LIVING LABS GLOBAL AWARD 2012

The Living Labs Global Award Submission Process

Step 1: Registration

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Step 2: Solution Title & Summary

Title
The Global Village Construction Set (GVCS)

Sub Title

Summary
We are working on the Global Village Construction Set (GVCS) - a modular, DIY, low-cost, high-performance platform that allows for the easy fabrication of the 50 different industrial machines that it takes to build a small, sustainable civilization with modern comforts. Our goal is to create the next economy, an open source economy, which optimizes both production and distribution while providing environmental regeneration and social justice.

We redesign conventional technology necessary for high living standards so that it is open source, increasingly affordable to make, user serviceable, designed to last a lifetime, and available for use without restriction anywhere in the world. The platform returns the power to produce clean energy, manufacture goods, construct buildings, and grow food into people's hands at the local level.

The GVCS enables the rapid deployment of local construction enterprises building mass, smart, and low-cost housing units made from abundant, readily available resources like earth blocks and scrap metal. We are submitting a Microhouse design that is affordable, energy efficient, and incorporates sanitation and energy production systems that provide accessibility as well as a low environmental impact. Our entry not only proposes a solution to housing shortages in developing nations, but also

offers a way to use local enterprise to sustain the project and develop the surrounding economy at the same time.

Tags

Step 3: Solution Description

Challenge

We are addressing the lack of adequate housing in many parts of the world. The main barrier is materials cost, but it is possible to make drastic price reductions using earth brick architecture. Construction technology is also costly, but open source technology is affordable and available for anyone to use anywhere in the world. Our challenge is to accelerate the innovation of open hardware so that we can rapidly deploy housing and enterprise-based solutions to poverty across the planet.

Solution

Through open source, global collaboration, we accelerate the development of solutions to economic and environmental issues by entering into innovation-sharing partnerships with people who experience these problems most directly. We provide comprehensive learning materials that facilitate the independent replication of the Global Village Construction Set through a format similar to Wikipedia. In turn, we are provided with data from independent replicators on how we can improve the designs so that, over time, they are more accessible, cost less, are more productive, last longer, and integrate further with natural ecological systems.

The GVCS machinery includes a tractor, soil pulverizer, compressed earth brick press and wood gasifier with heat exchanger, which enable the construction of the OSE Microhouse. Using earth block architecture, we can drastically reduce housing construction costs and carbon output. For example, the technology can produce 5,000 blocks a day made from soil using a single tank of gas. We are presenting a basic 45m2 design using double-wall construction and straw insulation, and the building is modular to provide expandable living spaces for growing families.

Economic Impact

One of the primary advantages we offer people that we work with is low-cost, high-performance technology. By lowering the barriers of entry for the development of enterprise and training producers, we stimulate the growth of small businesses and local production brining wealth back to communities. The John Deere equivalent to our tractor costs $44,000. Ours costs $6,300 at the onset, but can be made for less than $1,000 when materials are sourced from repurposed scrap metal using the other tools in the platform. Tractors add a huge amount of value to a local economy by facilitating construction and agriculture, and that's just one machine in the platform.

The GVCS technology spans a cross-section of industries with a combined value of trillions of dollars, yet we are engaging untapped economic potential in parallel to the global market. We work with people who lie outside of most consumer markets, but our approach is innovative because the

productive capacity of the machinery we develop approaches conventional manufacturing standards over time. There is an immense amount of power to liberate communities through this program.

Community Impact

We design low-cost energy production, manufacturing, construction, and agricultural capital for the development of local enterprises based on distributive economics. We incubate open business models and make them as widely available as possible, and we train producers to build and service the technology that underlies their own business.

Imagine the intention behind the World's Fair in the early Twentieth Century. The event's organizers used old-fashioned showmanship and the captivating power of newly emerging advertising techniques to produce a spectacle that would demonstrate to audiences just how advanced modern technology was becoming. We are in an age of amazing technological abundance, but you almost have to actively seek out an understanding of just how astounding our time in history truly is. The Industrial Revolution is just beginning in developing nations for the billion people living in extreme poverty, yet this time, the revolution is made up of tools that people can build themselves generating economies and wealth based on how well local resources are managed instead of the destructive pursuit of endless expansion. It is possible, not soon and not eventually, but right now, to rapidly disseminate incredibly powerful tools to relocalized production and ignite a new economy.

Climate Impact

Our platform contains a menu of clean energy systems that can be selected based on regional strengths and available resources. The GVCS platform contains designs and training materials to build a solar concentrator, wind turbine, biomass pelletizer, gasifier/burner, and a modern steam engine based on time-proven designs. Other carbon-reductions are gained through the use of earth block construction methods, the integration of urban agricultural systems, and even the use of an induction furnace to make virgin steel from scrap metal instead of relying on foundries to produce and transport new dimensional steel to where it is needed.

When attempting to quantify the value and carbon-saving impact of open source technology, it is important to consider that collaborative projects that develop around pressing human issues are innovated more rapidly than proprietary technology. The trend is for designs to become more efficient and effective as users across the planet refine and customize the technology to suit their purposes. Together, we can plant the seeds and harvest a new post-scarcity economy that serves as a bridge through the impending economic/environmental crisis.