Title: Using Coconuts as Natural Resources for Economic Development in Under-Developed Countries

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Abstract:

Introduction

One of the most promising ways to alleviate global poverty is to identify an abundant, renewable resource in under-developed countries that can be processed locally to create value, providing jobs and income to the community. Coconuts are an idea renewable resource that grows abundantly in a 2800 mile-wide tropical zone around the earth that is centered on the equator, where poverty is epidemic. More than 10 million families in this tropic zone subsist on less than $500/year as coconut farmers, due to lack of demand for their coconuts. Whole Tree Inc. is creating a family of products that can be produced from the constituent parts of the coconut, using village-scale technology, increasing their value from less than $0.10 to more than $1 per coconut, multiplying the income of 10 million coconut farmers worldwide from $500/year to $5000/year.

Approach

We are developing an exciting family of technologies that convert the coconut husk, shell, and copra (or white meat) into significant value added products, some that will be sold in-country and some that will be exported to developing counties for a better price point. These technologies will be made available through locally owned franchises. New products developed by Whole Tree Inc that can be produced from coconuts include binder-less particle board and new types of “green” reinforcements for polymeric composite materials. Traditional products that will also be produced include in the product mix, including erosion resistant netting, charcoal, potting materials for gardening and coconut oil. The economic viability of a franchise is greatly enhanced when EVERY constituent part of the coconut is processed into some value-added product that can be sold locally or exported.

Examples of Technologies Developed

Conventional particle board is made with toxic binders (or glue), and the binder is 50% of the cost of the product. Whole Tree Inc has developed a binder-less particle board using constituent parts of the coconut husk. When processed using the right combination of temperature and pressure, the coconut coir behaves like a thermosetting resin, producing binder-less particle board that has mechanical properties that are similar to particle board made with glue. A second, value-added product from the coconut will be the use of coconut fibers in specialized applications as reinforcement in polymer matrix composites. The coconut fiber has excellent strength and stiffness, combined with reasonable ductility. It biggest competitive advantage compared to synthetic, petroleum based synthetic fibers such as polypropylene is that it has a naturally rough surface, giving much better load transfer from the polymer matrix to the fiber. A third new value-added product is the use of ground coconut shell, which is 5X harder than the hardest wood grown in the US.

Economic Opportunities

Currently, 50 billion coconuts are grown annually in the world, 96% by poor coconut farmers. The value of the products produced from coconuts was only $3 billion in 2006, or 16¢ per coconut, with >95% of this value in coconut oil, which is used for cooking and skin and hair products. While we too will produce coconut oil, we plan to use our husks and shells as well as those from other oil producer to make significant value-added products as described above out of what is currently "garbage" in many developing countries. We already have a standing order for 800 shipping containers per year of coco-peat (or coco-pith) worth ~$8,000,000 inclusive of shipping. We are doing a proof of concept project with a large automotive supplier who is eager to use the coconut fiber and coconut shell in automotive composite materials, which would be a huge market. These markets will make the coconuts worth about $0.80-$1.60 each rather than the current value of $0.16.

Game Plan for Making These Opportunities Widely Available

We plan to make these technologies available worldwide through a network of franchises. Interested partners have already been identified in at least twelve different countries, with many more inquiries from economic development agencies, NGOs and Christian organizations in under developed countries that are eagerly looking for ideas help their people. The World Bank stands ready to provide financing for ideas that have been demonstrated to work, once we have proven the cash flow and capital recovery of three years or less, which we believe is realistic. We will begin by doing proof-of-concept projects in Ghana, Mexico and the Philippines to demonstrate how the franchises will work and optimize the production, shipping and marketing details. Once this is done, we will rapidly deploy franchises around the world.

Summary

We are initiating a franchising venture that will assist poor people to extract the full economic value from their coconuts, increasing the quality of life of poor people around the world by providing opportunity rather than charity, a hand instead of a handout, through mutually beneficial partnerships.