

AQUATIC ECOSYSTEMS AND THE HUMAN RIGHT TO SAFE DRINKING WATER AND SANITATION IN THE AMAZON

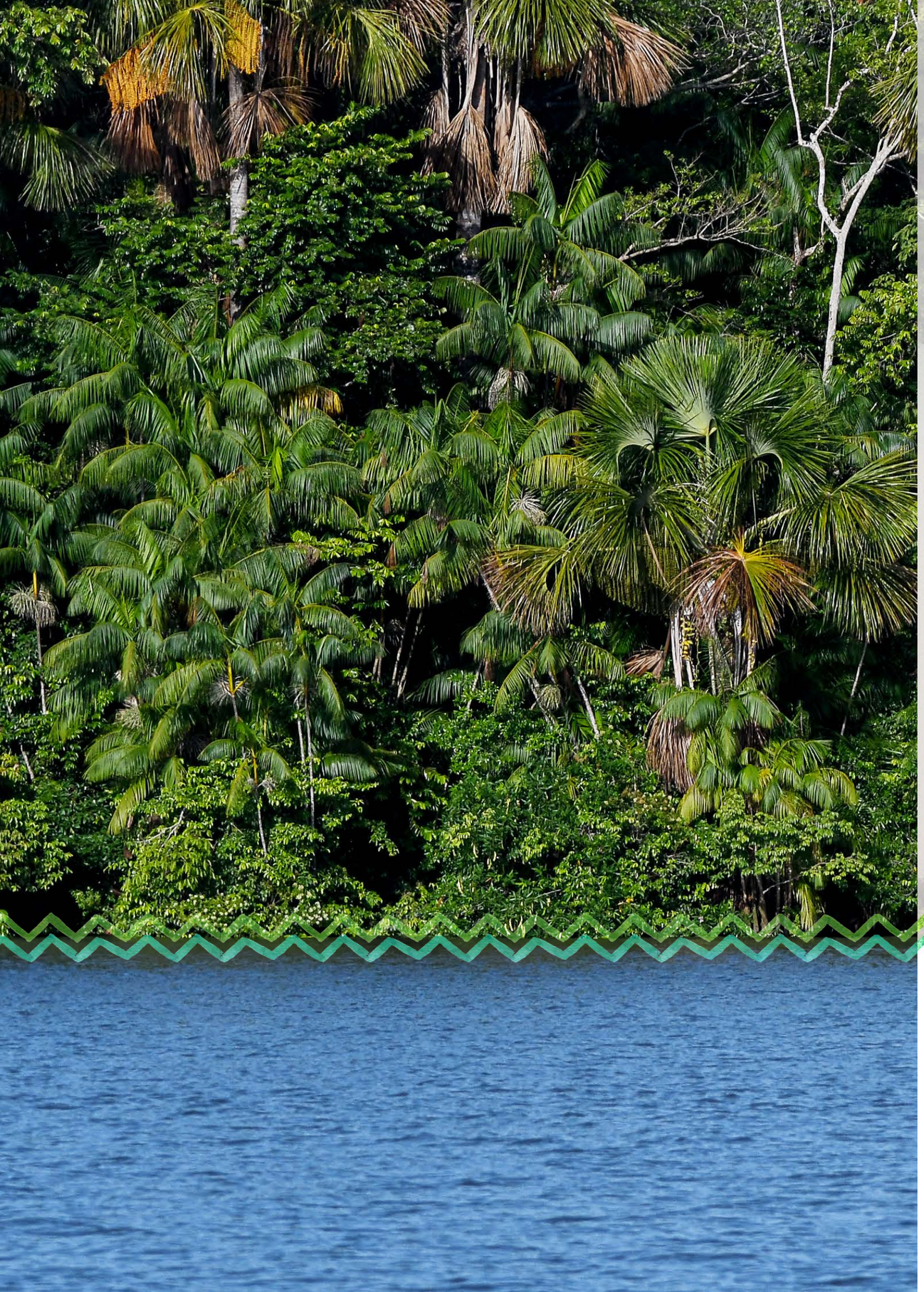
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United Nations Special Rapporteur on the
human right to safe drinking water and sanitation

September 2026

CORE TEAM

COLLABORATING ORGANIZATIONS



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METHODOLOGY

The Special Rapporteur on the human rights to safe drinking water and sanitation decided to prepare this Briefing Document in response to the growing volume of information received during the course of his mandate regarding the serious environmental, social, and human rights challenges affecting the Amazon region, particularly those related to the human rights to safe drinking water and sanitation.

Repeated communications, testimonies, and exchanges with Indigenous Peoples, riverine communities, civil society organizations, researchers, and human rights defenders revealed growing concern about the pollution of water sources, the degradation of aquatic ecosystems, the impacts of extractive industries and infrastructure projects, as well as the disproportionate consequences these processes have on Indigenous Peoples and other communities whose lives, cultures, and livelihoods depend on the Amazon's rivers and forests.

The Briefing Document examines these concerns from a human rights perspective, recognizing the fundamental link between the protection of water ecosystems, environmental sustainability, and the effective enjoyment of human rights. The report was prepared through a participatory and multidisciplinary process designed to incorporate diverse sources of knowledge and evidence from across the Amazon region. It is based on consultations, communications, and information-gathering activities conducted within the framework of the mandate of the Special Rapporteur on the human rights to safe drinking water and sanitation, as well as on contributions received specifically for the preparation of this report.

The analysis draws on information provided by a wide range of stakeholders, including Indigenous Peoples and their representative organizations, riverine and local communities, civil society organizations, human rights defenders, academics, scientists, environmental specialists, international organizations, and public authorities in Amazonian countries. These contributions provided valuable evidence on the environmental, social, cultural, and human rights dimensions of the challenges facing the Amazon basin.

The information was gathered through written contributions, consultations, dialogues with experts, meetings with relevant stakeholders, a review of scientific and public policy literature, legal analysis, and exchanges with representatives of affected communities and organizations working throughout the region. Special attention

was given to documenting lived experiences and community perspectives regarding environmental degradation, water governance, territorial rights, extractive activities, climate change, access to safe drinking water and sanitation, and the protection of human rights defenders.

The Information Document adopts a human rights-based approach, grounded in international human rights law, international environmental law, and the rights of Indigenous Peoples. It also recognizes the importance of Indigenous and traditional knowledge systems as essential sources of knowledge that complement scientific research and technical evidence. By integrating these different forms of knowledge, the report seeks to provide a comprehensive assessment of the interconnected ecological, hydrological, and human rights challenges affecting the Amazon, as well as to identify ways to protect both ecosystems and the peoples who depend on them.

The preparation of this Briefing Document was supported by a broad network of organizations, experts, Indigenous representatives, and community leaders from across the Amazon region.

The Special Rapporteur hopes that this Briefing Document will help shed light on the grave situation facing the Amazon and the profound repercussions that environmental degradation, water pollution, and ecosystem disruption have on the human rights of Indigenous Peoples and other communities inhabiting the region. He also hopes that this report will serve as a tool to promote constructive dialogue and strengthen the political will of Amazonian States to adopt urgent, comprehensive, and human rights-based measures to protect Amazonian ecosystems, their water resources, and the peoples who depend on them. The report will be publicly available on the website of the Special Rapporteur on the human rights to safe drinking water and sanitation:

https://www.ohchr.org/es/special-procedures/sr-water-and-sanitation

EXECUTIVE SUMMARY

"Defending rivers and territory is defending life"
Mari Luz Canaquiri Murayari, 2025 Goldman Prize winner
and president of Huaynakana Kamatahuara Kana,
the Federation of Kukama Women of the Marañón River, Loreto (Peru). .

Last night I had a dream
Last night, my son who lives within the river came to visit me
Last night, he told me they had welcomed him
My son did not drown, he lives in the river
Last night I had a dream
Since last night, I cannot stop gazing at the river.

Leo Tello.

The Amazonian hydrological network, the largest in the world, forms the backbone of a vast ecological web of life that interconnects Andean ecosystems, tropical rainforests, wetlands, and Atlantic ecosystems through continuous flows of nutrients, sediments, and atmospheric moisture. Biodiversity, the reproductive cycles of numerous species, food security, and the livelihoods of millions of people depend on this connectivity, as do the rainfall patterns of the Amazon itself and much of the continent.

For the Indigenous Peoples who have inhabited and continue to inhabit the Amazon, the forest is a living entity, composed of interconnected beings—plants, animals, human communities, and spiritual beings—with water, earth, and air sustaining life in the territory.

The prevailing extractivist development model has been undermining the sustainability of the Amazon's hydro-bioclimatic, ecological, and social systems. Rapid deforestation, including fires (most of which are deliberately set), degrades soil fertility, raises temperatures, and reduces plant evapotranspiration—which feeds the so-called "flying rivers"—on which the rainfall patterns in the Amazon itself and much of the continent depend. The massive toxic contamination of rivers with heavy metals from mining, agrochemicals, and frequent oil spills is cumulatively and irreversibly poisoning the population—especially Indigenous Peoples and riverside communities—with devastating impacts on children. Large hydroelectric dams, in addition to flooding vast areas of rainforest and displacing their inhabitants, sever the Amazon's river connectivity and cause vital ecological functions to collapse, as if the rivers were suffering from a thrombosis. The construction of mega-infrastructure projects—intended to provide commercial outlets for extractive activities rather than to improve the lives of local residents—accelerates deforestation and the occupation of Indigenous territories and

protected natural areas. This profound crisis in the Amazon is accelerating and deepening due to climate change, with increasingly severe droughts and extraordinary floods.

Parallel to the deterioration of living conditions for Indigenous Peoples and riverside communities, the rapid growth of large cities—where more than half the population lives in favelas in conditions of extreme poverty, without sanitation—is exacerbating river pollution.

Indigenous Peoples and communities in the Amazon face neocolonial exploitation that is more brutal than what they endured during colonial times. Their rights—recognized by the UN and binding international conventions, particularly their right to free, prior, and informed consultation—are ignored, while their leaders are criminalized and even murdered. In response, the population is developing forms of resistance, territorial surveillance, and community-based water management, while advocating for the recognition of rivers and ecosystems as rights-holders.

THE AMAZON ALERT issued by Indigenous Peoples and Amazonian communities, scientists, and social movements—both within the Amazon itself and around the world—must be heard and addressed by the region's governments. We still have time to avert greater evils and to stop the crimes and injustices committed daily in the

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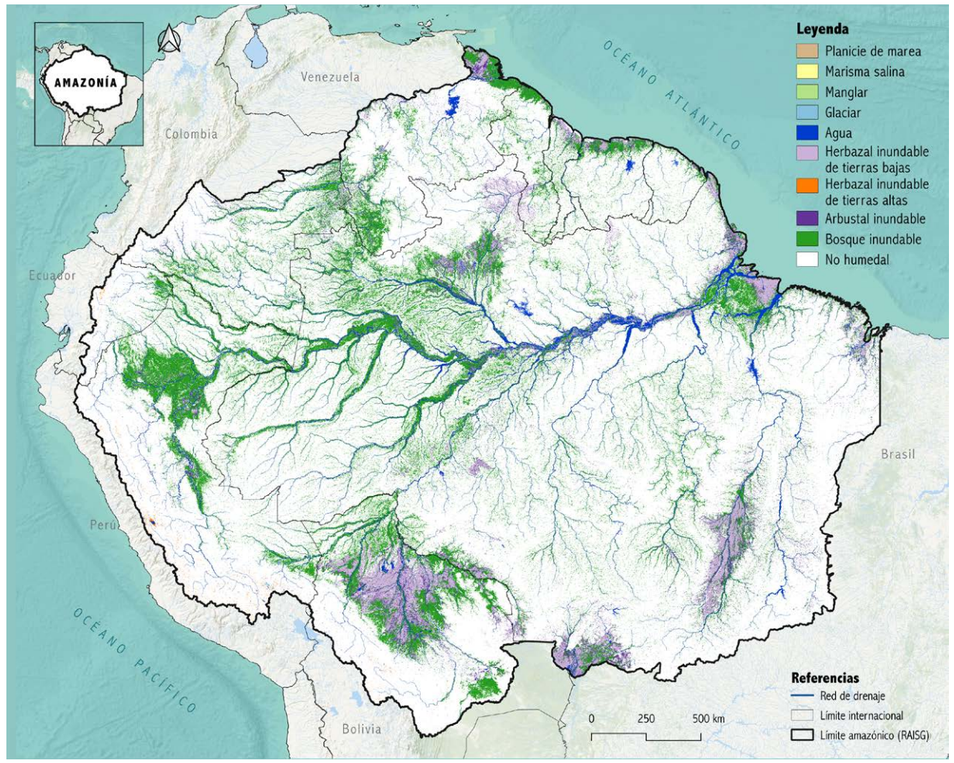
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THE AMAZON: A HYDROBIOCLIMATIC, ECOLOGICAL, AND SOCIOCULTURAL SYSTEM

Fluvial Structure of the Region

The Amazon is the largest hydrological system on the planet, covering 8.4 million km². It covers 47% of South America and encompasses territories in Bolivia, Brazil, Colombia, Ecuador, Guyana, French Guiana, Peru, Suriname, and Venezuela. It consists of more than a thousand major tributaries, as well as countless streams, wetlands, and other aquatic ecosystems. In addition to the sub-basins of the Madeira, Negro, Tapajós, Xingu, Purús, Juruá, and Ucayali-Marañón rivers, it includes the basins of the Orinoco, Tocantins, and Paraná rivers, as well as coastal basins along the North and South Atlantic[1]. Its flow rates account for approximately one-fifth of the total river discharge flowing into the oceans[2].



Classification of Amazonian wetlands, adapted from Souza et al., 2025

The Amazonian hydrographic network functions as a vast ecological web of life that interconnects páramos and other high-Andean ecosystems, underground aqui-

1 RAISG (2025)
2 Scientific Panel for the Amazon (SPA) (2021)

fers, floodplain forests in the tropical rainforests, wetlands, and Atlantic estuarine and coastal systems, with constant flows of sediments, nutrients, biological species, and atmospheric moisture.

Sediments eroded from the Andean mountain range and transported to the floodplains fertilize aquatic ecosystems and alluvial forests, whose capacity to regulate moisture flows, store carbon, and sustain precipitation patterns gives the Amazon continental and even planetary climatic significance.

The Amazon rainforest releases enormous amounts of water vapor through plant evapotranspiration, forming what are known as "flying rivers"—atmospheric corridors of moisture that transport some 20 km³ of water per day, exceeding the Amazon River's average daily flow of 17 km³ at its mouth. The rainfall patterns of the Amazon itself, the Southern Cone, and vast Andean regions depend on these "flying rivers."

Studies provided by the Amazonian Network for Georeferenced Socio-Environmental Information (RAISG) demonstrate that the functional integrity of the basin depends on hydrological connectivity between the Andes, the Amazonian plains, and the Atlantic Ocean[3]. Aquifers, páramos, rivers, wetlands, floodplains, flood-prone forests, and estuarine, deltaic, and coastal ecosystems form an integrated socio-ecological system that brings together immense biodiversity, productive systems, and the cultural practices of Indigenous Peoples, Afro-descendant communities, Quilombolas, fisherwomen, and small-scale farmers, whose way of life is tied to seasonal flood cycles.



João Paulo Guimarães - Jornalista (GTA)

Seasonal river floods, known as "flood pulses," facilitate a large-scale transfer of

3 SPA (2025)

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sediments and nutrients essential for sustaining Amazonian biodiversity, as well as beaches, deltas, and Atlantic coastal ecosystems.

Amazonian wetlands—such as the Llanos de Moxos in Bolivia, Bananal Island in Brazil, and the floodplains of Roraima[4] —which cover some 152 million hectares[5,6] — perform vital functions of carbon sequestration and natural water purification, while providing a suitable habitat for the rearing of fish that are key to the food security of millions of people, especially Indigenous Peoples and riverside communities, with an annual per capita consumption of 30–40 kg in urban areas and 70–200 kg in rural areas[7].

Amazonian rivers also serve as the backbone of the tropical rainforest's territorial, demographic, and sociocultural structure and remain, to this day, the primary network for communication[8], transportation, and supply for local communities.

Demographic Trends and Territorial Transformation

The Amazonian population has grown from 29 million in 1985 to 58 million in 2025[9], as a result of intense processes of urbanization and internal colonization of the territory. Over these four decades, the urban population has risen from 42% to 72%, driven by an intense process of urbanization and territorial transformation. Cities such as Santa Cruz, in Bolivia, with about 2 million inhabitants; metropolitan areas such as those of Manaus and Belém, in Brazil, with around 2.5 million inhabitants; Iquitos in Peru with nearly 400,000 inhabitants; and Puyo in Ecuador[10], which has quadrupled its population since 1982, with more than 39,000 inhabitants today. This urbanization process also includes Indigenous Peoples: in Manaus, the number of people who self-identify as Indigenous rose from about 3,700 in 2010 to 71,700 in 2022.

This demographic and territorial transformation is closely linked to the expansion of extractive activities, which have caused the regional GDP to skyrocket, although wealth is concentrated among a few actors, while the majority of the population suffers from poverty levels far above the national averages[11].

More than 500 Indigenous Peoples live in the region, including at least 188 Indigenous

4 RAISG, 2020
5 Ibid.
6 Souza et al., (2025)
7 SPA (2021), chap. 21, p. 12
8 Stringer & Moriz (2026)
9 RAISG (2025)
10 INEC (2001); Pastaza Provincial Government (2025), with data from INEC (2022)
11 Ioris (2016)

Peoples in Isolation and Initial Contact (PIACI)[12][13]. Their territories are closely linked to some of the Amazon's most ecologically significant areas and to zones that the IUCN defines as key to biodiversity: 97% of PIACI are located in critical habitat zones for biodiversity and 96% in critical natural asset zones. However, only 57 PIACI—that is, 32% of this population in South America—currently live in Indigenous Territories or Protected Natural Areas, which play a fundamental role in protecting the forests, rivers, and wetlands on which millions of people depend, either directly or indirectly.



Tacana Cavineña Carmen Alto de Geneshuaya Community, municipality of Riberalta, Beni. Bolivia - 2025
João Paulo Guimarães – Journalist (GTA)

The PIACI are concentrated primarily in remote areas of Bolivia, Brazil, Colombia, Ecuador, Peru, and Venezuela. Despite the territorial protection measures adopted by governments, their survival is at risk. For these peoples, the pollution and destruction of their territories can have devastating consequences for their survival. The principle of non-contact necessarily entails protecting their territories from extractive incursions, deforestation, settlement development, and other external pressures that force contact and lead to violence, disease, displacement, and extinction[14].

In general, it is worth noting that the knowledge, land-management practices, and ways of life of Indigenous Peoples—closely linked to Amazonian ecosystems—have historically contributed to the conservation of some of the most biodiverse areas on the planet.

12 Indigenous Peoples in Voluntary Isolation and Initial Contact (PIACI) are peoples who have decided to remain in isolation or maintain minimal contact with the majority society. Their extreme vulnerability requires special measures to ensure their physical and cultural survival and to respect their decision to remain in isolation (IACHR, 2013).

13 OHCHR (2012); GTI PIACI (2025)

14 IACHR, 2014

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Amazonian Worldviews

International Labor Organization Convention No. 169[15] and the United Nations Declaration on the Rights of Indigenous Peoples[16] recognize, among other things, their right to free, prior, and informed consultation regarding projects and activities that affect their territories. However, although Amazonian countries such as Bolivia, Colombia, Ecuador, Brazil, Peru, and Venezuela[17] formally recognize this right, indigenous organizations report that its implementation is insufficient and often fraudulent.

From the ecocentric worldviews of Indigenous Peoples, human beings are part of a network of relationships within the territory that includes animals, plants, ecosystems, ancestors, and other spiritual beings, with water as the blue soul of life and of that collective existence. From these worldviews, collective health and well-being are closely linked to the integrity of the territory and the health of rivers and forests.

For the Kukama people, the Marañón River is the home of their deceased loved ones and their ancestors, and it is considered a living and sacred being. Among the Yanomami, humans and non-humans are part of the same living community[18] . For the Ai'Kofán people, the forest, the river, and the animals coexist, forming part of a connected whole. For the Urarina people, wetlands and floodplain forests are inhabited by protective spirits, with whom the communities maintain daily relationships[19]. For the Awajún and Wampís peoples, a forest in balance requires the coexistence of animals, plants, and protective spirits (iwanch), and this relationship guarantees the ecological and spiritual integrity of the territory[20]. For the Ulwa people, oil is the blood of the earth, and extracting it kills Mother Earth.

Recognition of Rivers and Ecosystems as Legal Entities

Indigenous Peoples and traditional communities have been defending their territories against extractive projects and the construction of large dams and infrastructure, developing various strategies of social resistance and strategic litigation.

In 1992, the Kichwa People of Sarayaku secured state recognition of collective ownership of their ancestral territory; in 2012, the Inter-American Court of Human Rights (IACHR) ruled against the Ecuadorian government for authorizing oil operations on their territory without prior, free, and informed consultation. In 2012, the Kichwa

15 *ILO (1989) No. 169*

16 *UN Declaration on Indigenous Peoples*.

17 Peru enacted Law No. 29785 on Prior Consultation in 2011; Ecuador recognizes these rights in its 2008 Constitution; and Brazil incorporates them into the 1988 Federal Constitution and through the ratification of ILO Convention No. 169; Bolivia recognizes this right in its 2009 Political Constitution of the State (Art. 30.II.15); Venezuela recognizes this right in its 1999 Constitution (Art. 120) and in the Organic Law on Indigenous Peoples and Communities (Art. 54).

18 Albert, B., & Kopenawa, D. (2023)

19 Inforegión Perú (2022)

20 Zárate-Gómez et al. (2024)

People declared their territory a “Living Forest” (Kawsak Sacha), a subject of rights, and demanded its legal recognition from the Ecuadorian government[21].

The Saramaka People of Suriname obtained a ruling from the IACHR in 2007 recognizing their rights to their territory, requiring the State to demarcate it and grant the corresponding collective title; at the same time, it consolidated their right to free, prior, and informed consultation and consent regarding high-impact projects[22].

More recently, in 2024, the 171 Quilombola communities of Alcântara, in Brazil’s Legal Amazon, secured a ruling from the IACHR recognizing their rights to their traditional territories and ordering the Brazilian government to grant title to those rights[23].

Regarding the recognition of rivers and ecosystems as rights-holders, a notable example is the defense of the Marañón River by the Kukama women of the Huaynakana Kamatahuara Kana Federation[24], which culminated in the judicial recognition of the river and its tributaries as rights-holders, as well as of indigenous organizations as guardians, defenders, and representatives of the river.

In Ecuador, a legal action spearheaded by the San Jacinto del Pindo Ancestral Commune and PAKKIRU, with the support from the Ombudsman’s Office, has been seeking recognition of the Puyo River as a rights-bearing entity[25].

In Colombia, Constitutional Court Ruling T-622 (2016) recognized the Atrato River and its watershed as a subject of rights to protection, conservation, maintenance, and restoration[26]. Subsequently, in 2018, the Supreme Court of Justice, through Ruling STC 4360-2018, recognized the Colombian Amazon as a subject of rights to protection, conservation, maintenance, and restoration. Later, in 2024, the Colombian Congress passed Law 2415, recognizing the Ranchería River[27] as having analogous rights and establishing a Commission of River Guardians.

Regarding to the public policies agreed upon within the framework of the Amazon Cooperation Treaty Organization (ACTO), the Special Rapporteur welcomes the creation of the Amazonian Mechanism for Indigenous Peoples (MAPI)[28], which should address issues concerning Amazonian Indigenous Peoples from a transboundary perspective. In particular, this mechanism should strengthen the effective participation of Indigenous Peoples in decision-making that affects their lives and territories, especially decisions related to access to, management of, and protection of aquatic ecosystems. Likewise, it should promote the recognition and appreciation of Indigenous worldviews, as well as their ancestral knowledge and community-based practices for the management and protection of water and water sources, as fundamental elements for the sustainable, equitable, and culturally appropriate management of water and aquatic ecosystems in the Amazon.

21 Inter-American Court of Human Rights (2012); Sarayaku (2018); Sarayaku (2026)
22 Inter-American Court of Human Rights (2007)
23 Inter-American Court of Human Rights (2024)
24 Superior Court of Justice of Loreto (2024); Mixed Court of Nauta (2024); Superior Court of Justice of Loreto (2024)
25 El Observador (2025)
26 Constitutional Court of Colombia (2016)
27 Colombian Congress (2024)
28 OCTA (2025)

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KEY FACTORS CONTRIBUTING TO THE AMAZON’S VULNERABILITY

The exuberance of the Amazon rainforest appears to rest on a solid foundation; however, there are several key vulnerabilities that require special attention. Simultaneous impacts on these vulnerabilities are generating synergistic effects that paint an alarming picture[29].

Soil Fragility Following Fires and Deforestation



Massive forest fire in the Bolivian Chiquitanía, near the Quitunuquiña community in Roboré, Santa Cruz / Carlos Pinto (C.Pinto/FAN)

In 2000, forests covered 73.5% of the region; by 2020, nearly 9% had been deforested[30] , an area of approximately 542,581 km². In 2024, the loss of primary tropical forest increased by 80% compared to 2023; Brazil lost 2.82 million hectares, and Bolivia lost 1.48 million hectares[31]. The causes of deforestation are often linked to agricultural expansion, mining, and the construction of mega-infrastructure projects. Fires, most of

29 (SPA) (2025)
30 RAISG (2021)
31 WRI (2025)

which are caused by human activity, are used as a tool for deforestation. Between 2001 and 2020, 14% of the Amazon (1,208,162 km²), an area roughly the size of Bolivia, was affected by fires[32].

Deforestation exacerbates one of the Amazon's main vulnerabilities: the fragility of its soils, which, although they support lush forests, are highly vulnerable. Most of the nutrients are concentrated in a thin surface layer, where the recycling of organic matter regenerates soil fertility. When vegetation cover is destroyed, these processes break down, the soil's ability to retain moisture is reduced, and erosion is facilitated.

River Connectivity as a Key Factor in Vulnerability

The hydrological connectivity of the basin ensures the natural transport of sediments and nutrients that fertilize floodplain forests and wetlands, supporting the reproduction of many species, particularly fish[33]. The construction of large dams –beyond flooding vast tracts of forest and displacing the communities living there –disrupts the continuity of the riverine habitat, blocks fish migration routes, ruins the fisheries on which Indigenous Peoples depend, riverside communities, and millions of people across the region, and disrupts the hydrological connectivity that is vital to the entire watershed. Sediment buildup in these large dams also causes significant impacts on coastlines, beaches, and marine fisheries—impacts that receive little attention.

Climate Change and Changes in Rainfall Patterns

Climate patterns are also fragile. As previously explained, the Amazonian rainfall regime generates flood events and periods of drought, which are occasionally severe. However, over the past two decades, this rainfall variability has been intensifying at an alarming rate. The droughts recorded in 2005, 2010, 2015–2016, and especially in 2023–2024 have been the most severe on record in the region[34]. The droughts caused critical drops in river flow, affecting navigability and fishing, with massive fish kills—including more than 200 Amazonian dolphins—in Lake Tefé, Brazil[35]. Many riverside communities were cut off due to low water levels, only to suffer flooding shortly thereafter[36], which highlighted their vulnerability to these floods, which are exacerbated by climate change.

The Scientific Panel for the Amazon, in its 2021 report, links this intensification of rainfall variability to the interaction between global climate change, deforestation,

32 RAISG (2022)
33 SPA (2021); World Assembly for the Amazon (2023)
34 Marengo et al. (2021); WMO (2025)
35 Mamirauá Institute (2023)
36 SPA (2024)

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and alterations in the regional hydrological cycle[37] . Climate change exacerbates deforestation, while deforestation accelerates climate change. In 2024, unprecedented high temperatures and the El Niño phenomenon fueled devastating fires[38].

Deforestation raises temperatures by between 8.7 and 13.6 °C. If deforestation were to reach 28% of the Amazon, various studies warn of the risk of crossing a "point of no return" in changing climate patterns that threatens to transform 40% of the Amazon rainforest into dry savannas, especially in the Amazon regions of Peru and Bolivia[39] . The Belém Declaration (2023)[40] and the Bogotá Declaration (2025)[41] call for urgent action, highlighting the warning issued by the Bogotá Declaration regarding the risk of reaching that "point of no return".

Pollution of Rivers, Wetlands, and Aquifers

The purification capacity of aquatic ecosystems is as vital as it is fragile. Aquatic ecosystems—and wetlands in particular—have a high capacity to break down organic pollution. However, the systematic discharge of untreated wastewater from large cities and agricultural runoff laden with fertilizers overwhelms this purification capacity.

Without a doubt, the most concerning discharges are toxic ones. Numerous scientific studies confirm the growing pollution from heavy metals—arsenic, cadmium, chromium, copper, nickel, lead, tin, and mercury—and other toxins, generated by mining[42] and the oil industry[43]. Less well known, but no less dangerous, is diffuse pollution from agrochemicals used in industrial agriculture, including products such as atrazine, alachlor, chlorpyrifos, simazine, trifluralin, aldrin, dieldrin, endrin, and lindane, as well as other highly hazardous pesticides. Recent studies also warn of the growing problem of emerging pollution from microplastics, PFAs, and 6PPD[44].

The toxicity of these contaminants persists for many years and accumulates in the living tissues of plants, animals, and particularly in highly prized fish such as the golden catfish and the piraiba—migratory species that bioaccumulate mercury and travel thousands of kilometers between the Amazonian lowlands and the Andean foothills[45]. Since they cannot be detected by smell or taste and do not produce immediate health

37 SPA (2021)
38 WMO (2025)
39 SPA (2021)
40 Belém Declaration, OCTA (2023)
41 Bogotá Declaration, OTCA (2025)
42 WWF-Brazil (2026). Regional Assessment of the Governance of Critical Gold Inputs in the Amazon: Mercury and Cyanide. (Internal document shared with the reporting team for the preparation of this report)
43 Echevarría Díaz et al. (2025)
44 The Water Diplomat (2026)
45 WWF, 2022; Dórea et al., 2015

effects, these toxins—whether in water or food—cause progressive, cumulative, and irreversible poisoning, with particularly severe impacts on children[46].

THE CRISIS OF UNSUSTAINABILITY IN THE AMAZON AND ITS CONSEQUENCES

The extractivist model—comprising primarily mining, hydrocarbon extraction, and uncontrolled expansion of agriculture and livestock farming, along with often-illegal logging and industrial overfishing—shapes a neocolonial development model that views nature as merely a source of economic resources for the benefit of large corporate powers; powers that often operate outside the law, sacrificing the lives and rights of Indigenous Peoples and traditional communities, as well as the principles of sustainability, environmental justice, and intergenerational equity.

Legal and Illegal Mining

Traditionally, there has been—and continues to be—artisanal mining in certain communities. However, international demand for gold and the rise in its price—which exceeded $5,000 per ounce in 2026[47] – have spurred the expansion of gold mining in the Amazon, both legal and illegal, under ambiguous regulatory frameworks and with little political will to enforce them.

Mining affects approximately 17% of the Amazon. This pressure has encroached upon 9% of Indigenous territories and 9.3% of protected natural areas; nearly 19.1 million hectares of wetlands are subject to mining operations or prospecting, and approximately 30% of these ecosystems are located within 30 km of mining sites, posing a high risk of contamination[48].

Recent studies[49] identify gold mining as the primary source of mercury contamination, with severe impacts on the health of Indigenous Peoples and riverside communities—particularly pregnant women, girls, and boys. Likewise, the survival of the Indigenous Peoples in Isolation (PIACI), whose diet depends heavily on fishing, is threatened by this contamination. In Colombia, the discovery of mining rafts in the Río Puré National Park has raised numerous alarms due to the direct threat they pose to the Yurí-Passé Indigenous Peoples living in isolation[50].

46 Pinheiro et al. (2025)
47 J.P. Morgan Global Research (2026)
48 RAISG, 2020; Souza et al., 2025
49 Escobar-Camacho et al. (2024); Pinheiro et al. (2025); OTCA (2024)
50 Colombian Ombudsman's Office (2021)

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Pescadores y de fondo presunta explotación de oro a través de dragas en el margen del río Beni en la zona de Cachuela Esperanza / Oliver Mercado (Fundación Amigos de la Naturaleza)

It is important to distinguish between traditional or subsistence mining, which—while required to comply with environmental and community standards to prevent mercury contamination—must be addressed within a framework of just transition that is sensitive to the traditional needs and activities of the communities.

Legal mining, although it operates under legal concessions, has not undergone prior, free, and informed consultation with the affected peoples, nor does it guarantee the prevention of toxic spills and leachate.

Illegal mining, responsible for most mercury pollution, encroaches on the territories of Indigenous Peoples and riverside communities and establishes trafficking routes for fuel, explosives, mercury, and the illegally mined gold itself, which is laundered through international hubs—where between 20 and 40 percent of the gold traded comes from illegal mining[51]. These economies are often linked to drug trafficking networks and the labor and sex trafficking of women and children, under the control of armed gangs that terrorize communities.

In the traditional territory of the Munduruku people in Brazil, gold mining has polluted the Tapajós River[52] and its tributaries. Likewise, alarming levels of mercury

51 EFE (2024)
52 Basta, P.C. et al. (2020); Agência Brasil (2024)

contamination have been documented in the Madeira River and in the Negro, Uraricoera, and Alto Mucajaí rivers—on which the Yanomami and Ye'kuana communities depend—with elevated levels of mercury detected in hair samples from these communities[53].

The Madre de Dios region in Peru is one of the areas most affected by gold mining. Various studies estimate that approximately 180 metric tons of mercury[54] are released annually, contaminating rivers and fish and poisoning the population. The gravity of the situation led the United Nations Committee on Economic, Social, and Cultural Rights to urge the Peruvian government, in 2025, to adopt urgent measures to combat mercury trafficking and strengthen oversight of both legal and illegal mining[55].

In the territory of the Wampis and Awajún peoples, in the Cenepa and Marañón river basins, the Cenepa Border Communities Development Organization has been denouncing the expansion of mining, water and fishery pollution, and threats against community leaders.

In the Alto Nanay–Pintuyacu–Chambira Regional Conservation Area (Loreto), recent studies by the Amazonian Center for Scientific Innovation (CINCIA) have identified similar patterns of pollution in the Nanay and Pintuyacu rivers[56], while serious threats from illegal miners, traffickers, and armed gangs against those who oppose mining have also been reported.

In the upper Napo River basin in Ecuador, analyses by Ikiam University[57] detected heavy metals at concentrations up to 500 times higher than the maximum permissible limits and water contamination in 73% of the monitored water bodies. In Yutzupino, illegal mining operations used about 100 backhoes on the Jatunyacu River between 2021 and 2022, drying up a 3-km-long branch of the river[58].

The Cordillera del Cóndor Mirador Amazonian Community (CASCOMI) reports that the Mirador mining project, operated by EcuaCorriente S.A., diverted the Tundayme River to construct a tailings pond in the former riverbed to store toxic water. These works were carried out without prior consultation or consent and resulted in the violent eviction of 35 families[59].

53 Lucchini, R.G. et al. (2025); Fiocruz / Fiotec (2024)
54 CINCIA (2024)
55 DESC Committee (2025)
56 CINCIA (2025)
57 Capparelli et al. (2020)
58 Mongabay (2022); Constitutional Court of Ecuador (2022); Ministry of Environment and Energy of Ecuador (2022)
59 INREDH (2020); Constitutional Court of Ecuador (2020)

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In the Caquetá River basin in Colombia, high levels of mercury have been documented in fish—ranging from 15.4 to 19.7 µg/g, compared to the reference value of 1 µg/g—which jeopardizes one of the main food sources for Indigenous Peoples and riverside communities[60].

Governments often cite logistical difficulties in controlling illegal mining. However, a report titled "Amazon Underworld"[61] warns that the impunity surrounding these activities stems not so much from technical or budgetary constraints as from corruption, institutional capture, and collusion between public authorities and the criminal economies operating in the Amazon. It is clear that technological advances in remote sensing, satellite imagery, and drones—along with the potential to empower Indigenous Peoples and traditional communities to monitor their territories—would enable effective control of these activities if there were political will.

Global Witness documented 342 murders of land and environmental defenders in Brazil between 2012 and 2021[62]. More than 85% occurred in the Brazilian Amazon, with Indigenous Peoples facing the most threats, criminalization, attacks, and murders for opposing mining and other extractive activities on their territories. The recent murder in Bolivia of Judge Víctor Claure Hinojoza is yet another brutal crime intended to silence even those judicial authorities who are confronting the illegal practices of extractivism.

In Ecuador alone, in 2025–2026, 24 water and nature defenders were criminalized through 9 court proceedings and 3 preliminary investigations, with convictions in both the first instance and on appeal against 3 defenders for unlawful association, with the final appeal still pending[63]. The Ecumenical Commission on Human Rights denounces that Ecuador faces a context of repression and authoritarianism similar to that of other countries in the region and around the world, exacerbated by the passage of 9 laws purportedly aimed at combating organized crime but which, in reality, restrict freedom of expression and association, as well as human rights, while closing off spaces for citizen participation.

In the Peruvian Amazon, according to data published in December 2024 by the Early Warning and Action System, 36 indigenous defenders have been murdered in recent years. In 2025, REPAM Peru reported 201 cases of threats against community leaders—the highest number since the creation of the state protection mechanism in 2021[64].

60 National Natural Parks of Colombia (2018); Constitutional Court of Colombia (2016)
61 Global Initiative Against Transnational Organized Crime & Amazon Watch (2023)
62 Global Witness, 2022
63 Amnesty International (2026)
64 Interethnic Association for the Development of the Peruvian Rainforest – AIDESEP (2024); Pan-Amazonian Ecclesial Network – REPAM Peru (2026)

The Environmental Investigation Agency warns that mercury emissions associated with illegal gold mining have reached a scale comparable to global emissions from the industry[65]. In light of this situation, it calls for strengthening controls and traceability in the mercury trade, accelerating the closure of primary mercury mines, reviewing the 15-year grace period of the Minamata Convention[66], and moving toward the elimination of mercury in artisanal mining.

As a positive and encouraging example, in Bolivia, a class-action lawsuit filed by the Ombudsman's Office and the municipalities of Palos Blancos and Alto Beni[67] led to these municipalities being declared agroecological and mining-free, thereby removing them from the national mining registry and forcing the suspension of ongoing mining procedures[68]. This precedent demonstrates the potential for local institutions to promote legal strategies against mining.

Oil and Gas Industry

Since the second half of the 20th century, intense activity related to the extraction, transportation, and processing of oil and gas has taken place in the Amazon region of Ecuador, Peru, Colombia, and, to a lesser extent, Brazil and Bolivia. The areas granted under concessions for exploration and exploitation —oil blocks[69]— cover approximately 9.4% of the Amazon, and 43% of them are located in indigenous territories and protected natural areas[70].

The impacts associated with oil and gas exploitation extend beyond the areas occupied by the oil blocks, as they require roads, oil pipelines, and gas pipelines that cause deforestation, the occupation of indigenous territories, and serious risks of contamination of aquatic ecosystems from spills —and even of "flying rivers— due to air pollution resulting from the flaring of gases.

Oil extraction generates large volumes of formation water —approximately 80% of the extracted fluids[71]— with high concentrations of salts, hydrocarbons, and heavy metals. This water, which should be reinjected into the subsurface, is often discharged, causing serious impacts.

Frequent oil spills, however, are the primary source of pollution. They prevent oxy-

65 Environmental Investigation Agency (2025)
66 Minamata Convention on Mercury, Art. 3.4
67 Plurinational Legislative Assembly, Bolivia (2024)
68 Solón Foundation (2026)
69 Oil blocks: territories granted to oil companies for hydrocarbon prospecting, exploration, or production activities.
70 RAISG (2020) 5.3 Oil
71 Ochoa-Caballero, M. B. & Rivera-Parra, J. L. (2021); Acción Ecológica (2006)

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genation of the water and release toxic compounds, causing the death of fish and other living organisms. Subsequently, the oil sinks and mixes with the sediments, prolonging its toxic effects[72]. Flood pulses and high water levels mobilize these contaminated sediments into wetlands, riverbanks, and floodplains[73].

Added to this is unutilized gas, which is typically burned in what are known as flares[74]. This practice emits nitrogen and sulfur oxides that cause acid rain, greenhouse gases, and toxic pollutants, which contaminate rainwater—water that many communities have recently been collecting and using because their rivers are polluted[75]. In 2021, the Ecuadorian courts ruled in favor of nine Amazonian girls who had filed a complaint and ordered the removal of burn sites near towns within 18 months, with the remaining ones to be phased out by 2030[76]. Community monitoring reports that the ruling is not being enforced[77], having identified 437 flares at 295 sites in the Ecuadorian Amazon, while official records account for only 24% of them[78]. Furthermore, they report that oil companies turn off the flares to simulate their shutdown to satellite monitoring systems but continue to emit gases without burning them, which causes even greater pollution.

One of the most emblematic cases of oil pollution is the one that affected the Cofán, Siekopai, Siona, Kichwa, Waorani, and Shuar peoples, as well as numerous rural communities, due to the operations of Texaco—later acquired by Chevron—in the Ecuadorian Amazon. Since 1993, the Union of People Affected by Texaco's Oil Operations (UDAPT) has been waging a long legal and political battle to demand full reparations for the damages[79]. Between January 2025 and June 2026, they monitored 79 pollution incidents in indigenous territories and protected areas, such as Yasuní and Cuyabeno[80]. Additionally, between 2018 and 2025, doctors working with UDAPT compiled a community-based cancer registry for the region, documenting 749 cases, 72% of which were women[81].

According to Ecuador's Ministry of the Environment, 899 spills were recorded between 2015 and 2021. In 2020, two spills were recorded each week[82]. On April 7, 2020, several pipelines ruptured simultaneously, spilling more than 16,000 barrels of crude oil into the Coca and Napo rivers, affecting the water supply, fishing, agriculture, and

72 Eisler (1987)
73 Dollhopf et al., (2014); Berens et al., (2021)
74 World Bank (2025)
75 Durango-Cordero et al. (2019)
76 Provincial Court of Justice of Sucumbíos (2021)
77 UDAPT (2026)
78 Facchinelli et al. (2022)
79 Union of People Affected by Texaco's Oil Operations (UDAPT)
80 UDAPT (2026)
81 UDAPT (2025); InfoAmazonia (2026)
82 Morán (2021)

the livelihoods of more than 120,000 people[83].

In the Peruvian Amazon, according to a report by Oxfam and the National Human Rights Coordinating Committee, there were 566 oil spills between 1997 and 2021[84]. Notable among these were the spill in the Marañón River and the Cuninico Creek[85], which affected Kukama Kukamiria communities; the spill in the Puinahua District River[86], in Requena Province, which affected eleven Kukama communities; the spills in the Morona and Mayuriaga rivers[87], which affected 16 Wampis communities; the rupture of the Camisea gas pipeline in the Kemariato–Megantoni ravine[88], in Cusco, resulting in the release of highly toxic natural gas liquids that contaminated the water and soil of the Machiguenga communities. Finally, it is worth highlighting the systematic pollution caused by the Northern Peruvian Oil Pipeline[89], which is poisoning the waters of the Amazonian Marañón communities in Cajamarca, Amazonas, Loreto, Huánuco, San Martín, and Ucayali.

The Achuar, Wampis, and Chapra nations have for decades maintained their opposition to Block 64, established in 1995 in Loreto on indigenous territories[90]. Thanks to this tenacious opposition, the block has never actually entered production[91]. In light of Petroperú's recent attempts to develop the block in collaboration with a new partner, they are now demanding its permanent cancellation[92].

In Venezuela, the Observatory of Political Ecology characterizes the Paraguaná Peninsula as a "sacrifice zone," following more than seven decades of operation by the Cardón and Amuay refineries[93]. A six-year study conducted at 20 points along its western coast found hydrocarbon concentrations in the water 77 times higher than the established limit for discharges into coastal waters, as well as elevated concentrations of heavy metals in areas near the refineries[94]. Between 40,000 and 50,000 people in Punta Cardón and Amuay suffer from the cumulative impacts that have caused neurological and respiratory diseases as well as cancer. In 2012, the explosion at the Amuay refinery left 48 dead and more than 100 injured.

In Brazil, there is concern over the expansion of the oil frontier in the Foz do Amazonas marine basin, at the mouth of the Amazon River, in ultra-deep waters off a coastal-estuary region of great ecological value[95]. The Karipuna, Palikur-Arukwayene, Galibi Marworno, and Galibi Kali'na peoples of the municipality of Oiapoque developed a specific Consultation Plan that has been ignored[96]. In May 2025, more than 60 chiefs from these communities demanded the immediate suspension of the licensing process for Block FZA-M-59, denouncing violations of ILO Convention No. 169 and risks to fishing, agriculture, and their water sources[97].

In the face of oil expansion, the historic struggle led by the Waorani people and social organizations to keep Yasuní's oil underground stands out. In a campaign led by Yasunidos, after ten years of struggle, they succeeded in holding a nationwide referendum in 2023, in which 58.95% voted in favor of keeping the oil underground indefinitely and phasing out exploitation[98]. However, three years later, the Ecuadorian government has still not complied with the decision made in that referendum[99].

Also in Ecuador, the Waorani people, organized through the Waorani Organization of Pastaza, have for years been resisting the imposition of Oil Block 22, which overlaps 174,814 hectares of ancestral territory and threatens 14 of their 16 communities. After winning an injunction in 2019, the Constitutional Court upheld the rulings in 2025 and established binding precedent regarding the right to free, prior, and informed consultation for recently contacted Indigenous Peoples[100].

Finally, it is worth mentioning the third regional hearing of the International Tribunal for the Rights of Nature[101] (an ethical and popular justice body created in 2014), held recently in Puyo during the 12th FOSPA[102], which examined six cases of resistance to the expansion of the oil frontier in the Amazon and declared the Amazon a zone of total exclusion for fossil fuels.

Agricultural and Livestock Expansion and Pesticide Pollution

The expansion of the agricultural and livestock frontier from 2000 to 2020 accounted for 81% of deforestation[103] and caused a sharp increase in pesticide pollution. The data provided by Dr. Larissa Mies Bombardi[104] are particularly concerning. Between 2020 and 2025, in the Brazilian states of Mato Grosso, Tocantins, Maranhão, Pará, and

83 National Assembly of Ecuador (2020); PRIMICIAS (2021)
84 León Cépeda, A., & Zúñiga Lossio, M. (2022)
85 Environmental News (2024)
86 Environmental News (2024)
87 InfoAmazonia (2016)
88 servindi (2018)
89 Osinergmin (2016)
90 Achuar, Wampis, and Chapra Nations (2024); PERUPETRO (2026)
91 Perú Equidad (2019); Amazon Watch (2025); Petroperú (2024)
92 FENAP and GTANW (2025); Petroperú (2025)
93 Observatory of Political Ecology of Venezuela (2018); Acción Ecológica et al. (2021)
94 Croquer et al. (2016)
95 Greenpeace Brazil (2024); The Conversation (2025)
96 Council of Chiefs of the Indigenous Peoples of Oiapoque – CCPIO, (2024)
97 Council of Chiefs of the Indigenous Peoples of Oiapoque (CCPIO), (2025); Eco21, (2025)
98 El País, (2023); Constitutional Court of Ecuador, (2023); National Electoral Council of Ecuador, (2023)
99 Pan-Amazonian Social Forum – FOSPA, (2026)
100 Amazon Frontlines (2019); Constitutional Court of Ecuador (2025). Ruling No. 1296-19-JP/25, November 13, 2025.
101 international Tribunal for the Rights of Nature, (2026)
102 12th FOSPA (2026); 12th FOSPA Action Plan
103 See: p. 22, RAISG (2022)
104 Scientific Coordinator of the International Pesticide Standards Alliance (IPSA)

Roraima, pesticide use increased by between 46% and 85%, leading to alarming levels of water contamination. Between 7% and 61% of the water samples analyzed contained herbicides, insecticides, and fungicides classified as highly hazardous (banned, for example, in the European Union[105]). Epidemiological studies in municipalities such as Lucas do Rio Verde, Sinop, and Sorriso[106] —where pesticides are used extensively— reveal a 20% higher risk of birth defects than in municipalities with low pesticide use, as well as a 30% higher rate of fetal deaths[107].

Between 2020 and 2025, the number of officially recorded pesticide poisonings in Brazil rose to 33,000, with a trend showing that the number of poisonings doubles annually. The actual scale of the problem could be much greater, as most cases are not officially recorded. Indigenous populations and riverside communities—with children particularly affected—are the most exposed to endocrine disruption, reproductive toxicity, and neurodevelopmental disorders, among other health problems.

In Peru, according to information provided by the Pan-Amazonian Ecclesial Network (REPAM), riverside and rural communities in Yurimaguas, in the Upper Amazon region, are suffering from contamination of the Cotoyacu, Yanayacu, and Uchpayacu streams caused by agrochemicals used in the oil palm monocultures of Palmas del Shanusi, owned by the Romero Group[108] . The communities are awaiting a criminal conviction for the deforestation of primary forests and the toxic contamination of their waterways.

The Taquaritiua Indigenous Territory, home to the Akroá Gamella people in Viana, Maranhão (Brazil), on the banks of the Pindaré River[109], is suffering from land grabbing and water contamination by pesticides; highly toxic drone-based spraying has recently been reported.

Mega-transportation Infrastructure in the Service of Extractivism

At this point, it is essential to distinguish between communication and transportation projects linked to the daily needs of Amazonian communities and mega-infrastructure projects linked to extractive activities.

In 2000, the so-called Initiative for the Regional Integration of South America (IIRSA)[110] was created to promote continent-wide megaprojects, many of them in the Amazon, prioritizing the construction of interconnecting routes—roads, waterways, and even railroads. Multilateral banks—the IDB, CAF, and FONPLATA—played a key role from the outset, with Brazil's National Bank for Economic and Social Development (BNDES)[111] joining later.

Although all these mega-infrastructure projects are justified as initiatives to promote sustainable and social development across the continent, they are mostly linked to powerful business and financial sectors that pay little attention to ecosystem sustainability or the real needs of the population. Although UNASUR's 2012–2022 Strategic Action Plan recognizes strategic socio-environmental assessment and the methodology for environmental and social reporting with a strategic focus, these have remained, at least to date, merely cosmetic elements with no practical application[112].

In 2008, the Union of South American Nations (UNASUR) was created, and in 2009, the South American Council for Planning and Infrastructure (COSIPLAN) was established to relaunch projects that facilitate market access for extractive activities[113]. In addition, regulatory frameworks were promoted to facilitate the inflow of foreign capital, offering tax incentives and public-private partnership strategies in which governments must cover risks that could affect private investors. Measures were also promoted to "relax" labor laws, environmental regulations, and public and indigenous consultation procedures, in order to minimize "environmental and social obstacles," and strategies were designed to "contain social demands"[114].

In 2010, IIRSA/COSIPLAN's "Agenda of Priority Integration Projects" focused on large-scale communication and transportation infrastructure, with a total investment of more than 21,000 million: 46% public funds, 37% public-private partnerships, and 17% private funds[115].

Among the many conflicts sparked by these large-scale infrastructure projects, it is worth mentioning those involving the TIPNIS highway in Bolivia[116], the Pasto-Mocoa highway in Colombia[117], and the Bagua conflict in Peru[118], which involved brutal repression against the Awajún and Wampis peoples. These projects have caused serious impacts on national parks and forest reserves, violated human rights, and ignored the right of Indigenous Peoples to free, prior, and informed consultation, in breach of ILO Convention No. 169.

105 Highly Hazardous Pesticides (HHPs) are substances identified by their high acute or chronic toxicity, environmental persistence, bioaccumulation potential, and carcinogenic, neurotoxic, reproductive, or endocrine-disrupting effects. These include compounds such as 2,4-D, atrazine, carbofuran, chlorpyrifos, DDT, lindane, mancozeb, and methyl parathion.
106 Freitas and Canizares (2024); MST (2011)
107 Lisboa and Ruas (2024)
108 El Foco (2022); IDEHPUCP (2019)
109 Pastoral Land Commission (CPT) (2025)
110 IIRSA (2011)
111 Center for Economic and Social Rights (2015)
112 IIRSA (2006)
113 IIRSA (2008)
114 Regional Coalition (2015)
115 IIRSA (2011)
116 Solón Foundation (2017); Porto-Gonçalves and Betancourt (2013)
117 SINCHI Institute (2025); Grupo Semillas (n.d.)
118 Amnesty International (2009); Benavides, M. (2010)

Over the past decade, Chinese banks, such as the China Development Bank, and large Chinese state-owned enterprises have financed and carried out projects associated with this planning, with a focus on the energy, mining, and transportation infrastructure sectors, which aim to ensure the transport of raw materials to the Asian market[119]: roads, waterways, and railroads, such as the Paraense Railroad between Marabá and Barcarena, or the Ferrogrão line from Sinop to Miriticuba[120]. In Bolivia, the presence of Chinese companies building major infrastructure projects is also notable, such as the Rurrenabaque–San Buenaventura Bridge, awarded to Sinopec[121], or the Rurrenabaque–Riberalta Highway, managed by China Railway/CRCC[122] – projects that have been criticized for their socio-environmental impacts and for reported irregularities in their implementation processes[123].

There are concerns about construction on the BR-319 highway, between Porto Velho and Manaus, which cuts through the Amazon rainforest[124], and is associated with intense land-use pressure. In 2024, 50,100 hectares were deforested across 13 municipalities, while between 2016 and 2022, the network of secondary roads around this corridor grew by 68%[125] .

Large Hydroelectric Dams

In 2020, there were 833 power plants in the Amazon basin—350 in operation or under construction and 483 in the planning phase. Of these, 245 were large plants, with a capacity of more than 30 MW, 112 of which were operational or under construction and 133 were planned[126]. The construction of large dams in the Amazon has accelerated since the beginning of the 21st century, driven by growing energy demand and new sources of international financing[127].

Although hydroelectric power generation is a renewable energy source, it cannot be considered green or sustainable, as large dams cause serious socio-environmental impacts by displacing populations and disrupting the continuity of river habitats and the hydrological connectivity of the watershed. Just like a blood clot in humans, large dams undermine the health of rivers and their associated ecosystems. Furthermore, the decomposition of submerged organic matter generates high levels of greenhouse gas emissions[128].

119 CEDIB (2018)
120 Dialogue Earth (2022)
121 Solón Foundation (2018)
122 Andrés Bello Foundation (2024)
123 Dialogue Earth (2019)
124 DNIT (2025)
125 BR-319 Observatory (2025)
126 RAISG (2020), pp. 24–27
127 Ray (2018); Inter-American Dialogue (2019)
128 Bertassoli et al. (2021)

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In recent decades, large Chinese state-owned companies, such as State Grid and China Three Gorges, have been promoting hydroelectric power plants in the Tapajós and Xingu river basins and building thousands of kilometers of high-voltage power lines, such as the one connecting the Belo Monte hydroelectric plant to southeastern Brazil (2,500 km)[129].

The Belo Monte Dam, built on the Xingu River in Brazil, is one of the best-documented examples[130]. With an installed capacity of over 11,000 MW, the dam profoundly altered the hydrological dynamics of the Volta Grande do Xingu, affecting fisheries and highly biodiverse aquatic ecosystems, and disrupting the natural transport of sediments[131]. Various organizations have reported the displacement of between 20,000 and 40,000 people to settlements far from the river and their traditional livelihoods[132]. In 2011, the Inter-American Commission on Human Rights granted precautionary measures in favor of those affected[133]. In 2025, during COP30, the Federal Public Prosecutor's Office itself characterized the damage caused by Belo Monte as ecocide[134]. Added to all this is the threat of another mega-mining project in the Volta Grande do Xingu, where the Canadian company Belo Sun plans to build Brazil's largest open-pit gold mine, already approved by the state government of Pará[135].

In the Tapajós basin, the Teles Pires and São Manoel dams have affected sacred sites and the livelihoods of the Munduruku, Kayabi, and Apiaká peoples[136]. Likewise, the dams of the Madeira complex have caused hydrological and ecological changes whose effects extend to Bolivian territories upstream, highlighting the transboundary nature of these impacts[137]. In Ecuador, the Coca Codo Sinclair power plant has caused severe river erosion and environmental and social impacts on the Kichwa communities along the Coca and Napo rivers.

In the Peruvian Amazon, the Wampis and Awajún peoples have denounced and resisted the construction of new hydroelectric projects linked to mining, oil, and forestry expansion. The Chadín 2 and Veracruz mega-dams on the Marañón River threaten to fragment the natural connectivity between the Andes and the Amazon and to affect fisheries that are vital to riverside communities and Indigenous Peoples[138].

129 Germanò (2025); Conceição et al. (2016)
130 International Rivers (2010)
131 Scientific Panel for the Amazon (SPA) (2021) Chapter 14, p. 33.
132 AIDA (2026); Mayer et al. (2021)
133 IACHR (2011)
134 Federal Public Prosecutor's Office (2025)
135 Federal Public Prosecutor's Office (2025)
136 Mongabay (2017); Environmental Justice Atlas (2017)
137 Mongabay (2023); Amazon Watch (2009)
138 Environmental News (2020)

In Peru, there is concern over Law No. 32700, enacted in July 2026, regarding the damming and diversion of the Marañón River toward the northern coast to supply agro-export businesses[139]. This was done without conducting the required consultation with the affected communities, without assessing environmental impacts, and in disregard of the court ruling that recognizes the Marañón River as a legal entity. Concerns about the purported social profile of this project are heightened by the precedent set by the Olmos project, which diverted Amazonian waters to irrigate 43,000 hectares, 38,000 of which were allocated to large agro-industrial companies rather than small farmers[140].

Commodification and Financialization of Nature and Water

In line with the extractivist development model, powerful financial corporations have been driving processes of privatization and commodification of water, rivers, and forests. They begin by arguing that rivers, ecosystems, and nature as a whole – with the many environmental services they provide—are unprotected because no commercial value has been assigned to them. The proposal is to monetize their value and manage it in the form of bonds and other financial products on the stock market. Thus, under the pretext of assigning value to nature to better conserve it, the management of forests, wetlands, and rivers comes to depend on speculative strategies driven by major financial powers in heavily deregulated spaces—spaces that not even governments control—and that have nothing to do with the sustainability of ecosystems or with the rights and needs of Indigenous Peoples, communities, and societies that depend on them.

For example, the aim is to combat deforestation by issuing and trading carbon credits. However, the reality is that this strategy has not even slowed deforestation, and that the bulk of the money that has entered the system has remained with the intermediaries in these markets.

Another mechanism for the financialization of nature is the Tropical Forests Forever Fund (TFFF), which proposes turning forests into financial assets that are supposed to attract private investment for their conservation. Beyond the goodwill that such approaches may occasionally generate, they gradually dilute and erode the responsibility of states for the conservation of forests and aquatic ecosystems, shifting that responsibility to the stock markets. But for private actors to invest in these funds, it is necessary to raise expectations that their value will rise on the stock market through corresponding speculative strategies—which, at best, will be as fleeting as they are volatile and will have nothing to do with the actual condition of these forests.

139 Official Gazette El Peruano (2026); Congress of the Republic of Peru (2026)
140 Lambayeque Regional Government (2014)

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The funds needed to preserve the Amazon, its forests, and aquatic ecosystems must come from secure and stable sources and not depend on speculative strategies in financial markets. Unfortunately, however, while these strategies for the financialization of nature are being promoted, public efforts to ensure the conservation of the environment and aquatic ecosystems in the Amazon are waning. In Bolivia, for example, in 2024, only 0.7% of the general state budget was allocated to water and the environment, both in the Amazon and in the country's Andean region.

Another strategy for the financialization of nature involves promoting payments for environmental services. This strategy is being implemented in water management, shifting the burden of preserving water sources onto users rather than placing the responsibility on the state to ensure the sustainability of these ecosystems and guarantee the human right to water—by preventing polluting discharges and applying the "polluter pays and restores" principle.

In Colombia's Putumayo region, biodiversity is already being converted into certified credits that can be traded on international markets, with tradable economic units assigned to ecosystem conservation[141].

The privatization of river sections along the Tocantins, Madeira, and Tapajós rivers in the Brazilian Amazon—creating logistics corridors for agribusiness—involves dredging and modifications to river channels to facilitate navigation, which would have serious impacts on fisheries and river ecosystems. Indigenous peoples and social movements mobilized and occupied the port area operated by Cargill. Ultimately, the project was revoked by the federal government[142] .

These strategies for the financialization of nature and water are complemented by the privatization of natural resources and public services, such as water and sanitation.

The Privatization of Water and Sanitation Services in Large Cities

The privatization of water and sanitation services in major Amazonian cities, such as Manaus, is a cause for concern. The city's population grew from 466,000 in 1970 to 2.4 million today[143]. Of these, approximately 1.3 million—or 53 percent—live in 236 favelas[144]. In 2000, water and sanitation services were awarded to the AEGEA group[145]. As neighborhood movements point out, managing these essential services based on corporate profitability criteria will hardly ensure the human rights of those living in

141 Cercarbono (2025); Savimbo – credit methodology; Forbes (2025)
142 InfoAmazonia (2026); Amazônia Latitude (2025)
143 City Facts
144 IBGE (2025)
145 City of Manaus (2001); Mergers & Acquisitions (2018)

extreme poverty in the favelas[146]. More than two decades later, in 2025, Manaus ranked 87th in the Instituto Trata Brasil ranking, which evaluates the 100 most populous municipalities[147].

In Belém, Pará—with 1.4 million inhabitants and 2.5 million in the metropolitan area—57% of the population lives in 214 favelas, many of them along riverbanks, such as Vila da Barca[148]. Against this backdrop of inequality and extreme poverty, the state of Pará reduced investment in water and sanitation from 326 reais per person per year in 2020 to 27 reais in 2023[149]; with plans to privatize services in Belém and 98 other municipalities in the state through the AEGEA corporation by 2025[150]. In the aforementioned ranking by the Trata Brasil Institute, Belém ranked 95th in 2025[151].

Solid waste collection and treatment have been privatized in Belém for decades, amid intense conflicts. Despite this, the concession for the Belém metropolitan area was recently awarded to the Ciclus Amazônia consortium under a public-private partnership model. During his trip to Belém to participate in COP 30, the Special Rapporteur was deeply struck by his visit to the site where the new large metropolitan landfill is planned to be built. This is a unique site in the community of Castanhalzinho, in the municipality of Acará, where 180 springs bring crystal-clear water to the surface in the middle of the tropical forest. In response to the company's argument that this is the most profitable location, the quilombola communities settled in the area have been organizing a major social mobilization.

As the Special Rapporteur has explained in his reports, privatizing services on which human rights depend, under the pretext that the State lacks sufficient funding, is unacceptable. Adopting a human rights-based approach requires applying the principle of priority in public budgets to guarantee the human rights at stake for the most vulnerable populations. On this basis, the Special Rapporteur has been proposing in his reports the promotion of public funding platforms for water and sanitation services, which can be supplemented by funds raised by governments in capital markets, so that the necessary investments—under public control—can be guaranteed under conditions that are viable for municipal and community institutions[152].

146 Metapolis (2024)
147 Trata Brasil Institute (2025)
148 SUMAÚMA (2025)
149 swissinfo (2025)
150 Cenarium Magazine (2025)
151 Trata Brasil Institute (2025)
152 United Nations (2025) A/80/117

ECOSISTEMAS ACUÁTICOS Y LOS DERECHOS HUMANOS
AL AGUA POTABLE Y AL SANEAMIENTO EN LA AMAZONIA

THE HUMAN RIGHTS TO WATER AND SANITATION IN THE AMAZON



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In the Amazon, vast distances, the dispersion of communities, seasonal variations in river flows, and flood pulses make it difficult to operate and maintain conventional infrastructure. However, these difficulties do not justify the existing gaps, which are the result of decades of insufficient public investment, limited institutional presence, and public policies that are poorly adapted to Amazonian realities. Furthermore, river pollution, deforestation, land grabs, and the destruction of the ways of life of Indigenous Peoples and riverside communities—along with rapid and uncontrolled urban development that fails to guarantee basic services in major cities—have resulted in not only the rural population but also the majority of the urban population being denied their human rights to safe drinking water and sanitation.

Access to Safe Drinking Water

The Amazon is a prime example of the extent to which the global water crisis—as the Special Rapporteur has repeatedly emphasized in numerous reports—is not strictly a crisis of scarcity but rather one of governance, in which the unsustainability, degradation, and pollution of aquatic ecosystems, on the one hand, and poverty and inequality, on the other, are key determining factors.

In the Amazonian department of Pando (Bolivia), according to the 2024 Population and Housing Census[153], only 61.7% have access to improved water sources, a figure that drops to 44.4% in rural areas.

In the Colombian Amazon[154] , Amazonas and Vaupés have relatively high water supply coverage, while Putumayo and Guainía lag far behind. Furthermore, the Water Quality Risk Index[155] stood at 40.9% in Amazonas in 2023—the highest in the country—while in Caquetá, Guainía, and Vaupés, this index could not even be calculated due to a lack of data.

In the Brazilian Legal Amazon[156] only 30% of households have adequate basic sanitation services (including water supply, sanitation, waste management, and drainage), the lowest rate in the country. When considering the 503 municipalities where the Amazon biome predominates (IBGE), it is evident that only 39% achieve coverage exceeding 90% in urban areas. In rural areas, the situation is even more critical: 90% of municipalities have water supply coverage of less than 50%.

In large cities such as Belém, where 23% of the population lacks running water in their homes, not even tap water is guaranteed to be safe to drink. This became evident during COP30, when it was recommended to drink bottled or filtered water, while the media documented[157] serious shortages in predominantly Black neighborhoods and favelas, such as São João do Outeiro, Vila da Barca, and Outeiro, where neighborhood protests were taking place[158]. In 2023, Belém had nearly 61.91% water loss in its network, while Manaus in 2025 had a loss of 47.49%[159], —in both cases under privatized management.

The metropolitan area of Santa Cruz de la Sierra, in the Bolivian Amazon, with a population of about 2 million, offers a unique example in drinking water and sanitation services due to specific historical reasons, as these services are managed by a non-profit cooperative, SAGUAPAC, in partnership with other smaller cooperatives in the metropolitan area. Water is extracted from deep wells, which provides a greater guarantee of quality. In the urban core managed by SAGUAPAC, household coverage stands at 97%, serving 1.5 million residents. However, household connections are prohibited for “irregular” dwellings in rapidly growing settlements characterized by extreme

153 Bolivia’s National Institute of Statistics (2024)
154 Superintendency of Residential Public Services (2020)
155 National Institute of Health (2023)
156 The Legal Amazon in Brazil is an administrative region that includes the states of Acre, Amapá, Amazonas, Mato Grosso, Pará, Rondônia, Roraima, Tocantins, and part of Maranhão, comprising territories with similar environmental characteristics, most of which are Amazonian
157 Agência Pública (2025)
158 Folha de S.Paulo. (2025); Folha de S.Paulo. (2025); Folha de S.Paulo. (2025)
159 Instituto Trata Brasil (2025)

poverty, where people obtain water from water trucks, shallow hand-dug wells, or, at best, public fountains. The rate increases in consumption brackets, which allows for cross-subsidization of basic uses by those of a luxury nature. However, it is prohibited to connect “irregular” dwellings in settlements that are growing under conditions of extreme poverty, where people obtain water from water trucks, shallow contaminated wells, or, at best, public fountains.

Gaps in coverage, service continuity, leakage rates, and actual potability exacerbate the most dangerous underlying factor that is growing throughout the Amazon: the toxic contamination of water sources in the supply systems. Unfortunately, significant gaps persist in monitoring and public access to information on the quality of drinking water[160], as well as in epidemiological studies that would allow for an assessment of the impacts of toxic contamination, especially on Indigenous Peoples and riverside communities.

We will cite some alarming examples, such as the toxic contamination of the Nanay River, mentioned earlier, which affects the water supply for 400,000 residents in the Iquitos metropolitan area[161].

Kukama women in the lower Marañón River basin in Peru denounce the progressive poisoning their communities are suffering as they are forced to obtain water directly from the river, which is contaminated by oil spills. Despite their appeals to the National Water Authority, they still lack access to drinking water and there is no monitoring of the quality of the water they consume.

In response to the pollution of rivers and streams, decentralized rainwater harvesting systems are becoming increasingly common. In the Ecuadorian Amazon, in particular, UDAPT has installed more than 1,500 systems, benefiting more than 10,000 Indigenous and mestizo people[162], while the Ceibo Alliance—comprising the A’i Kofán, Siekopai, Siona, and Waorani peoples—has installed another 1,164 systems in 78 communities, benefiting more than 6,000 people[163].

In Brazil, the Sanear Amazônia program[164]. It aims to ensure access to safe drinking water in rural areas through social technologies developed by the University of Brasília and the Association of Rural Producers of Carauari (ASPROC). The project is being implemented in the states of Acre, Amapá, Amazonas, Pará, and Rondônia through

160 OCTA (2023); WHO (2026); Pinheiro et al. (2025) p. 15, pp. 2–4
161 Congress of the Republic of Peru (2001)
162 UDAPT (n.d.)
163 Alianza Ceibo (2025)
164 Fundo Amazônia (2026); Sanear Fundo Amazônia (2026)

the construction of rainwater harvesting and storage systems for human consumption. It is funded by the Amazon Fund and the Federal Government and coordinated by the Chico Mendes Memorial (MCM), in collaboration with the Ministry of Social Development and the Ministry of the Environment. It functions as a public policy for social development aimed at implementing infrastructure adapted to rural contexts in the Amazon. The Sanear Amazônia Indígena program expanded the project to 351 villages, benefiting more than 20,000 Indigenous people in three states in the region.

These and other solutions, in any case, must be adapted to the environmental and cultural conditions of each territory. For example, in Kukama communities in the lower Marañón region, rainwater harvesting has clashed with their cultural conceptions of water.

In general, official figures on access to drinking water tend to measure the existence of connections, networks, or improved water sources, but do not guarantee that the water is actually safe to drink. In Peru, at the national level, for example, aside from problems of toxic contamination, only 40.4% of the population with access to public water systems receives water with an adequate level of residual chlorine, while in rural areas the figure is barely 4.7%[165].

Access to Sanitation

It should be noted that the term "basic sanitation" in Brazil encompasses public water supply, sanitary sewerage, waste management, and drainage services. The data presented below focus primarily on the sanitary sewerage component (referred to as sanitation).

According to the report Progress on Household Drinking Water, Sanitation, and Hygiene 2000–2024: Special Focus on Inequalities, by the Joint Monitoring Programme (JMP)[166] of UNICEF and the WHO, in the countries of the Pan-Amazon region, nearly 30.5 million people have inadequate sanitation or practice open defecation, which is equivalent to 8.47% of the total population of the nine countries. The data available for Amazonian regions, where it exists, reveal even wider gaps, especially in rural areas and dispersed communities.

In rural Eastern Amazonia in Peru[167], in 2019, 53.8% of the population still practiced open defecation, while coverage by sewer systems or other waste management

165 INEI (2024)
166 JMP (2025)
167 Roundtable for the Fight Against Poverty (MCLCP). (2020). *Access to Drinking Water and Sanitation Services in the Amazon Region: Cases in Dispersed Communities. Report and proposals agreed upon between the government and civil society*. Rural Water and Sanitation Working Group, with support from the European Union and German Development Cooperation implemented by GIZ.

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systems reached only 8.5% of the population in 2020. In the Ecuadorian Amazon[168], although 79.5% of the population had access to a public sewer system, septic tank, or cesspool in 2018, this proportion dropped to 19% in rural areas. In Colombia[169], official data show severe gaps in Putumayo and especially in Guainía. In Bolivia, access to improved sanitation reaches 42% of the population in Beni and 62% in Pando; however, these figures should be interpreted with caution, as they may include latrines, septic tanks, and other sanitation solutions without proper management.

Data from SINISA 2025 in Brazil show that, in urban areas, fewer than 30% of Amazonian municipalities achieve wastewater collection and treatment coverage exceeding 50%, while in rural areas, 91% of municipalities serve only 1% of the population. Institutional fragility is reflected in the fact that more than 85% of municipalities do not even report on sanitation indicators, which in itself is an indicator of the lack of such services.

Among the major Amazonian cities, Belém has less than 20% sewer coverage, and only 2.4% of wastewater is treated[170]. Manaus has 28.46% sewer coverage and 22.31% wastewater treatment[171]. As a well-documented example in this city, pollution from landfills and gas stations, pesticides, household, industrial, and pharmaceutical waste, and tons of plastic converge in the Tarumã-Açu River and eventually end up in the Negro River[172].

In the case of Iquitos, Peru, according to the regional assessment in Loreto, published in 2023[173], the Wastewater Treatment Plant (WWTP) operates at just 12% of its capacity, and more than 82% of the network has serious problems, resulting in discharges into the Nanay River having the same fecal coliform load as the inflows entering the plant. In the metropolitan area, an open urban wastewater channel, discharges from the municipal slaughterhouse, and effluents from the EsSalud Hospital and Petroperú run through the 21 de Septiembre and Iván Enrique Vásquez Valera settlements[174]. There, schoolchildren are not allowed recess to prevent them from becoming infected in the areas surrounding the channel. The Shipibo Conibo, Amahuaca, Asháninka, Ashéninka, Yine, Yaminahua, and Kukama Kukamiria peoples of the Marankiari Creek watershed in Ucayali report frequent sewage floods contaminating their homes and water sources.

168 Technical Secretariat of the Special Amazon Territorial District (2021)
169 Superintendency of Residential Public Services (2020)
170 SUMAÚMA (2025)
171 Trata Brasil Institute (2025)
172 Metapolis (2024)
173 Wildlife Conservation Society (2023)
174 Planeta Futuro – El País (2022)

In the Loreto region, the main water utility (SEDALORETO) serves 369,163 people in Iquitos, Belén, San Juan, and Punchana, but only 208,764 have access to sewer systems, leaving more than 160,000 people without this service. The situation is similar in other Amazonian cities in the region: in Yurimaguas, two-thirds of the population served by the water system lack sewer service, while in Requena, this proportion rises to four out of every five people. In rural areas, there are six Municipal Management Units, 160 community organizations, nine specialized operators, and 78 sanitation service providers serving 82,358 residents[175].

In Santa Cruz de la Sierra, Bolivia, the main challenge—beyond extending the water supply network to the most impoverished settlements—lies in developing the sewer system, which covers barely 69% of the urban area managed by SAGUAPAC, while in outlying municipalities it does not reach 35%. In the metropolitan area, coverage is less than 50%; the other 50% relies on septic tanks, which lack proper maintenance and contaminate the surface and groundwater of the hand-dug wells from which many families draw their water. The treatment of sewage in stabilization ponds, although only moderately effective for a large city, demonstrates that extensive treatment can be a cost-effective and viable alternative, especially for small municipalities and communities[176].

In Ecuador, despite the constitutional obligation to guarantee sewer services, wastewater treatment, and environmental sanitation[177] , the city of Puyo, with a population of 33,000, lacks a wastewater treatment plant. Studies conducted by the Amazonian State University[178] document concentrations of fecal coliforms that exceed legal limits by up to 24 times, posing serious dermatological and intestinal risks, especially for children in downstream communities. Technical studies carried out as part of the ongoing legal proceedings to protect the watershed also confirm concentrations of heavy metals and organic compounds above environmental standards. The pollution, which directly affects the Kichwa San Jacinto del Pindo Ancestral Commune—comprising 39 communities—intensifies downstream as the Puyo River joins the Pastaza River, and the Pastaza joins the Marañón River.

In general, conventional models based on centralized sewer systems and intensive treatment plants tend to be technically, economically, and environmentally inadequate in small towns, as they fail to take into account the communities' specific organizational structures and needs. It is essential to recognize and strengthen community initiatives that promote sanitation solutions tailored to the characteristics of each territory, as well as the community-based management models that make them viable.

175 Loreto Regional Government (2023)
176 World Bank (2020)
177 Constitution of the Republic of Ecuador (2008), Art. 264.4; COOTAD, Art. 55
178 El Comercio (2022); El Oriente (2024)

Unfortunately, dry toilets or composting toilets—due to high humidity, periodic flooding, and limited availability of sawdust and ash—seem to fail in many cases, as reported by representatives of the Kichwa people of Sarayaku in Ecuador.

Community-based Management of Water and Sanitation

The enduring nature of Amazonian worldviews and traditional practices, coupled with the absence or weak presence of the state, has kept the community-based model of water management alive, applying the principle of leaving no one behind – not only among Indigenous Peoples and rural communities but also in favelas and urban settlements.

A prime example, both on a continental and global scale, is provided by the Community Aqueducts of Colombia (ACC)[179] , where more than 20,000 community organizations manage water for millions of people throughout the country, including the Colombian Amazon. After years of social mobilization, in 2025 the government approved Decree 960[180], which recognizes community-based water and sanitation management, while Congress made progress on a dedicated law promoted by the National Network of ACCs, based on the Public-Community Partnership strategy[181] . The ACCs monitor and protect their water sources against land and water grabs in their territories, following the territorial governance practices of the Amazonian Indigenous Peoples, which are recognized by Colombian law[182] .

In Peru, there are more than 10,000 Sanitation Services Administrative Boards (JASS) throughout the country, including the Amazon, Marañón, and Ucayali river basins[183]. National legislation recognizes them as key actors in the provision of services in rural areas. Among the mechanisms developed, the "Executive Units"[184] stand out, as they streamline direct public funding for projects in communities. However, during his official visit to Peru[185], the Special Rapporteur—who viewed this mechanism positively—noted the opposition of Indigenous Peoples of the Amazon due to a lack of effective community participation in decision-making.

Furthermore, in Peru, the Rondas Campesinas offer a tradition of effective monitoring of their territories and water sources, protected by Article 149 of the Constitution[186].

179 National Network of Community Water Systems of Colombia (2014)
180 Ministry of Housing, City, and Territory (2025)
181 National Network of Community Water Systems of Colombia (2025)
182 Interview with OPIAC conducted by a member of the advisory committee of the National Network of Community Water Systems of Colombia.
183 Peruvian Ministry of Housing, Construction, and Sanitation (2021)
184 Supreme Decree No. 019-2017-VIVIENDA; Ministerial Resolution No. 212-2024-VIVIENDA
185 A/HRC/54/32/Add.2
186 Pólemos (2021)

In the Upper Las Piedras River Basin, in Madre de Dios[187], the Yine, Asháninka, and Amahuaca peoples, accompanied by CARITAS, the Amazon Scientific Innovation Center, and the Native Federation of the Madre de Dios River and Its Tributaries, are conducting territorial surveillance and environmental monitoring using on-site analysis kits to halt the advance of gold mining and the illegal logging of valuable woods, such as Shihuahuaco. Based on this monitoring, they are creating community maps of gold mining pollution. Three hundred people trained in environmental monitoring are creating community maps of gold mining pollution and monitoring seven communities adjacent to the reserve inhabited by Indigenous Peoples and Other Indigenous Communities (PIACIs), such as the Mashco Piro, and in the vicinity of Alto Purús National Park[188].

In Ecuador, the Constitution establishes that water is a national heritage, prohibits its privatization, and recognizes that its management must be public or community-based[189]. On this basis, thousands of Drinking Water Management Boards (JAAP) operate in Indigenous Peoples' and traditional communities through collective work (mingas) and solidarity-based practices, which include defending the territory and caring for water sources[190].

In Bolivia, community management is organized primarily through the Drinking Water and Sanitation Committees (CAPyS)[191], which administer, operate, and maintain water supply systems in numerous rural communities and peri-urban settlements.

In large Amazonian cities—where, it should be noted, more than half the population lives in slums and informal settlements in extreme poverty—community-based neighborhood organization remains key. In the efforts and investments to be undertaken by the respective municipalities, it is essential to promote community engagement, and in particular the equal participation of women, who bear the responsibility of ensuring water for their families.

THE NEED OF TRANSBOUNDARY MANAGEMENT OF AMAZON RIVER BASINS

There are 286 transboundary watersheds and 592 transboundary aquifers worldwide, involving 153 countries and more than half of the world's population. The Amazon

187 FENAMAD (2025); Madre de Dios News (2022); Amazon Scientific Innovation Center (CINCIA) (2025)
188 MAAP (n.d.)
189 Constitution of the Republic of Ecuador (2008), Arts. 12, 313, and 318; Organic Law on Water Resources, Water Use, and Water Management (2014), Arts. 43 et seq.
190 Inter-American Development Bank (2024)
191 Authority for Oversight and Social Control of Drinking Water and Basic Sanitation (2026)

basin is the most significant example[192] . As it functions as a single hydro-bioclimatic system, any disruption to river connectivity, sediment transport, biodiversity, water quality, hydrological regimes, and climate patterns has repercussions throughout the entire region.

It is as paradoxical as it is concerning that regional integration processes have developed transboundary strategies to facilitate extractive projects and large-scale infrastructure, while there remains a reluctance to negotiate effective agreements aimed at protecting shared ecosystems at the basin level, with the participation of Indigenous Peoples, riverside communities, and urban populations.

The increasing degradation of the Amazon demands a shift toward ecosystem-based approaches to watershed planning and management. Just as hurricanes do not recognize national borders, Amazonian rivers do not recognize borders either during droughts or major floods. Sharing responsibility for the sustainable and equitable management of a transboundary watershed does not undermine the sovereignty of states; on the contrary, it strengthens it by enabling them to effectively address challenges that no single country can resolve on its own.

Nevertheless, the Rapporteur welcomes as a very positive development the fact that the UNEP Amazon Basin Project, with the participation of the eight member countries of the Amazon Cooperation Treaty Organization (ACTO)[193], is paving the way in the right direction. Unfortunately, the lack of effective commitment and funding hinders the achievement of its objectives: institutional strengthening of water governance at the basin level; strengthening community resilience and the protection of aquatic ecosystems in the face of climate change; and developing a Regional Environmental Monitoring System in the basin. The lack of solid, binding agreements to coordinate cross-border policies among the eight countries—due to the traditional concept of national sovereignty and, above all, under pressure from the powerful economic interests of extractivism and its ties to organized crime, which in this case are indeed cross-border—hinders the effective development of this project[194] .

It is therefore urgent that the countries of the Amazon sign the UN Water Convention and promote multilateral negotiations that will enable sustainable planning for the basin and effective strategies for the prevention and management of droughts and floods[195].

192 A/78/253, p. 3, para. 2
193 OCTA (n.d.)
194 SPA (2025), Chapter 2.
195 A/78/253

Human Rights-Based Water and Sanitation Management

The United Nations emphasizes the need to promote a human rights-based approach to the governance of water and aquatic ecosystems. Such an approach requires ensuring the good condition and sustainability of rivers and aquatic ecosystems, and applying the principle of priority – reserving the highest-quality water sources for drinking water supply and prioritizing public investment in basic water and sanitation infrastructure, especially in impoverished and marginalized communities. Furthermore, this approach requires promoting transparent governance, with public accountability and effective participation, guided by the principle of leaving no one behind or marginalized.

In short, a form of governance that views water as a common good—accessible to all but not appropriable by anyone—and rivers and aquatic ecosystems as shared natural heritage[196]. From this perspective, it is essential not only to respect existing community practices among Indigenous Peoples, riverside communities, and neighborhood groups, but also for the State—through municipalities—to provide the necessary support to community authorities, promoting public-community partnership strategies, as has begun to be done in Colombia.

CONCLUSIONS AND RECOMMENDATIONS

Under the current extractivist development model, the Amazon is facing a multifaceted crisis of unsustainability due to massive deforestation, toxic waste dumping, and the contamination of water, fish, and food, as well as the violation of the human rights of Indigenous Peoples, riverine communities, and even urban populations; a crisis exacerbated by climate change, which is having—and will continue to have—serious impacts on rainfall patterns across the continent.

Addressing this crisis requires:

1. Adopting a human rights-based approach to the governance of water and aquatic ecosystems.

- Revising the prevailing extractivist development model by prioritizing sustainability and the health of aquatic and forest ecosystems, as well as respect for human rights.
- Regulating mining and hydrocarbon activities, imposing severe penalties for any toxic spills, and nipping illegal mining in the bud; rigorously prosecuting arson; halting deforestation and the expansion of the agricultural and livestock frontier; and empowering Indigenous Peoples and riverside communities to monitor and control their territories and rivers.
- Monitor toxic pollution of rivers and water supplies, promote epidemiological studies on the impacts of such pollution, and publish the results.
- Halt the construction of new large dams and develop strategic socio-environmental assessments to identify the risks and synergistic impacts of all planned large-scale projects in each watershed.
- Respect the rights of Indigenous Peoples and traditional communities over their territories and aquatic ecosystems on which their survival depends; legally recognize these territories and register the corresponding rights; and guarantee their right to free, prior, and informed consent regarding projects that threaten their territories and waters.
- Recognize and strengthen existing community-based management systems among Indigenous Peoples, Afro-descendant communities, fishing communities, riverside communities, and rural communities, as well as in favelas and urban settlements, by developing a public-community partnership strategy.
- Address the disparities faced by Indigenous Peoples, traditional communities, and neighborhood communities in favelas and settlements by prioritizing investments in basic infrastructure—including both drinking water and sanitation systems—tailored to the territory, ways of life, and culture, based on an intercultural dialogue that integrates traditional knowledge and practices and ensures community-based management and the equal participation of women.
- Prioritize the public investments necessary in cities to ensure basic drinking water, sewer, and wastewater treatment networks, especially in settlements and favelas, through public financing strategies that guarantee municipal autonomy and the human rights to drinking water and sanitation for those who have difficulty paying the rates.
- Transportation and communications infrastructure planning must prioritize the needs of the population over the mega-infrastructure projects required by extractive industries, which often generate significant socio-environmental impacts that require the free, prior, and informed consent of the affected communities, as well as adequate socio-environmental impact assessments.

2. Promote ecosystem-based management that ensures the sustainability and hydrological connectivity of the Amazon, strengthening environmental and social resilience in the face of climate change.

- In the case of plans involving multiple projects – such as multiple dams—develop legal frameworks that require strategic socio-environmental assessments at the watershed and sub-watershed levels, with the participation of Indigenous Peoples, Afro-descendant communities, fisherwomen, riverside communities,

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and rural farmers, ensuring equal participation by women, in order to prevent combined synergistic impacts that multiply risks.

- Develop climate change adaptation plans for each watershed and sub-watershed, with open public participation and equal participation of women.
- Integrate into hydrological planning not only flow management but also the management of sediment and nutrient flows, along with their ecosystem implications for wetlands, floodplain forests, and coastal ecosystems.

3. Promote public strategies to finance municipal and community governance of drinking water and sanitation services and the sustainable management of aquatic ecosystems.

- Apply the principle of budgetary priority, based on available public funds, to progressively guarantee drinking water and sanitation for all populations and communities in the Amazon, adopting a human rights-based approach to water management.
- Supplement this with funds raised by Amazonian states through capital markets and multilateral banks, in order to establish—alongside available public funds – public financial platforms capable of funding the necessary municipal and community infrastructure, guided by the principles of public and community interest.
- Strictly establish by law the "polluter pays" principle, thereby strengthening public and community responsibility for the conservation of rivers, wetlands, and forests, and preventing at all costs financial interests from managing them as a speculative business.
- Prevent the privatization of water and sanitation services in cities and restore municipal management, promoting new approaches to public and participatory management based on human rights, in line with United Nations recommendations.
- To highlight and strengthen community-based management—as practiced by Indigenous Peoples, riverside communities, favelas, and urban settlements—by developing a legal framework that advances what is known in Colombia as the Public-Community Partnership strategy.

4. Promote cross-border negotiations and agreements throughout the Amazon region based on the principles and criteria of the United Nations Water Convention.

- Sign the UN Water Convention (1992)[197] and engage in negotiations to agree on shared criteria for planning, monitoring, reporting, and management that open up prospects for sustainability and help prevent the risks of droughts and extreme floods resulting from climate change.

197 See United Nations and United Nations Economic Commission for Europe (UNECE) (2022), The Water Convention: 30 Years of Impact and Achievements on the Ground

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- Promote transboundary participatory processes that include Indigenous Peoples, Afro-descendant communities, fisherfolk, riverside communities, and small-scale farmers, as well as urban neighborhood communities, with equal participation by women.
- Develop the UNEP Amazon Basin Project, fostering effective participation by Indigenous Peoples and riverside communities, and securing financial support from the World Bank and the continent's multilateral banks commensurate with the project's continental significance in the current context of the climate emergency.





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1. Red Amazónica de Información Socioambiental Georreferenciada (RAISG). (2025). Factsheet: Los sistemas hídricos en la Amazonía: Agua, glaciares y humedales (2000–2023). https://www.raisg.org/es/publicacion/factsheet-los-sistemas-hidricos-en-la-amazonia-agua-glaciares-y-humedales-2000-2023/

2. Panel Científico por la Amazonía (SPA). (2021). Informe de Evaluación de la Amazonía 2021. United Nations Sustainable Development Solutions Network. https://www.sp-amazon.org/publications/#ar2021

3. Red Amazónica de Información Socioambiental Georreferenciada (RAISG). (2020). Amazonía bajo presión 2020. Instituto Socioambiental (ISA). https://www.raisg.org/es/publicacion/amazonia-bajo-presion-2020/

4. Souza, C. M., Jr., Ferreira, B. G., Brandão, I. M., Rios, S., Aguilar-Brand, J., Schirmbeck, J., Valero, E., Restrepo-Galvis, M. A., Mollinedo-Veneros, E., Terneus, E., et al. (2025). Enhanced Amazon Wetland Map with Multi-Source Remote Sensing Data. Remote Sensing, 17(21), 3644. https://doi.org/10.3390/rs17213644

5. Stringer, T., & Moriz de Vasconcelos, P. N. (2026). Passenger River Transport Serving Road-Disconnected Communities near Manaus, Brazil. Findings. https://doi.org/10.32866/001c.160261

6. Panel Científico por la Amazonía (SPA). (2026). Conectividad en la cuenca del río Amazonas (Libro blanco). Panel Científico por la Amazonía. https://doi.org/10.55161/KZSL9686

7. Comisión Interamericana de Derechos Humanos. (2013). Pueblos Indígenas en aislamiento voluntario y contacto inicial en las Américas: Recomendaciones para el pleno respeto a sus derechos humanos. Organización de los Estados Americanos. https://www.oas.org/es/cidh/indigenas/docs/pdf/informe-pueblos-indigenas-aislamiento-voluntario.pdf

8. Red Amazónica de Información Socioambiental Georreferenciada (RAISG). (2025). Los pueblos y naciones indígenas son la clave para revertir la destrucción de la Amazonía. https://www.raisg.org/es/radar/los-pueblos-y-naciones-indigenas-son-la-clave-para-revertir-la-destruccion-de-la-amazonia/

9. Red Amazónica de Información Socioambiental Georreferenciada (RAISG). (2025). Amazonía: demografía en transformación. 40 años de cambio [Presentación]. RAISG. https://www.raisg.org/es/publicacion/presentacion-amazonia-demografia-en-transformacion-40-anos-de-cambio/

10. Ioris, A. A. R. (2016). The paradox of poverty in rich ecosystems: Impoverishment and development in the Amazon of Brazil and Bolivia. The Geographical Journal, 182(2), 178–189. https://doi.org/10.1111/geoj.12124

11. OIT (1989). Convenio sobre Pueblos Indígenas y tribales, 1989 (núm. 169). https://www.ohchr.org/es/instruments-mechanisms/instruments/indigenous-and-tribal-peoples-convention-1989-no-169

12. Organización de las Naciones Unidas (ONU). (2007). Declaración de las Naciones Unidas sobre los Derechos de los Pueblos Indígenas. https://www.ohchr.org/es/indigenous-peoples/un-declaration-rights-indigenous-peoples

13. Congreso de la República del Perú. (2011). Ley N.º 29785, Ley del Derecho a la Consulta Previa a los Pueblos Indígenas u Originarios. https://leyes.congreso.gob.pe/Documentos/Leyes/29785.pdf

14. Asamblea Constituyente del Ecuador. (2008). Constitución de la República del Ecuador (art. 57). https://www.asambleanacional.gob.ec/es/constitucion-de-la-republica-del-ecuador

15. Brasil. (1988). Constituição da República Federativa do Brasil de 1988 (arts. 231 y 232). https://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm

16. Albert, B., & Kopenawa, D. (2023). O espírito da floresta: A luta pelo nosso futuro. Companhia das Letras. https://www.companhiadasletras.com.br/livro/9786559214983/o-espirito-da-floresta

17. Inforegión Perú. (2022, 9 de marzo). Publican estudio sobre la cosmovisión del pueblo urarina de Loreto [Video]. YouTube. https://www.youtube.com/watch?v=AMbFbQzIxlc

ECOSISTEMAS ACUÁTICOS Y LOS DERECHOS HUMANOS
AL AGUA POTABLE Y AL SANEAMIENTO EN LA AMAZONIA

18. Zárate-Gómez, R., Martin Brañas, M., Angulo-Cainamari, A., Medina López, C. A., Del Águila Villacorta, M., Isla Reátegui, G. M., Ramos Rodríguez, M. C., & Córdova Rojas, A. G. (2024). Diversidad de plantas usadas por el pueblo urarina en el departamento de Loreto, Perú. Folia Amazónica, 33(2). https://revistas.iiap.gob.pe/index.php/foliaamazonica/article/view/867/691

19. Corte Superior de Justicia de Loreto. (2024). Sentencia de segunda instancia (Resolución N.º 31), Expediente N.º 00010-2022-0-1901-JM-CI-01, que reconoce al río Marañón y sus afluentes como titulares de derechos. https://elaw.org/wp-content/uploads/2025/04/Appeals-Court-Spanish-Sentencia-2da-instancia.-Rio-Maranon.-res_20220001001523310002309 40-1.pdf

20. Corte Interamericana de Derechos Humanos. (2012). Caso Pueblo Indígena Kichwa de Sarayaku vs. Ecuador. Fondo y reparaciones. Sentencia de 27 de junio de 2012. Serie C No. 245. https://corteidh.or.cr/docs/casos/articulos/seriec_245_esp.pdf

21. Tribunal de Garantías Penales con sede en la parroquia de Iñaquito del Distrito Metropolitano de Quito. (2024). Sentencia que reconoce al río Machángara como sujeto de derechos y ordena medidas para su restauración ecológica. https://ecojurisprudence.org/wp-content/uploads/2024/07/MACHANGARA-RIVER-JUDGEMENT-FIRST-INSTANCE.pdf

22. Corte Constitucional de Colombia. (2016). Sentencia T-622 de 2016. https://www.corteconstitucional.gov.co/relatoria/2016/T-622-16.htm

23. Congreso de Colombia. (2024). Ley 2415 de 2024, por medio del cual se declara al río Ranchería, su cuenca y afluentes como sujeto de derechos y se dictan otras disposiciones. SUIN–Juriscol. https://www.suin-juriscol.gov.co/clp/contenidos.dll/Leyes/30052911

24. Red Amazónica de Información Socioambiental Georreferenciada (RAISG). (2021). Amazonía 2021: Áreas protegidas y territorios indígenas. RAISG. https://www.amazoniasocioambiental.org/es/publicacion/amazonia-2021-areas-protegidas-y-territorios-indigenas/

25. World Resources Institute (WRI). (2025). Global Forest Review: Latest analysis of deforestation trends. https://gfr.wri.org/latest-analysis-deforestation-trends

26. Red Amazónica de Información Socioambiental Georreferenciada (RAISG). (2022). Reducción de la deforestación e incendios forestales en las contribuciones determinadas a nivel nacional de países amazónicos. RAISG. https://www.raisg.org/es/publicacion/reduccion-de-la-deforestacion-e-incendios-forestales--en-los-paises-amazonicos/

27. Marengo, J. A., Espinoza, J. C., Fu, R., Jiménez-Muñoz, J. C., et al. (2021). Chapter 22: Long-term variability, extremes and changes in temperature and hydrometeorology in the Amazon region. En Amazon Assessment Report 2021. Science Panel for the Amazon. https://doi.org/10.55161/ZGJG8060

28. Instituto de Desenvolvimento Sustentável Mamirauá. (2023). A mortalidade de botos na região do lago Tefé, Amazonas. Instituto Mamirauá. https://mamiraua.org.br/publicacoes/a-mortalidade-de-botos-na-regiao-do-lago-tefe-amazonas/

29. Panel Científico por la Amazonía (SPA). (2024). Droughts in the Amazon (Policy Brief). Panel Científico por la Amazonía. https://doi.org/10.55161/LVYB6857

30. World Meteorological Organization (WMO). (2025). State of the Climate in Latin America and the Caribbean 2024. WMO. https://library.wmo.int/records/item/69456-state-of-the-climate-in-latin-america-and-the-caribbean-2024

31. Organización del Tratado de Cooperación Amazónica (OTCA). (2023). Declaración de Belém. https://otca.org/conozca-la-declaracion-de-belem-firmada-por--los-paises-amazonicos-en-la-cumbre/

32. Organización del Tratado de Cooperación Amazónica (OTCA). (2025). Declaración de Bogotá. https://www.cancilleria.gov.co/sala-de-prensa/noticias/declaracion-de-bogota-al-termino-del-v-encuentro-de-presidentes-de-la-organizacion--del-tratado-de-cooperacion-amazonica-otca

33. Pinheiro, M. da C. N., Cardoso, F. C., de Aviz, L. B. do N., Freitas Junior, J. A. B. de, da Silva, M. C. F., Silva, M. T., Pinheiro, D. N., Carneiro, S. R., Pinheiro, E. R., & Corvelo, T. C. O. (2025). Mercury exposure and health effects in Indigenous people from the Brazilian Amazon: Literature-scoping review. International Journal of Environmental Research and Public Health, 22(8), 1159. https://doi.org/10.3390/ijerph22081159

ECOSISTEMAS ACUÁTICOS Y LOS DERECHOS HUMANOS
AL AGUA POTABLE Y AL SANEAMIENTO EN LA AMAZONIA

34. J.P. Morgan Global Research. (2026). Will gold prices hit all-time highs again in 2026? https://www.jpmorgan.com/insights/global-research/commodities/gold-prices

35. Escobar-Camacho, D., Rosero-López, D., Ruiz-Urigüen, M., Barragán, K. S., Carpintero-Salvador, N., Daza, J. R., Aldous, A., Benítez, S., Tear, T., & Encalada, A. C. (2024). Mercury in aquatic ecosystems of two indigenous communities in the Piedmont Ecuadorian Amazon: Evidence from fish, water, and sediments. Ecotoxicology, 33(4–5), 440–456. https://doi.org/10.1007/s10646-024-02764-w

36. Organización del Tratado de Cooperación Amazónica. (s. f.). Panorama de la contaminación por mercurio en la Región Amazónica. Proyecto Cuenca Amazónica. Recuperado el 27 de julio de 2026, de https://aguasamazonicas.otca.org/monitoreo-ambiental-y-de-los-recursos-hidricos/panorama-regional-de-la--contaminacion-por-mercurio/

37. Organización del Tratado de Cooperación Amazónica (OTCA). (2024). Estudio proporcionará una visión regional de la situación de la contaminación por mercurio en la cuenca del Amazonas. https://otca.org/estudio-proporcionara--una-vision-regional-de-la-situacion-de-la-contaminacion-por-mercurio-en-la--cuenca-del-amazonas/

38. Global Witness. (2022). Decade of defiance: Ten years of reporting land and environmental activism worldwide. https://www.globalwitness.org/documents/20425/Decade_of_defiance_EN_-_September_2022.pdf

39. Centro de Innovación Científica Amazónica (CINCIA). (2024). Contaminación por mercurio de la minería de oro artesanal y en pequeña escala (MAPE) en Madre de Dios. https://cincia.org/wp-content/uploads/Reportes-Madre-de-Dios--Contaminacion-por-MAPE.pdf

40. Comité de Derechos Económicos, Sociales y Culturales. (2025). Observaciones finales sobre el quinto informe periódico del Perú (E/C.12/PER/CO/5). Naciones Unidas. https://digitallibrary.un.org/record/4081259

41. Basta, P. C., & Hacon, S. S. (2020). Impacto do mercúrio na saúde do povo indígena Munduruku, na bacia do Tapajós. Fiocruz & WWF-Brasil. https://saudeindigena.fiocruz.br/items/3b12faf5-57fa-4f7b-8331-7612ab86ca81?utm

42. Agência Brasil. (2024). Ríos amazónicos corren altísimo riesgo de contaminación por mercurio. https://agenciabrasil.ebc.com.br/es/meio-ambiente/noticia/2024-11/rios-amazonicos-corren-altisimo-riesgo-de-contaminacion-por-mercurio

43. Lucchini, R. G., Basta, P. C., Crespo-López, M. E., Gastañaga, M. del C., O'Callaghan-Gordo, C., Olivero-Verbel, J., Vega, C. M., Moncada Barbosa, S. M., Espinal, C., Felty, Q., & Deoraj, A. (2025). Mercury contamination and co-exposures in the Amazon Basin: At the center of the planetary environmental crisis. Annals of Global Health, 91(1), Article 42. https://doi.org/10.5334/aogh.4817

44. Amaral, G. (2024, 5 de abril). Yanomamis de nove aldeias assediadas pelo garimpo estão contaminados por mercúrio. Fiotec. https://www.fiotec.fiocruz.br/pt/noticias/outros/yanomamis-de-nove-aldeias-assediadas-pelo-garimpo-estao-contaminados-por-mercurio

45. Environmental Investigation Agency. (2025). Mercurio: una emergencia amazónica. Informe de EIA a la COP-6 de Minamata. Environmental Investigation Agency. https://eia.org/report/mercurio-una-emergencia-amazonica/

46. Minamata Convention on Mercury. (2013). Minamata Convention on Mercury. United Nations Environment Programme. https://www.mercuryconvention.org/

47. Asamblea Legislativa Plurinacional de Bolivia. (2024). Proyecto de Ley PL-350/2023-2024: Que declara a los municipios de Palos Blancos y Alto Beni como municipios agroecológicos libres de actividad y contaminación minera en el marco de la seguridad alimentaria. https://diputados.gob.bo/wp-content/uploads/2024/04/PL-350-2023-2024.pdf

48. Fundación Solón. (2026, 13 de julio). Acciones y avances políticos, jurídicos y administrativos para constituir los municipios y territorios indígenas libres de minería. https://fundacionsolon.org/acciones-desarrolladas-y-avances-politicos-juridicos-y-administrativos-para-constituir-los-municipios-y-territorios-indigenas-libres-de-mineria-2

49. Dollhopf, R. H., Fitzpatrick, F. A., Kimble, J. W., Capone, D. M., Graan, T. P., Zelt, R. B., & Johnson, R. (2014). Response to Heavy, Non-Floating Oil Spilled in a Great Lakes River Environment: A Multiple-Lines-of-Evidence Approach for Submerged Oil Assessment and Recovery. International Oil Spill Conference Proceedings, 2014(1), 434–448. https://doi.org/10.7901/2169-3358-2014.1.434

50. Berens, J., Boufadel, M. C., Fitzpatrick, F. A., Garcia, M. H., Hassan, J., Hayter, E., Jones, L., Mravik, S., & Waterman, D. M. (2021). The Formation, Transport, and Breakup of Submerged Oil-Particle Aggregates in Great Lakes Riverine Environments (EPA 600/S-21/061). U.S. Environmental Protection Agency, Office of Research and Development. https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=354255&Lab=CESER

51. Unión de Afectados y Afectadas por las Operaciones Petroleras de Texaco (UDAPT). (s. f.). Caso Chevron. https://udapt.org/caso-chevron/

52. Morán, S. (2021, 5 de julio). En Ecuador, cada semana hay dos derrames petroleros. Plan V. https://planv.com.ec/historias/ecuador-cada-semana-hay-dos-derrames-petroleros/

53. Asamblea Nacional del Ecuador. (2020, 20 de abril). Biodiversidad verificó medidas de mitigación y remediación de daños por derrame de petróleo en Amazonía. https://www.asambleanacional.gob.ec/es/noticia/66200-biodiversidad-verifico-medidas-de-mitigacion-y

54. González, P. (2025, 30 de junio). Comunidades kichwas se manifiestan en Coca contra los derrames petroleros y piden que los jueces los visiten. PRIMICIAS. https://www.primicias.ec/sociedad/indigenas-coca-napo-derrame-sote-contaminacion-jueces-99611/

55. León Cépeda, A., & Zúñiga Lossio, M. (2022). La sombra de los hidrocarburos en el Perú: Actualización de la información sobre sitios con daño hidrocarburífero en el Perú: 1997–2021. Oxfam en Perú y Coordinadora Nacional de Derechos Humanos. https://peru.oxfam.org/lo-ultimo/publicaciones/la-sombra-de-los-hidrocarburos-en-el-peru

56. Actualidad Ambiental. (2024, 2 de mayo). A diez años del derrame en Cuninico: población aún pide atención médica y agua potable. https://www.actualidadambiental.pe/a-diez-anos-del-derrame-en-cuninico-poblacion-aun-pide-atencion-medica-y-agua-potable/

57. Actualidad Ambiental. (2024, 7 de marzo). Loreto: nuevo derrame de petróleo afecta al río Puinahua y comunidades aledañas. https://www.actualidadambiental.pe/loreto-nuevo-derrame-de-petroleo-afecta-al-rio-puinahua-y-comunidades-aledanas/

58. InfoAmazonia. (2016, 11 de febrero). Derrame de crudo de Petroperú afecta a 3500 personas en Datem del Marañón. https://infoamazonia.org/es/2016/02/11/derrame-de-crudo-de-petroperu-afecta-a-3500-personas-en-datem-del-maranon/?utm

59. Servicios en Comunicación Intercultural (Servindi). (2018, 8 de febrero). Cusco: Derrame en Camisea afecta a decenas de personas.

60. Red Amazónica de Información Socioambiental Georreferenciada (RAISG). (2022). Deforestación en la Amazonía al 2025 bajo un enfoque de accesibilidad al bosque. https://infoamazonia.org/wp-content/uploads/2023/03/DEFORESTACION-AMAZONIA-2025_21032023.pdf

61. Freitas, C. de, & Canizares, J. (2024, 13 de noviembre). Câncer, malformação, "viroses": a crise de saúde puxada por agrotóxicos na terra da soja. Agência Pública. https://apublica.org/2024/11/mato-grosso-uso-de-agrotoxicos-inclui-cancer-e-malformacoes-de-bebes/

62. Movimento dos Trabalhadores Rurais Sem Terra (MST). (2011, 28 de marzo). Contaminação do leite materno é alarmante, diz pesquisadora. https://mst.org.br/2011/03/28/contaminacao-do-leite-materno-e-alarmante-diz-pesquisadora/

63. Lisboa, S., & Ruas, C. (2024, 2 de septiembre). Campeão no uso de agrotóxicos, Mato Grosso tem municípios agrícolas com maior risco de mortes fetais e anomalias em bebês. InfoAmazonia. https://infoamazonia.org/2024/09/02/campeao-no-uso-de-agrotoxicos-mato-grosso-tem-municipios-agricolas-com-maior-risco-de-mortes-fetais-e-anomalias-em-bebes/

64. Vicente, V. (2022, 27 de octubre). La otra cara del boom de la palma aceitera. El Foco. https://elfoco.pe/2022/10/medio-ambiente/la-otra-cara-del-boom-de-la-palma-aceitera/

65. De la Torre, K. (2019). Grupo Palmas: la batalla perdida por el agua. Revista Memoria, Instituto de Democracia y Derechos Humanos de la Pontificia Universidad Católica del Perú (IDEHPUCP). https://idehpucp.pucp.edu.pe/revista-memoria/grupo-palmas-la-batalla-perdida-por-el-agua/

66. Comissão Pastoral da Terra. (2025, 20 de junio). Akroá Gamella denuncia pulverização de veneno por drones na Terra Indígena Taquaritiua. https://cptnacional.org.br/2025/06/20/akroa-gamella-pulverizacao-veneno/

67. Iniciativa para la Integración de la Infraestructura Regional Suramericana (IIRSA). (2011). IIRSA 2000–2010. https://www.iirsa.org/Page/Detail?menuItemId=28

68. Centro de Derechos Económicos y Sociales (CDES). (2015). Apuntes críticos sobre la integración en infraestructura suramericana. https://cdes.org.ec/apuntes-criticos-sobre-la-integracion-en-infraestructura-suramericana/

69. Iniciativa para la Integración de la Infraestructura Regional Suramericana (IIRSA). (2012). Metodología de Evaluación Ambiental y Social con Enfoque Estratégico (EASE): Material de capacitación y documentos metodológicos. https://www.iirsa.org/admin_iirsa_web/Uploads/Documents/ease_taller08_m10_lima_anexo5.pdf

70. Molina, S., Cerdas Vega, G., Jarrín Hidalgo, S., Torres, V., & Rivasplata Cabrera, F. (2015). De IIRSA a COSIPLAN: Cambios y continuidades (Revista Informativa de la Coalición Regional, N.º 2). Coalición Regional. https://www.cedla.org/wp-content/uploads/attachments/de_iirsa_a_cosiplan_cambios_y_continuidades.pdf

71. Iniciativa para la Integración de la Infraestructura Regional Suramericana (IIRSA). (2011). IIRSA 10 años después: Sus logros y desafíos. Comité de Coordinación Técnica (BID, CAF y FONPLATA). Buenos Aires. ISBN 978-950-738-293-2. https://www.iirsa.org/admin_iirsa_web/Uploads/Documents/lb_iirsa_10_años_sus_logros_y_desafios.pdf

72. Solón, P. (2017, 24 de octubre). TIPNIS: la saga por los derechos de la naturaleza y los Pueblos Indígenas. Fundación Solón. https://fundacionsolon.org/tipnis-la-saga-por-los-derechos-de-la-naturaleza-y-de-los-pueblos-indigenas/

73. Porto-Gonçalves, C. W., & Betancourt, M. (2013). Encrucijada latinoamericana en Bolivia. El conflicto del TIPNIS y sus implicaciones civilizatorias. ALAI. https://tipnisboliviaorg.wordpress.com/wp-content/uploads/2018/11/aca-artc-va-00106-2013.pdf

74. Instituto Amazónico de Investigaciones Científicas SINCHI. (2024). Variante San Francisco-Mocoa, la IIRSA en Colombia. Instituto SINCHI. https://siatac.co/Documentos/Atlas/conflictos/Conflictos%202024/14/SINCHI0014_V2_2024_compressed.pdf

75. Grupo Semillas. (s. f.). La carretera Pasto-Mocoa. Eje Multimodal Amazonas de la IIRSA. Grupo Semillas. https://www.semillas.org.co/apc-aa-files/5d99b-14191c59782eab3da99d8f95126/iirsa-carretera-pasto-mocoa.pdf

76. Amnistía Internacional. (2009). Perú: Bagua, seis meses después. "Sólo por pensar diferente, por hablar diferente, nos están haciendo una injusticia". Amnistía Internacional. https://www.amnesty.org/es/documents/amr46/017/2009/es/

77. Benavides, M. (2010). Industrias extractivas, protesta indígena y consulta en la Amazonía peruana. Anthropologica, 28(Suplemento 1), 263–287. https://revistas.pucp.edu.pe/index.php/anthropologica/article/view/1394/1344

78. Centro de Documentación e Información Bolivia (CEDIB). (2018, 22 de octubre). Investigación devela que China retoma plan IIRSA para sus intereses de abastecimiento desde el sur. CEDIB. https://www.cedib.org/noticias/investigacion-devela-que-china-retoma-plan-iirsa-para-sus-intereses-de-abastecimiento-desde-el-sur-el-dia-22-10-18/

79. Santoro, M. (2022, 1 de septiembre). Opinión: La creciente presencia china en la Amazonía es una señal de la integración global de la región. Dialogue Earth. https://dialogue.earth/es/negocios/57801-opinion-la-creciente-presencia-china-en-la-amazonia-es-una-senal-de-la-integracion-global-de-la-region/

80. Fundación Solón. (2018, 13 de septiembre). Rurrenabaque: El puente construido sobre una falla geológica por la empresa china Sinopec causa zozobra. Fundación Solón. https://fundacionsolon.org/2018/09/13/rurrenabaque-el-puente-construido-sobre-una-falla-geologica-por-la-empresa-china-sinopec-causa-zozobra/

81. Fundación Andrés Bello. (2024). Perfil empresa: China Railway Construction Corporation (CRCC) — Bolivia. Centro de Investigación Chino Latinoamericano. https://www.fundacionandresbello.org/wp-content/uploads/2024/07/pera-perfil-empresa-crcc-bolivia.pdf

82. Jemio, M. T. (2019, 27 de agosto). La Amazonía boliviana se queja por vía "más conflictiva del país". Dialogue Earth. https://dialogue.earth/es/bosques/29754-la-amazonia-boliviana-se-queja-por-via-mas-conflictiva-del-pais/

ECOSISTEMAS ACUÁTICOS Y LOS DERECHOS HUMANOS
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83. Ray, R. (2018). Chinese Development Finance and the Andean Amazon Infrastructure Boom. ReVista: Harvard Review of Latin America. https://revista.drclas.harvard.edu/chinese-development-finance-and-the-andean-amazon-infrastructure-boom/

84. Inter-American Dialogue. (2019). China and the Amazon: Toward a Framework for Maximizing Benefits and Mitigating Risks of Infrastructure Development. Inter-American Dialogue. https://www.thedialogue.org/wp-content/uploads/2019/05/China-and-the-Amazon.pdf

85. Bertassoli, D. J., Jr., Sawakuchi, H. O., de Araújo, K. R., de Camargo, M. G. P., Alem, V. A. T., Pereira, T. S., Krusche, A. V., Bastviken, D., Richey, J. E., & Sawakuchi, A. O. (2021). How green can Amazon hydropower be? Net carbon emission from the largest hydropower plant in Amazonia. Science Advances, 7(26), eabe1470. https://doi.org/10.1126/sciadv.abe1470

86. Germanò, M. (2025). State Grid's localization strategies in Belo Monte, Brazil. En A Casebook on Chinese Outbound Investment: Law, Policy, and Business (pp. 88–112). Cambridge University Press. https://doi.org/10.1017/9781009457859.007

87. Conceição, R. G., Andrade, J. A. B., & Ferreira, C. H. (2016). Transmissão de energia elétrica em ultra alta tensão: O Complexo Hidrelétrico Belo Monte. Revista Eletrônica TECCEN, 9(1). https://doi.org/10.21727/teccen.v9i1.216

88. International Rivers. (2010, March 30). Belo Monte Dam. River Resource Hub. https://riverresourcehub.org/resources/belo-monte-dam/

89. Fearnside, P. M., Forsberg, B. R., Castello, L., Hess, L. L., Melack, J. M., Moraes, R. M., ... & Val, A. L. (2021). Chapter 20: Drivers and impacts of changes in aquatic ecosystems. En C. A. Nobre et al. (Eds.), Amazon Assessment Report 2021. Science Panel for the Amazon. https://www.sp-amazon.org/publications/#ar2021

90. Interamerican Association for Environmental Defense (AIDA). (2026). The Belo Monte Dam on the Xingu River: 10 years of impacts in the Amazon and the search for reparations. https://aida-americas.org/en/the-belo-monte-dam-xingu-river-10-years-of-impacts-in-the-amazon-and-the-search-for-reparations

91. Mayer, A., Castro-Diaz, L., Lopez, M. C., Leturcq, G., & Moran, E. F. (2021). Is hydropower worth it? Exploring Amazonian resettlement, human development and environmental costs with the Belo Monte project in Brazil. Energy Research & Social Science, 78, 102129. https://doi.org/10.1016/j.erss.2021.102129

92. Comisión Interamericana de Derechos Humanos. (2011). Medida cautelar MC-382-10: Comunidades indígenas de la cuenca del río Xingu, Pará, Brasil. Organización de los Estados Americanos. https://www.oas.org/es/cidh/decisiones/cautelares.asp?Country=BRA&Year=2011&searchText=382/10

93. Ministério Público Federal. (2025, 14 de noviembre). COP30: debate expõe colapso ambiental causado pela hidrelétrica de Belo Monte no Rio Xingu (PA). https://www.mpf.mp.br/o-mpf/unidades/pr-pa/noticias/cop30-debate-expoe-colapso-ambiental-causado-pela-hidreletrica-de-belo-monte-no-rio-xingu-pa

94. Branford, S., & Torres, M. (2017, 5 de enero). The end of a people: Amazon dam destroys sacred Munduruku "Heaven". Mongabay. https://news.mongabay.com/2017/01/the-end-of-a-people-amazon-dam-destroys-sacred-munduruku-heaven/

95. Environmental Justice Atlas. (2022, 2 de mayo). São Manoel Hydroelectric Dam, Mato Grosso–Pará, Brazil. https://ejatlas.org/print/sao-manoel-hydroelectric-dam-mato-grosso-para-brazil

96. Mongabay. (2023, agosto). Hydropower in the Pan Amazon: The Madeira Hydropower Complex. https://news.mongabay.com/2023/08/hydropower-in-the-pan-amazon-the-madeira-hydropower-complex/?utm

97. Amazon Watch. (2009, 4 de septiembre). The Madeira Dams: Impacts and Actions in Bolivian Territory. https://amazonwatch.org/news/2009/0904-the-madeira-dams-impacts-and-actions-in-bolivian-territory?utm

98. Actualidad Ambiental. (2020, 18 de septiembre). Represas en el río Marañón: una amenaza para la conectividad entre los Andes y la Amazonía. https://www.actualidadambiental.pe/represas-en-el-rio-maranon/

ECOSISTEMAS ACUÁTICOS Y LOS DERECHOS HUMANOS
AL AGUA POTABLE Y AL SANEAMIENTO EN LA AMAZONIA

99. Bispo, F., Pereira, J., & Rufino, S. (2026, 23 de febrero). Governo Federal revoga decreto que privatizava rios da Amazônia após um mês de ocupação indígena no Tapajós. InfoAmazonia. https://infoamazonia.org/2026/02/23/governo-federal-revoga-decreto-que-privatizava-rios-da-amazonia-apos-um-mes-de-ocupacao-indigena-no-tapajos

100. Amazônia Latitude. (2025, 3 de noviembre). Amazônia em crise: entidades exigem suspensão imediata das hidrovias dos rios Madeira, Tapajós e Tocantins https://www.amazonialatitude.com/2025/11/03/amazonia-crise-entidades-exigem-suspensao-imediata-hidrovias-rios-madeira-tapajos-tocantins/

101. City Facts. (s. f.). Population of Manaus, Brazil. https://es.city-facts.com/manaus/population

102. Instituto Brasileiro de Geografia e Estatística (IBGE). (2025). Censo Demográfico 2022: Favelas e Comunidades Urbanas – Resultados do universo. IBGE. https://www.ibge.gov.br/biblioteca/visualizacao/livros/liv102170.pdf

103. Município de Manaus. (2000). Contrato de concessão dos serviços públicos de abastecimento de água e esgotamento sanitário do Município de Manaus. Documento reproducido en Parecer n.º 146/2001, Ministério da Fazenda. https://www.gov.br/fazenda/pt-br/central-de-conteudo/pareceres/2001/infra-estrutura/saneamento/parecer-n-o-146.pdf

104. Fusões & Aquisições. (2018). Manaus Ambiental tem novo dono. https://fusoesaquisicoes.com/acontece-no-setor/manaus-ambiental-tem-novo-dono

105. Metapolis. (2024, noviembre). Manaos: Desafíos de la gestión del agua en medio de la selva amazónica. https://metapolis.net/es/project/manaos-desafios-de-la-gestion-del-agua-en-medio-de-la-selva-amazonica/

106. SUMAÚMA. (2025, 5 de mayo). Belém se apresura para alojar a los visitantes de la COP, pero no garantiza vivienda a sus propios habitantes. https://sumauma.com/es/belem-corre-para-oferecer-hospedagem-aos-visitantes-da-cop-mas-nao-garante-moradia-aos-proprios-habitantes/

107. SWI swissinfo.ch. (2025, 15 de julio). Belém, sede de la COP30, figura entre las ciudades brasileñas con peor saneamiento básico. https://www.swissinfo.ch/spa/bel%C3%A9m%2C-sede-de-la-cop30%2C-figura-entre-las-ciudades-brasile%C3%B1as-con-peor-saneamiento-b%C3%A1sico/89685503

108. Revista Cenarium. (2025, 11 de abril). Privatização da água no Pará avança sob protestos. https://revistacenarium.com.br/privatizacao-da-agua-no-para-avanca-sob-protestos/

109. Instituto Nacional de Estadística (INE). (2025, 31 de julio). Censo 2024: En Pando, más mujeres que hombres alcanzan educación superior. https://cpv2024.ine.gob.bo/index.php/censo-2024-en-pando-mas-mujeres-que-hombres-alcanzan-educacion-superior/

110. Superintendencia de Servicios Públicos Domiciliarios. (2020). Informe nacional de coberturas de los servicios públicos de acueducto y alcantarillado 2019. https://www.superservicios.gov.co/sites/default/files/2022-01/informe_nacional_de_coberturas_de_los_servicios_publicos_de_acueducto_y_alcantarillado-_2019_vfinal_1_0.pdf

111. Ministerio de Vivienda, Ciudad y Territorio. (2024). Informe nacional de calidad del agua para consumo humano (INCA) 2023. https://minvivienda.gov.co/sites/default/files/documentos/informe-nacional-de-calidad-del-agua-para-consumo-humano-inca-2023.pdf

112. Instituto Trata Brasil. (s. f.). Painel Amazônia Legal em Dados: Saneamento. https://amazonialegalemdados.info/dashboard/perfil.php?regiao=Amaz%C3%B4nia%20Legal&area=Saneamento__23&indicador=TX_PNAD_DOM_SANEAMENTO_UF__23

113. Nunes, A. (2025, noviembre). Belém: Na sede da COP30, falta água e saneamento em bairros de maioria negra. Agência Pública. https://apublica.org/2025/11/belem-na-sede-da-cop30-falta-agua-e-saneamento-em-bairros-de-maioria-negra/

114. Sassine, V. (2025, 11 de enero). Governo quer transatlânticos da COP30 em área onde casas dependem de fossas e enfrentam erosão. Folha de S.Paulo. https://www1.folha.uol.com.br/ambiente/2025/01/governo-quer-transatlanticos-da-cop30-em-area-onde-casas-dependem-de-fossas-e-enfrentam-erosao.shtml

115. Sassine, V. (2025, 9 de abril). Comunidade em Belém confronta empresa de saneamento com água suja da torneira. Folha de S.Paulo. https://www1.folha.uol.com.br/cotidiano/2025/04/comunidade-em-belem-confronta-empresa-de-saneamento-com-agua-suja-da-torneira.shtml

116. Sassine, V. (2025, 11 de noviembre). Transatlânticos atraem multidão a praia esquecida de Belém, e luxo contrasta com falta de serviços básicos. Folha de S.Paulo. https://www1.folha.uol.com.br/ambiente/2025/11/transatlanticos-atraem-multidao-a-praia-esquecida-de-belem-e-luxo-contrasta-com-falta-de-servicos-basicos.shtml

117. Instituto Trata Brasil. (2025). Release – Ranking do Saneamento 2025. Instituto Trata Brasil. https://tratabrasil.org.br/wp-content/uploads/2025/07/Release--Ranking-2025_final1-1.pdf

118. Instituto Nacional de Estadística e Informática (INEI). (2025). Perú: Formas de acceso al agua y saneamiento básico (N.º 11). Gobierno del Perú. https://www.gob.pe/institucion/inei/informes-publicaciones/6313803-peru-formas-de-acceso-al-agua-y-saneamiento-basico-nro-11

119. World Health Organization. (2025). Progress on household drinking water, sanitation and hygiene 2000–2024: Special focus on inequalities. World Health Organization. https://www.who.int/publications/i/item/9789240115149

120. Mesa de Concertación para la Lucha contra la Pobreza (MCLCP). (2020). Acceso al servicio de agua potable y saneamiento en el ámbito amazónico: Casos en poblaciones dispersas. Relatoría y propuestas concertadas entre Estado y sociedad civil. Grupo de Trabajo de Agua y Saneamiento Rural, con apoyo de la Unión Europea y la Cooperación Alemana implementada por la GIZ.

121. Secretaría Técnica de la Circunscripción Territorial Especial Amazónica. (2021). Plan Integral para la Amazonía 2021–2035. Secretaría Técnica de la Circunscripción Territorial Especial Amazónica. https://faolex.fao.org/docs/pdf/ecu213092.pdf

122. Superintendencia de Servicios Públicos Domiciliarios. (2020). Informe nacional de coberturas de los servicios públicos de acueducto y alcantarillado 2019. Superintendencia de Servicios Públicos Domiciliarios. https://www.superservicios.gov.co/sites/default/files/2022-01/informe_nacional_de_coberturas_de_los_servicios_publicos_de_acueducto_y_alcantarillado-_2019_vfinal_1_0.pdf

123. Guerreiro Neto, G. (2025, 23 de julio). Em Belém, a luta do povo-maré contra a obra da COP que joga esgoto dos ricos no quintal dos pobres. SUMAÚMA. https://sumauma.com/es/em-belem-a-luta-do-povo-mare-contra-a-obra-da-cop--que-joga-esgoto-dos-ricos-no-quintal-dos-pobres/

124. Instituto Trata Brasil. (2025). Tabela resumo – Ranking do Saneamento 2025. Instituto Trata Brasil. https://tratabrasil.org.br/wp-content/uploads/2025/07/Tabela-Resumo-Ranking_final.pdf

125. Wildlife Conservation Society. (2023). Identificación y priorización de proyectos de alto impacto regional. Loreto, Perú. Wildlife Conservation Society.

126. Gobierno Regional de Loreto. (2023). Plan Regional de Saneamiento de Loreto 2023–2027. Gobierno Regional de Loreto. https://www.gob.pe/institucion/regionloreto/normas-legales/4868499-664-2023-grl-gr ; https://aplicaciones02.regionloreto.gob.pe/sites/default/files/normativa_interna/plan_regional_saneamiento_1_compressed.pdf

127. Constitución de la República del Ecuador (2008), art. 264.4; Código Orgánico de Organización Territorial, Autonomía y Descentralización (COOTAD), art. 55. https://www.oas.org/juridico/pdfs/mesicic4_ecu_const.pdf

128. El Comercio. (2019, 17 de agosto). Coliformes fecales afecta la calidad del agua del río Puyo. El Comercio. https://www.elcomercio.com/actualidad/coliformes-fecales-afecta-calidad-agua-rio-puyo/

129. El Oriente. (2022, 7 de octubre). El río Puyo está contaminado con coliformes. El Oriente. https://www.eloriente.com/articulo/el-riacuteo-puyo-estaacute-contaminado-con-coliformes/37581

130. Red Nacional de Acueductos Comunitarios de Colombia. (2014). Aportes al Relator Especial de las Naciones Unidas sobre el derecho humano al agua potable y el saneamiento: Mecanismos de rendición de cuentas para garantizar los derechos humanos al agua y al saneamiento. Oficina del Alto Comisionado de las Naciones Unidas para los Derechos Humanos. https://www.ohchr.org/sites/default/files/Documents/Issues/Water/Accountability/RedNacionalAcueductosComunitariosColombia.pdf

131. Ministerio de Vivienda, Ciudad y Territorio. (2025, 6 de octubre). Gobierno nacional hizo lanzamiento del Decreto 960 del 2025, que reconoce la Gestión Comunitaria del Agua. Gobierno de Colombia. https://www.minvivienda.gov.co/sala-de-prensa/gobierno-nacional-hizo-lanzamiento-del-decreto-960-del-2025-que-reconoce-la-gestion-comunitaria-del-agua

ECOSISTEMAS ACUÁTICOS Y LOS DERECHOS HUMANOS
AL AGUA POTABLE Y AL SANEAMIENTO EN LA AMAZONIA

132. Red Nacional de Acueductos Comunitarios de Colombia. (2025, 18 de diciembre). Aprobado en su cuarto debate. Red Nacional de Acueductos Comunitarios de Colombia. https://redacueductoscomunitarios.co/2025/12/18/aprobado-en-su-cuarto-debate/

133. Ministerio de Vivienda, Construcción y Saneamiento. (2017). Decreto Supremo N.º 019-2017-VIVIENDA, que aprueba el Reglamento del Decreto Legislativo N.º 1280, Ley Marco de la Gestión y Prestación de los Servicios de Saneamiento. Gobierno del Perú. https://cdn.www.gob.pe/uploads/document/file/12883/DS-019-2017-VIVIENDA-1.pdf?v=1530656715

134. Ministerio de Vivienda, Construcción y Saneamiento. (2024). Resolución Ministerial N.º 212-2024-VIVIENDA, que aprueba los Lineamientos para la ejecución de proyectos de inversión bajo la modalidad de Núcleos Ejecutores del Programa Nacional de Saneamiento Rural. Gobierno del Perú.

135. Consejo de Derechos Humanos de las Naciones Unidas. (2023). Visita al Perú. Informe del Relator Especial sobre los derechos humanos al agua potable y al saneamiento, Pedro Arrojo-Agudo (A/HRC/54/32/Add.2). Naciones Unidas. https://docs.un.org/es/A/HRC/54/32/Add.2

136. Peña Jumpa, A. (2021, 16 de septiembre). Rondas campesinas urbanas en el Perú. Pólemos. https://polemos.pe/articulo/rondas-campesinas-urbanas-en-el-peru

137. Federación Nativa del Río Madre de Dios y Afluentes (FENAMAD). (2025). Pueblos Indígenas en aislamiento y contacto inicial (PIACI). FENAMAD. https://fenamad.com.pe/nuestro-trabajo/piaci/ , https://www.facebook.com/FENAMAD/posts/proyectoici-fenamad-fortalece-la-gobernanza-ind%C3%ADgena-y-la-gesti%C3%B3n-territorial-du/1451053817061045/?

138. Noticias Madre de Dios. (2022, 27 de abril). Secretario general de Cáritas habla sobre proyectos enfocados en comunidades nativas. Noticias Madre de Dios. https://noticias.madrededios.com/articulo/local/madre-dios-secretario-general-caritas-habla-proyectos-enfocados-comunidades-nativas/20220427123003022083.html

139. Asamblea Nacional del Ecuador. (2014). Ley Orgánica de Recursos Hídricos, Usos y Aprovechamiento del Agua. Registro Oficial Suplemento N.º 305, 6 de agosto de 2014. https://www.regulacionagua.gob.ec/wp-content/uploads/downloads/2016/03/Ley-Orgánica-de-Recursos-Hídricos-Usos-y-Aprovechamiento-del-Agua.pdf

140. Banco Interamericano de Desarrollo (BID). (2014). Prácticas y saberes en la gestión comunitaria del agua para consumo humano y saneamiento en las zonas rurales de Ecuador. Banco Interamericano de Desarrollo. https://publications.iadb.org/publications/spanish/document/Pr%C3%A1cticas_y_saberes_en_la_gesti%C3%B3n_comunitaria_del_agua_para_consumo_humano_y_saneamiento_en_las_zonas_rurales_de_Ecuador_es.pdf

141. Alianza Ceibo. (2025). Programa de agua. Alianza Ceibo. https://www.alianzaceibo.org/programas/agua/

142. Autoridad de Fiscalización y Control Social de Agua Potable y Saneamiento Básico. (s. f.). Sitio web institucional. Gobierno del Estado Plurinacional de Bolivia. https://www.aaps.gob.bo/wordpress/

143. Fundo Amazônia. (2026). Fundo Amazônia. Banco Nacional de Desenvolvimento Econômico e Social (BNDES). https://www.fundoamazonia.gov.br/pt/home/

144. Fundo Amazônia. (2026). Projeto Sanear Amazônia. Banco Nacional de Desenvolvimento Econômico e Social (BNDES). https://www.fundoamazonia.gov.br/pt/projeto/Sanear-Amazonia

145. Naciones Unidas. (2023). Derechos humanos al agua potable y al saneamiento (Folleto informativo). Oficina del Alto Comisionado de las Naciones Unidas para los Derechos Humanos. https://bdd.pseau.org/outils/ouvrages/united_nations_derechos_humanos_al_agua_potable_y_al_saneamiento_2023.pdf

146. Naciones Unidas. (2023). Derechos humanos al agua potable y al saneamiento (Folleto informativo N.º 35). Oficina del Alto Comisionado de las Naciones Unidas para los Derechos Humanos. https://bdd.pseau.org/outils/ouvrages/united_nations_derechos_humanos_al_agua_potable_y_al_saneamiento_2023.pdf

147. WWF. (2022). Informe Planeta Vivo 2022: Hacia una sociedad con la naturaleza en positivo (R. E. A. Almond, M. Grooten, D. Juffe Bignoli, & T. Petersen, Eds.). WWF. https://wwfint.awsassets.panda.org/downloads/lar2022_espanol_23_dic_2022.pdf

148. Bastos, W. R., Dórea, J. G., Bernardi, J. V. E., Lauthartte, L. C., Mussy, M. H., Hauser, M., Dória, C. R. da C., & Malm, O. (2015). Mercury in muscle and brain of catfish from the Madeira river, Amazon, Brazil. Ecotoxicology and Environmental Safety, 118, 90–97. https://doi.org/10.1016/j.ecoenv.2015.04.015

ECOSISTEMAS ACUÁTICOS Y LOS DERECHOS HUMANOS
AL AGUA POTABLE Y AL SANEAMIENTO EN LA AMAZONIA

149. Comisión Interamericana de Derechos Humanos. (2013). Pueblos indígenas en aislamiento voluntario y contacto inicial en las Américas: Recomendaciones para el pleno respeto a sus derechos humanos (OEA/Ser.L/V/II. Doc. 47/13). Organización de los Estados Americanos. https://www.oas.org/es/cidh/indigenas/docs/pdf/Informe-Pueblos-Indigenas-Aislamiento-Voluntario.pdf

150. Observatório BR-319. (2025). Retrospectiva 2024: Desmatamento e focos de calor na área de influência da rodovia BR-319. Instituto de Conservação e Desenvolvimento Sustentável da Amazônia. https://oeco.org.br/wp-content/uploads/2025/04/Relatorio-Retrospectiva-Desmatamento-Queimadas-2024-v2.pdf

151. Departamento Nacional de Infraestructura de Transportes. (2025, 9 de octubre). Nota de esclarecimento sobre o Processo de Licenciamento Ambiental da BR-319/AM. Gov.br. https://www.gov.br/dnit/pt-br/assuntos/noticias/nota-de-esclarecimento-sobre-o-processo-de-licenciamento-ambiental-da-br-am

152. Cercarbono. (2025, 15 de agosto). Primeros créditos de biodiversidad certificados por el CBCP. https://cercarbono.com/es/actualizaciones/creditos-biodiversidad-certificados-cercarbono/

153. Fernández, R., & Senter, R. (2023, 24 de octubre). Cómo funciona: El crédito biodiversidad de Savimbo. Savimbo. https://es.savimbo.com/blog/how-it-works-savimbos-biodiversity-credit

154. Caparroso, J. (2025, 23 de septiembre). Esta startup en Putumayo paga a comunidades indígenas por conservar la biodiversidad. Forbes Colombia. https://forbes.co/emprendedores/savimbo-startup-putumayo-indigenas

155. Ley N.º 32700. Ley que fortalece el sistema de irrigación en los departamentos de Cajamarca, Lambayeque, Amazonas, La Libertad y Piura, y promueve el Proyecto Tinajones II mediante el afianzamiento, represamiento y trasvase de las aguas del Río Marañón. Diario Oficial El Peruano, 4 de julio de 2026. https://busquedas.elperuano.pe/dispositivo/NL/2531901-4

156. Congreso de la República del Perú. (2026, 14 de mayo). Pleno aprueba dictamen que promueve Tinajones II y que fortalece sistema de irrigación en cinco departamentos. https://comunicaciones.congreso.gob.pe/noticias/pleno-aprueba-dictamen-que-promueve-tinajones-ii-y-que-fortalece-sistema-de-irrigacion-en--cinco-departamentos

157. INREDH. (2020, 30 de septiembre). Se cumplen cinco años de los desalojos en Tundayme, Corte Constitucional analiza el caso. https://inredh.org/se-cumple--cinco-anos-de-los-desalojos-en-tundayme-corte-constitucional-analiza-el-caso/

158. Corte Constitucional del Ecuador. (2020, marzo). Boletín jurisprudencial: Edición mensual (Marzo 2020). Secretaría Técnica Jurisdiccional; Centro de Estudios y Difusión del Derecho Constitucional. https://biblioteca.corteconstitucional.gob.ec/opac-tmpl/bootstrap/docs/2020-mar.pdf

159. Parques Nacionales Naturales de Colombia, Dirección Territorial Amazonia. (2018). El mercurio en comunidades de la Amazonia colombiana. https://old.parquesnacionales.gov.co/portal/wp-content/uploads/2019/07/MERCURIO-EN--COMUNIDADES-DE-LA-AMAZONIA-2018-1.pdf

160. Capparelli, M. V., Moulatlet, G. M., Abessa, D. M. de S., Lucas-Solis, O., Rosero, B., Galarza, E., Tuba, D., Carpintero, N., Ochoa-Herrera, V., & Cipriani-Avila, I. (2020). An integrative approach to identify the impacts of multiple metal contamination sources on the Eastern Andean foothills of the Ecuadorian Amazonia. Science of the Total Environment, 712, 136088. https://doi.org/10.1016/j.scitotenv.2019.136088

161. Mongabay Latam. (2022, 16 de agosto). #EnCorto: Cuatro datos sobre el impacto de la minería ilegal en la provincia de Napo en Ecuador. https://es.mongabay.com/2022/08/en-corto-cual-es-el-impacto-de-la-mineria-ilegal-en-la-provincia--de-napo-en-ecuador/

162. Corte Constitucional del Ecuador. (2022, 11 de noviembre). Auto de admisión de la acción extraordinaria de protección: Caso n.º 1802-22-EP. https://esacc.corteconstitucional.gob.ec/storage/api/v1/10_DWL_FL/e2NhcnBldGE6J3RyYW1pdGUnLCB1dWlkOidkMDBmM2ZiYy03ODg0LTRkOGUtYThkMi1kNmY5NWE3NTE5NzgucGRmJ30

163. Ministerio de Energía y Minas. (s. f.). Disculpas públicas. https://www.ambienteyenergia.gob.ec/disculpas-publicas/

164. Ochoa-Caballero, M. B. & Rivera-Parra, J. L. (2021) Ochoa-Caballero, M. B. & Rivera-Parra, J. L. (2021). “Mapping of potential environmental risks associated to formation water in the Oriente Basin, Ecuador”. Groundwater for Sustainable Development, 13, 100566. DOI: 10.1016/j.gsd.2021.100566

ECOSISTEMAS ACUÁTICOS Y LOS DERECHOS HUMANOS
AL AGUA POTABLE Y AL SANEAMIENTO EN LA AMAZONIA

165. Acción Ecológica. (2006). Moratoria al proyecto ITT y Bloque 31. Acción Ecológica. https://www.accionecologica.org/moratoria-al-proyecto-itt-y-bloque-31/?print=pdf

166. World Bank. (2025, July). Global gas flaring tracker report. https://thedocs.worldbank.org/en/doc/bd2432bbb0e514986f382f61b14b2608-0400072025/original/Global-Gas-Flaring-Tracker-Report-July-2025.pdf

167. Durango-Cordero, J., Saqalli, M., Parra, R., & Elger, A. (2019). Spatial inventory of selected atmospheric emissions from oil industry in Ecuadorian Amazon: Insights from comparisons among satellite and institutional datasets. Safety Science, 120, 107–116. https://doi.org/10.1016/j.ssci.2019.05.047

168. Facchinelli, F., Pappalardo, S. E., Della Fera, G., Crescini, E., Codato, D., Diantini, A., Moncayo Jimenez, D. R., Fajardo Mendoza, P. E., Bignante, E., & De Marchi, M. (2022). Extreme citizens science for climate justice: Linking pixel to people for mapping gas flaring in Amazon rainforest. Environmental Research Letters, 17(2), 024003. https://doi.org/10.1088/1748-9326/ac40af

169. Sala Multicompetente de la Corte Provincial de Justicia de Sucumbíos. (2021, 29 de julio). Sentencia de segunda instancia, Juicio n.º 21201-2020-00170. Función Judicial del Ecuador. https://udapt.org/wp-content/uploads/2024/01/SENTENCIA-SEGUNDA-INSTANCIA-Caso-Mecheros.pdf

170. Unión de Afectados y Afectadas por las Operaciones Petroleras de Texaco. (2026, febrero). Huellas de resistencia: Narrativas de la lucha por justicia y dignidad (Edición 1). https://udapt.org/wp-content/uploads/2026/02/PD.UDAPT-EDICION1-febrero-1.pdf

171. Federación de la Nacionalidad Achuar del Perú, Gobierno Territorial Autónomo de la Nación Wampís, Gobierno Territorial Autónomo de la Nación Chapra, & Amazon Watch. (2024). Indigenous peoples of the Peruvian Amazon reject Citi’s new report that goes against Interamerican standards. https://amazonwatch.org/wp-content/uploads/2024/04/Achuar-Wampis-Chapra-re-Citi-Report.pdf

172. Gobierno Territorial Autónomo de la Nación Wampís & Federación de la Nacionalidad Achuar del Perú. (2025). Pronunciamiento conjunto del Gobierno Territorial Autónomo de la Nación Wampís y la Federación de la Nacionalidad Achuar del Perú (FENAP). Amazon Watch.

173. Terán Mantovani, E. (2021). Complejo Refinador Paraguaná, Venezuela. En E. Bravo (Ed.), Zonas de sacrificio en América Latina: Vulneración de derechos humanos y de la naturaleza (pp. 62–65). Action Solidarité Tiers Monde (ASTM); Fundación Pro Defensa de la Naturaleza y sus Derechos; Acción Ecológica. https://ecopoliticavenezuela.org/wp-content/uploads/2021/11/ZONAS-DE-SACRIFICIO.pdf

174. Croquer A, Bone D, Bastidas C, Ramos R, García E. 2016. Monitoring coastal pollution associated with the largest oil refinery complex of Venezuela. PeerJ 4:e2171 https://doi.org/10.7717/peerj.2171

175. Observatorio de Ecología Política de Venezuela. (2018, 18 de enero). Caso: Impactos del Complejo Refinador Paraguaná. https://ecopoliticavenezuela.org/mapa-de-conflictos-socio-ambientales-los-impactos-socioambientales-del-complejo-refinador-paraguana/

176. Amapari Consultoria Ambiental. (2024). Costa do Amapá: Potenciais impactos do petróleo e alternativas econômicas. Greenpeace Brasil. https://www.greenpeace.org/static/planet4-brasil-stateless/2024/03/e3f2d9e3-green_costa_relatorio-v4.pdf

177. Conselho de Caciques dos Povos Indígenas de Oiapoque. (2023). Plano de consulta sobre exploração de petróleo na Foz do Amazonas: Bloco FZA-M-59. https://storage.epbr.com.br/2024/03/03.25.24_Plano_de_Consulta___Petrobras.pdf

178. Eco21. (2025, 3 de junho). Mais de 60 caciques do Oiapoque repudiam exploração de petróleo na Foz do Amazonas e exigem suspensão imediata do processo de licenciamento. https://eco21.eco.br/povos-indigenas/mais-de-60-caciques-do-oiapoque-repudiam-exploracao-de-petroleo-na-foz-do-amazonas-e-exigem-suspensao-imediata-do-processo-de-licenciamento/

179. Conselho de Caciques dos Povos Indígenas de Oiapoque. (2025, 28 de mayo). Carta de repúdio aos representantes políticos do Estado do Amapá. https://uploads.eixos.com.br/2025/06/Nota_de_repudio_Final.pdf

180. Rosero, S. (2023, 27 de mayo). La larga lucha por salvar al Yasuní de la explotación petrolera. El País. https://elpais.com/america-futura/2023-05-27/la-larga-lucha-por-salvar-al-yasuni-de-la-explotacion-petrolera.html

181. Consejo Nacional Electoral. (2023, 31 de agosto). CNE proclama resultados definitivos de binomio presidencial y Consulta Popular del Yasuní. https://www.cne.gob.ec/cne-proclama-resultados-definitivos-de-binomio-presidencial--y-consulta-popular-del-yasuni/

182. Corte Constitucional del Ecuador. (2023, 9 de mayo). Dictamen Nro. 6-22-CP/23 [Consulta popular sobre el bloque 43 del Yasuní-ITT]. https://www.corteconstitucional.gob.ec/dictamen-nro-6-22-cp-23/

183. Cedeño Quijije, M. J., & Yánez, S. M. (2025). Registro Biprovincial de Tumores (RBT) Sucumbíos – Orellana: Informe del Registro de Identificación de Casos de Cáncer, abril 2018 a diciembre 2025 (12.º informe). UDAPT. https://udapt.org/wp-content/uploads/2026/02/REGISTRO-BIPROVINCIAL-DE-TUMORES-2018-2025-FINAL.pdf

184. San Sebastián, M., Facchinelli, F., Tarupi, W., & Castel-Feced, S. (2025). Informe Kushni: Impacto de la quema de gas en el riesgo de cáncer en la población de la Amazonía ecuatoriana. Instituto de Epidemiología y Salud Comunitaria "Manuel Amunárriz". https://infoamazonia.org/wp-content/uploads/2026/04/INFORME-KUSHNI.pdf

185. International Rights of Nature Tribunal. (s. f.). International Rights of Nature Tribunal. Recuperado el 4 de septiembre de 2026, de https://www.rightsofnaturetribunal.org/?lang=es

186. FOSPA Ecuador. (s. f.). FOSPA Ecuador. Recuperado el 4 de septiembre de 2026, de https://fospaecuador.com/

187. UDAPT. (2024). Agua segura. https://udapt.org/agua-segura/https://udapt.org/agua-segura/

188. Pueblo Originario Kichwa de Sarayaku. (2026). Propuesta Kawsak Sacha. https://sarayaku.org/propuesta-kawsak-sacha/

189. Amnistía Internacional. (2026). Informe 2025/26 de Amnistía Internacional: Análisis global. https://www.amnesty.org/es/annual-report-global-analysis/

190. Casique Coronado, T. (2024, 31 de diciembre). 2024, avances y retrocesos para los derechos indígenas y ambientales en el Perú. AIDESEP. https://aidesep.org.pe/noticias/2024-avances-y-retrocesos-para-los-derechos-indigenas-y-ambientales-en-el-peru/

191. Querida Amazonía - REPAM Perú. (2026, 20 de mayo). Más de 800 personas defensoras fueron registradas en situación de riesgo en el Perú desde 2019, la mayoría en la Amazonía. https://queridaamazonia.pe/mas-de-800-personas-defensoras-fueron-registradas-en-situacion-de-riesgo-en-el-peru-desde-2019-la-mayoria-en-la-amazonia/

192. Organización del Tratado de Cooperación Amazónica (OTCA). (2025). Mecanismo Amazónico de Pueblos Indígenas (MAPI). https://cop30.otca.org/mecanismo-amazonico-de-pueblos-indigenas-mapi/

193. Congreso de la República del Perú. (2001). Proyecto de Ley: Ley que declara en emergencia ambiental la cuenca del río Nanay. https://www2.congreso.gob.pe/sicr/tradocestproc/clproley2001.nsf/pley/234CB58FC8387E4805256D25005DA05F?opendocument

194. Defensoría del Pueblo de Colombia (2021). https://www.defensoria.gov.co/documents/20123/1394199/XXIX%2BInforme%2Bdel%2BDefensor%2Bdel%2BPueblo%2Bal%2BCongreso%2Bde%2Bla%2BRepública-22.pdf/51d8ef4a-f40c-95f2-4cb6-58f3349aa399?t=1662488261027

195. EFE. (2024, 20 de noviembre). El 40 % de las exportaciones de oro peruano es ilegal, afirma la Policía. SWI swissinfo.ch. https://www.swissinfo.ch/spa/el-40-%25-de-las-exportaciones-de-oro-peruano-es-ilegal%2C-afirma-la-polic%C3%ADa/88256737

196. Organización Mundial de la Salud. (2026). State of systems for drinking-water, sanitation and hygiene: Global update 2025. World Health Organization. https://glaas.who.int/es/glaas/key-findings/glaas-2024-2025-report-key-findings

197. Organización del Tratado de Cooperación Amazónica. (2024). Resumen ejecutivo: Informe sobre la situación de la calidad del agua en la cuenca amazónica. https://otca.org/wp-content/uploads/2021/09/resumo-executivo_ESPANHOL_web_reduzido-2024.pdf

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AL AGUA POTABLE Y AL SANEAMIENTO EN LA AMAZONIA

198. Oficina del Alto Comisionado de las Naciones Unidas para los Derechos Humanos (ACNUDH). (2012). Directrices de protección para los Pueblos Indígenas en aislamiento y en contacto inicial de la región amazónica, el Gran Chaco y la Región Oriental de Paraguay. Naciones Unidas. https://www.ohchr.org/sites/default/files/documents/form/documento-informativo-sobre-pueblos-indigenas--contacto-inicial-briefing-document-indigenous-peoples-voluntary-isolation-initial-contact-aislamiento-voluntario-piaci-ipviic-1-en.pdf

199. Peña-Claros, M., Nobre, C., Armenteras, D., Athayde, S., Barlow, J., Bustamante, M., Encalada, A. C., Mena, C., Moutinho, P., Poveda, G., Roca, F., Saleska, S., Silva, L. V. N., Trumbore, S. E., Val, A. L., Varese, M., Brondizio, E. S., Espinoza, J. C., Esquivel-Muelbert, A., Ferreira, J., Garzón, J. C., Gómez Soto, M., Hirota, M., Josse, C., Marengo, J. A., Mirabal, J. G. D., Moreira de Carvalho, B., Schmink, M. C., de Souza Hacon, S., Szabo, I., & Witteveen, N. H. (Eds.). (2025). Informe de evaluación de la Amazonía 2025: Conectividad de la Amazonía para un planeta vivo. Panel Científico por la Amazonía, Red de Soluciones para el Desarrollo Sostenible. https://www.sp-amazon.org/es/ar2025

200. WWF-Brasil (2026). Diagnóstico regional sobre la gobernanza de insumos críticos de oro en la Amazonía: Mercurio y Cianuro. (Documento interno compartido con la relatoría para la elaboración de este informe)

201. Echevarría Díaz, G. E., Sánchez Orellana, F. R., Yunda Vega, R. E., Valdiviezo-Rivera, J. S., & Ríos-Touma, B. P. (2025). Trace metal contamination in commercial fish from the Ecuadorian Amazon: Preliminary health risk assessment in a local market. Fishes, 10(8), 392. https://doi.org/10.3390/fishes10080392

202. Centro de Innovación Científica Amazónica [CINCIA]. (2025, 19 de junio). Estudio confirma alta exposición a mercurio en comunidades indígenas y ribereñas de Loreto. https://cincia.org/estudio-confirma-alta-exposicion-a-mercurio-en--comunidades-indigenas-y-riberenas-de-loreto/

203. De Moura Bueno Neto, U. (2025, 24 de octubre). Petróleo en la desembocadura del Amazonas: Brasil continúa con la expansión silenciosa de sus fronteras fósiles. The Conversation. https://theconversation.com/petroleo-en-la-desembocadura-del-amazonas-brasil-continua-con-la-expansion-silenciosa-de-sus--fronteras-fosiles-268317

204. Arrojo Agudo, P. (2025). Derechos humanos al agua potable y al saneamiento: Nota del Secretario General (A/80/117). Asamblea General de las Naciones Unidas. https://docs.un.org/es/A/80/117

205. Gobierno Regional de Lambayeque. (2014, 19 de noviembre). Proyecto Olmos marca inicio de desarrollo sostenible de Lambayeque. https://historico.regionlambayeque.gob.pe/web/noticia/detalle/16340?pass=Mg%3D%3D

206. Banco Mundial. (2020, 5 de noviembre). Soluciones de saneamiento para Santa Cruz, Bolivia. https://www.bancomundial.org/es/news/feature/2020/11/05/sanitation-solutions-for-santa-cruz-bolivia



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September 2026

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COLLABORATING ORGANIZATIONS