

Economic Feasibility Study for Recycling System in Burkina Faso

Location: Burkina Faso/City of Ouagadougou

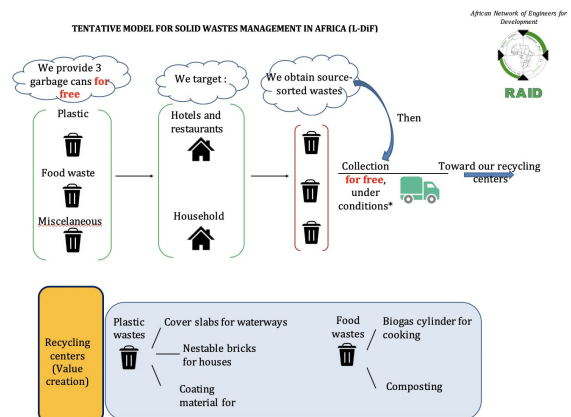
In-Country Partner Organization/Client: The African Network of Engineers for Development (RAID in French) is a registered startup in Ouagadougou, Burkina Faso. RAID has partnerships with the New Dawn University in Burkina Faso and the University of Hokkaido in Japan.

Project Background: Solid waste management in many African cities is a considerable problem. In the current economic model of solid waste management, households have to pay for the service which is managed by the states. Households typically do not have enough income to afford the service and even if they can, states are unable to offer quality service. As a result, there are many illegal dumping sites, overflowing waste receptacles, and trash scattered in streets and waterways. This situation has negative impacts on the environment, public health, hygiene, economics, and social welfare. Leachate of the garbage enters the soils polluting the groundwater, this combined with toxic fumes polluting the air cause people suffer from respiratory and skin diseases. The accumulation of garbage also leads to increase of mosquito populations and the spread of malaria. Tourism is a major component of economic prosperity in Africa; however, the visual disturbance of waste in addition to the public health concerns are a strong deterrence for tourism.

Project Problem Statement: The main idea of this project is to "re-think" solid waste management. Instead of asking people to pay for the service, we will do it for free. To achieve this goal, the L-DiF project is divided into two components, economic and value production. We provide the households and businesses with 3 types of garbage cans for plastic, food waste, and miscellaneous waste. We collect the garbage for free, under conditions that still have to be developed (proper sorting, value content, etc.). We aim to produce value and income from the recycling (plastic to make slabs and bricks, biogas and compost from food waste, etc.). We would like D-Lab students to conduct an economic feasibility study and propose improvement where applicable. It is also important for us to know the best practices of similar waste management economic models around the world and how they can be adapted to our case. Following the feasibility study will be a pilot test in a neighborhood in the capital city. If we are successful, we want this to be the standard of solid waste management for all African cities.

Project Goals and Objectives:

1. Feasibility Study
 - a. Investigate existing food waste derived biogas systems
2. Conceptual Design
 - a. Conduct prior art research on biogas from food waste and cylinder designs
 - b. Work with the client to determine design criteria





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- c. Make recommendations for D-Lab II
3. Design; Build; Test (D-Lab II)