Waste-based Business Models for Resource Recovery

Waste-based business models for resource recovery could be the solution to the sanitation challenges of low and middle income countries. This is the research aim of the Triple R Project (Resource, Recovery and Reuse), which is analysing the factors of business success in this industry. Lars Schöbitz[1], Christian Zurbrügg[1], Heiko Gebauer[2], Linda Strande[1]

Introduction

The challenge of dealing with solid and liquid waste management in rapidly growing urban areas is a widespread problem in low and middle income countries. The three year Resource, Recovery, and Reuse Project (RRR) was developed to analyse and test the feasibility and scale-up potential of successful waste-based resource recovery business models in four countries on three continents: Kampala, Uganda; Hanoi, Vietnam; Bangalore, India; and Lima, Peru. The goal is to identify their success factors and to study whether they could be replicated elsewhere. The international project team consists of researchers from Sandec/Eawag, the International Water Management Institute, the Swiss Tropical and Health Institute, the World Health Organization, and the International Centre for Water Management Services in collaboration with research partners in each of the project cities.

Analysing key drivers of business success

During the project's first year, researchers identified 150 business cases, from which 50 detailed case assessments were generated. The case assessments were organized into 20 different business models, using the Business Model Canvas as a template [1]. The main criteria were: input materials (wastewater, faecal sludge, urine, municipal solid waste, and agro-industrial waste streams), resource recovery output (water, energy and nutrients), and transformation processes. The researchers then determined the drivers of business success of the business models. Three of the principal factors identified are: use of an input-product formerly regarded as waste, producing valuable end-products for local markets, and ascertaining specific local market factors that make expansion and the reduction of investment costs possible.

Case studies of two companies

Two business models provide good, contrasting examples of drivers of business success. They are: the Honeysuckers in Bangalore and Manila Water in the Philippines (See Figure 1).

The success of the Honeysuckers was achieved by high demand for faecal sludge from farmers in the region, leading to the replication of micro-enterprises. The market for faecal sludge had become so competitive that farmers began to pay the Honeysuckers to discharge into their drying beds. In addition, local truck and chassis manufacturers offer business loans for trucks at low interest rates, greatly reducing the cost for investing in trucks. Vacuum pumps are also locally made, lowering their cost.

Manila Water`s success was achieved by establishing the resources to provide clean, potable and affordable water to millions of households. The company organized a public-private partnership with the national government in 1997, requiring the development of a sound corporate strategy and business plan. This made it eligible to receive low cost funding, which the company used for investments. It expanded its water infrastructure, leading to higher revenues and the development of a fully operational Faecal Sludge Management service chain. All household water bills include a 20 % water tariff, covering the cost of regular emptying of the septic tanks. Even poor households can afford this because the piped water's cost is lower than what they used to pay.

Future work of the RRR project

The RRR Project's next phase is to do feasibility studies to evaluate whether it is possible to successfully implement the 20 business models in each project city. These studies, based on multi-criteria assessments, will look at the local contexts of the four cities and explore the potential for the replication and scaling-up of the business models. Sandec's role will be to quantify waste supplies through material flow analyses, conduct a technical assessment of the business model technologies, and carry out an environmental impact assessment of the identified technologies. Other team members will look at health related issues, do financial and institutional analyses, as well as analyze market demand and socio-economic characteristics. It is expected that the results of the RRR Project could lead to improvements in the implementation of successful waste-based business models for resource recovery throughout the world.

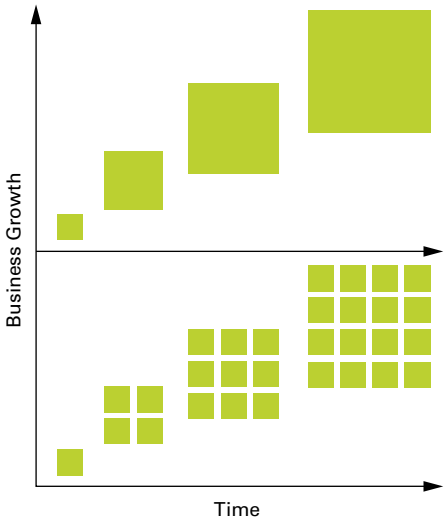

Figure 1: Traditional organic business growth and replication of micro-enterprises reaching the same type of coverage in Faecal Sludge Management.

[1] Osterwalder, A. et al. (2010): Business Model Generation. Self-published.

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