

Needful Provision, Inc. (NPI)

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04 January 2014

Memo To: NPI's Board & Supporters

Subject: 2013 Use of Funds & Annual Report for NPI

During 2013, NPI continued its teaching of self-help technologies via distance education means, using NPI's website. Urban farming operations plans were updated for Greensboro, NC for 84 Montagnard refugee families. Extensive planning and preparations were undertaken to begin manufacturing of NPI's self-help items via NPI's affiliated for-profit, PSI. Initial products will be a garden training model, biochar kiln and composting toilet able to generate green electricity. Research was undertaken on development/ manufacturing of a large, mobile biochar kiln that converts insect-killed/ dead timber into biofuels, biochar (to help increase soil fertility), and green electricity production using kiln heat to power thermoelectric generator.

NPI continued assistance to the GOK's (Govt. of Kenya's) planning efforts for an irrigation canal intended to help improve food security for Kenya while increasing exports and creating quality jobs ...in the process of making desert/ arid regions in Kenya's North Eastern Province productive using counter-desertification methods. As you know, this area has an estimated population of 2.3 million, who are primarily Somali pastoralists with nearly 3 million livestock ... mostly goats and Arabian camels. This population now includes over 500,000 Somali refugees, in refugee camps like Dadaab. The combination of prolonged drought broken by rare cases of severe flooding acts to keep these populations in extreme poverty. (A similar project might benefit Eastern Province using a canal to provide irrigation water for arid lands upwards of 70 to 100 km East from Lake Turkana.)

As desired by the GOK, NPI is prepared to assist in subject effort by soon undertaking several projects that support project goals. To wit:

- 1) To assist in the design of irrigation canals that will support micro-drip irrigation of large desert areas, with canals designed to tolerate periodic flooding;
- 2) Creation of bioactivated biochar, from woody/ crop wastes, to assist in making selected desert sands/ soils far more productive;
- 3) Development of large-scale micro-drip, subsurface irrigations systems;
- 4) Use of sand-filtered livestock manure effluent, for addition to irrigation water to provide crops/ trees with essential nutrients;
- 5) Planting of Facai (Fa Cai) a desert vegetable, providing excellent ground cover to shade sand/ soil and help keep sand from blowing;
- 6) Creation of artificial and natural windbreaks to protect plants from hot desert winds;

- 7) Establishment of a symbiotic mix of food, feed, fiber, niche and green energy crops that produce well on desert sands when drip-irrigated and provided with essential nutrients;
- 8) Start of a biofuels industry based on lipids produced by the jojoba grown as a profitable green energy crop;
- 9) Harvesting and export of surplus Facai to P.R. China, where this desert vegetable is favored as a food, and in great demand;
- 10) Development of markets for products from tree crops planted, such as resin from Myrrh trees planted (some wild Myrrh trees already grow in subject area); and
- 11) Production of algal lipids & algal feed supplements by growing algae in a tube system, known as tubal-algalculture, designed to facilitate algae production in desert areas.

One of the early and very successful counter-desertification (CD) projects was undertaken in the Thar Desert of NW India. NPI has improved upon the technologies used for the Thar project, and added several new technologies to those proven in India. As an example, NPI's algalculture system is based on my U.S. Patent No. 5,121,708 and my tube algalculture system (Patent Application No. 61/744,995). The algal lipids so produced are edible omega-3 oils that may be consumed, or they may be used to make algal-biodiesel fuel or a solid-fuel briquette to replace charcoal/ wood for cooking. Algal solids, not used in any of the above said processes, may be used to make livestock feeds high in protein, vitamins, minerals and polyphenolics (to boost immune system responses). NPI's technology additions to counter-desertification efforts are too many/ too complex to explain in this summary report.

NPI's pending partners, for any proposed counter-desertification efforts generally include: 1) The Chinese Academy of Sciences (P.R. China), assisting with Facai production farming on desert sands; 2) The University of Arizona (USA), helping to develop counter-desertification for desert areas; 3) NC State University (USA) assisting with perfection of biochar kiln uses to make bioactivated biochar to greatly increase fertility of soils/ sands; and 4) Brinkman Forest Restoration, a Canadian company most successful in starting tree nurseries and tree planting systems, worldwide. In the case of Kenya, NPI has a Kenyan Division, directed by Gacii Waciuma (a native Kenyan), that would participate in proposed efforts.

Ideally, NPI would seek a 10 year contract to make 70,000 ha (hectares) of desert/ arid lands productive using the above counter-desertification methods outlined. This would be a 7,000 ha effort (4,000 ha crops plus 3,000 ha trees) per year, at a cost detailed in NPI's project proposal. The initial estimate is a cost of U.S. \$17 million per year, with revenues from the sale of cash crops produced to pay most of these expenses after the third year.

Please be advised that NPI has recently asked USAID to fund a project similar to the above. NPI expects to help arrange project funding from USAID, World Bank, Gates Foundation and others ...and we wish to engage your Ministries in discussions about how we might better work together in meeting shared goals. NPI is aware of security issues in the North Eastern Province, as related to Somali bandits/ insurgents and al-Shabab terrorists (from Somalia) conducting provocations and attacks in this territory bordering Somalia. The cost of necessary security will be a part of overall project costs. As the Somali see personal benefits of counter-desertification efforts, security concerns will be reduced.

In Cortez, Colorado, NPI is helping a local school, the Unlimited Learning Center, start an urban farming demonstration/ teaching project to grow local, fresh, organic foods for its staff and students. Also discussions were proposed for the nearby Navajo nation on the possible start of a counter-desertification project for the Navajo. Cortez Milling, of Cortez, Colorado is sponsoring/ funding NPI's school garden model and related facilities for educational programs to benefit local K-12 students.

NPI assisted the U.S. Special Operations Command (SOCOM) in planning of new civic action efforts for special operations forces. Support was also provided to MAC (Millennium Aerospace Corp.) for a pending dual security & development project for the Philippines. Some planning for advanced research continued for NPI's work with The University of Arizona and The Chinese Academy of Sciences (P.R. China) as regards improvement of Facai (Fa Cai) production on desert lands as part of NPI's counter-desertification efforts (see project outlined above). (Facai is a vegetable that grows well under arid conditions, and provides a good cover crop to keep sands from being blown in the wind.)

It should be noted that in 2013 NPI closed its training facility in Cherokee Co, Oklahoma due to continued security problems with training refugee farmers there. A local neo-Nazi (hate) group previously took extreme actions to damage NPI's facilities and engaged in armed assaults against NPI's refugee trainees. The real estate, improvements and equipment at this site were sold due to the above circumstances.

Throughout 2013, NPI continued work on several development innovations for Africa. In December 2013, USAID (the U.S. Agency for Intl. Development) advised NPI that eight of NPI's innovations might be considered for funding under its new Development Innovation Ventures (DIV) program for Africa. Those eight innovations are: 1) Counterdesertification; 2) Self-help Products; 3) Community Composting Toilets; 4) Barter Trade; 5) Tubal-Algalculture; 6) Agriculture Training Models; 7) Desert Food Production; & 8) Biosecure Poultry. We are hopeful that some of the above innovations will be funded in 2014.

David A. Nuttle, President

