

The Terra Preta Project

Perú

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Project Goal: The goal of this project was to provide four Kichwa Lamista communities with biochar ovens so that they can sustainably and autonomously produce terra preta (or, as in the local language, yana allpa). Terra preta is an anthropogenic super-compost that has experimentally yielded 880% more harvest than the local rainforest soil with fertilizer¹. The production and subsequent use of terra preta provides an alternative to environmentally destructive slash and burn, establishes permanent agriculture, and provides food security.

Project Budget: The Davis Peace Project grant of \$10,000 funded the project in its entirety. As well as student travel, room, and board, the grant covered each stage of oven building for each of the four communities, including the cost of raw materials, transportation, additional labor, and workshops. Because of the organizational difficulties of coordinating a workshop based out of the Sachamama Center as originally planned, we instead hired trained staff to provide each village leader with further on-site instruction on terra preta production. Organizational challenges included the inability to efficiently communicate with village leaders (they do not have cell phones) and the difficulty of the leaders traveling to the center. This only nominally changed the original budget allotted to oven construction, as the money averted from funding the originally planned Sachamama Center workshops covered the remaining over-budget oven balance.

Project Details: The Davis Peace Project grant brought to fruition not only a life changing opportunity for over two hundred indigenous families, but also gave me a rare personal exercise in project design, grant, and budget writing, resource coordination, and project orchestration. I was fortunate enough to work with a team of summer interns from the Sachamama Center in the construction of the ovens. We were brought together by my local affiliate Dr. Frédérique Apffel Marglin, Professor Emerita at Smith College and founder of the Sachamama Center for BioCultural Regeneration. Dr. Apffel Marglin's longstanding connection to the local communities of nearly two decades made the partnership possible, and her extensive collaboration with the oven designer, Randy Chung, in the preceding months made the project four-week timeline feasible. Before my arrival, they communicated with the village leaders to do two things: 1) Reaffirm that each of the villages wanted a biochar oven as they had readily expressed in the project design phase. 2) Confirm that the village's designated oven sites were conducive to terra preta production (accessible, central, and near a water source).

In an unanticipated difficulty, communications with two of the villages prompted us to reconsider whether we should build ovens in those particular communities. We did not want to build an oven in a village unless they were wholeheartedly enthused by the prospect, both on the principal of morally-sound aid and bearing in mind that there were other eager, potential recipients. In Alto Pucalpilllo, only one very large extended family committed to the use of terra preta. In Molosho, community members had initially chosen a site that failed to meet any of the predetermined qualifications; it was neither accessible, nor central, nor was it near a water source. In a turn of positive news, Alto Pucalpilllo decided that they did indeed want the biochar oven (with the stipulation that a majority of community members planned to use it, in addition to the originally interested family). Molosho also re-approached us, having changed the site selection to make oven construction possible. When the villages and sites were approved, Randy built a roof structure at each site, under which each oven would be constructed.

Once I arrived in Perú, the team of students, Dr. Apffel Marglin, and her team Randy Chung, Ingeniero Teddy Saavedra Benzaquen and Técnico Royner Sangama Sangama, and myself went immediately to Shukshuyaku to begin building of the oven. Of the four communities, we had definitively planned to visit Shukshuyaku first because they had held off on harvesting their crops until they could share the experience with us. The order in which we visited the remaining communities was determined by rainfall. In Shukshuyaku, getting to know the community members, whether through participating in their planting ritual, playing with the local children, or learning phrases in Quechua, was integral in understanding their way of life. By

their graciousness, we were welcomed into the fold of daily life, and caught a glimpse of the suffering into which they had been subjugated.

When this group was conquered, they were pushed to the steepest land with the least fertile soil, where growing conditions were the most difficult. I met community members who walk up to six hours daily to reach and return from their gardens, sometimes carrying loads of nearly 130 pounds on their back. Without other options, adult community members turn toward manual labor to provide enough money for their families to purchase even the cheapest food. In these communities, there is extreme food insecurity and malnutrition on top of devastating, almost irreparable environmental damage. To viscerally, rather than just conceptually, understand the trials that these people face, made the resolution all the more urgent. Meeting and speaking with these people, who confront this as a daily reality, made me even more certain that the Davis Peace Project grant and I were making a truly profound difference in the locals' lives. Terra preta could potentially eliminate the leading cause of deforestation, economically stabilize and geographically centralize communities, and provide proper nutrition.

But the road to progress is a gradual one. The four-century tradition of slash and burn will be difficult to change, despite demonstrated excitement over terra preta. All four communities plan to integrate this soil into their communities in different ways, and thus, face different challenges.

Shukshuyaku was the only community with an existing communal garden in addition to each family's individual garden. Before having their own biochar oven, the Sachamama Center had exported small quantities of terra preta to their communal garden. They are very enthusiastic to receive terra preta and plan to use it in both their communal and personal gardens. In Solo, the community members continually referred to the terra preta as an 'abono', or fertilizer. We tried to make the distinction that terra preta needs to be applied every harvest in the same plot in order to build up and yield its full potential. If the villagers treat it as a fertilizer and do not regularly reapply it to the same plot, it will not yield the results (of producing 880% more harvest) that we have promised, and the villagers would likely abandon the commitment to making the soil.¹ In Alto Pucalpillio, it is likely that the village leader's enthusiasm for using terra preta to make a productive garden plot near his home (a previously unthinkable concept) will set a precedent for other community members. Compounded by the fact that there is no remaining arable land in this area, terra preta is an attractive new prospect. Molosho's support for the oven is renewed since the location was renegotiated.

The challenges of adopting terra preta in the long run remain formidable, with time as the ultimate test. Notably though, the anticipated outcome is very promising.

Peace in Action: Peace can manifest itself on global, communal, and personal levels, and functions as a regenerative stabilizer in each setting. Peace with the earth is having gratitude for its life-sustaining capacity and nourishment. To enact this gratitude is to engage in a reciprocal cycle of giving and taking so that all of the earth's living beings can survive, thrive, and grow. Peace with your community is being able to support one another in times of abundance and in times of need. And peace within yourself is having done your best to contribute to a larger whole. The terra preta project taps into all of the three aforementioned branches of peace by promoting a cycle of 'biocultural regeneration'². In the short term, the project allows four communities to start practicing sustainable agriculture to the benefit of the global environment and their community health. In the long term, these communities have the potential to exemplify the transformative power of this anthropogenic soil, thus spreading its production and use.

My time in Perú has re-emphasized that environmental and human health are inseparable. Bringing biochar ovens so that the indigenous people can sustainably and autonomously produce terra preta has strengthened my deeply rooted value of practicing reciprocity with the earth in order to create a lasting peace.

1. BBC. (2002, December 19). The secret of el dorado - programme summary. Retrieved from BBC News website: <http://www.bbc.co.uk/science/horizon/2002/eldorado.shtml>

2. The term 'biocultural regeneration' was coined by the Sachamama Center for Biocultural Regeneration

