



30 Project Profiles to Invest and Cooperate Sustainably in the Amazon for COP 30

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Disclaimer

This document presents a technical and informational compilation of 30 project profiles aligned with the thematic pillars of the Amazon Cooperation Treaty Organization (ACTO), aimed at promoting sustainable (ESG) investment opportunities and strengthening regional cooperation. The opinions, analyses, and interpretations expressed herein are the sole responsibility of their authors and do not necessarily reflect the official position of ACTO or its Member Countries. The information presented has undergone technical review to ensure its consistency and credibility.



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Limits of the Amazon Region, ACTO and CIIFEN (2020).

The Amazon epicenter of the global environmental agenda



The Amazon Cooperation Treaty Organization (ACTO)—made up of Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela—proposes and coordinates urgent actions to conserve the region and promote its sustainable development.

As the epicenter of the global environmental agenda, the Amazon is the ideal terrain for a sustainable bioeconomy, because it seeks to take advantage of its

biodiversity by generating added value and green employment in the 2,130 Amazonian municipalities.

The ACTO, as an official mechanism for regional cooperation in the Amazon, developed the **Rapid Assessment of Biological Diversity and Ecosystem Services of the Amazon Basin/Region**, with the support of about 120 specialists, including Indigenous experts, applying the conceptual framework of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

The **30 project profiles** derived from the Rapid Assessment serve as a starting point to initiate strategic dialogue with ACTO, opening new business opportunities for Environmental, Social, and Governance (ESG) investors, as well as for cooperating

agencies and donors, and fostering key partnerships in support of the conservation of the region and the planet.

Objective: Mobilize high-impact sustainable investments towards Amazonian municipalities to:

1. Reduce deforestation (ha/year).
2. Generate a growing, fair income for local communities (USD/year).
3. Avoid or capture CO₂ emissions (t/year).

To achieve this, ACTO promotes strategic alliances with ESG investment funds, cooperating agencies, the business sector, academia, science, technology, innovation, and culture to scale sustainable, transformative, and measurable business models

throughout the region, improving national indicators of biodiversity and sustainable development.

The Amazon in Danger: A Biocultural Treasure of Global Reach

The Amazon covers 44% of South America and is the epicenter of global biodiversity, hosting more than 60,000 species. It plays a crucial role in regulating the planet's climate and water cycle. However, it faces unprecedented threats from deforestation, climate change, and environmental degradation, putting at risk not only its biological and cultural diversity, but also the vital ecosystem services it provides to the world.

Insufficient funding in the Amazon: a critical obstacle to its conservation

Being crucial for the world, the Amazon is underinvested in the diversity of its ecosystems. In addition, it faces high levels of poverty in its 2,130 municipalities. Meanwhile, the region is approaching an irreversible point: if deforestation exceeds 20%, the forest could transform into savannah, with the massive loss of its biodiversity, altering the global climate.

Bioeconomy drives conservation through sustainable development

The bioeconomy focuses on the use of renewable biological resources to produce goods and services sustainably. It offers a development model that integrates conservation with growth by promoting sustainable value chains in the production of medicines, food, and technology. Moreover, it helps reduce deforestation, strengthen local economies, and contribute to climate change mitigation through productive models that preserve the integrity of ecosystems.



Photo: 123RF.



The ACTO: strategic partner for ESG investment and key actions for international cooperation



In 2023, the presidents of these nations adopted the *Belém Declaration*, which projects ACTO onto the global stage, based on **an economy grounded in the responsible use of Amazonian natural resources**.

One of its main mandates, approved at the XIV Meeting of Ministers of Foreign Affairs through Resolution 23, is to **promote these four pillars to create unique partnerships and sustainable investment opportunities in the Amazon, supporting:**

ACTO plays a key role in generating and managing knowledge on biodiversity for sustainable investment in the Amazon through its Amazon Regional Observatory. It coordinates high-impact projects in conservation, biotechnology, and environmental monitoring.

The Amazon now has the political support needed to move towards a sustainable economy open to the world.

- » **The certification and valorization of Amazonian products.**
- » **Recognition of environmental services.**
- » **Investment in science, technology, and innovation.**
- » **Integration of traditional knowledge.**

Below is a summary of the 30 project profiles drawn from the chapters of the Rapid Assessment.



30 Project Profiles by Chapter and Line of Action

Chapter 1. Introduction – Importance of the Amazon



1. Inclusion of traditional knowledge of Indigenous Peoples

Support for the Strengthening of ACTO's Amazon Regional Platform for Indigenous Peoples and Climate Change in the Area of Forest Conservation, with the Participation of the Coordinator of Indigenous Organizations of the Amazon Basin (COICA).

2. Enhancing local capacities for sustainable conservation

ACTO Regional Diagnosis: mapping, management and local strengthening for the sustainable conservation of Indigenous Reserves, Protected Areas and other areas at risk in the Amazon.

Chapter 2. Status of biological diversity in the Amazon



1. On the management of restoration of degraded and destroyed ecosystems

Support for the Identification and Restoration of Degraded Ecosystems in the Amazon through Technical Training for ACTO Member Countries, drawing on the Expertise of Brazil's Amazon Restoration Alliance (ARA).

2. Conservation of species

I. Research into microorganisms

Creation of a Network of Specialists for Research on **Amazonian Bacteria**, their Ecosystem Functions and Possible Applications in Biotechnology.

II. Conservation of fungi in Amazonian ecosystems

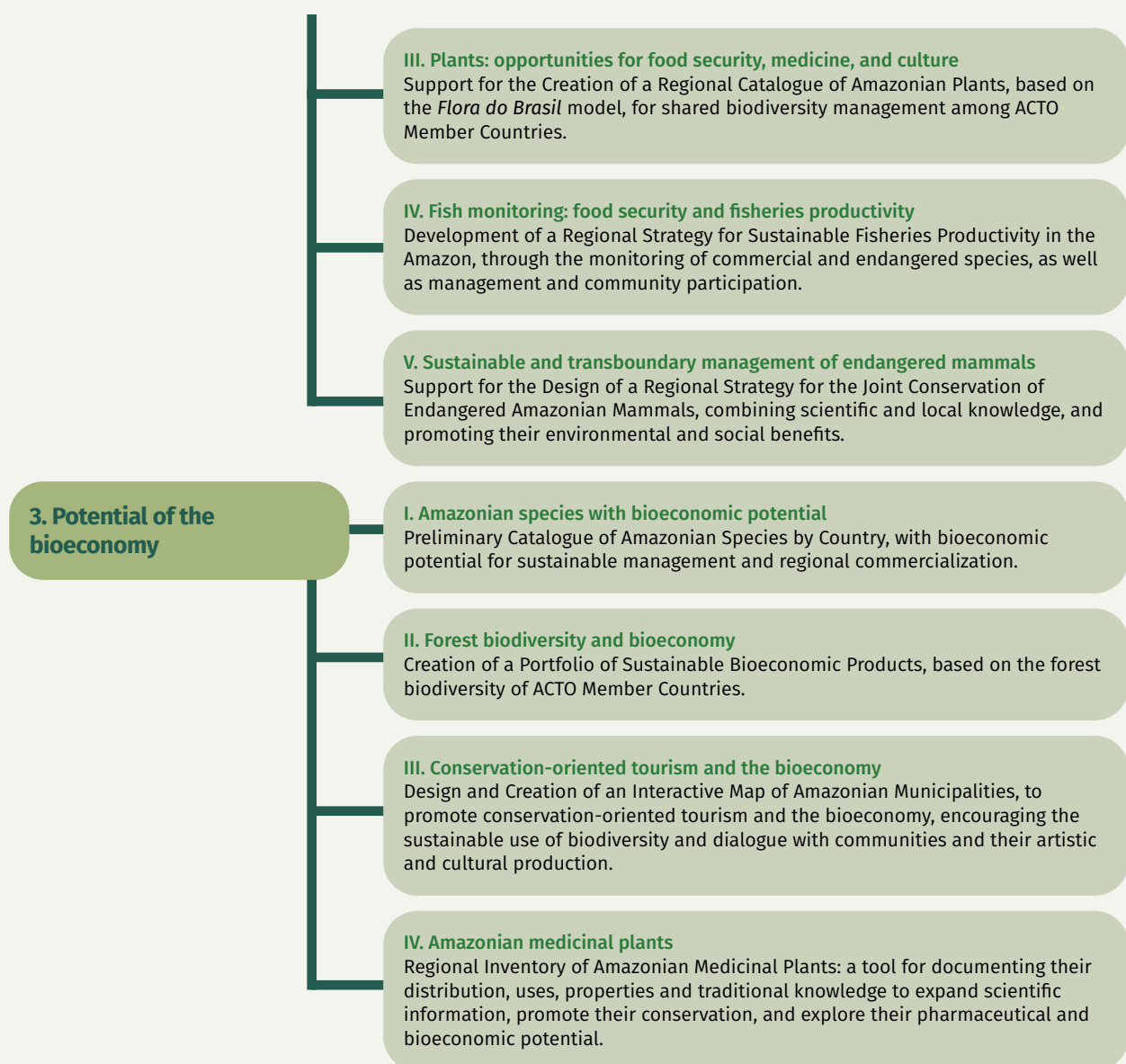
a) Plant–fungus–soil relationship

Support for an Interdisciplinary Collaborative Research by Mycologists, Botanists and Soil Scientists to Analyze one or more Types of Symbiotic Relationships between Plants and Fungi in Amazonian Forests, and the Impact of Deforestation on Fungal Species.

b) Regional inventory of Amazonian fungi

Support for the Creation of a Regional Inventory of Amazonian Fungi, by ecosystem type in the Amazonian countries, with high biotechnological potential for science, pharmacology, bioremediation and industry, contributing to sustainable development and the regional bioeconomy.





Chapter 3. Main drivers of threats, losses, and opportunities in the Amazon



1. Ecosystem conservation and restoration



I. Exotic, introduced, and invasive species in the Amazon

Creation of an Integrated Information System on Exotic and Invasive Species on the Amazon: a tool for ecosystem conservation, accessible through ACTO's Amazon Regional Observatory (ARO).

II. Freshwater ecosystems and Amazon wetlands

Inventory of Amazonian Wetlands: classification systems and management plans to address deforestation at transboundary and regional levels, within the framework of strengthening ACTO's Integrated Water Resources Management (IWRM).
Creation of a Database of Amazonian Wetlands accessible via ACTO's ARO.

III. Biological corridors to conserve biodiversity

Mapping Biological Corridors in the Amazon: Technological innovation, economic incentives, and transboundary cooperation for conservation and sustainable community management. (Phase 1).
Development of the Amazon Biological Corridors Platform of the Amazon Regional Observatory (ARO) of ACTO, to receive, systematize, analyze, and communicate the results obtained from the mapping of biological corridors across the region. (Phase 2).

IV. Terrestrial restoration

Regional Assessment of Priority Areas for the Restoration of Land Deforested by Fires in the Amazon, coordinated through the Amazon Network for Integrated Fire Management (RAMIF-ACTO).

V. Restoration of aquatic habitats

Country-by-Country Mapping of Critical Aquatic Habitats in the Amazon Basin: Transboundary Cooperation for their Restoration.

Chapter 4. Dialogue of knowledge and traditional wisdom associated with biological diversity



1. Recognition and titling of Indigenous territories

Technical and Legal Support for the Titling of Indigenous Lands in the Amazon, in collaboration with COICA, to safeguard communities, knowledge and biodiversity against invasions, land grabbing and illegal activities.

2. Compensation for environmental services

Support for the Design of a Payment for Environmental Services System for the Sustainable Management of Geographically Delimited Amazonian Ecosystems in ACTO Member Countries.

3. Integration of traditional knowledge

Regional Ethnobotanical Study on the Traditional Knowledge of Amazonian Indigenous Peoples, with the participation of COICA, research institutes and universities.

Chapter 5. Nature and Society: Pathways towards sustainable development



1. Sustainable bioeconomy in the Amazon region

Accreditation of ACTO with the Green Climate Fund (GCF) for financing regional sustainable bioeconomic projects on forest restoration and climate change mitigation.
Creation of a Portfolio of Indigenous Bioeconomic Enterprises, to identify and commercially promote activities based on ecosystem services, with the support of Indigenous organizations from Ecuador, Peru, Brazil and Colombia (Ch. 5, p. 95).

2. Conservation through agroforestry with community participation

Creation of a Compendium of Sustainable Agroforestry Best Practices and Community Management for Biodiversity Conservation in Amazonian Municipalities.

3. Towards a forest governance system in the Amazon

Development of a Forest Governance System Based on Sustainable Agroforestry Best Practices and Community-Based Management in Amazonian Municipalities.

Chapter 6: Policies, institutions, and governance in the Amazon



1. Addressing biodiversity loss and its contributions to people through direct drivers

Participatory Assessment for the Identification of Critical Areas in Environmental Governance in Amazonian Municipalities and Evaluation of Local Technological Capacities.
Community-Based Biodiversity Monitoring in Critical Areas of Amazonian Municipalities, in coordination with Research Centers to Advance Biotechnology.

2. Shared management of biodiversity and ecosystem services for strengthening multi-level governance

Support for the Institutional Strengthening of ACTO to Coordinate Regional Transboundary Cooperation in the Governance of Amazonian Biodiversity, taking into account the priorities of each Member Country of the Organization.



Photo: iStock.

Chapter 1. Introduction – Importance of the Amazon

The Rapid Assessment offers recommendations based on scientific and local evidence to support the conservation of the Amazon. Chapter 1 covers the region's biophysical, economic, social and cultural aspects. To identify opportunities for ESG investment and cooperation, two lines of action and corresponding project profiles are highlighted.

Two lines of action: Project profiles to conserve the region

1. Inclusion of traditional knowledge of Indigenous Peoples

Support for the Strengthening ACTO's Amazon Regional Platform for Indigenous Peoples and Climate Change in the Area of Forest Conservation, with the Participation of the Coordinator of Indigenous Organizations of the Amazon Basin (COICA). (Ch.1, p.11). Initiative to be incorporated into ACTO's new Amazon Mechanism for Indigenous Peoples (MAPI) under the Working Group on Knowledge, Languages and Communication.



Photo: 123RF.

Objective: To promote the sustainability of the Platform and the implementation of its guidelines in ACTO Member Countries, as well as the exchange of knowledge, experiences, and best practices of the Amazonian peoples represented by COICA, in the conservation, recovery, and restoration of the Amazon forest and its biodiversity.

Justification: This project strengthens ACTO's regional platform to showcase the ancestral knowledge of the region, which is key to addressing global-impact challenges of the greatest scientific interest.

Implementing agency: ACTO.

2. Enhancing local capacities for sustainable conservation

ACTO Regional Diagnosis: mapping, management and local strengthening for the sustainable conservation of Indigenous Reserves, Protected Areas and other areas at risk in the Amazon (Ch. 1, p. 24). To be incorporated into ACTO's MAPI in the Working Group: Territories and Indigenous Peoples in Voluntary Isolation and Initial Contact (PIACI), Water/Forests/Observatory.

Objective: To identify, map and prioritize Indigenous Reserves, Protected Areas and other areas at risk in ACTO Member Countries, in order to develop sustainable management strategies combining Indigenous traditional knowledge and local community practices with technical and scientific approaches.

Justification: The Amazon faces growing threats such as deforestation, illegal mining and climate change, which endanger the integrity of Indigenous Reserves and Protected Areas that are vital for biodiversity conservation and the cultural heritage of Indigenous Peoples. This initiative connects local knowledge with technical tools and outputs such as maps, risk analyses, management plans, community-based data collection and validation protocols, and training modules, among others.

Implementing agency: ACTO.

Note: These types of projects are of interest to natural capital and climate investment funds, scientific institutions and universities.

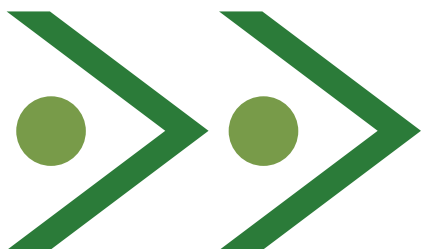


Photo: 123RF.





Photo: iStock.

Chapter 2. The status of biological diversity in the Amazon

Chapter 2 presents a series of relevant analyses on the status, trends, and dynamics of biodiversity. It highlights that investment and resources for research on biome have so far been limited in comparison with the region's immense biodiversity. Moreover, little is known about the ecological interactions among Amazonian species.

The vulnerability of numerous species of microorganisms, fungi, plants and fauna—including fish, reptiles, birds and mammals—faces increasing threats due to habitat destruction and fragmentation

and the illegal wildlife trade, all of which contribute to the loss of ecological stability in a region essential to the planet.

Three lines of action: Project profiles to restore destroyed forests and save threatened organisms

1. Management of degraded and destroyed ecosystem restoration

Support for the Identification and Restoration of Degraded Ecosystems in the Amazon through Technical Training for ACTO Member Countries, drawing on the Expertise of Brazil's Amazon Restoration Alliance (ARA) (Ch. 2, pp. 88 and 89).



Objective: To promote knowledge transfer and the development of technical capacities for identifying and restoring degraded areas, harmonizing restoration strategies at the regional level.

Justification: ARA is a multi-institutional and multi-sectoral initiative established in 2017 to promote, qualify and scale up forest restoration in the Brazilian Amazon.

It works across several fronts to restore ecosystems, protect biodiversity and promote sustainable development and the bioeconomy. It represents a model that could be extended to other ACTO Member Countries (Ch. 2, p. 89). These actions should be considered within the framework of the productive systems that underpin the Bioeconomy.

Implementing agency: ACTO.

2. Conservation of species

I. Research into microorganisms

Creation of a Network of Specialists for Research on **Amazonian Bacteria**, their Ecosystem Functions and Possible Applications in Biotechnology.



Objective: To create a network of specialists —with microbiologists, microbial taxonomists, microbial ecologists, biotechnologists, geneticists, and biochemists from Amazonian research centers and international laboratories, among others— to design a key roadmap spanning taxonomic classification, ecosystem functions, and biotechnological applications of these species.

Justification: The Rapid Assessment presents a brief classification: a) bacteria inhabiting the leaves of Amazonian trees; b) airborne bacteria; and c) bacteria in Amazonian populations. The main challenge is to understand the microbial biodiversity of the Amazon in order to conserve it, given its potential to transform biotechnology and medicine (Ch. 2, pp. 32 and 33).

Implementing agency: ACTO.

II. Conservation of fungi in Amazon ecosystems

a) Plant-fungus-soil relationship

Support for an Interdisciplinary Collaborative Research by Mycologists, Botanists and Soil Scientists to Analyze one or more Types of Symbiotic Relationships between Plants and Fungi in Amazonian Forests, and the Impact of Deforestation on Fungal Species.

Objective: To carry out a comprehensive analysis of the characterization and distribution of fungi and plants involved in symbiotic relationships, studying soil structure in identified ecosystems where these interactions occur, in order to understand the underground ecological processes among species in the Amazon and the impact of deforestation.

Justification: To generate knowledge of high scientific value. According to the Rapid Assessment, less than 1% of Amazonian fungi are currently known. It is necessary to comprehensively analyze data on plant and fungal communities—whether mycorrhizal, endomycorrhizal, ectomycorrhizal or lichenized—in specific Amazonian soils alongside environmental data. This is crucial given that deforestation and climate change affect these species and the stability of Amazonian soils (Ch. 2, p. 40).

Implementing agency: ACTO.

b) Regional inventory of Amazonian fungi

Support for the Creation of a Regional Inventory of Amazonian Fungi, by ecosystem type in ACTO Member Countries, with high biotechnological potential for science, pharmacology, bioremediation, and industry, contributing to sustainable development and the regional bioeconomy (Ch. 2, p. 42).

Objective: To develop an initial inventory of Amazonian fungi and their ecosystems as a collaborative effort among Amazonian countries to identify species with high biotechnological potential.

Justification: The lack of information is so significant that 50% of the species have been classified as Data Deficient (DD), five species are listed as *Near Threatened*, four as *Vulnerable*, and one as *Critically Endangered*, according to global assessments and the criteria of the International Union for Conservation of



Photo: 123RF.

Nature (IUCN). It is therefore essential to generate knowledge on fungal populations to include them in conservation strategies and to highlight their contribution to the region's sustainable development (Ch. 2, p. 42).

Implementing agency: ACTO.

III. Plants: opportunities for food security, medicine, and culture

Support for the Creation of a Regional Catalogue of Amazonian Plants, based on the *Flora do Brasil* model, to enable shared biodiversity management among ACTO Member Countries (Ch. 2, p. 46).



Photo: 123RF.

Objective: To develop a regional catalogue of Amazonian plants through the transfer of knowledge from the *Flora do Brasil* model for biodiversity conservation.

Justification: The Amazon forest covers nearly 6 million km². It hosts more than 10,071 tree species. Less than 1% of the total forest area has been surveyed. The total number of plant species remains unknown. It ranges from 7,000 to 15,000. Endemic plant populations in Amazonian countries are highly sensitive to deforestation and climate change. It is estimated that more than half of the species described in the Amazon may be threatened with extinction by mid-century. (Ch. 2, pp. 45 and 46).

Implementing agency: ACTO.

IV. Fish monitoring: food security and fisheries productivity

Development of a Regional Strategy for Sustainable Fisheries Productivity in the Amazon, through the monitoring of commercial and endangered species, management and community participation (Ch. 2, pp. 58–60).



Photo: 123RF.

Objective: To establish a regional strategy for sustainable fisheries productivity in the Amazon, enabling ACTO Member Countries to share research capacities on fisheries and overfishing, monitoring and sustainable management, and to incorporate local experiences to benefit communities.

Justification: Despite the importance of fishing as a source of food and livelihood for riverside communities in the Amazon, information on fisheries productivity in the different countries is still very limited. In the Brazilian Amazon alone, fishing generates around 168,000 jobs (Ch. 2, p. 60).

Implementing agency: ACTO.

V. Sustainable and transboundary management of endangered mammals

Support for the Design of a Regional Strategy for the Joint Conservation of Endangered Amazonian Mammals, combining scientific and local knowledge and promoting their environmental and social benefits.

Objective: To develop a joint regional strategy for collaborative conservation of endemic and threatened Amazonian mammals, addressing local and regional



threats and promoting solutions with the participation of scientists and communities.

Justification: Each country has studies on the status of mammalian biodiversity. The Amazon hosts a rich variety of mammal species, distributed across its diverse ecosystems. Common threats —such as deforestation and loss of habitat connectivity— require coordinated action. This initiative can unite two or more nations that share unique species with overlapping ecosystem dependencies, thereby facilitating transboundary biodiversity management (Ch. 2, pp. 72 and 73).

Implementing agency: ACTO.

3. Potential of the bioeconomy

I. Amazonian species with bioeconomic potential

Preliminary Catalogue of Amazonian Species by Country, with bioeconomic potential for sustainable and commercial management at the regional level.

Objective: To develop a preliminary catalogue of Amazonian species found in the municipalities of each country that show bioeconomic potential for sustainable and commercial management in the region.

Justification: This catalogue aligns with the bioeconomy through bioproducts and bioprocesses, circularity, and the sustainable use of waste and biodiversity. Rapid Assessment identifies the following species and their potential applications in biotechnology and industry:

Microorganisms: **i) Fungi** for pigment production: *Aspergillus calidoustus*, *Penicillium citrinum*, *Penicillium purpurogenum*, and *Penicillium sclerotiorum*. (Ch. 2, p.97). **ii) Bacteria.** Fermentation for alcohol production: *Lactobacillus* genus and the yeast *Issatchenkia orientalis* (Ch. 2, p.97).

Plants: **i) Cassava** (*Manihot esculenta*): **Industrial fermentation:** Alcohol production from starch fermentation (Ch. 2, p. 97) **Food security:** Staple of Indigenous and local cuisine (Ch. 2, p. 98). **Animal feed:** Production of balanced animal feed. **Biopackaging:** Biodegradable packaging. **Cosmetics:** Raw material for the cosmetics industry. (Ch. 2, p. 99). **ii) Rosewood** (*Aniba rosaeodora*): Aromatic species used for essential oil extraction in the perfume and cosmetics industries. **iii) Clove cinnamon** (*Dicypellium caryophyllatum*): Aromatic plant for culinary and cosmetic use. (Ch. 2, p. 46).



Edible Amazonian fungi beneficial to health: *Auricularia*, *Lentinus*, *Pleurotus*, and *Oudemansiella* (Ch. 2, p. 34).

Macrofauna: Arrau turtle (*Podocnemis expansa*) beneficial to health: Its fat is rich in omega-3, -6, and -9 fatty acids. For pharmacological applications (Ch. 2, p. 97).

Implementing agency: ACTO.

II. Forest biodiversity and bioeconomy

Creation of a Portfolio of Sustainable Bioeconomic Products, based on the forest biodiversity of ACTO Member Countries (Ch. 1, p. 29).

Objective: To design and develop a portfolio that promotes bioeconomic products based on the forest biodiversity of each ACTO Member Countries, highlighting their strategic value for conservation and sustainable development.

Justification: The Amazon hosts unique forest biodiversity with proven potential to drive the bioeconomy. An economic tool such as the portfolio is needed to promote these products and position the region as a leader in sustainable bioeconomy and

conservation. This involves integrating a productive system and value-chain perspective, including cost structures and margins. Moreover, the portfolio can help reduce pressure on certain high-value, high-demand species —often exploited unsustainably— by diversifying the range of forest-based bioeconomic products, generating new economic alternatives that distribute demand and promote the sustainable use of biodiversity.

The Portfolio will include a section on **Fruits and Agroforestry Systems (FAS)**. Among these are Amazonian fruits such as Brazil nut (*Bertholletia excelsa*), patawa (*Oenocarpus bataua*), cocoa (*Theobroma cacao*), cupuaçu (*Theobroma grandiflorum*), and achachairú (*Garcinia humilis*), already recognised for their commercial value and contribution to sustainable development in the region (Ch. 2, p. 100). It will also include açai (*Euterpe precatoria*) valued for its use in juices and restorative products (Ch. 2, p. 155), as an example of how forest resources can be diversified to serve local, regional, and international markets. These products not only highlight the economic value of forest biodiversity but also show that FAS have high potential for climate change mitigation (Ch. 2, p. 101).

Implementing agency: ACTO.

III. Conservation-oriented tourism and the bioeconomy

Design and Creation of an Interactive Map of Amazonian Municipalities, to promote conservation -oriented tourism and the bioeconomy, encouraging the sustainable use of biodiversity, dialogue with communities and the appreciation of their artistic and cultural production.

Objective: To design and develop an interactive map that identifies and promotes Amazonian municipalities with potential for conservation tourism and bioeconomy initiatives, integrating the sustainable use of





biodiversity, dialogue with local communities, and the economic valuation of their artistic and cultural production.

Justification: The bioeconomy also encompasses the economic valuation of cultural diversity and its outputs, conservation tourism, and the promotion of local ways of life (Ch. 2, p. 18). In the Brazilian Amazon, there are 336 protected areas distributed across 338 municipalities. These areas generate benefits such as the promotion of sustainable tourism. Moreover, the Central Amazon Biosphere Reserve (RBAC, acronym in Portuguese), which spans 31 municipalities in two states, also fosters community-based ecotourism. Ecosystems that maintain self-regulating balance and stability contribute to human well-being, including through tourism and recreation (Ch. 2, pp. 80, 83, and 87).

Implementing agency: ACTO.

IV. Amazonian medicinal plants

Regional Inventory of Amazonian Medicinal Plants: a tool for documenting their distribution, uses, properties, and traditional knowledge to expand scientific information, promote their conservation, and explore their pharmaceutical and bioeconomic potential.

Objective: To develop a regional inventory of Amazonian medicinal plants, based on studies conducted on different medicinal species across the Amazonian countries, integrating information on their distribution, uses, therapeutic properties, and bioeconomic potential, while promoting conservation, cultural appreciation, and scientific and pharmaceutical research.

Justification: The Amazonian countries host around 79,600 native species of vascular plants, of which at least 15,200 are tree species, hundreds with medicinal uses. In the Bolivian Amazon, between 2020 and 2021, 22 native medicinal plants and 24 non-native regional plants were used during the COVID-19 pandemic (Ch. 2, p. 103). In the Peruvian rainforest, the Union of Asháninka and Yanesha Nationalities (UNAY, acronym in Spanish) and other communities are working to recover traditional knowledge of medicinal plants and to establish community gardens for their cultivation in various areas of Peru.

Implementing agency: ACTO.





Chapter 3. Main drivers of threats, losses, and opportunities in the Amazon

Chapter 3 identifies the main drivers of the threats affecting the Amazon, such as deforestation, agricultural expansion and climate change, among others. It also examines the current losses and transformations of nature in the region.

By 2050, in just 25 years, it is estimated that up to 40% of the Amazon rainforest could be lost.

One line of action: Project profiles for urgent action in Amazonian ecosystems

1. Conservation and restoration of ecosystems

I. Exotic, introduced, and invasive species in the Amazon

Creation of an Integrated Information System on Exotic and Invasive Species in the Amazon: a tool for ecosystem conservation, accessible through the ACTO Amazon Regional Observatory (ARO).

Objective: To strengthen environmental monitoring in the Amazon Basin/Region through the creation of an Integrated Information System on exotic and invasive species, hosted by the ACTO ARO, to assess their

Photo: 123RF.



distribution and impacts and to design control and eradication strategies.

Justification: Invasive alien species (IAS) are among the leading causes of native species extinction and population decline worldwide, and the second main cause of species extinction after habitat loss. They introduce parasites and pathogens that can affect human and animal health and cause environmental and economic damage in areas where they become established, according to the Global Invasive Species Database (GISD, 2022) (Ch. 3, p. 77).

The list of identified species remains limited. For plants, 250 are registered for the Colombian Amazon and 13 for the Brazilian Amazon. For fish: 41 introduced species have been recorded across the macro-basin. Most of these fish have been introduced in Colombia, Brazil, and Bolivia. There are also two frog and six lizard records with high invasive potential. IAS may expand their range due to high deforestation rates and subsequent global warming. Brazil is the only country in the region that has assessed the economic costs of biological invasions (Ch. 3, p. 79).

Implementing agency: ACTO.

II. Freshwater ecosystems and Amazon wetlands: climate regulators

Inventory of Amazonian Wetlands: classification systems and management plans to address deforestation at transboundary and regional levels, within the framework of strengthening Integrated Water Resources Management (IWRM) of ACTO.

Objective: To create an inventory of wetlands, including a classification system and management plans, to provide instruments to address transboundary deforestation in the Amazon, as proposed by ACTO in the Strategic Action Program (2018, p. 113).

Justification: ACTO Member Countries, except Guyana, are Parties to the Ramsar Convention on Wetlands of International Importance. Together, they have a total of 86 Ramsar sites, although not all are located in the Amazon.

The total wetland area in the region may reach up to 800,000 km² —around 14% of the basin— **making it one**



Photo: 123RF.

of the largest and most diverse wetland systems in the world (Ch. 3, p. 123), home to high biodiversity. Similar initiatives would help create interoperability dynamics, starting with a shared definition among Member Countries of wetlands and other agreements on key variables.

Around 60% of the rural population lives in várzea or floodplain areas, and all major cities are within or adjacent to flooded environments. Wetlands are vital for timber, fisheries, livestock, fruit and vegetable production. They also provide key benefits such as nutrient retention for soil formation, erosion control, and carbon sequestration (Ch. 3. p. 123)

However, misuse of these areas is leading to degradation and loss of ecosystems. ACTO included the conservation and sustainable use of water resources in the headwaters and lower parts of the Amazon Basin, with emphasis on high Andean wetlands, in its Strategic Action Program (2018).

This preliminary project profile provides a sociopolitical pathway to strengthen ACTO's ongoing strategic proposal —the development of a **Monitoring Program for Andean-Amazonian Aquatic Ecosystems and Wetlands**— to generate scientific information on highland basins, *páramos*, and wetlands. **This Program is the core initiative that offers a unique opportunity for investors and cooperating agencies** to support high-impact ecological actions grounded in science and shared regional governance.

Implementing agency: ACTO.

Creation of a Database of Amazonian Wetlands accessible via ACTO's ARO.

Objective: To use the initial wetland inventory and its tools to create a digital system accessible to local communities, scientists, authorities, civil society, and other stakeholders.

Justification: A database of Amazonian wetlands will make it possible to integrate geographic data and management plans, enable regular updates by scientists and communities, and could become a powerful consultation tool by country, wetland type, and threat level, including links with other global wetland platforms.

Implementing agency: ACTO.

III. Biological corridors to conserve biodiversity

Mapping Biological Corridors in the Amazon: Technological innovation, economic incentives and transboundary cooperation for conservation and sustainable community management.

Objective: To identify and map strategic biological corridors in the Amazon to ensure ecosystem connectivity, enable species mobility, and maintain essential ecosystem services, with economic incentives for the work of local communities.

Justification: Biological corridors are designated geographic areas and conservation strategies that ensure connectivity between landscapes, ecosystems and habitats —natural or modified— maintaining biodiversity and evolutionary processes (Ch. 3, p. 130). Chapter 3 presents an example on the Peru–Brazil border. It is necessary to identify additional existing and potential corridors with high ecological value in critical sites, using technological tools and community participation. This is a key process for forest restoration, sustainable development and climate change adaptation in the Amazon.

Implementing agency: ACTO.



Photo: 123RF.

Development of the Amazon Biological Corridors Platform of the Amazon Regional Observatory (ARO) of ACTO, to receive, systematize, analyze, and communicate the results obtained from the mapping of biological corridors across the region.

Objective: To design and implement an interactive database containing information from the mapping of Amazonian biological corridors, integrating training modules for community data recording and the sharing of traditional knowledge on the management of these biological areas.

Justification: To build on ARO's capacity to integrate data from scientific and technical teams working in biological corridors with the records generated by communities. The ARO serves as a key space for decision-makers and for the exchange of scientific and technological information.

Implementing agency: ACTO.

IV. Terrestrial restoration

Regional Assessment of Priority Areas for the Restoration of Lands Deforested by Fires in the Amazon, coordinated through the Amazon Network for Integrated Fire Management (RAMIF-ACTO).

Objective: To prepare a **regional technical assessment** to identify, classify and prioritize areas deforested by fire that require ecological restoration in the Amazon, integrating geospatial analysis, participatory monitoring, and scientific and local knowledge through **RAMIF-ACTO**, using proven methodologies from **Brazil's Degraded Areas Recovery Project (PRAD, acronym in Portuguese)**.

Justification: Restoring fire-damaged lands is a strategic priority for ACTO because it: (i) restores critical Amazonian landscape functions (carbon capture, biological corridor connectivity, and ecosystem services); (ii) strengthens transboundary restoration in



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Peru, Colombia, Brazil, and Bolivia; and (iii) generates socio-economic benefits by promoting agroforestry, creating local jobs and building community resilience to climate change and wildfires (Ch. 3, p. 140).

Implementing agency: ACTO.

V. Restoration of aquatic habitats that fragment rivers and disrupt connectivity

Country-by-Country Mapping of Critical Aquatic Habitats in the Amazon Basin: Transboundary Cooperation for their Restoration.

Objective: To identify, categorize and prioritize critical aquatic habitats —rivers, lakes, wetlands, and mangroves, etc.— for restoration, essential to the Amazon Basin, through transboundary cooperation and the exchange of knowledge on issues such as pollution and fishery restoration, among others. Related initiatives on degraded areas should also be added.

Justification: Amazonian aquatic ecosystems are fundamental for maintaining biodiversity, regulating hydrological cycles at regional and global levels, and providing drinking water, among other services. The Amazon Basin includes around 1,000 tributary rivers of the Amazon River, which defines the basin covering 6,118,000 km². In addition, it hosts more than 2,700 species of fish.

Implementing agency: ACTO.



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Chapter 4. Dialogue of knowledge and traditional wisdom associated with biological diversity

Chapter 4 of the Rapid Assessment focuses on the dialogue of knowledge and Indigenous wisdom that have enabled the conservation of biological diversity. Among its main findings, it highlights the importance of harmonizing these traditional systems of knowledge with science and with legal frameworks related to the intellectual property of Indigenous Peoples, among others.

Three lines of action for Indigenous Peoples in Amazonian municipalities: Collaborative project profiles

1. Recognition and titling of Indigenous territories

Technical and Legal Support for the Titling of Indigenous Lands in the Amazon, in collaboration with COICA, to safeguard communities, knowledge, and biodiversity against invasions, land grabbing, and illegal activities (Ch. 4, pp. 67 and 71). To be incorporated into ACTO's MAPI, in the Table Territories and PIACI, Public security and illicit activities.



Countries, such as the ILO Convention Nº 169 on Indigenous and Tribal Peoples (1989) and the United Nations Declaration on the Rights of Indigenous Peoples (2007). The right to territory constitutes the epicenter of the rest of Indigenous rights because it provides the conditions for their productive, social, and cultural development. Suggested technical steps: disaggregate by country (different legal frameworks), define a technical/legal pathway, and ensure community engagement (Indigenous participation, testimonies, and records).

Implementing agency: ACTO.

2. Compensation for environmental services

Objective: To guarantee and make effective the land ownership rights of Indigenous communities entitled to them, protecting their integrity, knowledge, and sustainable management of ecosystems and biodiversity against the ongoing threats they face in their territories.

Justification: A broad regulatory framework promotes the sustainable management of biodiversity and the territorial rights of Indigenous Peoples in ACTO Member

Support for the Design of a Payment for Environmental Services System for the Sustainable Management of Geographically Delimited Amazonian Ecosystems in ACTO Member Countries. This project profile is directly aligned with **Pillar 2 of ACTO's Sustainable Economies Strategy**.



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Objective: To design a payment for environmental services (PES) system that promotes the sustainable management of geographically delimited ecosystems in the region, ensuring biodiversity conservation, the provision of key ecosystem services, and the economic recognition of the role played by Indigenous and local communities as guardians of ecosystems and territories.

Justification: Amazonian ecosystems are crucial for water provision and biodiversity conservation, among other functions. Their degradation and loss impact local communities and the global environmental balance. Indigenous and local communities are traditional stewards of these ecosystems, applying highly effective and low-cost sustainable practices (Ch. 4, p. 18). A PES scheme provides economic and technical incentives for communities to maintain or enhance sustainable practices, ensuring long-term ecosystem protection. It also facilitates partnerships between governments, investors, international donors and local communities.

Implementing agency: ACTO.

3. Integration of traditional knowledge

Regional Ethnobotanical Study on the Traditional Knowledge of Amazonian Indigenous Peoples, with the participation of COICA, Amazonian research institutes, and universities (Ch. 4, p. 42). To be incorporated into ACTO's MAPI under the Tables of Knowledge and Languages, and of Food Systems and Traditional Health.

Objective: To document and analyze the traditional botanical knowledge of Amazonian Indigenous Peoples, identified by country, through an interdisciplinary approach integrating local and scientific knowledge, with the support of COICA and its national organizations, to promote the conservation of plants and biodiversity.



Justification: Progress in ethnobotanical and ethnomedical research has led, in some countries, to important legal steps promoting the protection of traditional medical knowledge and the development of herbal-based medicinal products (Ch. 4, p. 41).

Implementing agency: ACTO.





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Chapter 5. Nature and Society: Pathways towards sustainable development

Chapter 5 highlights that, in contrast with extractives visions and practices of natural resource use, new approaches are emerging in the relationship between society and nature —such as the concept of *Buen Vivir* ('Good Living') and the multidisciplinary approach of the sustainable bioeconomy— aimed at preserving the natural environment and quality of life.

Buen Vivir proposes other forms of relationship between nature and human society. It understands humanity as a part of the greater 'whole' we call Nature.

Meanwhile, the bioeconomy represents an effort to use science and technology to make more efficient and sustainable use of biological resources and principles, integrating them into markets to generate economic returns and development for diverse populations (Ch. 6, p. 93).

Chapter 5 of the Rapid Assessment also presents 42 pathways for transition towards sustainable development (Ch. 5, pp. 110–115).

Three lines of action: Project profiles on technological innovation for equitable and sustainable development

1. Bioeconomy in the Amazon region

Accreditation of ACTO with the Green Climate Fund (GCF) for financing sustainable regional bioeconomic projects on forest restoration and climate change mitigation.

Objective: To obtain ACTO accreditation with the Green Climate Fund (GCF) to facilitate direct financing of regional bioeconomy projects focused on forest restoration and climate change mitigation in Amazonian municipalities.

Justification: ACTO Member Countries are implementing strategies to promote the bioeconomy, using science and technology to harness ecosystems and biological principles sustainably in the marketplace, generating economic returns and development for diverse local populations (Ch. 5, p. 94).

Implementing agency: ACTO.

Creation of a Portfolio of Indigenous Bioeconomic Enterprises, to identify and commercially promote activities based on ecosystem services, with the support of Indigenous organizations from Ecuador, Peru, Brazil and Colombia (Ch. 5, p. 95).

Objective: To promote the diversity and scope of existing Indigenous bioeconomic enterprises through the creation of a strategic portfolio that showcases ecosystem service-based activities, strengthening regional cooperation and support from Indigenous organizations in Ecuador, Peru, Brazil, and Colombia.



Photo: 123RF.

Justification: These Indigenous enterprises need to be identified. They are already active in Ecuador, Peru, Brazil, and Colombia. They include activities related to nature tourism, handicraft sales, and the transformation of raw materials such as chonta, guayusa, cassava, and others into processed products like flour, energy drinks, and similar goods, incorporating cultural elements and driving innovation to enhance market competitiveness. They also contribute to conservation and to reducing carbon emissions from forest loss (Ch. 5, p. 95).

Implementing agency: ACTO.

2. Conservation through agroforestry with community participation

Creation of a Compendium of Sustainable Agroforestry Best Practices and Community Management for Biodiversity Conservation in Amazonian Municipalities.

Objective: To identify and document sustainable agroforestry best practices, with the participation and knowledge of local communities for biodiversity conservation in municipalities of Amazonian countries.



Justificación: Collecting information on sustainable agroforestry best practices will help integrate local knowledge, lessons learned, and replicable experiences in the Amazon. It will also help identify key local actors. This approach links agroforestry with biodiversity conservation and the community-based knowledge that technical and scientific teams require.

Implementing agency: ACTO.

3. Towards a forest governance system in the Amazon

Development of a Forest Governance System Based on Sustainable Agroforestry Best Practices and Community-Based Management in Amazonian Municipalities.

Objective: To design a forest governance model incorporating principles of sustainability, equity and multisectoral collaboration, based on documented agroforestry best practices in the region, to be piloted in one or more municipalities.

Justification: Developing a forest governance system based on collaboration among civil society, the State, and market actors will enable multisectoral participation and the creation of tools for integrated forest management. The community management experience in the Tapajós National Forest serves as a successful reference model (Ch. 5, p. 18).

Implementing agency: ACTO.





Chapter 6. Policies, institutions, and governance in the Amazon

Chapter 6, *'Policies, institutions, and governance across scales and sectors,'* explains how policies, planning instruments and transboundary cooperation agreements among countries have influenced people's relationship with nature in the Amazon.

The Amazon Basin/Region faces a high risk of biodiversity loss and the decline of its contributions to people due to various direct drivers. Mechanisms are needed to ensure compliance with the policy

frameworks of the Amazonian countries under a shared vision of the Amazon, aligned with the productive sectors to promote the bioeconomy.

Two key lines of action for biodiversity conservation: Project profiles in governance and social participation

1. Addressing biodiversity loss and its contributions to people through direct drivers

Participatory Assessment for the Identification of Critical Areas in Environmental Governance in Amazonian Municipalities and Evaluation of Local Technological Capacities.

Objective: To identify critical areas in biodiversity and environmental governance through a participatory



process involving communities, local authorities and research centers, assessing technological capacities and mapping key actors to strengthen coordination between institutions and communities.

Justification: The exercise of biodiversity co-management requires political will, regional and international support, a horizontal dialogue with communities, and financial effort to implement agreements that guarantee the conservation of biodiversity and ecosystems. It is essential to connect knowledge producers with societal decision-makers so that technical and academic work translates into better public policies. This must take into account transboundary issues (Ch. 6, pp. 98 and 99).

Implementing agency: ACTO.

Community-Based Biodiversity Monitoring in Critical Areas of Amazonian Municipalities, in coordination with Research Centers, to Advance Biotechnology.

Objective: To strengthen local community capacities in the use of advanced technologies —such as drones, acoustic sensors, and mobile applications— for the collection, analysis, and management of biodiversity data, integrating traditional knowledge and establishing an early-warning system to support conservation decision-making.

Justification: The Amazon contains the highest concentration of biodiversity on Earth, home to more than 10% of the world's species described. Understanding what shapes this biodiversity will require a major interdisciplinary effort, starting with

paleontological interpretation, field studies, laboratory experiments, genomic comparisons, and robust statistical analysis. Amazonian biodiversity is the outcome of a long and dynamic history of environmental change and biological interactions spanning millions of years (Ch. 6, p. 22).

From a technical and scientific perspective, Amazon has resources for the development of biotechnology and genetic engineering, among others. Historically, Amazonian biodiversity has been widely used in agriculture and human health. More than 40% of all available medicines—and 70% of antibiotics and anticancer drugs—originate from biodiversity. Likewise, over 77,000 plants are currently used as sources of medicines for humankind, providing new antithrombotic, antimicrobial and antiviral compounds (Ch. 6, p. 25).

This underscores how investment and economic development depend on biodiversity and ecosystem services, requiring an approach rooted in environmental governance and sustainability.

Implementing agency: ACTO.

2. Shared management of biodiversity and ecosystem services for strengthening multi-level governance

Support for the Institutional Strengthening of ACTO to Coordinate Regional and Transboundary Cooperation in the Governance of Amazonian Biodiversity, taking into account the priorities of each Member Country of the Organization (Ch. 6, p. 15).

Objective: To reinforce ACTO's capacity to align Member Countries' transboundary actions in the multilevel governance of Amazonian biodiversity and ecosystems.

Justification: A specific regional coordination mechanism—based on the Amazon Cooperation Treaty—is needed to



address biodiversity risks and harmonize national interests, particularly in priority ecosystems most exposed to threats.

Implementing agency: ACTO.

Final note: Each project profile is expected to be implemented over a period of **12 to 24 months**, depending on its technical complexity, the required transboundary coordination, and financial agreements between the parties.





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Explore here the fragile, astonishing, and delicate Amazon

Explore the Rapid Assessment of Biological Diversity and Ecosystem Services of the Amazon Basin/ Region, composed of the Summary for Decision Makers and the following six chapters:

1. Introduction and Context.
2. Status, Trends, and Dynamics of Biological Diversity in the Amazon and Nature's Contribution to People.
3. Drivers of Threats, Losses, Opportunities, and Transformation of Nature.
4. Knowledge Dialogue and Traditional Knowledge Associated with Biological Diversity.
5. Interactions Between Nature and Society in the Present and Future: Paths to Sustainable Development and Good Living.
6. Policies, Institutions, and Governance at Different Scales and Sectors.

Find the Summaries for Decision Makers. They are available in Spanish, English, and Portuguese. Discover this biological and cultural treasure at <https://otca.info>



**Joining OTCA will allow you to be part of the sustainable future
of the Amazon and the world**



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The time has come to invest and cooperate with the Amazon

The Amazon is nearing the critical threshold of 20% deforestation, beyond which it could become irrecoverable. Acting now can prevent irreversible damage to the global climate and biodiversity. **ACTO**, the official cooperation mechanism of the eight Amazonian countries, guarantees coordinated governance across the entire region. Here you will find **30 project profiles to invest and cooperate**: unique and fast-growing sustainable bioeconomy opportunities with measurable impacts on CO₂ reduction, species conservation, and sustainable income generation for Indigenous, rural, and local communities in the Amazon's 2,130 municipalities.

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