Sustainable Sanitation Design – Round 6 GCExplorations winner

Who are we, what have we done and where are we going?

What is Sustainable Sanitation Design? Sustainable Sanitation Design (SuSan Design) is a business minded foundation focusing on bringing sanitation facilities to users in urban areas, schools and refugee camps in developing countries. SuSan Design is aiming at meeting sanitation challenges with a holistic design approach. Our work started in Uganda in 2007.

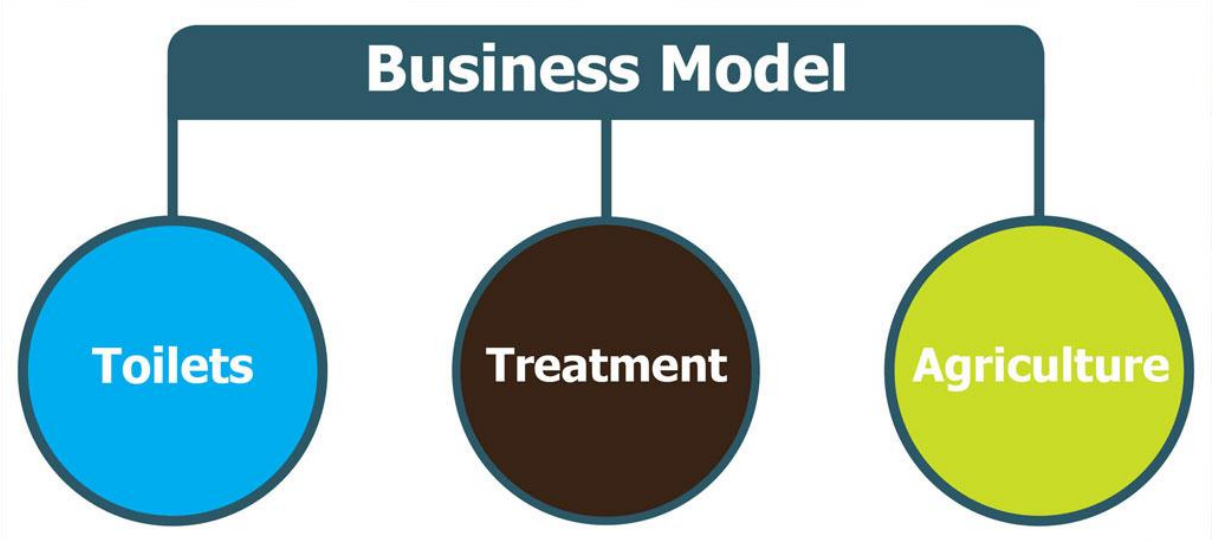
What is our mission? SuSan Design's mission is to:

- Develop and deliver innovative service concepts and products to form a sustainable sanitation value chain assuring schools, high density cities and refugee camps with quality sanitation systems.

- Create incentives and turnover by enabling return of the nutrients from human excreta as safe agricultural inputs for farmers and flower exporters

- Goal: Scale up service delivery and treatment to serve millions of users every day.

What is the SuSan Design concept? We utilize research from agricultural sciences and industrial/service design competencies to improve products and implementation strategies. Susan Design strategy is to create turnover by returning the nutrients from human excreta as a safe agricultural input for farmers. Amplifying the demand amongst farmers will generate incentives for establishment and operation of sanitation services. In order to offer sanitation services, Susan Design will develop and manage with partners a value chain with the tools/products necessary to run the business, such as low cost household sanitation products, urban public- and school sanitation units, storage- /transport containers, treatment process and application tools/services for the farmers. Several steps in the value chain have now been developed and field tested.



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What are our goals? Pollution is often caused by displaced resources. Our goal is to create incentives through value creation in agriculture to pull human excreta out of the cities where people today are exposed to it as pollution. At the same time as providing people with improved and safe sanitation we will provide farmers with safe fertilizer and soil improvement products. The treatment unit tested in Kampala, Uganda is now tested and ready for scale up.

How does it work? The SuSan Design technology upgrades human excreta from pathogenic material to safe agricultural fertilizers and soil improvers in 45 days. SuSan Design will partner with communities, governments, NGOs and impact investors to set up rational, functional and dignifying public toilet facilities in urban areas and peri-urban areas, schools and refugee camps. We plan to set up a partnerships/franchise to operate all the elements in the system. Great advantages of our science based treatment are: bottle neck free and no treatment volume limits.

What have we done? The centerpiece and technological platform of the system is the treatment unit. With Grand Challenges Explorations funding from Bill & Melinda Gates Foundation SuSan Design has created and implemented the first full scale ammonia/urea based treatment plant for human excreta. The pilot treatment unit has been operated in one cycle in January/February 2012 and treated human excreta from 2.000 users to valuable agricultural inputs. The results are demonstrating that urea treatment of human excreta produces safe, pathogen free soil improvement products and fertilizers that increase agricultural productivity.

The treatment unit
Two different sizes of treatment containers. Right: National Agricultural Research Organisation taking samples for field testing.

Who can utilize the output? We view acceptance as a challenge. Still the end products is applicable to a wide range of crops such as fodder, production of flowers, coffee, tea, cocoa and

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tree nuts (e.g. Cashew-, Macadamia-, Coconut), banana, maize and jackfruit. In short, agri production of non-edible and "remote growing" fruits. The natural fertilizer also has vast potential in production of algae's for aquaculture and biofuel production. (Planned test Madagascar 2013)

What about network? SuSan Design has a strong network in Uganda with local sanitation NGO SSWARS, Makerere University and WSP in addition to and international partners. Our technological partner is the renowned Swedish University of Agricultural Sciences.

What are our plans for GCE Phase II - 2013-2015? SuSan Design aims at establishing a business oriented sanitation value chain providing 100,000 slum dwellers with a safe and dignifying sanitation service by the end of 2015. We will develop the full value chain, from home via treatment unit to farmers scaled with capacity to collect, upgrade and deliver agri-inputs from the produced volumes. The ultimate aim is to develop an off-grid quality sanitation service model to be replicated across cities of East Africa and beyond.

What about economy? Our system will be financially carried by the income from the service delivery and sale of end products. In Africa the nutrient value from excreta is calculated to be thirteen times greater than the nutrient value from imported conventional fertilizers. In other words a value **10's of millions of USD** is misplaced, creating local pollution, nuisance and health challenges. Improved sanitation has a great potential to generate dignity and economic growth.

In order to transmit the potential for economic development created by sanitation SuSan Design published the paper: "Sanitation – an engine of Economic growth" in 2011.

http://www.sanitationfinance.org/content/sanitation-all-engine-economic-growth-urban-africa

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