

DM2009 Project Summary

Project Number: 3842 Booth Number: 43

Solar Houses and Fog Collectors to Mitigate Food, Water, and Energy Crises

COUNTRY: Kenya

ORGANIZATION: Weather and Environmental
Constraints Screening Initiatives Organization

FUNDING REQUEST: \$200,000

OBJECTIVE: To build the local communities' capacity for significant investments in adaptation and mitigation of climate change effects in agriculture, water, and energy production, by using photovoltaic ChromatiNet shade houses to harvest solar energy and sunscreen crops, while fog collectors collect potable water from fog droplets. Ten thousand farmers will stimulate local food production, increase income, and reduce hunger by at least 40 percent. More than 1 million people in arid zones will check the looming famine and combat the encroaching desert.

RATIONALE: About 3 million people in the eastern province are faced with critical food, water, and energy shortages as a result of the looming famine, fuelled by rising global temperatures, and shrinking agricultural and environmental productivity in Kenya. Of the total land mass for the country, 83 percent lies either in arid or semiarid zones, while only 17 percent of the country's arable land is productive, although also facing nutrient deficiencies due to over-cultivation of crops, high input costs, and increased climate variability. Even if the government revives all the stalled irrigation programs and declares total war on depletion of water catchment areas, the increased rate of evaporation and the formation of hard pans in the open fields will still hit farming activities harder. The project's major materials (ChromaticNets and fog collectors) are made from solid plastic wastes, which are abundant. The diffusion of these cheap weather and environmental screening facilities will enable poor and marginalized communities in arid habitats, and even in rain-fed regions experiencing long dry spells, to resist climatic-change devastation on biodiversity and agricultural productivity.

INNOVATION: The project will integrate affordable innovative technologies from all recyclable plastic wastes to make thin-film photovoltaics, embedded in shade nets, that harness energy from the sun's rays as the fog collectors harness water from the fog at night. By blending these technologies into woven shade nets/fog collectors or woven plastic sheeting for high-tech agriculture, farmers and communities will increasingly be able to choose clean local water, food, and energy over centralized systems of resource distribution in the country.

CONTACT: Tom Okumu
tomcoh79@yahoo.com