



GRO GREENHOUSES

In a partnership with Pennsylvania State University's Humanitarian Engineering and Social Entrepreneurship Program (PSU-HESE) and Lehigh University, World Hope International (WHI) works with local partners to sell GRO Greenhouses in Sierra Leone, helping farmers grow vegetables year-round and in a manner that is adaptive to changing climates.

The GRO Greenhouse project aims to identify and accelerate innovative technologies and market-driven approaches that improve water sustainability, ultimately helping to boost food security and alleviate poverty. It was named an Innovation Awardee in the Securing Water for Food Grand Challenge for Development by the US Agency for International Development (USAID) in 2014.

By developing an independent for-profit GRO Greenhouse business, WHI will:

- Reduce agricultural water consumption
- Increase volume of produce sold
- Increase number hectares of land with affordable greenhouses
- Enhance farmer adoption of the greenhouses

FOOD SECURITY

The greenhouses mitigate food insecurity and have the power to transform communities' wellbeing through increased opportunities to grow vegetables year round and the availability of affordable vegetables. They diversify the rice-based diet with more sources of vitamins and minerals available in vegetables and enable farmers to grow vegetables in a small land area with minimal pest and disease challenges.

WOMEN'S ECONOMIC EMPOWERMENT

The equal participation of women in the economy is a major challenge in Sierra Leone and a priority for the government. Food insecurity is more pronounced in households headed by women and poverty is linked to the subsistence agriculture practiced in Sierra Leone. By providing women with the means to more successful farming, they are economically empowered to take charge of her future and economic livelihood.

OPPORTUNITIES FOR YOUTH

The greenhouses can create job opportunities for both secondary school and university graduates who may want to embark on agricultural / farming activities. GRO greenhouse project will reduce youth migration to cities in search of jobs, since agriculture is not only a more gainful activity through the greenhouses, but can also afford the opportunity to explore hydroponic farming and other cutting-edge techniques.



WATER CONSERVATION

The greenhouses require less water than farming outside, with some beneficiaries reports showing up to an 86% reduction in water usage. This allows farmers to save on costs as well as conserve water for drinking and sanitation purposes.

EDUCATION

Because the Greenhouses also allow farmers to grow more produce with far less water, the benefits expand into education and social protection, particularly for girls, who often bear the household burden of collecting water. The school feeding programs also enable children to focus and thrive, who may otherwise go hungry during school and suffer the consequences of a poorer academic performance and lowered career trajectory.

In an effort to maintain global standards on GRO greenhouses innovation and to create greater understanding on the vegetable production/cultivation and awareness on vegetable consumption as a nutritional health benefit in an under developed country, educational institutions are targeted.

CLIMATE RESILIENCY

Climate change is expected to exacerbate the inconsistencies in crop yields that occur across the wet and dry seasons, increasing the frequency of extreme events and varying the timing of rainfall. GRO Greenhouses provide a more controlled environment for farming, reducing water consumption and ensuring crop production despite seasonal fluctuations in weather. The ability to cultivate crops the whole year guarantees greater food security, as crops are not susceptible to rainy and dry seasons.

HOW THE GRO GREENHOUSE MODEL WORKS

Smallholder farmers and vegetable growers are able to buy affordable greenhouses, either alone or in a small group or through International non-governmental organizations, transforming their livelihoods, health, and water usage. Farming associations and co-ops as well as educational institutions including primary, secondary, tertiary, and technical vocational schools can also acquire the greenhouses and use them for school feeding projects as well as agricultural research and training grounds.

GRO Greenhouses are portable, expandable and, at approximately \$800, priced so that farmers can recover their cost in a relatively short period.

They can be constructed in just two days and last over five years – a stark difference from conventional small-scale greenhouses that are expensive, high-maintenance and difficult to construct.

Further, the ability to grow crops all year allows farmers to sell crops to the market when prices for products are higher. Vegetables hold a high-profit margin in sub-Saharan Africa, where supply is limited and malnutrition is high.

Popular vegetables grown in GRO Greenhouses include sweet peppers, lettuce, tomatoes, okra, hot peppers, cucumbers, and African eggplant.



Contact Us

World Hope International
1330 Braddock Place, Suite 301
Alexandria, VA 22314

+1 (703) 923-9414
www.worldhope.org
info@worldhope.org

“We are very much grateful to WHI/GRO greenhouse project intervention. The expansion of vegetable cultivation gardens have help them to grow more assorted vegetable and they have increase their crop yield and cash sale during harvest.”

“They were also able to make more money and improve their family food, especially for school going pupils, and vegetable cultivation has become a major source of livelihood and women are proudly taking care of their children without depending on men, as most of the women are single parents and some are widows.”

“The crime rate among youths has also reduced and now the community has become a major supplier of vegetables...”

~Madam Sellu, Head Woman of Sierra Leonean Village