Enhancing Business-Community Relations

Seshasayee Paper & Boards Case Study

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Seshasayee Paper and Boards Ltd – "Waste Into Wealth"

Research Project Background

This case study is one of ten that were chosen as part of the 'Enhancing Business-Community Relations' project in India implemented in collaboration with The Energy and Resources Institute (TERI). These cases document examples of engagement between businesses and communities and can be used as learning tools for the promotion of responsible business practice and sustainable development.

The Enhancing Business-Community Relations project is a joint international initiative between United Nations Volunteers (UNV) and the New Academy of Business. Implemented in seven developing countries, the purpose of the initiative was to collect and document information on business-community practices as perceived by all stakeholders, build partnerships with them and promote corporate social responsibility practices. It is also intended to enhance international understanding of business-community relations through information sharing and networking with other countries especially those participating in the project - Brazil, Ghana, India, Nigeria, Philippines, South Africa and Lebanon.

The findings and recommendations reflected in the case study are those of the author and do not necessarily reflect those of UNV, TERI or the New Academy of Business. It is important to note that these cases were written as examples of business-community initiatives. They do not constitute a comprehensive assessment of the company's social responsibility.

1. Introduction

This case study examines the ways in which Seshasayee Paper and Boards Ltd. has nearly eliminated its industrial waste and uses it in a sustainable manner for other purposes. The specific case of the utilisation of treated effluent for irrigation purposes is discussed in detail. The project is remarkable in that the value added to crop yields is bought back by Seshasayee and used directly in the paper-making process. The farmer's livelihoods have been secured and improved while damage to the environment is vastly reduced.

2. Company Profile

Seshasayee Paper and Boards Limited (SPB), an integrated pulp and paper mill, was founded in 1960. It is located near Erode in Tamil Nadu state, India. Capacity has expanded from 20,000 tonnes of paper per annum in the 1960s to over 115,000 tonnes per annum at present. Products include posters, paper boards, packaging and copier paper.

Approximately 20 per cent of SPB products are made for the export market. Annual turnover is about Rs. 3,500 million, and the company employs 1,600 people. Equipment takes the form of five paper machines, power boilers, turbo-generators, a water treatment plant and an effluent treatment system.

SPB is a pioneer in that it uses "bagasse," a residue left after sugar is extracted from sugarcane, for the manufacture of paper. The company has its own sugar mill, Ponni Sugars (Erode) Ltd, for this end.

3. Project History and Development

SPB has many environmental management programmes that fall under the auspices of their environmental activities. Seshasayee is an ISO 9001 and ISO 14001 accredited company. The Environmental Management System is also accredited by M/s Det Norske Veritas, under ISO 14001.

3.1. Environmental Management Programmes (EMP)

SPB operates a number of EMP programmes at any one time. These have included projects that aim to:

- Increase the planting of eucalyptus/neem saplings in the vicinity of the paper mill
- Reduce dust emissions in specific areas
- Reduce chlorine usage
- Reduce energy and water consumption

SPB has a long history of environmental responsibility, and has means to minimise pollution and its impact on the environment while producing paper. Measures include the installation of several treatment facilities at the plant, such as belt filters, clarifiers and biological treatment technologies.

The production process produces three major air pollutants namely suspended particulate matter, sulphur dioxide and nitrogen oxide. SPB has installed Electrostatic Precipitators in all of the power and recovery boilers to this end. In so doing the company complies with Tamil Nadu Pollution Control Board requirements regarding ambient air quality and stack emission.

SPB also generates filter cake and waste oil, both of which are categorised as hazardous wastes. Measures have been taken to reduce these by-products in the production process. The entire quantity of filter cake is disposed off through its usage as a raw material to the board-making units. Waste oil generated in the mill can also be used as a lubricant in chains and conveyors. The excess, if any, is currently incinerated in the power boilers.

Other solid (potentially hazardous) wastes from the production process include lime sludge, cinder, fly ash, sawdust and pith. Of this, lime sludge is sold to cement industries and used as a raw material. Cinder and fly ash are innovatively used for manufacturing compressed bricks and hollow blocks within the mill. Sawdust and pith are burnt as fuel in the power boilers.

3.2. The Problem

The area surrounding the SPB plants and mills in Tamil Nadu is barren and uncultivable. Land is largely dependent upon seasonal monsoons for irrigation, making farming unpredictable and livelihoods relatively unsustainable. In line with SPB's environmental and social policy, the company initiated the utilisation of treated industrial effluent as a means of irrigation. SPB had been treating mill effluent since 1978.

Using treated effluent for irrigation purposes holds several advantages. The conversion of dry lands into wetlands stimulates the local economy by creating a vast green belt. Sugarcane cultivation can flourish. SPB extracts bagasse from the sugarcane which it uses in the

manufacturing of paper, hence the sugarcane production. This results in less deforestation as the factory is reliant upon more renewable and sustainable resources other than wood. Moreover, treating the effluent for irrigation purposes eliminates the need to "dump" it elsewhere.

SPB's Environmental Policy is a commitment to:

- Manufacture quality papers in a clean, green and safe environment
- Continuously improve its environmental performance by reducing air emissions, process effluents and solid wastes
- Maximise the use of eco-friendly materials and methods in the manufacturing processes
- Optimise usage of resources like water, power, fuel and raw materials
- Comply with relevant regulations
- Train and motivate the human resources to be environmentally responsible
- Make this policy known to all interested parties

3.3. Developing the Project

SPB engaged Tamil Nadu Agricultural University to conduct a study of similar projects before undertaking the project themselves. The report, entitled 'Studies on the effect of paper and sugar factory effluents on soil microflora and agricultural cropping system'[3] yielded promising results and played a large part in planning details of the SPB project.

Between 1985 and 1990, the Salem district collector, Mr S. R. Karuppannan, played an important part in introducing and coordinating the different parties that could implement a project of this scale and sort. He helped bring together SPB, farmers' representatives and revenue authorities. Once a detailed plan had been drawn, the National Bank for Agriculture and Rural Development agreed to finance the project, and the first agreement between SPB, Ponni Sugars and the Farmers' Cooperative Society was signed for a period of ten years from 1992. This tri-partite agreement was renewed in 2002.

3.4. Project Implementation

The project itself aimed at all times to enhance business-community relations. It has done this through farmer participation, community development, research and technical innovation and by working in partnerships.[4]

3.4.1. Farmer Participation

- SPB provided training to farmers on the benefits and practicalities of using treated paper mill effluent for the irrigation of their sugarcane crops
- Technical guidance on crop rotation, soil and pest management and yield improvement was given to local farmers
- "Redressal" meetings are held with the farmers periodically

3.4.2. Community Development

- A drinking water pipeline network was installed in neighbouring villages
- Old village temples were renovated and burial ghats repaired
- Roads and public toilets were constructed and street lighting provided
- Community Healthcare Centres were established

- Eucalyptus saplings were provided to villagers free of cost

3.4.3. Partnerships

- The project represented the industrial marriage between the sugar and the paper industries
- Government authorities were involved in the promotion and implementation procedures

3.5. Monitoring and Evaluation

Tamil Nadu Agricultural University that was entrusted with the task of finding the effect of sustained use of treated paper mill effluent on soil characteristics, stated in their 1993 final report that:

> *Based on the investigation… it can be stated that irrigation with the treated effluent of SPB on dry land for cultivation of sugarcane and paddy, seemed to have no adverse effect on physico-chemical and biological characteristics of the soil. Preliminary studies taken up on well water samples in the area coming under the effluent scheme indicate that the well water samples were colourless, odourless, pH ranged from 7.5 to 8.0, E.C. varied from 0.3 to 0.4 m.mhos/cm. There is not much variation in the nutrient contents in the well water samples.*[5]

The university, under an Endowment Scheme, is carrying out further monitoring of soil and groundwater in the irrigation scheme area. Through this fellowship, the link between SPB and the university will continue indefinitely.

SPB's own research department have investigated the impact of using treated effluent for irrigation on the environment. They found that using bagasse instead of wood for making paper saves approximately 3.7 tonnes of wood per six tonnes of bagasse. It has also been proven that treated paper mill effluent percolating from the fields, after being used for irrigation, is void of colour and rich in dissolved oxygen.

3.6. Results

The irrigation scheme has proved successful on many levels. These are detailed below;

- **Agricultural outcomes** – The yield of sugarcane is now approximately 10-15 per cent higher in the fields irrigated with the treated effluent compared to freshwater irrigated fields.
- **Environmental outcomes** – The organic matter present in the mill effluent promotes granular structure which permits soil to hold more of both water and air.
- **Social outcomes** – Farmers standards of living can be said to be improving. This is as a result of the added value they reap from their land and increased agricultural income and the profitable sugarcane market. Investment in community infrastructure has also served to enhance business-community relations, and offering technical guidance has improved skills and contributed to knowledge sustainability.

SPB has won several awards for its efforts, in recognition of its policy regarding environmental conservation and pollution control, energy conservation, productivity and capacity utilisation, as well as cordial industrial relations. These awards include the Federation of Indian Chambers of Commerce & Industry (FICCI) award in 1993-94, Tamil Nadu Pollution Control Board First Prize in 1995-96, and a TERI award in 2000-01.

3.7. Sustainability and Future Plans

The entire stock of sugarcane is sold to SPB's Ponni Sugar Mill, and once the bagasse has been extracted it is used in SPB's paper production. Effluent from this production is then treated to stringent inland surface water discharge standards and used for irrigation in the local area to further increase sugarcane yields. The process operates as a closed-circuit system, and in this manner SPB is putting back to the environment as much as it is taking out, making the project entirely sustainable.

The project has been acclaimed by a variety of people, including visiting dignitaries from overseas, particularly Thailand, the Philippines and China. This practice has been emulated by other industries. SPB allows field visits and encourages discussion with industrial colleagues regarding the technical feasibility of such a scheme.

4. Key Issues and Lessons Learned

The case study of Seshasayee Paper and Boards Ltd. stands out from the other India cases prepared for the Enhancing Business-Community Relations project. There are several reasons for this. First, the case prioritises the environment. Although social issues such as unreliable farmer livelihoods are of concern, it appears that the primary motivation behind the initiative was to use the treated effluent in a sustainable manner, and in so doing produce crops that could be fully utilised in the production process. This practice appears to surpass requirements set out by the Indian regulatory bodies.

Second, the company itself has implemented it. Many of the Indian case studies reveal a penchant for working through trusts or foundations, leaving the "community relations" aspect of the business to a separate department. The Seshasayee case reveals that the very *manner* in which business is conducted can have an enormous impact on business-community relations. SPB has little need to conduct social investment initiatives to improve relations with society using surplus profits, because these relations are already healthy and in tact.

Third, the project benefits all parties involved. The community gains from the irrigation, by improving their crop yields, increasing their income and securing their livelihoods. As there is no longer any need to "dump" treated or untreated effluent, there are untold benefits to the surrounding environment. Moreover, the wood saved from felling by the utilisation of an alternate, fast-growing renewable resource contributes to reduced soil erosion in the area. Leaving trees undisturbed also contributes to the reduction of carbon dioxide in the atmosphere that in the long-term is limiting the effects of global warming.

Finally, the project appears to be sustainable. The direct link between the companies (both Seshasayee and Ponni) and the farmers using the effluent for irrigation suggest that as long as the factory is operating, the treated effluent irrigation scheme will too. The farmers' livelihoods are as secure as the can be given that Ponni, which buys their sugarcane, comprises the market for their product. For SPB, it is apparent that environmental sustainability is actually more efficient and cost-effective than otherwise. If the effluent had to be treated anyway, regardless of whether or not it was to be dumped, then a solution that reduces the cost of primary resources to be used in the manufacturing process can only save the company money.

Importantly, the case suggests a change in the way business is viewing "sustainability." Sustainability is proved in SPB's irrigation scheme to be highly competitive. Disappointingly, the language of "sustainable development" has been used by some companies to allay critics' fears or to conform to governmental regulation without the company having adopted sustainable procedures. Here it is considered to be an integral part of the market process. Sustainability is useful to the

company. It has maximised profits, reduced waste *and* given the company a competitive edge through its improved relations with local people.

This is certainly a step in the right direction. However, Seshasayee is fortunate in that its treated effluent can be used to generate their own primary raw material required for the production process. Not all businesses are so lucky. How, then, can more companies adopt sustainable, cost-effective measures in their production processes? The answer is not easy and varies for individual organisations. However, perhaps the key is not only to search for ways in which *profits* can be increased. Although sustainable measures *ultimately* save industry money, large up-front investments and a lack of incentive often reduce the desire or capacity to adopt them. Yet, it seems that while "sustainable" measures are only adopted for their future economic value, the private sector will lag behind. This "marketisation" of the environment will only be effective in reducing environmental damage if it is valued correctly. Looking to the future, there would be no need for a market-led valuation of the environment as societal rules and norms would demand its treatment with more care. Business can play a huge part in making this reality.

Endnotes

[1] The views expressed in this case study are those of the author and do not necessarily reflect those of the New Academy of Business, UNV or TERI.
[2] Kate Ives is an associate of the New Academy of Business who has assisted in the preparation of this case study.
[3] Input from Mr K. S. Kasi Viswanathan, President (Operations) SPB Ltd. Report published in 1992.
[4] Information regarding the case study is taken from the case study prepared for the TERI Awards 2001, *Case study of Seshasayee Paper and Boards Ltd, Tamil Nadu 2000-01*.
[5] Quoted in N. Gopalaratnam, K. S. Kasi Viswanathan, K. Shanmugam and S. Rengarajan (1999) *Irrigation with treated waste water from pulp and paper mill – a proven and successful experience* [National Symposium on bio-remediation of polluted habitats].