
Globalization and the Separation of Indigenous Genetic Resources from Indigenous Peoples:

The Booming Alpaca Industry in the USA and its Impact on Andean *Alpaqueros*.

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Introduction

Indigenous peoples in the Andes, especially those living in the high mountains and plateaus or punas, heavily depend on alpacas and llamas for making a living. Research has shown that alpacas were domesticated 6,000 years ago by the indigenous peoples of the central Andes in Peru (Wheeler, 1991; Acosta, 2002). These animals have adapted to the harsh conditions of the punas (extreme temperatures, poor pastures and high altitude that affect metabolic processes), where no trees or crops can grow and no other livestock can survive or reproduce. Indigenous culture in the *punas* developed a unique symbiosis with nature, as extensively reported by Flores Ochoa (1977), Orlove (1977), and Gade (1999). Families have strong bonds with alpacas, for instance, each member of the family knows each alpaca of the herd by name, being able to notice which one

is missing, at the end of the day, without counting the herd (Espinosa and Agreda, 1991).

Alpaca production in the Andes is concentrated in indigenous communities that have experienced marginalization since colonial times. With 95% of the world's population of alpacas, Peruvian regulations prohibit exporting alpacas since they are considered national patrimony of Peru. Smuggling alpacas could not be controlled and Andean monopoly of alpacas was lost in the 1980s, when alpaca breeding in the USA,



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Australia, and New Zealand succeeded.¹

The free-market paradigm assumes that resources will be relocated toward the most profitable activities, resulting in a global economy of higher efficiency. The question is to what extent Andean and American alpaca producers are competing in equal terms and if the Andean producers would have the capacity to adapt to new scenarios resulting from the competition of new global centers of alpaca production and export. Alpaca producers in the Andes don't have the flexibility to find alternative livelihoods since they live in altitudinal floors where agriculture is not possible and where only alpacas and llamas can reproduce. The international trade of genetic

resources has broken the Andean monopoly of alpaca producers and they have now to compete in global markets with foreign producers who certainly have advantaged access to capital, technology, information, and organization.

Indigenous Peoples from different regions of the world have struggled to get recognition of common property rights over genetic resources domesticated by their ancestors, a right recognized by ILO Convention 169 and the Convention of Biological Diversity (CBD). However, international regulations like TRIPPS do not recognize collective property rights to genetic resources (Sahai, 2004; Rhoderik, 2006). As pointed out by Heal (2002), the debate on intellectual property over genetic resources has broadened in the last years, transcending the limited institutional spaces of established international organizations, like WIPO and WTO, taking place within other international organizations dealing with environmental law, human rights, and public health. This has opened spaces to show how regimes of property rights evolve and reflect different actors and institutions. These new developments might open a revision of the way collective property rights to genetic resources are defined.

The de-territorialization of genetic resources like alpacas has occurred in the context of globalization, where expanded and deregulated markets have transformed natural resources, labor, and knowledge into commodities and where global markets support a new unified and stratified global structure of social and economic exclusion. Unprecedented technological advances have contracted time and space and reduced communications costs, radically transforming the way business is conducted and how people relate to each other and to their environments. The long established bonds between people, resources, and their localities have been redefined, eroding local livelihoods, which explains unprecedented international migratory flows from developing countries despite visa restrictions and anti-immigration policies in developed countries (Nef, 2002).

Alpaca Production in Peru

Alpaca population in Peru decreased from 3,290,000 in

1967 to 2,401,805 in 1980 (Flores Ochoa 1980) and was estimated as 2,510,912 in 1986 (Laboratories Philipps 1986 in Wheeler, 1991). Several factors like the political violence generated by Shining Path between 1980 and 1992, the closing of INIPA -National Research and Extension Institute in 1990 as part of President Fujimore's WB IMF SAP program to reduce fiscal deficits can explain this stagnation. The situation has improved however in the last decades. For 2008 the Peruvian production of alpacas has increased to 5.5 millions, and a national registry has 25% of alpacas registered. Peruvian alpaca fiber production in 2003 was 6440 tons, which generated an export value above US \$82 million (CONAC SICONCYTECT 2007).

In Peru, alpaca producers, or *alpaqueros*, are among the poorest of small rural producers. They belong to Quechua and Aymara communities in the Southern highlands of Huancavelica, Ayacucho, Arequipa, Cuzco, and Puno, where Puno concentrates the majority of alpacas and *alpaqueros* (Fairfield, 2006). Most herds are smaller than 100 heads, which explains why *alpaqueros* remain among the poor. While estimated yearly income generated by such a small herd differs from \$122 to \$600 (CONACS, 2005 and SENASA, 2005 in Fairfield, 2006; Infante, 2005); no estimation places *alpaqueros* above the poverty line, not even for the small group that owns more than 400 alpacas, since herds are vulnerable to climate hazards, diseases, and other type of stress that can drastically decimate a herd (Espinosa and Agreda, 1991).

Herding is an activity conducted with minimal investment and that relies on indigenous knowledge about reproduction and management to adapt to harsh environments. Alpaca producers have not benefited from public rural extension services, which have been chronically limited by lack of adequate budgets, but also focused on producers who are closer to urban markets, geographically more accessible and socially assimilated as mestizo farmers. In that regard, the stigma of indigeneity has prevented alpaca producers from being perceived as an important resource for development, and they have remained marginal to the attention of central and local governments. This lack of technical assistance is shown in the low productivity of the fiber production per animal. From the

potential 5.4 Kg of fiber per animal per year, small producers who represent 85% of total alpaca producers have a yield of 1.59 Kg per animal per year, while medium size producers who represent 10% of alpaca producers harvest 2.27 Kg per animal per year, the same yield obtained by private enterprises who represent 5% of alpaca producers in Peru (<http://www.perulactea.com/2008>).

Stigma associated with consumption of alpaca meat and alpaca jerk (*charqui*) has prevented the development of local and domestic markets for alpaca meat; therefore, *alpaqueros'* income mainly comes from selling alpaca fiber while alpaca meat is locally exchanged through bartering. The low prices paid by intermediaries for the alpaca fiber have driven male seasonal emigration to the more dynamic economies of Tacna in the coast and Madre de Dios in the Amazon in search of income, leaving women in charge of the family and the herd. In a context of poverty, *alpaqueros* cannot negotiate better prices for their unprocessed fiber (Espinosa and Agreda, 1991).

Prices have shown great instability due to changes in supply and demand in international markets. Peruvian alpaca fiber is exported mainly to China, Italy and Japan (Fairfield, 2006). Prices paid to producers dramatically shrank in 2008 and 2009 from 14 soles to 1.5 soles, reflecting the current vulnerability of this sector and generating a real crisis that led strong mobilizations of alpaca producers, supported by grassroots organizations, unions, NGOs and public opinion.²

The market for alpaca fiber is one of the most distorted markets in Peru. With only five enterprises buying alpaca fiber from thousands of dispersed producers, this oligopsónic market explains that independently of the global prices for alpaca fiber, prices paid to producers always remain low. In 2008, 92% of all alpaca products exported from Peru came from the processing plants Michell y Cia S.A., Productos del Sur S.A. e Inca Tops S.A., all of them based in Arequipa. According to the Sociedad de Criadores de Alpacas y Llamas (SPAR)—representing 10,000 *alpaqueros*—these enterprises use their control of the market to fix a low price for the fiber collectors, indirectly limiting the prices obtained by the 180-thousand *alpaquero* families in Peru.

Alpaca production involves men, women, and children who

are members of indigenous communities; a total estimated 1.5 million people in Peru. Their livelihoods strongly depend on alpaca and llama production, since agriculture cannot be conducted due to high altitude. *Alpaqueros* have developed an historical adaptation to these harsh environments in close dependence with alpacas and llamas, and they have an important body of traditional knowledge to manage their herds. A large network of intermediaries buys cheap unprocessed alpaca fiber for two processing plants in Arequipa (Mitchell & Co, created in 1947 and PATTHEY & CORZO, created in 1957). Lack of public policies to improve breeding, fiber production, and commercialization and diversify production (for instance opening domestic and foreign markets for alpaca meat), explains the stagnation of alpaca production in the Andes.

Few institutions, like the Instituto Veterinario de Investigacion Tropical y de Altura (IVITA), have maintained long-term research programs for alpacas, through their experimental stations in La Raya, Cusco and Juliaca, Puno, IVITA was part of the Small Ruminant Collaborative Research and Support Program (SR-CRSP), which linked a Consortium of American Universities with the Instituto de Investigacion y Promocion Agraria (INIPA). The goal was to conduct research on goats, sheep and alpacas to design technical assistance for poor farmers belonging to Peasant Communities in Peru (Quijandria, Fernandez and Espinosa, 1984). SR-CRSP closed operations in Peru in 1981 after the terrorist group Shining Path attacked several research sites, including IVITA research station in La Raya.³ SR-CRSP linked researchers from American universities with top Peruvian experts on alpacas, like those working at the IVITA Research Stations, giving American researchers access to indigenous genetic resources, local research results and data bases and expertise; in exchange SR-CRSP trained Peruvian researchers in animal genetics and range management (for instance it facilitated embryo implants and in-vitro fertilization for alpacas). The boom of alpaca breeding in the USA after 1985 was supported by strong research and management expertise from American Universities that were directly or indirectly involved in the SR-CRSP program.

There has been a better integration of research, extension

and production for alpacas in Peru since late 1990. For instance, genetic research of alpaca herds was used to create six regional breeding centers for extra-fine alpaca fiber production (<20 micras), which has allowed Peru to remain the leading exporter of extra-fine alpaca fiber, despite the strong competition of Australia. Artificial insemination and embryo transference, promoted by the Ministry of Agriculture and national universities, are routinely used in the breeding centers and have improved fertility and fecundity rates that were historically low. A network of regional marketing centers has been created in the production areas to collect the fiber production scattered through vast and isolated territories. However, the efficiency of these centers needs to be improved since it only captures 40% of the national alpaca fiber production. The fact that fiber is usually bought by weight has discouraged producers from doing fiber classification using national technical norms that are in sync with international standards. There have also been initiatives to diversify production, selling skin and meat for domestic markets and transforming fiber into knitting and clothing for export and for domestic markets. Alpaca meat consumption only increased by 10%. Sanitary concerns about sarcocistiosis—a disease that has not been yet eradicated from alpaca herds—have restricted the marketing of alpaca meat (CONACS/CONCYTECT 2007).

Political changes in Peru after the 1990s and increasing participation of social movements and civil society have somehow transformed the ways that national government perceives alpaca production: From a marginal resource in hands of poor indigenous peasants to a strategic national resource that can build up a robust export sector for the highlands. Increased exports have resulted from the Free Trade Agreement for the Americas (FTAA), not only in terms of fiber, but also in terms of knits and clothing. In 2006 supportive legislation (Ley de Promocion para el Desarrollo de la Produccion de Camelidos Sudamericanos) provided tax incentives for investments in technology and severe punishment for alpaca smuggling. Genetic improvement programs combined with improved range management have been reestablished since 2003, which coincided with some better organization and representation of

alpaca producers at different institutional levels and a better articulation among them, the alpaca processing industry and the national state programs. In 1995 SPARPERU, Sociedad Peruana de Criadores de Alpacas y Llamas, a national organization was created with four working areas: marketing, institutional capacity building, breeding, and sustainable production.⁴ There is also the Confederacion Nacional de Criadores de Alpacas y Llamas (CONCAL) that represents indigenous alpaca and llama producers and the National Council of South American Camelids⁵ (CONACS). These different organizations represent different interests invested in the alpaca production, from the *alpaqueros* to those involved in domestic trade, processing and exporting the fiber.

The question is whether these changes are enough to bridge the challenges faced by Andean alpaca production, such as its high vulnerability to natural conditions like droughts or frost that affect natural ranges on which alpacas depend; poverty and lack of resources to invest in herd health to eliminate sarna and sarcosistiosis; development of markets for meat and skins; and fiber quality improvement through genetic selection, also required to reduce the current high consanguinity of herds that results in high incidence of hermaphrodite animals in the herds. The vulnerability of alpaca production and *alpaqueros* in the Andes was exposed in 2008 when an early and severe frost (started in March instead of June) affected thousands of herds that could not graze in the frozen pastures of Peruvian high plateaus⁶ and in 2009 when prices for alpaca fiber reach an historical low that threatened the survival of *alpaqueros*.

Alpaca Production in the USA

While Peruvian *alpaqueros* are members of indigenous communities that have managed to survive in a context of challenging physical environments, poverty, and social exclusion,⁷ American alpaca farmers are urban investors looking for a safe and profitable activity to secure their retirement. The first 10 alpacas were imported from England in 1980 and some more imported from Canada. In 1984 alpaca herds were imported from Chile, starting an explosive growth of alpacas in

the USA: estimated to be 80,000 in 2003, 90,000 in 2005, and currently beyond 100,000. With the creation of the Alpaca Owners and Breeding Association in 1988;⁸ the American Alpaca Registry incorporated in 1995 and the Alpaca Research Foundation in 2003⁹, the alpaca industry in the USA has become highly organized and competitive, with research well integrated into management, breeding, and marketing. The marketing campaign includes financing to start a new herd.¹⁰

Since the 1990s the USA has taken the lead within developed countries like New Zealand, Australia, and Switzerland, starting their own breed and registry and building technical and institutional capacity to develop their OVITI alpaca production. The size of American alpaca herds has been conservatively estimated to reach 1 million heads in 16 years, representing a growth 16 times the size of the herd in 2004. Some American researchers have expressed concerns about the lack of sustainability of such industry, considering the historically unstable behavior of fiber prices in global markets (Saitone and Sexton, 2006).

Final Comments

The booming alpaca industry outside the Andes reflects the lack of international protection for the collective rights Indigenous Peoples have on genetic resources they have domesticated and conserved, and that are critical for their physical and cultural survival. The continued expansion of alpaca production outside the Andes will certainly affect alpaca fiber prices in global markets, prices that have been already unstable. Unless demand is significantly expanded, such an increase in supply of alpaca fiber is expected to increase competition and to reduce prices of alpaca fiber.

The demand for alpaca fiber is differentiated according by fiber types and Peru seems to hold the comparative advantage on the extra-fine alpaca fiber. Even though Peru still concentrates the majority of alpaca production, the booming alpaca industry in the USA, New Zealand and Australia might become a real threat in the next decades in terms of the size of the alpaca population they control and specially if they manage to specialize their production toward the extra fine alpaca

fiber—something that is already addressed by organizations supporting American Alpaca producers.¹¹ While the future size of their herds remains uncertain, what is clear is that these foreign alpaca producers are better positioned and resourced to compete in global markets with Andean alpaca producers in terms of funding, management, breeding and marketing. This is another hit indigenous peoples might have to take in their disadvantaged battle to defend their livelihoods, their culture, and their autonomy.

The long process of indigenous domestication of alpacas and the cultural adaptation of *alpaqueros* might end because globalization has allowed the separation of indigenous genetic resources from their natural habitats and from the indigenous peoples who domesticated and conserved them, and who rely on them for survival. This survival is at stake once *alpaqueros* have to compete with foreign alpaca producers that are better positioned in global markets. Further erosion of *alpaqueros'* livelihoods might push them out of the punas and toward cultural assimilation. The indigenous world of *alpaqueros* with all its cultural, environmental and spiritual richness might be then forever gone.

Notes

¹ <http://www.alpacasintheusa.com/about/alplacas>; <http://www.alpacas.co.nz/Alpaca%20Information.htm>

² <http://www.perulactea.com/2008/12/30/crisis-internacional-afecta-a-criadores-de-camelidos/comment-pa>; <http://www.losandes.com.pe/Opinion/20090220/19151.html>; <http://www.pt-peru.org/>

³ Quijandria, Benjamin, Espinosa, Cristina, and Fernandez, Maria. 1984 "Small Ruminant Production System Research and Technology Validation in Peasant Communities in the Highlands of Peru." Report to Small Ruminant CRSP, U. of California Davis/INIPA, Lima.

⁴ (<http://www.sparperu.org>).

⁵ CONACS/CONCYTECT 2007 Estudio de Prospective de Alpaca 2014 (<http://www.sparperu.org/index.php?id=13>)

- ⁶ In July of 2008 the Peruvian government declared emergency status for 11 of the 25 highland provinces where alpaca is produced. Funded by the Belgium government, FAO announced an emergency intervention in coordination with the Peruvian Ministry of Agriculture to save 18,000 sick alpacas affected by this frost (<http://afp.google.com/article/ALeqM5i5nvwyNTxyWEYdsln6vGp6MeOwg>).
- ⁷ Espinosa, M. Cristina and Agreda, Victor. "Toma de Decisiones en Pequeños Productores Alpaqueros en Puno." IN: Final Report to IDRC Project "Decision Making Process in Peasant Systems of the Southern Highland of Peru." CE&DAP. Lima, 1991
- ⁸ (<http://www.alpacainfo.com/index.asp>).
- ⁹ (<http://www.alpacaresearchfoundation.org/>)
- ¹⁰ An initial investment of \$102,000 can buy a herd composed of two males and five pregnant females, which in ten years are projected to reproduce into 126 alpacas and generate a return value of more than \$1,272,500. The net return after deducting all the projected costs is \$960,260 (57.8 % annual average rate of return with an average amount invested over the ten-year period of \$166,200 (Alpacas of America (http://www.alpacasofamerica.com/service/finances_profit.asp; <http://www.alpacabusinesssecrets.com/AlpacaInformation.htm>; <http://www.alpaca1.com>; <http://www.alpacas.co.nz/Alpaca%20Information.htm>))
- ¹¹ As explained by Mike Safley for AlpacaConnect (retrieved June 9 2009 from <http://www.alpacaconnect.com/articles/archive/200809>)

Bibliography

- Acosta, Jose de. 2002. *Natural and moral history of the Indies 1540-1600*. Jane E. Mangan (Ed.) Durham: Duke University Press.
- CONACS/CONCYTECT 2007 Estudio de Prospective de Alpaca 2014 (<http://www.sparperu.org/index.php?id=13>)
- COTESU-INIA. 1989. Proyecto Alpacas. *Crianza de llamas y alpacas*. Proyecto Alpacas, Convenio COTESU-INIAA, Peru. Proyecto Andino de Tecnologia Campesina,
- Espinosa, M. Cristina and Agreda, Victor. "Toma de Decisiones en Pequeños

- Productores Alpaqueros en Puno." IN: Final Report to IDRC Project "Decision Making Process in Peasant Systems of the Southern Highland of Peru." CE&DAP, Lima, 1991
- Fairfield, Tasha, 2006. "The Politics of Livestock Sector Policy and the Rural Poor in Peru." *PPLPI Working Paper* No. 32 Rome: F.A.O. Pro-Poor Livestock Policy Initiative.
- Flores Ochoa, Jorge A. 1968. *Los pastores de Paratia: Una introduccion a su estudio*. Mexico; Institute Indigenista Interamericano.
- Flores Ochoa, Jorge (Ed) 1977 *Pastores de Puna. Uywamichiq punarunakuna*~Lima, Institute de Estudios Peruanos,
- Flores Ochoa, Jorge A, and Kim MacQuarrie. 1994. "Modern-Day Herders: An Andean legacy continues." *Gold of the Andes: The llamas, alpacas, vicunas and guanacos of South America*. Jorge A. Flores Ochoa, Javier Portus Perez, and Kim MacQuarrie (Eds) Barcelona: Panhey, 1994:101-193.
- Flores Ochoa, Jorge A., and Yemira D. Najjar Vizcarra. 1976 "El Likira, Intermediario Ambulante en la Cordillera de Canchis." *Antropologia Andina*, 1/2 (1976): 125-135.
- Gade, Daniel W. 1999 *Nature and Culture in the Andes*. Madison, Wisconsin: University of Wisconsin Press, 1
- Heal, Geoffrey M., 2002. "Biodiversity and Globalization" IN: *FEEM Working Paper No. 101.2002*; Columbia Business School Working Paper. Available at SSRN: <http://ssrn.com/abstract=362201>
- Helfer Laurence R. "Mediating Interactions in an Expanding International Intellectual Property Regime" IN: *Case Western Reserve Journal of International Law*. Vol. 36, Fall 2004. Vanderbilt University School of Law
- Godfrey. B. Tangwa. "Globalization or Westernization? Ethical Concerns in the Whole Bin-Business." *Bioethics*, Vol. 13, No, 3/4, July 1999
- Infante, Juan. 2005. Retrieved from <http://peruenrumba.blogspot.com/2005/07/alpaqueros-150.html>
- Nef, Jorge. 2002. Globalization & the crisis of sovereignty, legitimacy & democracy In: *Latin American Perspectives* Vol 29 Issue 6.
- Orlove Benjamin. 1977. *Alpacas, sheep, and men: the wool export economy and regional society of southern Peru*. New Cork, Academia Press
- Quijandria, Benjamin, Espinosa, Cristina. and Fernandez, Maria. 1984 "Small Ruminant Production System Research and Technology Validation in

- Peasant Communities in the Highlands of Peru. Report to Small Ruminant CRSP, U. of California Davis/INIPA, Lima.
- Rhoderick K. Samonte, 2006. Conserving and governing biodiversity: the CBD vs. TRIPS debate and the Philippine experience. Final Paper, Masters in Sustainable International Development. Waltham: The Heller School for Social Policy. Brandeis University: Massachusetts
- Sahai, Suman. 2004. TRIPS and Biodiversity: A Gender Perspective. *Gender and Development* Vol.12 No.2
- Saitone Tina L. and Richard I. Sexton. 2006 "Do Alpacas Represent the Latest Speculative Bubble in Agriculture? *Agriculture and Resource Economics - Update* Vol 9 No.3. Davis: University of California Department of Resource Economics - Gianinni Foundation for Resource Economics.
- Wheeler, JC (1991) Origen, evolucion y status actual. En: Fernandez-Baca S (ed) *Avances y perspectivas del conocimiento de las comelidos sudamericanos*: 11-48. Oficina Regional de la FAO para America Latina yel Caribe, Santiago, Chile

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After 20 years of researching migration, gender, livelihoods, and sustainable development in Peru, in 1998 Cristina Espinosa obtained a doctoral degree in environmental anthropology at the University of Florida and took charge of the Social Policy Global Program for IUCN, The World Conservation Union based in Switzerland with operations in five continents. Between 2002 and 2008, she was Associate Director at the Center for Latin American Studies at the University of Florida and at the Institute for the Study of Latin America and the Caribbean at the University of South Florida. In August of 2008, she became Assistant Professor and Associate Director for the Masters Program in Sustainable International Development at The Heller School for Social Policy at Brandeis University, where she combines teaching and research with program management. She has published books like *Migracion y Socializacion: Los Cortadores de Caña de Azúcar* (1991), *Desenredando el Laberinto* (2002), *Unveiling Differences, Finding a Balance* (2004), and multiple articles, book chapters, and technical reports on the

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