

WFEO Energy Committee Report

17 October 2019

Our mission;

- deliver sustainable practices that can be use in countries with little resources;
- ensure that the connections between the work of Energy STC and the SDGs are clearly stated, maintained, enhanced and reported; and
- coordinate, monitor and report on our activities to WFEO members, to practicing engineers and related disciplines in the wider community, and to other NGOs, to governments, and to policy makers.

The work of the Committee on Energy focuses on enabling WFEO and the global engineering profession to support the achievement of the UN Sustainable Development Goal 7; Ensure access to affordable, reliable, sustainable and modern energy for all:

- 1) Develop sustainable engineering practices and technologies
 - 2) Share sustainable engineering practices with Global Engineering Community
 - 3) Identify and promote clean technologies and engineering practices to mitigate climate change
 - 4) Facilitate international cooperation on clean energy and technology, including renewable and energy efficiency;
 - 5) Develop guidelines for practicing engineers on responsible energy sustainable practices in various areas of engineering practice
- The Committee on Energy has focused on a Plant in the Box concept. The Committee asked, “what every society has readily available?” and the resounding answer is trash/waste. The trash varies from household trash to animal waste from agriculture. The Plant in the Box concept will take the majority of waste generated by a village and convert it into a sustainable resource. This concept can be rolled out to any rural village.
 - The biogas plant is sustainable as it treats farm waste or other biodegradable waste and transforms biomass waste into biogas (mainly methane and carbon dioxide), digestate and water. This technology is feasible for small holders of livestock in rural villages. This technology can be sized and located anywhere in the world. This plant will produce a high-quality biogas safe for use in homes with minimum maintenance costs. For users, biogas provides clean cooking energy, reduces indoor air pollution, and reduces the time needed for traditional biomass collection, especially for women and children. The digestate is a clean organic fertilizer that potentially increases agricultural productivity. The water can be further cleaned for drinking water or use for animals or irrigation.
 - Biogas technology is a proven and established technology in many parts of the world, with China and India embarking on large scale programs.
 - This plant will be manufactured as a skid mounted system that can be easily shipped and assembled in the field with minimum technology knowledge and limited heavy equipment.

- A full-scale model will be designed and built at a United States University to prove concept and work out any manufacturing bugs.
- WFEO Energy STC is working on a 9-cargo container design “Plant in the Box” concept that will be sized for a 1000-1500 person village in any country. The “Plant in the Box” will deliver heating and cooking fuel that is clean of contaminants making living spaces healthier. The biogas can also be used to generate electricity if desired. A digestate that is a high-quality fertilizer will be available for crop. And water, which can be cleaned up for drinking or use directly for animals or farming.

Plant in a Box

