Investor Case Study: Development of Municipal Solid Waste Strategy

Geographic Location: Southeast Asia

Industry Sector: Waste

Client Type: Municipality

Project Investment: $32million

Return: 17%

Investment Recapture Period: 5.2 years

Background Information

Rauch Construction was appointed by the client to facilitate the development of an MSW strategy. To overcome multicultural barriers and to ensure the delivery of a comprehensive strategy, an integrated multicultural project team of project critical members was established and included finance, technology, engineering, design, construction and operations.

Solid waste management is a global issue that is a growing source of concern in developed and developing countries due to increased urbanization; changes in consumer pattern and industrialization, which all directly influence solid waste generation. The changes in consumption patterns with alterations of the waste characteristics have resulted in a quantum jump in solid waste generation.

Sound municipal solid waste management is an important part of the urban infrastructure that ensures the protection of environmental and human health.

Issues and Challenges

The problem of municipal solid waste (MSW) in developing countries is a major concern. Rapid industrialization and population explosion have led to the migration of people from rural areas to cities, generating a lot of MSW on a daily basis and the amount of MSW is expected to increase significantly in the near future.

This accelerated growth of urban population with unplanned urbanization, increasing economic activities and lack of training in modern solid waste management practices in developing countries complicate the efforts to improve solid waste management services.

It has caused difficulties for local Governments, Municipalities and Regulatory Agencies in their abilities to provide efficient and effective management systems, thereby affecting social services such as waste collection, and eventually leading to indiscriminate dumping of waste in illegal areas. Poor infrastructure such as a lack of access roads makes it difficult to evacuate or dispose solid waste deposited in many areas.

Further, the lack of coordinated jurisdiction and established standards or specifications together with insufficient or inadequate knowledge, and a high rate of illiteracy/cultural/religious inclinations (a good percentage of the population are not widely educated on environmental impacts of dumping solid waste indiscriminately) are a major challenge. The notion of common ownership of resources, for example, open spaces and playgrounds; that is the notion of "no man's land", make people pile heaps of municipal solid waste in such areas.

Major environmental issues resulting from improper disposal and poor management of solid waste include but are not limited to solid waste blown around by winds and blockage of drainage channels during rainstorms causing flooding in the metropolis. The heaps of the solid waste serve as breading grounds for disease carrying reptiles, rodents and insects. The solid waste may decompose to emit methane gas which contributes to climate change. Most of the non-decomposable solid wastes contain harmful chemical elements which have severe health implications. Generally, soil, air and water pollution are caused by both pathogenic and chemical elements from these heaps of solid waste.

Solutions and Recommendations

Identify proven technologies and associated engineering, design, construction and operations expertise related to a scalable project/process with the goal of eliminating problematic waste streams (municipal solid waste, organic, toxic, chemical, petroleum based, agricultural, sewer sludge, and others) to cleanly and safely convert them into marketable products such as recyclables, synthetic or liquid fuels, electricity or bio-char.

Create accurate revenue and expense models and identify funding mechanisms including local and foreign direct investment, grants, municipal bonds and a user pay system.

Construct new landfills at specific locations to minimize the impacts of municipal solid waste. Landfills should be engineered to protect the environment and prevent pollutants from entering the soil and polluting ground water through the use of synthetic liners to separate the landfill's trash from the land below.

Reassess all regulations and associated penalties regarding waste management with a view to stream lining and providing effective and proper monitoring of solid waste disposal activities so that there is a comprehensive and clear role for all the agencies, various tiers of government, as well as the public including Non-Governmental Organizations (NGOs) and community associations.

Provide continuous public outreach and education on the dangers of municipal waste to the general public which should include the promotion through consumer campaigns encouraging citizens to cooperate in waste separation and promoting to them the purchase of recycled products and that they should expect to pay a realistic fee for waste services in return for the guarantee that indeed these services will be provided.

Risk Factors and Assessment

The ability or inability of the authorities to implement a comprehensive realistic scalable long term program which has the buy in of all stakeholders; most importantly the general public, will be the key to the success or failure of the overall MSW program.

Programs to disseminate knowledge and to improve behavior patterns and attitudes regarding waste management are therefore critical. For such programs to yield positive results they must be based on sound understanding of the social and cultural characteristics of the communities. The inability to provide these programs will lead to the failure of the overall MSW program.

Finally, it is of significant importance that the authorities identify and utilize the right partner for oversite of the projects implementation. One who has the ability and expertise to manage a broad based multi-party contract and integrated project delivery approach and the associated provision of details and options based on realistic expectations, proven and emerging technologies and evolving MSW strategies.

Project Successes

Rauch Construction was successful in delivering a comprehensive MSW strategy on which the client acted. The municipality organized key stakeholders to work through the strategy, forged relationships with local communities using patience, listening skills, response to their preferences, and good communication. Raising investment funds from both private and public sectors in the amount of $32million allowed the client to implement the strategy. Current estimated returns are 17%. Full investment recapture period is estimated at 5.2 years.