

# Medicinal and aromatic plants (MAP) in Peru: opportunity for inclusive business development

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# Medicinal and aromatic plants in Peru: potential for inclusive business

1. Mountains geographies
2. Importance of mountain peoples and environments
3. Medicinal and aromatic plants: from limitation to opportunity
4. Conclusions

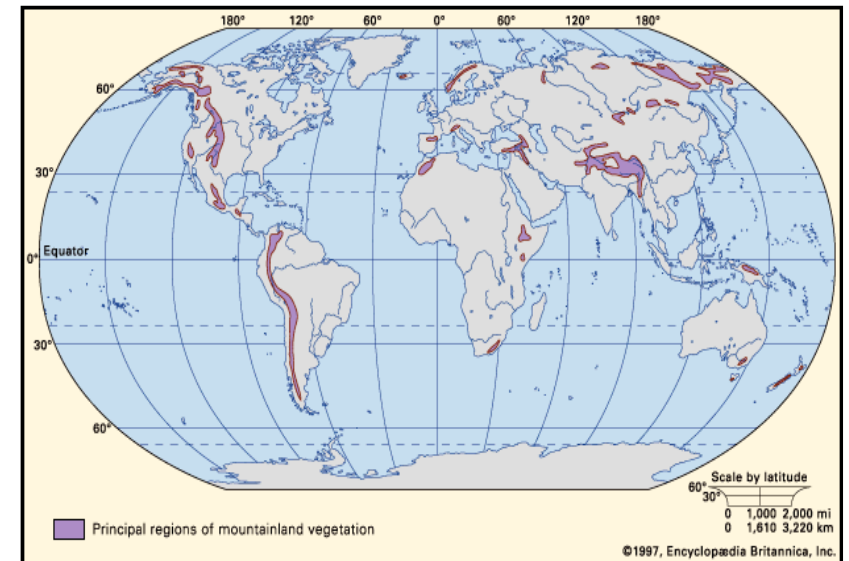
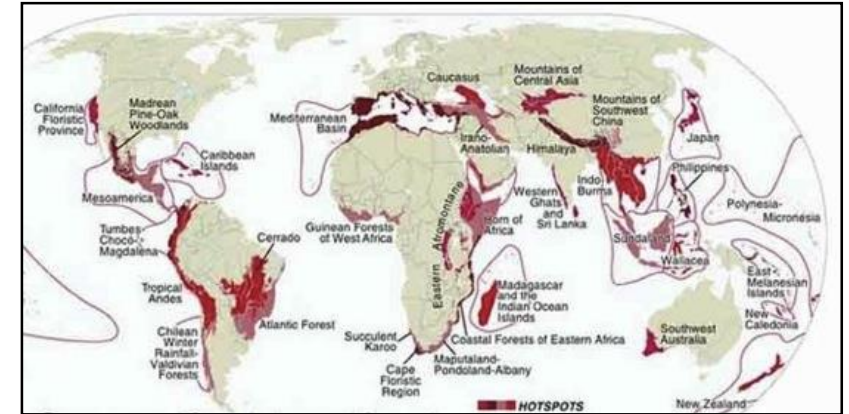
# 1. Mountain geographies

## Topography

- Mountain regions cover nearly 25% of the world's land surface.
- In 53 countries, mountains cover 50% of the land area or more.
- In 96 countries, 25% or more is covered by mountains.
- Of the 915 million mountain residents worldwide, 824 million live in developing countries.

## Economic disadvantages

- Complex topography
- Hazardous, difficult and limited access



## 2. Why are Mountain Peoples and environments important

### Water

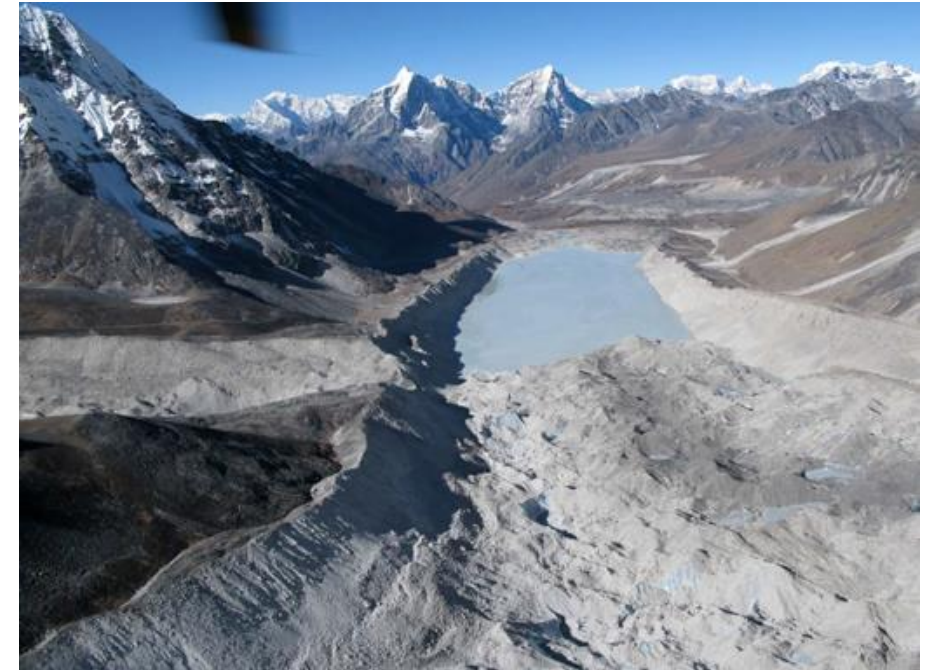
**Mountains serve as the essential “water towers” on every continent.**

- The Hindu Kush-Himalaya and Tibetan Plateau: source of 10 major river systems serving.
- 7 million people depend on Mount Kenya as their sole water source.
- Peru’s agricultural exports, worth US \$5 billion in 2014, depend on water from the Andes.
- Lima city in Peru: near 8 million people depend on water from mountains

### People

**Nearly a billion people live in mountains. Poverty increases with elevation.**

- 47% of rural mountain populations in developing countries and 57% of all people living above 4,500 meters



## 2. Why are Mountain Peoples and environments important

### Economic Development

**Agriculture relies on mountains for irrigation, billions have electricity from mountain hydropower, tourism and mineral extraction contribute greatly to national economies.**

- 40% of irrigated agriculture globally depends on water from mountains.
- Hydropower: 30% of electricity for seven Andean countries.
- US\$60-70 billion dollars are spent annually on mountain tourism globally
- Economic value of minerals is immense.

### Biological Diversity

**25 of the 34 terrestrial biodiversity “hotspots” on our planet are in mountains.**

- 25% of global forest cover is in mountain regions.
- 45,000 plant species are found in the tropical Andes alone.
- Unique wildlife species: snow leopards, red pandas, spectacled bears, vicuñas, big horn sheep.
- Six of the 20 most important food crops originated in mountains: potatoes, maize, quinoa, barley, sorghum, apples

# 3. Medicinal plants: from limitation to opportunity

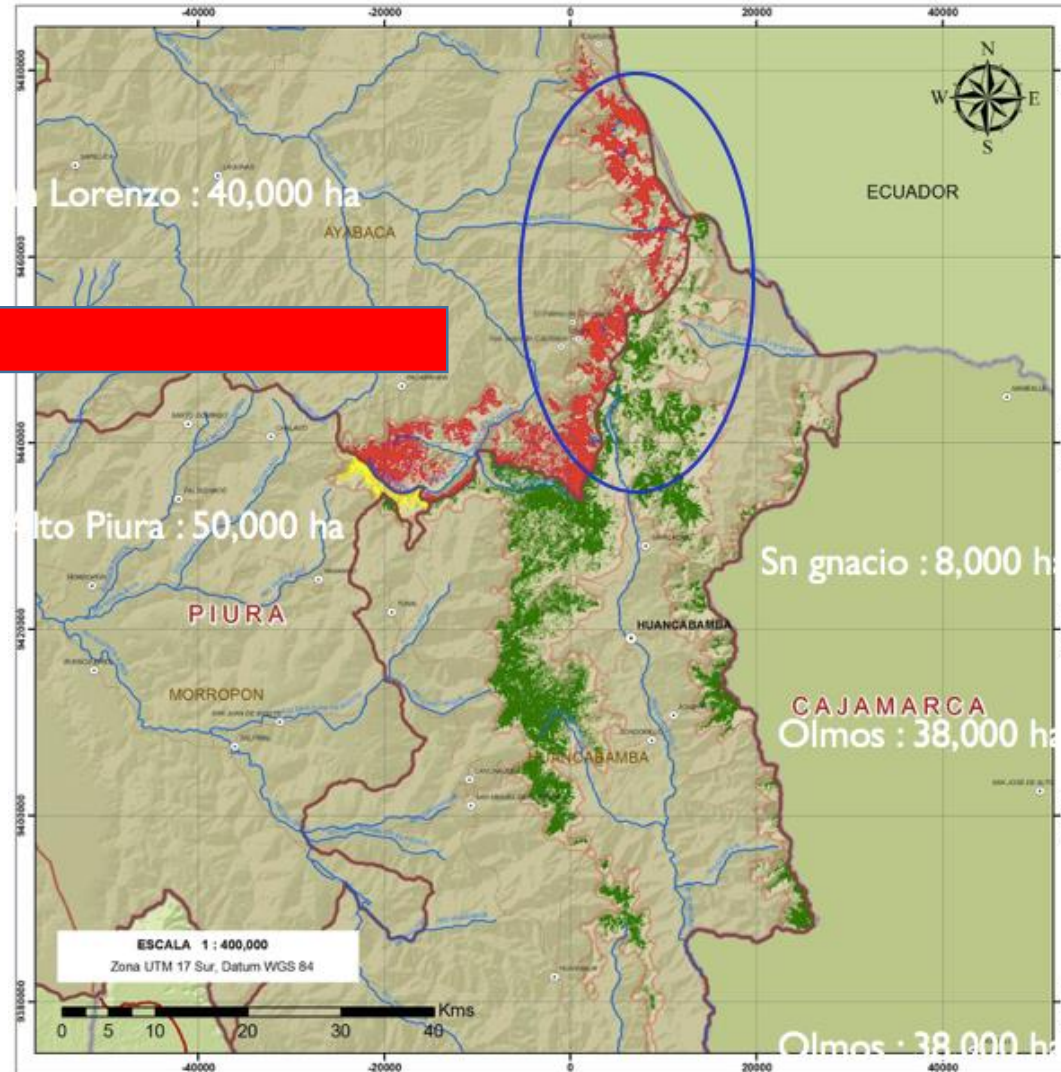
**LOCATION: HIGHLANDS OF PIURA IN NORTHERN PERU**

**Project: “Ethnobotany of paramos and cloud forests of northern Peru: linking mountain communities to medical innovation and biocommerce”**

**PERU’S RURAL INNOVATION PROGRAM (PNIA)**



### 3. Mountain paramo and cloud forests: regulate water for main agribusiness projects of northern Peru



**LEYENDA**

- ⊙ Capital Distrital
- Vía asfaltada
- - - Vía no asfaltada
- ~ Ríos
- ⊕ Ambito
- Provincias de Piura

Área por Provincias	Área (ha)
AYABACA	15 139.24
HUANCABAMBA	30 019.91
MORROPON	1 024.86


  
**MAPA DE ECOSISTEMA PARAMO POR PROVINCIAS - PIURA**

FUENTE:  
 IGN: Topografía, Hidrografía  
 INE: Centros poblados, Límites  
 MTC: Vías  
 SINANPE: Áreas Naturales Protegidas  
 Ambito de Paramos, generado a partir de la topografía  
 Mapa elaborado en Marzo 2010 por MAPGeosolutions

### 3. Mountain paramo and cloud forests: niche economies

#### Disadvantages

- Complex topography
- Hazardous, difficult and limited access

...Become  
**opportunities through  
innovation in:**



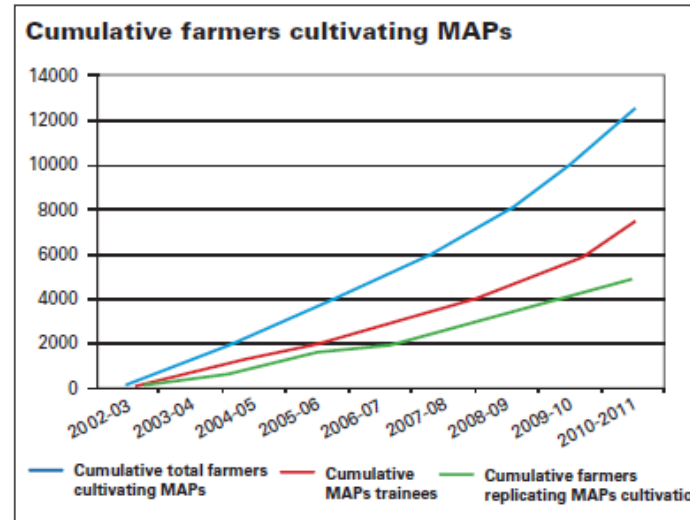
- Articulation with demand (alternative medicine)
- Social Organization of rural communities
- Building trust
- Knowledge of biodiversity
- Development of pharmacopeia
- Supporting policies (e.g. PNIA research)

Páramos Ayabaca





### 3. Nepal: success story working with medicinal plants



Visit:

<https://youtu.be/-EoQ9YJFxr0>

## Medicinal and Aromatic Plants Project

- Began in 2004 building on long history of livelihood work in Nepal
- >12,000 farmer families grow and sell these plants
- >US\$1,000,000 income to Nepal's rural economies.
- 1 million seedlings of native tree and fodder species on locally managed nurseries in over 500 ha of community forests

Upland habitats restored (forests protected)

### 3. Peru: growing demand for medicinal plants in alternative medicine

#### PRODUCTOS, RECURSOS E INSUMOS DE MEDICINA COMPLEMENTARIA



Dra. Martha Villar L. La Medicina Complementaria en el país. Dirección de Medicina Complementaria.

### 3. Peru: building the foundations of a medicinal plants program with mountain communities

- Understanding the need of 36 alternative medicine centers in Peru's National Health Service
- Organizing community 'expert groups in MAP
- Dialogue with Peru's National Institute for the Defense of Competition and Intellectual Property (INDECOPI)
- Applied co-research on promising plants



### 3. Peru: building the foundations of a medicinal plants program with mountain communities

**Trust of mountain communities is built through training to increase the value-added of plant collection:**

- Phytotherapy preparations
- Low cost technologies
- Inclusion of women groups
- Strengthening local research capacities:
  - In-situ determination of secondary metabolites
  - Development of new agrosystems for the mass production of quality MAPs



### 3. Peru: building the foundations of a medicinal plants program with mountain communities



## 4. Conclusions

1. Development of Medicinal and Aromatic Plants (MAP) is a promising field to foster inclusive business in remote, poor mountain areas of Peru (and globally).
2. Mountain regions, characterized by geographic disadvantages, offer unique opportunities to develop niche economies (e.g. medicinal plants or endemic wild species like the vicuña)...
3. Yet, in order to tap this potential is necessary to commit to strategic social investment required to build the foundations for scaling up...
4. The model based in innovation which TMI is developing in Peru is a promising route to improve the wellbeing of remote mountain communities