

DAAD

UnderPlaNet: Unlocking the Potential of
Underutilized Plants in Amazonian Agroecosystems

Ikiam
Universidad Regional Amazónica

"Underutilized plants, agroforestry systems and the necessary Bioeconomy in the Ecuadorian Amazon"

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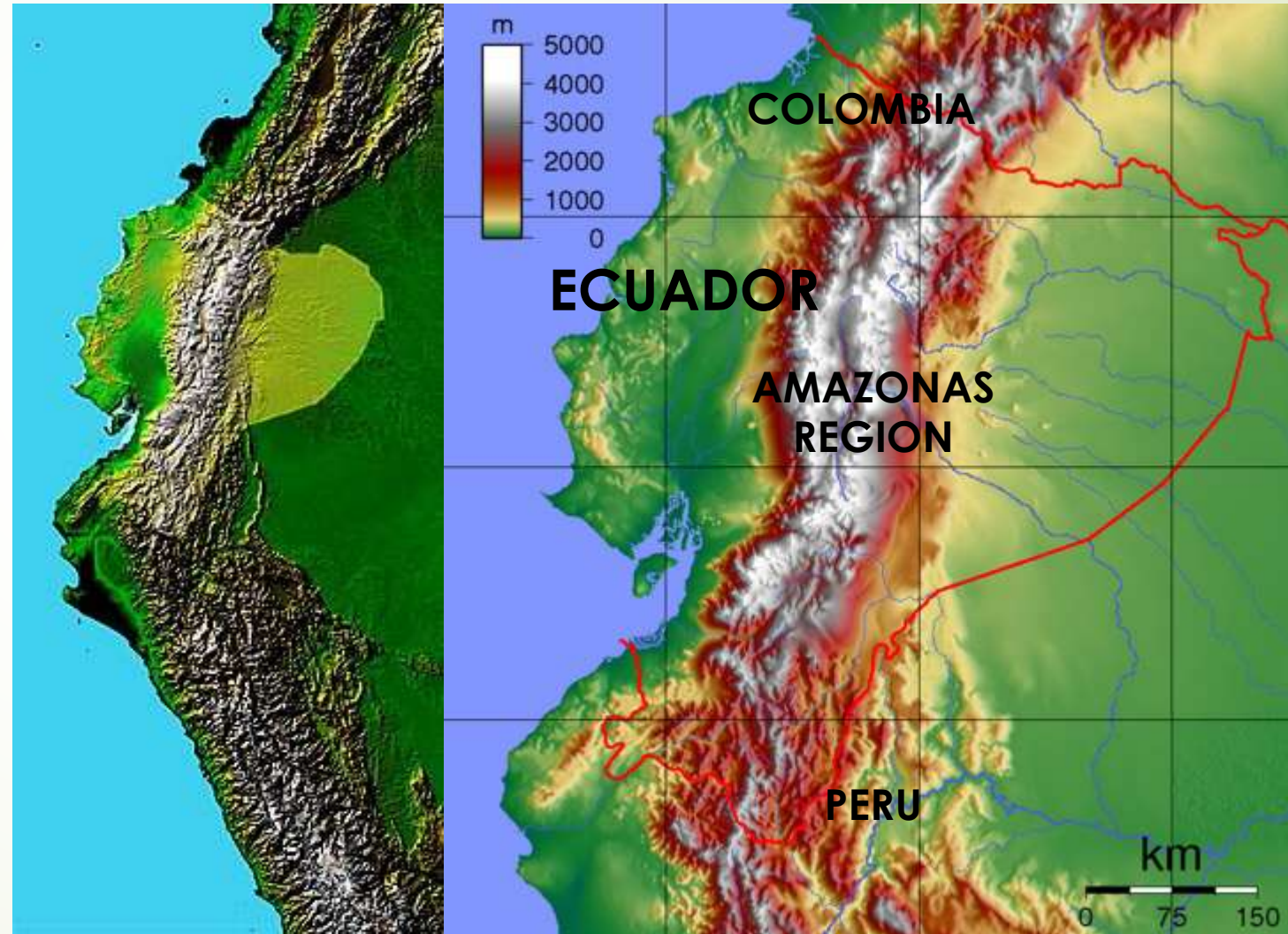
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The Ecuadorian Amazon: A Unique Andean-Amazonian Biocomplex

The Ecuadorian Amazon represents a remarkable confluence of geographical and biological forces, creating a biocomplex of unparalleled diversity.

This region's uniqueness stems from the interplay between the Andean mountains and the Amazon basin, resulting in a mosaic of ecosystems that harbor an extraordinary array of plant and animal species.



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1. CLIMATE

The region experiences a humid tropical climate, influenced by Andean altitude gradients, creating microclimates that support diverse flora.

2. TERRITORY

Spanning from high-altitude páramos to lowland rainforests, the territory encompasses varied landscapes shaped by glaciations, volcanic activity and alluvial processes along the Neogene and the Quaternary.



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3. SOCIETY AND CULTURES

Home to indigenous communities with rich traditional knowledge, and coastal and mountains immigration, the area faces challenges in balancing conservation with development.



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4. OPPORTUNITIES

The unique biodiversity presents opportunities for the development of a sustainable bioeconomy, including natural products, derived goods and eco-tourism.

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LÍNEA DE PRODUCTOS AMAZONICAS

PROPUESTA DE MARKETING MIX: PRODUCTO PATAS MUYO

Línea de productos



Semaforización



Etiqueta		
Información Nutricional		
Tamaño de la porción: 100 g		
Porciones por envase: 1		
Cantidad por porción		
Energía (Calorías)	741 kJ (177 Kcal)	
% Valor Diario*		
Grasa Total	9 g	13 %
Grasa Saturada	4 g	20 %
Colesterol	0 g	0 %
Carbohidratos Totales	5 g	1 %
Proteína	7 g	18 %
Calcio	19 mg	2 %
Hierro	2 mg	14 %
*Los porcentajes de valores diarios (VD) están basados en una dieta de 2000 Calorías (8360 kJ). Sus valores diarios pueden ser mayores o menores dependiendo de sus necesidades calóricas.		

Descripción

- Producto local de la chakras.
- Snack salado y de chocolate al 50%.
- Tamaño familiar de 100 gramos.
- El empaque de papel reciclado.
- Certificaciones y normas sanitarias.



Underutilized Biodiversity - Agrobiodiversity: Endangered Cornerstones of Amazonian Ecosystems

THE ANCESTRAL AGROECOLOGICAL PRODUCTION SYSTEM (AMAZONIAN CHAKRA) HAS BEEN INCLUDED BY FAO AS A PATRIMONIAL SYSTEM "SIPAM".



IT IS AN INTERGENERATIONAL SCHOOL AND GENETIC RESERVE OF AGRODIVERSITY, AND IT IS THE PILLAR OF THE CULTURAL FRONT THAT PROTECTS THE TERRITORY.

BUT IN THE LAST CENTURY, THE CHAKRA *HAS LOST MORE THAN 100 USEFUL SPECIES*, WHICH HAVE BECOME VERY DIFFICULT TO FIND.

Underutilized Biodiversity - Agrobiodiversity: Endangered Cornerstones of Amazonian Ecosystems



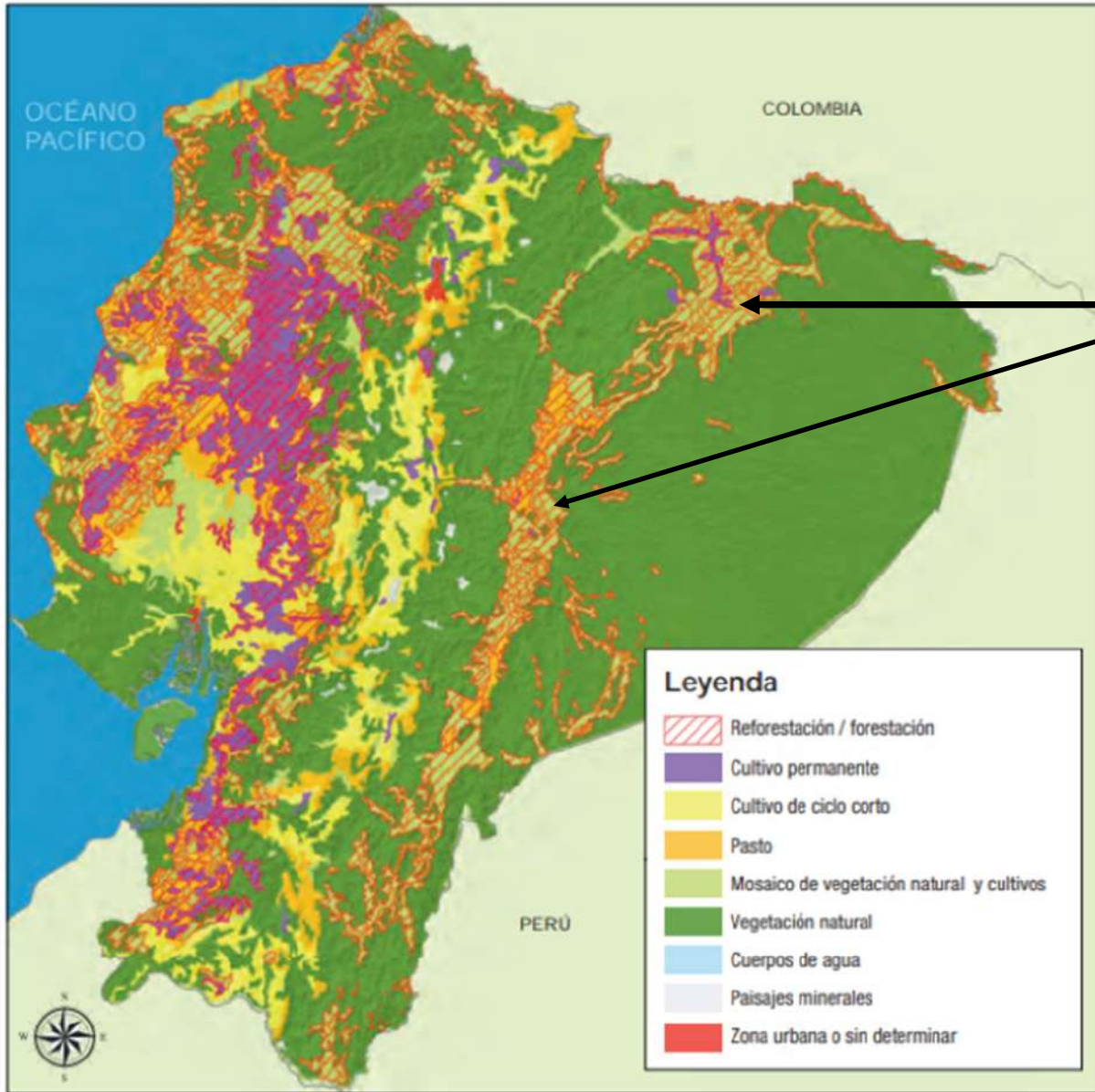
BOTH BIODIVERSITY AND AGROBIODIVERSITY FACE THREATS FROM DEFORESTATION, CLIMATE CHANGE, CHANGING LAND-USE AND CULTURE PATTERNS.

IT IS AN URGENT NEED TO PROMOTE THE RESCUE OF AGRODIVERSITY AT RISK OF EXTINCTION.

TOGETHER WITH SPECIES ALREADY VALUED IN THE MARKET, THEY HAVE THE POTENTIAL FOR THE DEVELOPMENT OF A ROBUST AND SUSTAINABLE BIOECONOMY.

WHERE TO ESTABLISH AGROFORESTRY PROGRAMS?

LOCALIZACIÓN DE SITIOS CON POTENCIAL PARA
REFORESTACIÓN/FORESTACIÓN (SUPERFICIE: 6 268 609 ha)



THERE IS A CONSIDERABLE AREA IN THE AMAZON FOR THE DEVELOPMENT OF AGROFORESTRY PROGRAMS.

AT LEAST 600,000 HECTARES OF THE ALREADY DEFORESTED SURFACE.

THOSE AREAS HAVE BEEN INDICATED IN DETAIL BY THE NATIONAL RESTORATION PLAN 2019-2030 OF THE MINISTRY OF THE ENVIRONMENT (MAATE).

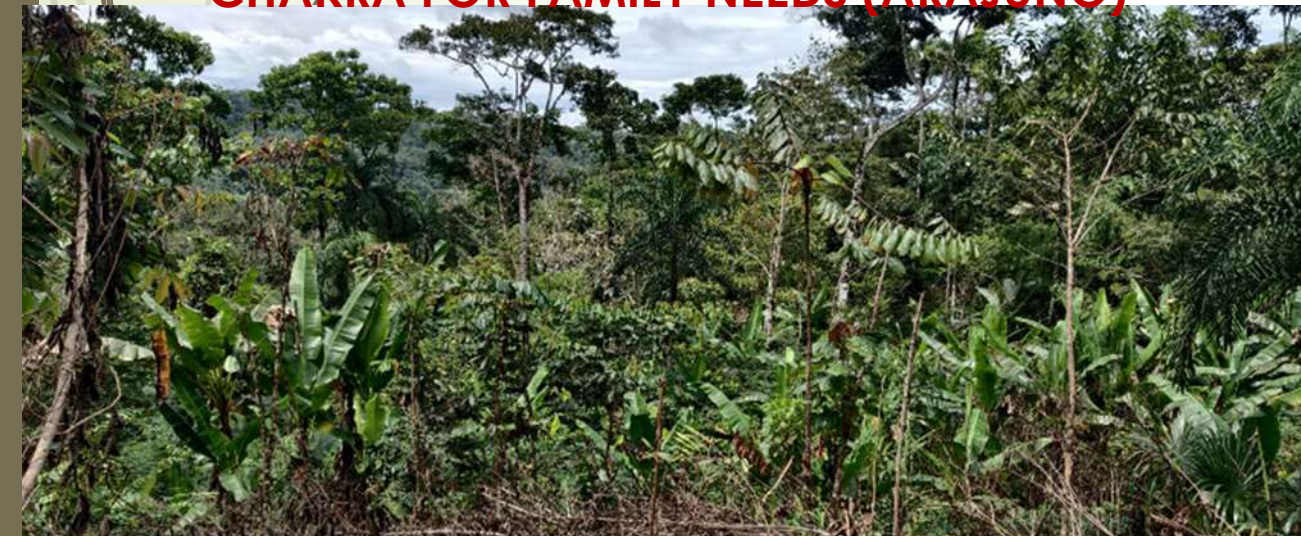


Conceptual Framework and Economic Development

- Agroforestry systems produce food, wood, and sequester carbon.
- Associated industrial development aids poverty reduction and global change mitigation.
- Deforested lands offer restoration opportunities.

CHAKRA FOR FAMILY NEEDS (ARAJUNO)

MARKET DESIGNED AGROFORESTRY SYSTEM IN A FORMER PASTURE LAND (TENA)



SOME UNDERUTILIZED AMAZONIAN PLANTS WITH HIGH ECONOMIC POTENTIAL

SPECIES	SPECIAL FEATURES
Borojó (<i>Alibertia patinói</i>)	Known for its aphrodisiac properties and high nutritional content, this fruit has potential in the health food and nutraceutical markets.
Arazá (<i>Eugenia stipitata</i>)	High in vitamin C and antioxidants, this fruit has promise in the food and cosmetic industries (natural preservatives and skincare products).
Chonta (<i>Bactris gasipaes</i>)	This palm produces nutrient-rich fruits and hearts of palm, offering versatility in culinary applications and potential in sustainable agriculture.
Amazonian Grape (<i>Pourouma cecropiifolia</i>)	This antioxidant-rich wild fruit could be developed for use in functional foods and beverages, targeting health-conscious consumers.
Camu camu (<i>Myrciaria dubia</i>)	Extremely high vitamin C content, antioxidants. Supplements, skincare, functional beverages.
Sacha inchi (<i>Plukenetia volubilis</i>)	Rich in omega-3, 6, 9 fatty acids and protein. Health foods, plant-based proteins, cosmetics.
Patawa (<i>Oenocarpus bataua</i>)	Healthy oils similar to olive oil, antioxidants. Gourmet cooking oils, haircare products.

Guayusa: The Amazonian Energy Powerhouse

Guayusa (*Ilex guayusa*) stands out as a prime example of an Amazonian plant with significant global market potential.

This holly species, native to the upper Amazon, has been traditionally used by indigenous communities for its energizing and health-promoting properties.



Natural Caffeine Source

Rich in Antioxidants

Versatile Applications

**Sustainable Cultivation
(Chakra)**

Some valuable woods to be grown in agroforestry systems

SPECIES	SPECIAL FEATURES
Chuncho (<i>Cedrelinga cateniformis</i>)	Fast-growing species with resistant wood, suitable for furniture and carpentry. Thrives in diverse agroforestry conditions.
Palo de sangre (<i>Virola surinamensis</i>)	Produces durable red wood, ideal for furniture and light construction. Adapts well to humid soils in agroforestry settings.
Balsa (<i>Ochroma pyramidale</i>)	Extremely lightweight wood valued in various industries. Rapid growth makes it excellent for soil restoration and agroforestry.
Yumbingue (<i>Terminalia oblonga</i>)	Hard, resistant wood used in heavy construction. Adapts to poor soils and resists pests, ideal for agroforestry systems.



High-Value Amazonian Timber Species for Sustainable Forestry

Cedar (*Cedrela odorata*)

Mahogany (*Swietenia macrophylla*)

Cumaru (*Dipteryx odorata*)



The Amazon rainforest is home to several timber species highly prized in international markets for their quality, durability, and aesthetic appeal.

Cultivating these species in managed agroforestry systems offers a sustainable alternative to exploitation of natural forests.

How to Foster Agroforestry in the Amazon?

Through 10,000 ha projects at province level, carry on by the local communities under institutional finance and guidance.

- a. **Each project should** involve around 20 communities (totalizing 500-600 families), each developing 20 ha over 5-10 years (2-4 ha/year).
- b. **Planting Process:** land preparation, seed management and plant production, tree planting, crop intercropping, diversification.



**DEGRADED
LAND AS
OPPORTUNITY
FOR
AGROFORESTRY**

How to Foster Agroforestry in the Amazon?

d. **Development of** local bio-enterprises, and marketing.

Later on, industrial facilities for wood processing, local housing improvements and timber goods export.




Conclusions and Future Work

- The Ecuadorian Amazon holds potential for sustainable biodiversity-based development.
- 10,000 ha project in each Amazonian province, as a starting point for a broader transformation.
- Future work: Program scaling, research on native species, strengthening local value chains.
- Continued collaboration between communities, academia, international cooperation, State and private organizations is essential.

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