor
- Greater extortion and threats from armed groups toward artisanal miners (i.e., forced to pay “tax” to operate)
- Increased conflict and killing of miners, most of whom are indigenous (i.e., between 2014-2018, the number of mining related conflicts in LAC increased by 18%)
- Increased displacement (i.e., in Colombia 87% of displaced people come from areas with illegal mines); however mining also attracts migrants, making them vulnerable to exploitation

Sources: 1. Global Americans, “Organized crime and illegal gold mining in Latin America,” 2018; 2. InSight Crime, “Illegal Mining Behind Mercury Contamination Harming Colombia’s Indigenous,” 2019; 3. EcoWatch, “Colombia Is Still the Deadliest Place to Be an Environmental Activist, Report Finds,” 2020; 4. Al Jazeera, “Illegal gold mining fuels violence in Colombia,” 2017; 5. CEPAL, “Estado de situación de la minería en América Latina y el Caribe: desafíos y oportunidades para un desarrollo más sostenible,” 2018; 6. WWF, “41% of Amazon deforestation caused by gold mining between 2001 and 2013 took place in the Guianas,” 2016; 7. National Geographic, “Amazon gold mining drives malaria surges among Indigenous peoples,” 2020; 8. Niwa, “Sediment and mining,” n.d.

# Mining | Emerging solutions to tackle illegality and to improve mineral extraction are creating new opportunities for responsible commerce



## Gold Tracing & Certification

**Solution:** Certification of businesses that comply with ethical working conditions for miners and social and environmental standards. With certification, gold can be traced at all stages in the value chain

**Example:** The Better Gold Initiative in Colombia, Peru, and Bolivia improves social and environmental conditions in small-scale mines by ensuring sustainable and transparent processes. The initiative offers technical assistance to mines, helps simplify formalization processes, and builds demand for responsible gold

### Impacts:

\$1/gram of gold reinvested into social and environmental projects; 2 electrification projects implemented.

During pilot (2015-16), 1,500 kg of certified gold were exported



## Transparency Regulations

**Solution:** Requirement for companies to disclose their sourcing information, making it public whether they source from conflict areas

**Example:** Dodd Frank Act in the United States mandated companies to disclose sourcing from conflict areas in the Democratic Republic of Congo; draft EU Conflict Minerals Legislation uses a similar approach, but expands the focus to other regions, including LAC (e.g., Venezuela and Colombia)

### Impacts:

Reduced revenue flows to armed groups; yet, also reduces income of vulnerable people who are employed by illegal mining

Greater sustainable production to meet increased demand



## Progressive Formalization

**Solution:** Formalization policies that enable artisanal and small-scale miners to progressively comply with requirements vs. a one-step approach

**Example:** Colombia's 2014 National Formalization Policy, which sought to formalize 40% of informal miners by 2019 and all informal miners by 2032

### Impacts:

By 2015, 19,000 miners had been trained, 3,388 mines had been evaluated, and 860 mines were in the formalization process

Decreased mercury pollution and improved sustainability: 16 mines received training in clean tech and 11,105 people trained in mercury elimination



Sources: 1. Reuters, "Ethical gold' aims to curb mining's toll in South America," 2014; 2. Ecologist, "Fair Trade gold mining in the highlands of Peru," 2015; 3. The Global Initiative Against Transnational Organized Crime, "Organized Crime and Illegally Mined Gold in Latin America," 2016; 4. Impact, "Best Practices: Formalization and Due Diligence in Artisanal and Small-Scale Mining," 2018; 5. Better Gold Initiative, "About Better Gold Initiative," n.d.; 6. SECO, "Iniciativa Oro Responsable para la Pequeña Minería," n.d.

# CASE STUDY | Combating Informal Mining in Colombia through USAID's "Oro Legal" Program

## Challenges:



- Poor governance of the small-scale mining sector; limited presence of mining and environmental authorities in rural settings, and gaps in the regulatory framework to effectively enforce small-scale gold mining
- Long history of environmental impact (mercury contamination and deforestation) caused by illegal/informal gold mining (e.g., 170 tons of mercury released per year)
- It would take an estimated \$10.8 billion and 25-40 years to restore the environmental damage caused by mining
- Illegal mining is sustained by strong transnational criminal organizations colluding with illegal armed groups who obtain significant funding from illegal gold mining exploitation (e.g., FARC obtains 20% of its funding from illegal gold mining)
- Steadily increasing market gold prices enticing illegal actors and incentivizing deeper encroachment into tropical forests

## Approach to Address the Challenge



- Strategy anchored on two pillars: 1) improve governance capacity for gold mining activities, and 2) increase capacity to address environmental degradation
- Reduce the use of mercury for gold mining through formalization and legalization of miners, mercury-free gold processing pilot projects, and the recuperation of degraded areas through the rehabilitation of degraded mining lands and the provision of alternative livelihoods

## Outcomes:



- Legalize/formalize 135 small mines and produce \$155 million worth of legal gold
- Rehabilitate 17,000 hectares of degraded mining lands
- Remove 55 tons of mercury from the production chain
- Train 3,500 miners on responsible mining methods

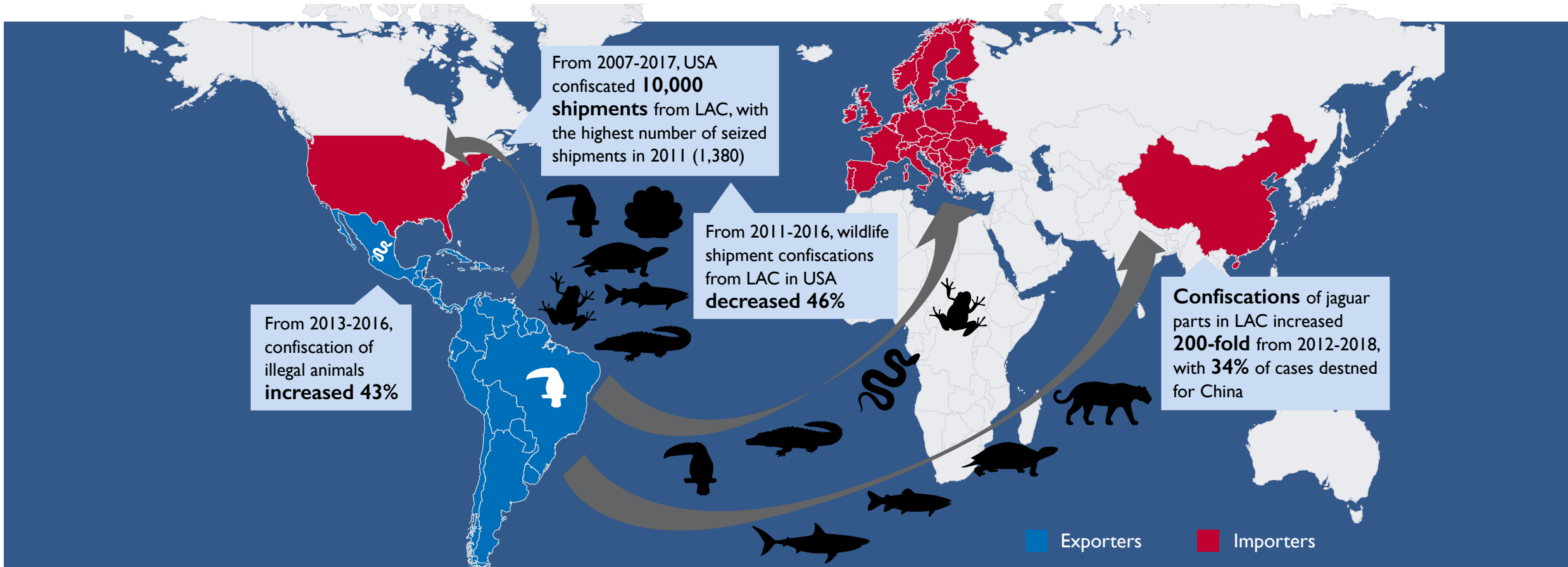
Image: Phawat / Shutterstock

Sources: 1. The Global Initiative Against Transnational Organized Crime, "Organized Crime and Illegally Mined Gold in Latin America," 2016; 2. USAID, "Artisanal Gold Mining Program, Oro Legal," n.d.; 3. USAID Mission Review.



# WILDLIFE TRAFFICKING

# Wildlife Trafficking | Wildlife trafficking also on the rise, threatening the region's biodiversity



**“Wildlife trafficking is not stalled, nor declining, it’s on the rise. It’s a global business and it needs a global response” - Luis Alberto Gonzales, Head of Forestry and Wildlife Service, Peru**

Sources: 1. WCS, “Averting a Crisis: Wildlife Trafficking in Latin America,” 2018; 2. Mongabay, “Latin American illegal wildlife trade exploding in scope and scale,” 2015; 3. Geographical, “Fangs and skin: Illegal wildlife trade endangers Latin America’s jaguars,” 2020; 4. European Commission, “Questions and answers on the EU Action Plan against Wildlife Trafficking,” 2016; 5. Biological Conservation, “Trade in live reptiles, its impact on wild populations, and the role of the European market,” 2016; 6. Defenders of Wildlife, “Combating Wildlife Trafficking from Latin America to the United States,” n.d.; 7. Mongabay, “Mexico has big role in the illegal parrot trade,” 2010; 8. American University, “Peru: Wildlife Trafficking Poses Complex Challenges,” 2018; 9. El Universal, “Se dispara tráfico de animales exóticos en el país,” 2015; 10. Excelsior, “Castigos ‘suaves’ devoran especies; películas detonan demanda,” 2018; 11. Defenders of Wildlife, “Analysis Of Illegal Wildlife Shipments From Latin America Seized In The United States, 2007–2017,” 2019.

# Wildlife Trafficking | Wildlife trafficking is driven by increased demand, economic incentives, and weak policies and enforcement

## Increased Demand



Increased demand from **domestic markets**, (e.g., birds, reptiles and urban wild meat)



Long history of **trade in wildlife from LAC to Europe** (i.e., birds and pet reptiles) and **North America** (i.e., exotic meat for consumption, reptile skin for fashion items, and leather products for personal items such as wallets and belts)



**Rise of commerce between China and LAC** has been accompanied by an explosion of transpacific criminal activity, including wildlife trafficking



**Dwindling animal populations** in Africa and Asia driving increased LAC demand (e.g., Chinese demand for jaguars due to falling tiger populations)<sup>1</sup>

## Economic Incentives



After drugs, guns and human trafficking, wildlife trafficking is the world's **most lucrative organized crime** with an annual value of around USD 20 billion



Increased involvement of **local populations** who see wildlife trafficking as a way to make **additional income** (e.g., Cocama, Tikuna, and Yagua indigenous populations in Colombia have resorted to working for criminal organizations to conduct wildlife trafficking operations in order to make a living)

## Weak Enforcement / Policies



Laws are **vague and inconsistently** applied within countries



**Lack of multi-country plans or coordination** between countries, resulting in inconsistent penalties (e.g., in Uruguay wildlife trafficking is a simple infraction; while in Panama, the maximum penalty for trafficking fauna or flora is five years in prison)



**Poor capacity** to tackle wildlife trafficking crimes given that officers lack the skills, understanding, and equipment to prosecute these crimes



**Poor access to data, intelligence operations, and resources** due to the **low priority** given to wildlife trafficking

Sources: 1. Mongabay, "Is Chinese investment driving a sharp increase in jaguar poaching?," 2020; 2. WCS, "Averting a Crisis: Wildlife Trafficking in Latin America," 2018; 3. Mongabay, "Latin American illegal wildlife trade exploding in scope and scale," 2015; 4. Geographical, "Fangs and skin: Illegal wildlife trade endangers Latin America's jaguars," 2020; 5. European Commission, "Questions and answers on the EU Action Plan against Wildlife Trafficking," 2016; 6. Biological Conservation, "Trade in live reptiles, its impact on wild populations, and the role of the European market," 2016; 7. Defenders of Wildlife, "Combating Wildlife Trafficking from Latin America to the United States," n.d.; 8. Mongabay, "Mexico has big role in the illegal parrot trade," 2010; 9. American University, "Peru: Wildlife Trafficking Poses Complex Challenges," 2018; 10. Latin America Reports, "Colombian conservationist claims illegal wildlife trafficking is result of state neglect," 2019.



# Wildlife Trafficking | Wildlife trafficking affects the region's biodiversity, economy, and security (1 of 2)



## Biodiversity

- Diminished populations, including increased endangerment of native species (e.g., jaguar population has decreased 25% in two decades, mainly due to poaching)
- Decreased health of species given that the most fit animals are poached
- Diminished population growth and population recovery
- Increased ecosystem alterations (i.e., sharks play a key role in the food chain by consuming smaller fish. Shark poaching has significantly increased small fish populations, which have depleted shellfish)



## Economy

- Increased invasive species costs as natural equilibriums in recipient countries are disrupted by wildlife imports (e.g., invasive species eradication costs, economic losses from pests)
- Decreased agriculture, horticulture, and aquaculture production due to seeds, parasites, and viruses carried by trafficked species
- Reduced incomes and livelihoods for communities who depend on wildlife (i.e., ecotourism)

# Wildlife Trafficking | Wildlife trafficking affects the region's biodiversity, economy, and security (2 of 2)



## Health

- Emergence of new diseases (viruses, bacteria) due to increased human-wildlife contact (e.g., illegal bushmeat trade has been associated with increases in Ebola and retroviruses transmission)



## Social

- Increased violence and crime due to strengthening of transnational criminal organizations, including extortion and threats to locals, arms smuggling, and killing of environmental protectors and activists

# Wildlife Trafficking | Innovative solutions have emerged that both tackle illicit activity and improve wildlife management



## Monitoring

**Solution:** Technologies for monitoring endangered species and tracking illicit activity

**Example:**



Drones to monitor vaquita marina habitats and to identify illegal totoaba activity in Mexico

Mobile app with geolocation technology in Colombia to identify the location of crimes against sea turtles and improve investigations



Global positioning system (GPS) technology in artificial sea turtle eggs to monitor movement of resources and identify illegal trafficking routes in Central America

**Impact:**



Although technologies are still early stage in LAC, similar technologies have been successful in other regions. In Australia, the Wildlife Witness App has contributed to 1,200 intelligence reports, 250 of which have led to further prosecution



## Government / Civil Society Partnerships

**Solution:** Partnerships between civil society and government to prosecute wildlife crimes and strengthen law enforcement

**Example:** Mesa Técnica partnership, established in 2015 in Guatemala between three civil society groups, Guatemalan authorities, and the National Council of Protected Areas. Success can be attributed to the partnership's close collaborative community. The partnership uses technology (e.g., social media) to identify crimes and provides capacity building via training workshops.

**Impact:**

4 individuals convicted for trafficking macaws; with USD 1,350 fines (greater than price of macaw – \$810); 350 person-days of training on enforcement



## Forensics



**Solution:** Stable isotopes analysis in wildlife trafficking investigations

**Example:** In 2015, Brazil's Federal Police and the University of Brasilia began research on applying stable isotopes analysis to wildlife trafficking investigations. Stable isotopes analysis can be used both to distinguish between captive and wild animals (to determine origin of animal being transported) and to identify the origin of confiscated animal parts.

**Impact:**

To date, researchers have developed isoscapes that enable authorities to identify the origin of animals from certain biomes and to distinguish between animals brought up in captivity and animals caught in the wild



Sources: 1. Expansión, "La tecnología que salva animales en peligro de extinción," 2020; 2. Publimetro, "Marina gasta 67 mdp en 'super drones' para salvar a la vaquita marina," 2017; 3. WWF, "WWF Colombia lanza la primera aplicación contra el tráfico de fauna silvestre," 2017; 4. Network World, "How IoT trackers can fight poachers," 2018; 5. Dialogo Chino, "Twenty countries to fight wildlife trafficking as organised crime," 2019; 6. USAID, "Mesa Técnica in Guatemala Wildlife Conservation Society," n.d.; 7. Taronga Conservation Society Australia, "TCSA Annual Report 2015–2016," n.d.; 8. USAID, "TRAFFIC: Wildlife Trade in Brazil," 2020..

# CASE STUDY | Combating Wildlife Trafficking by Increasing Public Awareness

## CAFTA-DR Countries



### Challenge:

- Persistent wildlife trafficking in Central America, exacerbated by rising Chinese demand, is threatening the region's biodiversity and undermining rule of law
- Wildlife trafficking laws are rarely enforced in the region due to poor enforcement capacity and lack of legal understanding
- Sea cucumbers, glass frogs, parakeets, parrots, and macaws are some of the species increasingly exploited for exports to Europe, Asia, and the United States
- Data gaps on species traded and final destinations makes combating trafficking even more challenging

### Approach to Address the Challenge



- Increased public education on wildlife trafficking by conducting environmental education activities, such as field trips, and community liaison workshops and including wildlife education in school curricula
- Educated community leaders on wildlife laws and economic alternatives to trafficking
- Created a digital trafficking map to monitor statistics and equip enforcement agencies
- Implemented surveys on public awareness
- Developed public awareness campaigns (e.g., digital billboards, print material, radio ads)



### Outcomes:

- 11 million people reached by campaigns
- Increased protection of species— before campaigns, 41% of survey respondents were not doing anything to protect wildlife, this number dropped to 13% after campaigns

Note: Central America-Dominican Republic-United States Free Trade Agreement.  
Source: OAS, "Monitoring Progress of the Environmental Cooperation Agenda in the CAFTA-DR Countries: Seventh Evaluation Report," 2017.



# **ILLEGAL, UNREPORTED, AND UNREGULATED (IUU) FISHING**

# IUU Fishing | IUU fishing continues to present a major challenge in LAC, threatening livelihoods and food security in the region

## Overview

- Globally, IUU fishing accounts for **20% of fish caught**, resulting in an annual cost of **\$23 billion**
- **30% of fish** in LAC are captured above permitted levels
- Poor fishing techniques have led to large amounts of incidental fishing
- Approximately **900 illegal fishing boats** arrive in LAC each year, primarily from China, Taiwan, South Korea, Spain, and Portugal
- The Central America and Caribbean region is ranked the worst in responding to IUU fishing in coastal waters
- Annually, LAC only **captures 1% of illegal boats** operating in the region
- In 2018, 11 LAC countries created a network to jointly combat IUU fishing

## Challenges



Weak ocean **governance** and **enforcement** (e.g., *lack of fish registries*)



Rising fish **demand** from China has resulted in increased numbers of Chinese boats in LAC (e.g., *38% of global fish consumption will come from China by 2030; during the fishing season, over 300 Chinese vessels can be found near the Galapagos*)



Rising value of fish trade (e.g., *salmon profits rose 45-60% since 2012*)

## Impacts



**Decreased livelihoods** for 2.4 million people who are legally employed in fishing and aquaculture, small fishers are the most vulnerable



**Depleted fish stocks**, threatening food security



**Increased food chain disruptions**



**Increased biodiversity loss** and endangerment of species



**Increased transnational crime**, including human and arms trafficking



**Increased economic losses** (e.g., Chile annually loses \$260-300 million due to illegal fishing)

**Given the rise of IUU fishing and its direct impact on LAC livelihoods, USAID should continue to closely monitor IUU fishing in the coming years**

Sources: 1. The Global Initiative Against Transnational Organized Crime, "The Illegal, Unreported and Unregulated Fishing Index," 2019; 2. FAO, "Growing momentum to close the net on illegal fishing," 2018; 3. Biblioteca del Congreso Nacional de Chile, "Pesca ilegal, no declarada y no reglamentada en América Latina: Un problema para abordar en conjunto," 2018; 4. SciDev Net, "Pesca ilegal: acuerdo internacional crea fondo para países en desarrollo," 2019; 5. France24, "FAO: La pesca ilegal genera hasta 23.000 millones de dólares al año," 2018; 6. Berkeley Political Review, "The Price of a Fish: Illegal Fishing and the Consequences for Latin America," 2018; 7. University of Texas at Austin, "Overfishing – Who cares?" 2014.



# CALLS TO ACTION

# Calls to Action | A holistic, cross-sectoral approach is needed to tackle the underlying drivers of unsustainable exploitation of natural resources



The underlying drivers of unsustainable exploitation of natural resources are often **systemic issues** rooted in local economic, social, and cultural realities that are deeply challenging to address

**Making progress on these challenges often requires cross-cutting approaches** that draw on resources and capabilities from local communities themselves along with support from government, private sector, civil society, academia, and donors

**The high-level ideas outlined in this section are often interdependent;** they need to be implemented in tandem in order to be effective (e.g., support for alternative livelihoods alongside legal enforcement)

**They also require a keen understanding of local context to determine whether and how they might apply** given the size and diversity of the region



# Calls to action | Reducing unsustainable exploitation of natural resources in LAC requires action and collaboration across sectors (1 of 6)



## Public sector

**Support alternative economic activities and livelihoods**, particularly in rural/indigenous communities, to reduce need for unsustainable natural resource exploitation

### **Strengthen regulatory framework and its application/enforcement**

- Develop/enforce legislation to regulate the exploitation of natural resources (e.g., exploitation quotas)
- Provide land rights such as collective land titles (e.g., for indigenous populations) and guarantee rights are respected
- Improve standards of environmental impact assessment for infrastructure projects
- Fulfill commitments to protect environmental activists, improve access to environmental information, and broaden public participation in environmental decision-making<sup>(2)</sup>

### **Break the chain of illegal trade**

- Improve monitoring, tracking, and surveillance
- Improve prosecution of any illegal activity at any stage
- Develop mandatory reporting systems where organizations must disclose the country of origin from which they buy wood, gold, and other natural resources as a mechanism of public pressure for companies that buy in countries with high illegal exploitation of natural resources

**Increase international cooperation to address both demand and supply**, particularly in order to effectively tackle trafficking

# Calls to action | Reducing unsustainable exploitation of natural resources in LAC requires action and collaboration across sectors (2 of 6)



Civil Society

## Engage in activism and advocacy

- Build alliances across civil society and private sector to collectively increase pressure on policymakers and business leaders to adopt sustainable production policies and practices

## Influence consumer demand

- Support and execute behavior change initiatives to shape consumption toward more sustainable products

## Increase participation in planning and monitoring

- Participate in public consultation process (e.g., consultations about mining projects)

# Calls to action | Reducing unsustainable exploitation of natural resources in LAC requires action and collaboration across sectors (3 of 6)



## Private sector

### Change sourcing policies

- Define strict procurement policies (e.g., “Zero deforestation” policies) and support suppliers to transition to sustainable practices

### Invest in traceability mechanisms

- Develop tools and frameworks to improve traceability of products in key supply chains (e.g., mobile apps that help buyers trace products end-to-end)

### Influence policymakers

- Partner with civil society actors and contribute resources to influencing policymakers about enacting and implementing sustainability-focused policies and regulations

# Calls to action | Reducing unsustainable exploitation of natural resources in LAC requires action and collaboration across sectors (4 of 6)



## Academia/Research

### Innovate

- Develop technology and techniques for sustainable exploitation of natural resources and tracking/monitoring

### Research

- Develop country studies to build knowledge and a more data-driven approach to these topics (e.g., state of wildlife trafficking in Peru)

### Train conservation professionals

- Improve and expand training in conservation-related disciplines for professionals across public, private, and civil society sectors

# Calls to action | USAID can bring various capabilities to reduce unsustainable exploitation of natural resources across the region (5 of 6)



**Support governments in expanding technical capacity and improving rule of law on topics such as:**

- Resource management
- Conservation programs
- Organized crime

**Provide catalytic capital to transition to sustainable practices** (e.g., agroforestry) and crowd in more sustainability-focused private sector offtakers

**Facilitate exchange of knowledge across countries**

- Create platforms and fora for cross-Mission learnings (e.g., Guatemala has knowledge related to environmental conservation crimes)

**Support private sector companies**

- Provide support to companies transitioning to business models that use natural resources sustainably
- Work with local governments to encourage and support formalization of small scale/artisanal/informal mining and logging (e.g., create incentives, ease bureaucratic hurdles)

# Calls to action | USAID can bring various capabilities to reduce unsustainable exploitation of natural resources across the region (6 of 6)



**USAID**  
FROM THE AMERICAN PEOPLE

## Support and protect environmental activists, especially in indigenous communities

- Support and pressure, where needed, LAC governments to fulfill commitments to protect environmental activists under LAC P10 agreement

## Build public-private-civic society coalitions

- Data-sharing coalition to have real-time data on conservation crimes across different organizations

**THANK YOU**



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