

POVERTY ALLEVIATION AND RURAL DEVELOPMENT POLICIES FOR HIGHLANDERS IN THE CENTRAL ANDEAN REGION OF SOUTH AMERICA

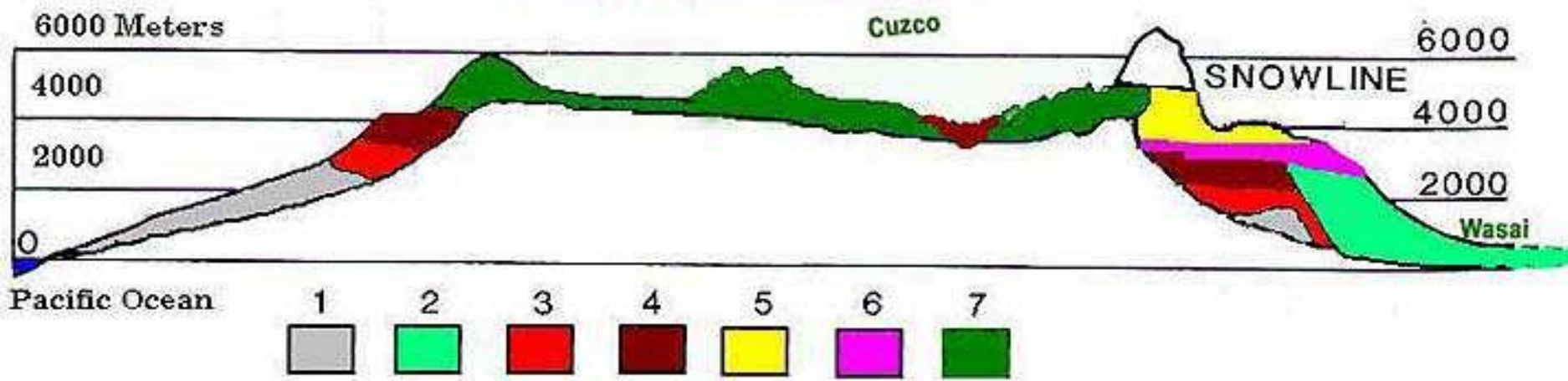
Alejandro Camino D.C.



The Peruvian Andes: from tropical glaciers to rain forest: 84 of 117 global life zones.

15,000 years of civilizatory developments leading to over 120 domesticates locally adapted under varying conditions of latitude, longitude, altitude, slope, soils, etc.

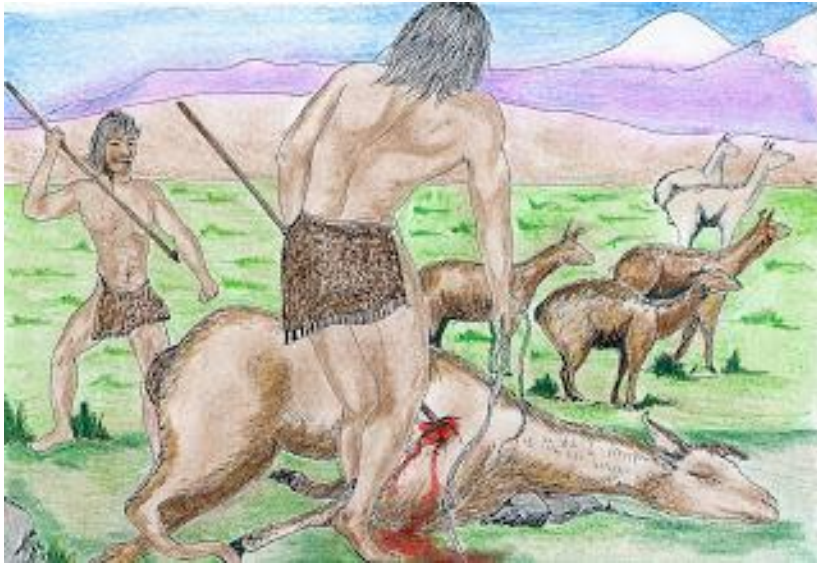
CROSS SECTION OF THE ANDES AT LATITUDE OF CUZCO AND AUZONGATE MOUNTAIN SHOWING VEGETATION ZONES



- 1- Desert
- 2- Lowland Forest
- 3- Thorn and succuland shrub
- 4- Mesophytic shrub and woodland

- 5- Moist mountain grassland
- 6- Cloud forest (Ceja)
- 7- Dry grassland (puna)

Evolution of Andean Subsistence Strategies



From nomadism to transhumance, and gradual occupation of all environmental niches and domestication of a myriad of plants and 3 animals: llama as pack animal, alpaca for wool, guinea pig for meat.

From tribal societies to chiefdoms, States and expansive Empires (last been the Incas) which promoted public welfare, resource diversification, reciprocity and redistribution, non monetary trade between different eco-regions.



A Traditional Strategy Based on Responding with Diversification for Taking Advantage of an Extremely Diversified Natural Environment

- A dominant social ideal to access as many ecological niches along the fractioned tropical mountain environment favoring crop diversification
- A conscientious drive to avoid crop standardization in favor of promoting species diversification



Diversification not only based on the spatial axle, but also on a time axle



- **Complex agricultural calendar: continuous super-position of agricultural tasks for each crop throughout a highly multi-niches environment.**
- **Flexible agro-pastoral calendar annually adjusted on the basis of weather predictions supported by keen observation of stars, moon, wild plants and animal behavior.**
- **Community-driven planning.**

Under harsh and unpredictable tropical mountain weather behavior

Based on traditional weather prediction:

- Plan ahead if rains will come early in the year, on time, or late, and re-schedule your agricultural tasks
- Based on prediction on whether rain will come in excess, in normal amount, or if there is a risk of drought adjust your farming technological knowledge to respond to the threat,
- If frost appear eminent, burn large amounts of green leaves to cover the valley with smoke to help stop frost from coming down
- If hale announcing clouds show up, throw strongly with your sling explosives way up towards the clouds
- If morning dew shows up in your potato leaves, immediately before the sun strikes, shake them to avoid a magnifying glass effect that will burn the leaves, etc.
- Plant your furrows on alternative days: when weather impact comes, part of your crops will resist; re-plant those who were lost.

The Traditional Way to Assure Supplies During Inevitable Years of Major Catastrophic Weather Conditions

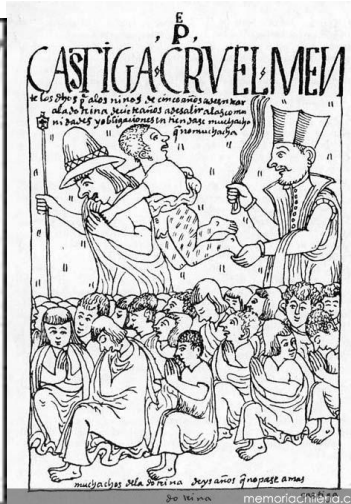
- Aim at producing surplus to store for lean years
- Use of traditional crop (and meat) preservation technologies : freeze drying at high altitudes
- Use highly valuable dried coca leaves (grown in the eastern cloud forest environments) to trade for those crops that were lost due to bad weather
- Labor & crop exchanges



Changes in the Andes with Colonial Conquest

- A native agro-centric extended family driven civilization experiences a forced re-orientation of profit driven production of mining of precious metals for export. Native inhabitants are forced to work on mines, community organization in disarray.
- Severe population drop, abandonment of agriculture and of highly elaborate systems of terraces for cultivation.
- Introduction of new crops mostly without competitive advantage.
- Introduction of European cattle (cows and bulls, horses, donkeys, mules, and sheep) and setting apart of lands for grazing pastures (Andean camelids grazed above the uppermost limit of agriculture, at 4,200 mts. a.s.l) resulting in reduction of land for food crops. Introduction of new sicknesses on the native cattle (alpaca for wool, llama for transportation).
- Indigenous population, both, the royal families and the rural peasant's extended family system lose their lands and become marginalized turning into the poorest sector of society

From an Agro-centric Civilization to Colonial Mining and Exploitation



Impact of Colonization on Cultural Traditions and Environmental Management Experiences



- Natural religion based on reciprocity with Mother Earth (*Pachamama*) is forced into Catholicism
- Destruction of community-driven agricultural production and the ethics of reciprocity and redistribution.
- Erosion of traditional knowledge on weather prediction and mountain farming
- Very scant legislation to protect rights of native indigenous inhabitants
- Development of cities, not the countryside.

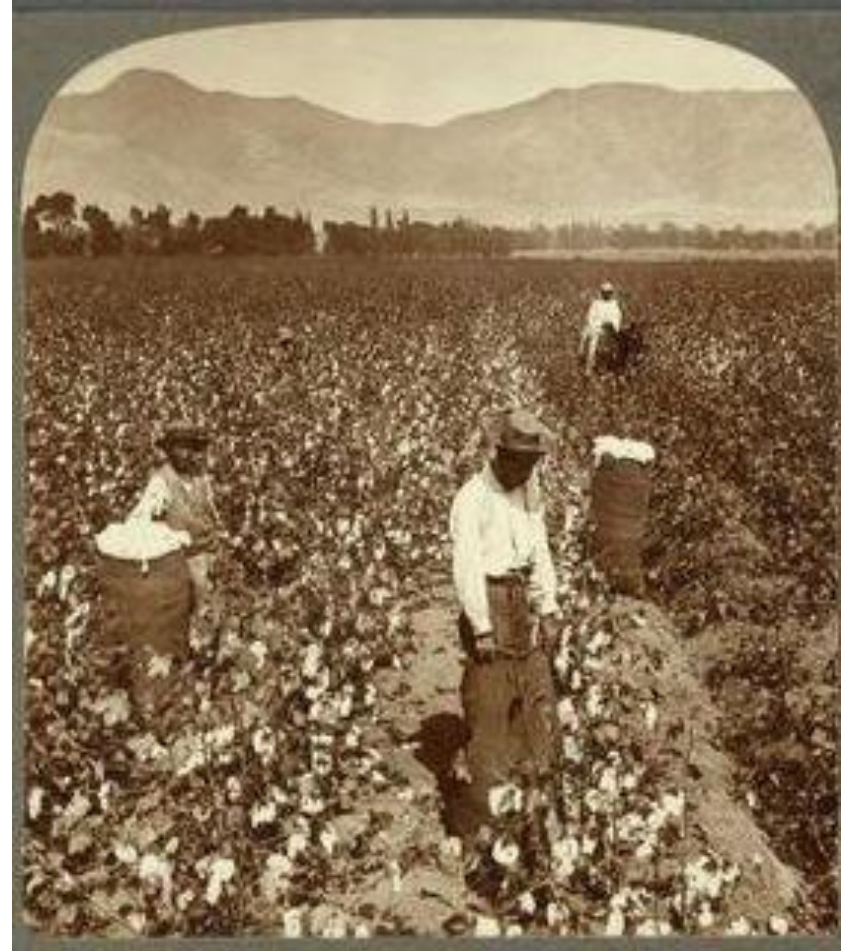
Andean Mountain People and Independence from Colonial Rule (1821 -)

- **Urban elites lead the Independence from Spain**
- **Not immediate changes on deprivation status and prerogatives of native populations**
- **After three centuries of colonial rule, the Andean countries liberalize the formerly Spanish Crown economic monopoly.**
- **Scientific expeditions from Europe explore resources and take the seeds of valuable crops to plant them in their colonies of Africa and South East Asia (Quina tree for quinine, rubber tree, coca leaves, etc.)**
- **Mining remains the engine of monetary economy.**
- **Coastal sugar cane / cotton plantations for export.**



New Policies to Promote Better Conditions for Native Highlanders: 1920 – 1970

- Most of the best highland land were in hands of big landowners
- Legal status granted to community lands, though not anymore what they were before.
- Basic public education and health services for rural communities, but not bilingual nor of good quality.
- Increased road access, but low salaries and low prices for agricultural products.
- Impacts of mining in pastures and agricultural land.
- Gradual modernization of coastal plantations, crops for export.



Agrarian Reform; Rural → Urban Migration ; The Market Economy Starts taking over the Highlands (1970 to the present)

- **1970s: Radical Agrarian Reform, land redistribution but:**
 - **No technical aid**
 - **No managerial training**
 - **Low prices for agricultural products in the cities**
- **Consequences: massive migration to cities, increased urban and rural poverty**
- **1990 -2000: economy radically liberalized**
- **Consequences: return of export plantations to the coast. Massive mining developments. Infrastructure investments.**
- **2000- 2014: International Boom of Peruvian cuisine based on native crops brings and expanding market for Andean crops.**
- **Simultaneous process of highland modernization. Increased genetic erosion of crop diversity, and use of agrochemicals.**



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A scenic view of terraced green fields in a mountain valley, with yellow flowers in the foreground. The terraces are arranged in a series of curved, parallel lines that follow the contour of the hillside. The background shows a deep valley with a river and a small town. The sky is a clear, deep blue.

Thank you!

**Alejandro Camino D.C.
HimalAndes Initiative
Peru**