Aditya Birla Group's Hi-Tech Carbon - Leading the wa(y)ste!

The Lime Sludge (waste) selling project is a landmark initiative by the Aditya Birla Group's Hi-Tech Carbon plant in Gummidipoondi, Tamil Nadu and it warrants for a fresh perspective on waste disposal.

In its endeavour to ensure the implementation of best manufacturing practices, the Aditya Birla Group is regularly innovating at its various plants. With ash utilisation, energy conservation, water conservation and the 'Green Idea' initiative already garnering widespread accolades, the Group has set very high standards as far as adding value to its products is concerned.

Living up to this benchmark is the Group's Hi-Tech Carbon plant in Gummidipoondi, Tamil Nadu. The Lime Sludge (waste) selling project is a landmark initiative by this plant and although tedious in nature, it has been carried out with acute precision to warrant for a fresh perspective on waste disposal.

425.330 MT
Amount of lime sludge sold from February 25, 2014 to November 7, 2014 with total tangible benefits of Rs.9.58 lakh per annum

The Birla Hi-Tech plant in Gummidipoondi, Tamil Nadu, is a part of the Brownfield expansion that the Aditya Birla Group undertook in 1998. In the following years since its inception the plant has been conferred with the coveted Deming Award for Quality (2002) by the Deming Prize Committee (JUSE), Japan and the NECA award for energy conservation. The recent project undertaken by the plant is worth a mention for its judgment and foresightedness.

The Hi-Tech Carbon plant at Gummidipoondi uses Hydrated Lime and Dolomite Lime for Water Treatment, and through it an estimated 40-50 Metric Tonnes (MTs.) of lime sludge (waste) is generated every month. The existing practice at the plant was to remove lime sludge from the pit and pack it in used Polypropylene/Jumbo Bags and dispose it off to the Tamil Nadu Waste Management at Gummidipoondi by paying Rs 1250/- per MT as land fill. This was done jointly by the Environment and Safety Department and Utility Department.

Previously, attempts were made to dispose of the lime sludge to various cement industries. K Swaminathan, Assistant Manager at the plant says, "We made several efforts to contact our group unit Ultra Tech Cement, Ariyalur and also other units like ACC Cement, Dalmia Cement etc. But the exercise wasn't feasible due to commercial implications like transport cost. Further, environment issues were a concern because the fuel used for transportation added to the carbon emissions."

Sensing an opportunity in this rather complicated situation, the team took the initiative and after some rigorous research, worked out possibilities for best practices for lime sludge (waste) management under the 'Special Project' scheme commissioned by the Group. To start things off, a basic groundwork was done. The team collaborated data that was relevant.

a) Material Safety Data Sheet to understand characteristics of lime sludge

b) Indian Hazardous Waste Rules 2008 to study the applicable rules
c) Collection of lime sludge usage details through websites for potential industries like paint, fly ash bricks, hollow bricks, acid industries and agriculture.

After the first round of data collection, the next imminent steps were taken. The shortlisted industries were contacted and viabilities of such a transaction were discussed. It was learnt that all industries other than the fly ash bricks industry were situated at a distance. Hence, transportation cost and carbon emission became the moot point. When it was derived that the consumption of these industries was comparatively less, the plant decided to zero in on the fly ash brick industry.

The fly ash brick industry was located as close as 10km-20km from the plant resulting in a reduced cost for transportation and simultaneously a reduced carbon footprint. Their consumption was more than 100 MTs per month and it matched every criterion that had been worked out to begin with.

Further, after ample research on the internet, the team found out that almost 180 billion tonnes of common burnt clay bricks are consumed annually. Approximately 340 billion tonnes of clay and about 5000 acres of top layer soil are dug out for manufacturing these bricks. As a result, soil erosion, emission from burning of coal or wood fires which cause deforestation were serious problems faced by the brick industry. The magnitude of all these perils could be curbed to some extent by the use of fly ash bricks in dwelling units. The Pollution Control Board and State Government too approved fly ash brick as an eco-friendly alternative to the traditional burnt clay bricks. Supplying lime sludge to fly ash manufacturers made more sense than disposing it as a land fill or dump.

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>
> **K Swaminathan,**
> Assistant Manager, Hi-Tech Carbon plant, Gummidipoondi

Three potential vendors were identified and post the formalities; a selling price was fixed at Rs 167/- per MT. The first sale was made on February 25, 2014. As of November 7, 2014, the plant has achieved sale of 425.330 MTs with total tangible benefits of Rs.9.58 lakh per annum. Besides the employees at the plant, the team was in touch with other teams for smooth operation and success of this project.

Although, the achievement is there to see in the numbers, according to Swaminathan, the project was in line with the Aditya Birla Group's vision statement of sustainability and supporting the environment. He says, "Since the entire project was totally cross functional, it gave rise to a lot of challenges. Understanding the process, people and in depth knowledge of the product was a huge learning factor. Handling bottle necks gave rise to self-confidence and developed interpersonal skills. Team-building gave confidence in delegation of work. This project enriched every member to look at the possibility of creating awareness by referring Group units / businesses to approach various industries on their waste disposal system and its utilisation."

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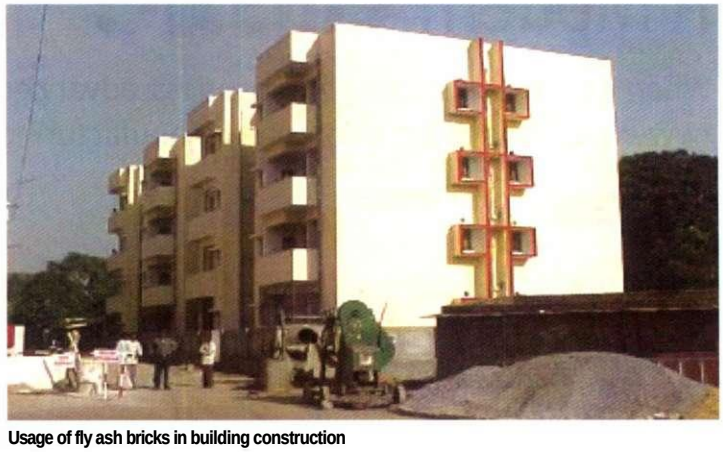
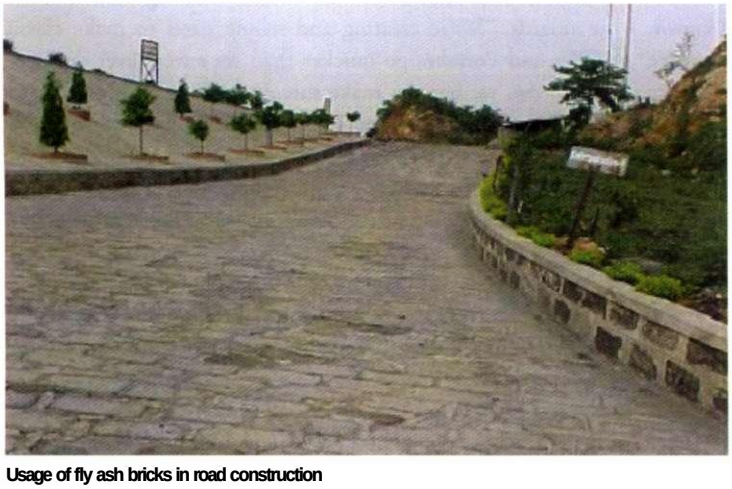


Usage of fly ash bricks in building construction



Usage of fly ash bricks in road construction

Such an incredible case study will only pave the way for other organisations to follow suit and adapt.