Intellectual and Ecological Traditional Knowledge: Can It Be Sustained Through Natural Products Development? Case Studies from Thailand, Tibet, Ghana, and Guatemala

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Sustainability, as defined by Charles Peters (1994), means having a greater abundance of mixed ages of keystone plant species growing than being harvested within a forest. In this presentation, I hope to demonstrate, through case studies, not only how sustainability is indeed ecologically what Dr. Peters said, but also how it is enriched and further sustained by the ecological and intellectual knowledge held by the cultures and their economies dependant upon the specific geographic region in which they reside. Furthermore, when the traditional ecological knowledge (TEK) and intellectual property rights (IPR) are sustained, the result can be mutually beneficial to people when applied to natural products microenterprises.

In this paper, I will describe four projects that have complemented sustainability with medicinal plant products from traditional sources. These preliminary projects are the creative results of responding to requests for alternative modes of income that benefit traditional peoples. The meetings and conversations that arose determined how relationships were structured, what knowledge could be shared and therefore included in the projects, and what results may be realized by these actions. Never was a project considered without the direct intervention by the traditional members of the team or without their agreement after clarity had been reached.

Even though TEK, knowledge held by traditional peoples about when to harvest and where to harvest useful plants, may be the most critical information to the success of a natural products enterprise, it must be woven into a program that acknowledges and is mutually beneficial to the IPR and the value systems of the traditional group.

IPR issues are also important because these benefits must be returned in a way that sustains the project and meets the needs of the community. This is an area that has stimulated great polarity as many "well-meaning outsiders" have thought they were assisting people while in reality they were blindly casting traditional wisdom away. However, it is also a difficult task for traditional people to determine what IPR is critical for them to protect because it is a foreign value system, resulting from a competitive market economy. A successful project daughters new smaller projects while promoting the current one. It protects the environmental resources, offers training, and imparts skills to community members. Skills may include plant collection and studies, collection of biological data about the products' traditional use, production, marketing, and sales.

Each international project is different because each cultural group has unique requests for how the project should be implemented, what materials are included in the project, and how benefits are to be shared. Each project also has a unique approach depending on the funding. Projects that may not have long-term funding need to take a different approach from projects that are secure in larger grants. When monies are not provided, the only way to succeed is to choose a path that rapidly creates revenue. The time required for training of personnel is limited so those already aware of marketing and business attitudes are initially contacted. Working with people in urban areas who already have production abilities and the understanding of American businesses is preferred. This is still ethnobotany because it is the direct interaction of plants and culture, but it is not the romantic definition assumed by most. Regardless of the approach, from the beginning, a clear understanding that shared profits

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are an essential part of any agreement is established with benefits supporting the sustaining of traditional knowledge and people.

THAILAND

In Thailand, after many discussions extended over a few years, we visited to confirm the project parameters. We chose to work with urban colleagues who wanted to make products from traditional medicines and support traditional knowledge. We visited a hospital to verify our formulas. The hospital offered allopathic medicine as well as traditional remedies. The patients could choose which medical system they preferred. We interviewed the pharmacist, toured the facilities, and saw the processing of the raw materials and the onsite making of the herbal pills dispensed from the pharmacy. We verified that the formula and dosage of a particular formula matched the one we intended to market in the U.S. In return for their help, we offered a donation for their building of a new processing facility. For the same project, we visited organic farmers to determine the quality and availability of raw materials as well as Thai massage schools where students were learning to make traditional herbal products. To complete our tour, we visited several suppliers and manufacturers with whom we hoped to partner in the future as well as university departments where biological and chemical assays could be performed on the new products. Finally, we met with colleagues who would act as liaisons to traditional healers we hoped to visit on a return trip. Even though it was an urban-based project, in each step we made sure that IPR and TEK were acknowledged and included. The result was two products based on traditional recipes and use, verified in the hospitals, with materials procured from quality sources and IPR rewarded to sustain training in traditional methodologies and current market systems as well as quality of production.

TIBET

The Tibetan project focused on ecological and cultural criteria. Unlike the case study in Thailand, the product was already active in the domestic market; before increased promotions, we were asked to audit the facility and set up research plots for a feasibility study of the sustainability of the raw materials. We made two visits before the field study. This gave us time to meet the members of the team, write up agreements, and scout out field sites and plants of focus.

Since the Tibetan homeland is predominately high altitude, concern for their raw materials through traditional sources was integral to the success of the project. We coordinated a field trip to one of the collecting areas of the Amchis or traditional healer. We visited his village and met with the local collectors and Amchis. While in the field, we observed and discussed the compromised availability of the raw materials, implemented study plots, and created awareness about the depletion of the medicinal plants. The plants were disappearing rapidly due to large numbers of Chinese emigrants in the region and their introduction of grazing animals other than yaks. The yak, a browser like the buffalo, does not consume all plants in its path. When we sought plants to collect and areas in which to set up study sites, we found degradation of the usual collecting sites. This led to the understanding that limits needed to be established and cultivated materials needed to be protected from browsing animals. It was at this point that the Amchis and collectors exchanged traditional ecological knowledge, and we surveyed areas to study and places where gardens could be established by the villagers. This was possible because the land is communal and available to all village members. Again the project began new alternative income projects, expanded knowledge of the plant population biology, and transferred technology while sustaining the land and culture.

The greatest exchange of technology was training the Amchis and collectors how to set up plots for harvest studies and plant identification classes. The sites were plotted with the assistance of the local people within their active collection areas. The sites were replicated a minimum of three times. Several plants were investigated this way, and the local people were given the role of overseeing the collection from the plots when the appropriate plant part was traditionally harvested. The plots were a unique endeavor: no other harvesting study has included the idea of testing the quality of the harvested materials used as medicines.

Some success of the project was clear as the training allowed for the continuation of the

project without our intervention by introducing the Tibetan Hospital to the local ecological institutional staff. They could collaborate to identify the plants and integrate the accumulated knowledge, the plant identity, and the conservation status of these plants into a plan for medicinal plant preservation in the area.

GHANA

In Ghana a pharmacologist with many years of experience in developing traditional medicine asked for involvement in our programs. He was able to offer a formula that he had used for a period of time based on traditional medicine. He worked in conjunction with the local university that collected and identified the botanicals as well as with the traditional health institutions to manufacture and validate his formulas. In trade he was given travel to natural products meetings where he could see how he might interact in the commerce of the natural products industry as well as assist us in training retail sales staff. This was critical for introducing new medicinals into the marketplace. The retailer had no idea how to promote this without sales support, and these conversations with the research and development staff showed us that this was the only way a product could be sold. As one of the long-term results of this relationship, the man has been able to establish a healers collective in Ghana that is currently approaching the government to secure the legality of selling and using traditional medicine in-country. With continued success, the revenues generated for this project will provide equipment that adds value in-country to the product.

GUATEMALA

The Mayan people in Guatemala have been persecuted for many years. They live in an area that is rich in diversity and they have the skills to maintain it. However, through various national laws, their culture, including their language, has been decimated. Only recently have many found ways to support the resurgence of their culture. They have initiated projects that have generated funds to purchase land and begin right livelihoods, jobs that are satisfying economically, environmentally sound, and pleasing to the employed in a social aspect. We began working with a women's cooperative, collaborating with a non-governmental organization (NGO), seeking someone to assist them in developing and improving their markets for their in-country products. They had identified the plants they wanted to focus on, and had procured land from the local government to protect supply. They wanted to gear the products for tourists so with advice from a foreigner passing through, they made aqueous alcohol extracts of their traditional teas. However, due to their lack of experience with this type of product, they did not have any data about whether it was safe to use or if the extracts were biologically active. This was the result of someone trying to assist by thinking they were creating streams of revenues, but having a total disregard for the TEK and IPR. What these folks needed was to validate their products for the domestic market. So we met with university people to set up IPR agreements and develop assays to assist them in gathering information and allowing for the legal sale of the product in their country.

Building a domestic trade in a product is the only way a sustainable business can advance. Because there is always a possibility that the international market will change or dissolve, validating a domestic market is critical for an economically sustainable project. Strengthening your partners' understanding and abilities will support your efforts towards quality and profits. With the adding of value in the source country, your whole team benefits.

The biggest obstacle in this program was trust. There had been so many forces telling the Mayan people what to do: the government from the past, and more recently, the NGOs. The issues of IPR have become so polarized that this group cannot determine who to trust and what IPR is critical to protect. I am at a loss as to how to resolve this and will continue to provide what these people request and offer self-determination activities for the group whether it results in my involvement or not.

What was critical in all these projects was the need to offer financial, ecological, and cultural stability. However, the information itself must come from the people within the country of origin. We have skills to help them reach their goals and ours only if we can integrate their knowledge into a mutually beneficial project. These are examples of some unique approaches to incorporate IPR and TEK into natural products microenterprises.

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