Commitment to Sustainable and Inclusive Growth

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ABSTRACT

The growing global population, demographic shifts, climate change and increasing pressure on natural resources have all brought sustainability to the top of the political, social and business agenda. New regulations have also put a price on commodities and services-like water, air and waste disposal-that were previously inexpensive or free. Reporting on social and environmental issues has become more important than ever, as consumers, investors and other stakeholders demand greater transparency about all aspects of doing business today. Sustainability presents both major challenges and tremendous opportunities for businesses. Many companies have realised that by investing in energy-efficiency measures, responding to changing consumer buying patterns and ensuring sustainable business practices in their supply chains, they can operate more efficiently and create value in new ways. At a very basic level, sustainable industrial development means doing more with less-increasing the Eco-efficiency of industrial production. A major way of accomplishing this in paper industry is through cleaner production. Cleaner production is the development of "CLEANER" industrial processes and products, which reduce their impact on environment, while not compromising profitability. In many cases, cleaner production practices save the industry money. Cleaner production means Adoption of Best Available Technology and Best Management Practices with more Environmental friendly process. ITC-PSPD, Unit: Bhadrachalam is one such paper board industry, which follows and works for sustainability.

Introduction

The demand for natural resources and environmental amenities in developing countries are bound to increase sharply for three separate reasons. First the population, Secondly, the annual growth rate and the third, the processes of production inevitably become more capital and technology intensive. Consequently the pressure on the natural resources will continue to increase (1).

Role to be Played by Indian Paper Industry for Sustainble Devevelopment

Indian paper industry is clearly in step with the stated Government objectives of industrial development, employment generation (primarily rural), increase in literacy and environment protection. It has been consistently contributing towards development of the National economy and social fabric of the country even in the absence of strong enabling policies required to leverage a traditional manufacturing industry like paper. Although achieving sustainable development requires all members and parts of society to contribute, creating sustainable industries is a key element in ensuring overall sustainable development. Sustainable development can be achieved if the three requirements, economic, environmental and social, are applied to shape the process by which the industry and economy grow (2). The concept of sustainable industry takes the over all principles of sustainable development and applies them specifically to the industry and industrial practices. In order to be sustainable paper industry, the industry must meet the three requirements outlined below.

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- **Economically viable:**

Sustainable Paper industry must make a profit. If the industry is not able to make profit, it cannot stay in business. There fore, the economic viability of the industry must be considered.

- **Environmentally compatible:**

The product or the service is produced in a way which either eliminated negative effects of the environment, like pollution or natural resource use, or reduces the effect as much as possible.

- **Environmentally compatible:**

To achieve social responsibility, industry must behave in an ethical manner, and work to promote social equity.

At a very basic level, sustainable industrial development means doing more with less – increasing the Eco – efficiency of industrial production. A major war of accomplishing this is through cleaner production. Cleaner production is the development of "CLEANER" industrial processes and products which reduce their impact on environment, while not compromising profitability. In many cases, cleaner production practices save the industry money. In the present scenario, apart from capacity augmentation, there is an immense need to improve the Energy Efficiency of the individual units. Many of the Indian Paper Mills are also working actively in the area of water and environmental management not only to better the statutory norms but also in pro active more closure to cleaner production.

Steps Taken By ITC Limited – PSPD, Unit: Bhadrachalam For Sustainability.

- **Developing & Planting of high yielding short maturity pulpable wood species**
- **Improved recovery and utilisation of recyclable waste paper**
- **Adoption of cleaner production technologies which are energy efficient too**
- **Total Productive Maintenance**
- **Waste Minimisation**
- **Customer care with proper supply chain system**
- **Commitment to social responsibility**

Sustainability On Wood Fiber Supply (Fiber Security)

Wood is the major raw material for the pulp and paper industry Earlier, natural forests provided a ready available source, but with increasing

anthropoenic pressures resulting in shrinkage and deforestation, this resource has drastically dwindled over the years. Acting proactively, Bhadrachalam unit, a 5,20,000 TPA Paper and Paperboard mill, launched a major plantation programme way in 1982. Its objective was two folds – to achieve self-sufficiency and improve productivity, on the one hand, and to provide agricultural farmers a viable alternative land use option. Moving forward in this endeavor, a Biotechnology based tree improvement programme was initiated by promoting clonal plantations (3). The focus was on the genetic enrichment of pulpwood tree species and improvement of plantation package of practices. To build further on the strong foundations laid with dedication and perseverance, plantation efforts are poised to get a boost through initiatives that will see the breaching of new frontiers.

Envisaged Plans

- Production of DESIGNED FIBRE through DESIGNER TREE by genetic and breeding biotechnological methods for indigenous as well as exotic trees species.
- Development of agro forestry models with pulp wood trees best suited to various types of sites and needs of farmers.
- Implementation of sustainable farm practices and putting efforts to obtain Forest Stewardship Certification.
- Further development of technically sound and scientific site management practices to enhance productivity to international standards.

Greening The Waste Lands

Unit Bhadrachalam launched the Social Programme in 2001. It has effectively leveraged the need for wood fiber to provide significant opportunities to economically backward waste land owners, while transforming their lands into productive wood producers. Under this initiative, superior planting stock that is fast growing and disease tolerant is supplied to farmers. A comprehensive package of free technical extension services is provided, which covers preparation of site, planting of saplings, maintenance of plantation till harvest and offering attractive buy-back arrangement for the mature plantations.

Working with select NGOs and the Government of Andhra Pradesh to identify poor tribal with waste lands and organise them into self help groups and trained. For the rural community, the plantation programme has provided alternative means of livelihood. The average net imcome from clonal plantations is around Rs. 25,000/ Ha. / yr. Under rain-fed conditions and Rs. 40,000/ Ha. / Yr. With irrigation, on a four year rotation cycle, as compared to Rs. 12,500 / Ha. / Yr. and Rs. 20,000/ Ha. / Yr. respectively raised by other methods. Significantly, the higher yield from clonal plantations comes at much lower risks. Hence the farmers are much interested in clones. The commercial plantations are contributing significantly the promotion of rural employment, there by effectively addressing the problem of poverty in these areas. The 1,00,000 Ha. Plantations provide more pulp wood than required to the mill and created 10 lakh jobs in activities such as nursery, planting, maintenance, logging etc. The value of this plantation activity assumes even greater importance in the light of its ability to mitigate environmental degradation. A part from other well-known advantages of such a large scale greening effort, the plantations have the potential to sequester millions to tonnes of carbon dioxide, a potential Green House Gas and in deed it is a carbon positive.

A Unique Way of Waste Paper Collection

ITC-PSPD, has launched a milestone programme called Wealth Out Of Waste (WOW) efficient collection and recycling of waste paper, targeting large sources of aggregation such as schools, offices, residential colonies and apartment blocks. This initiative now been extended to cities like Hyderabad, Bangalore, Chennai and other important places. In the year 2008-09, the total waste paper collection in this way is about 6000 tonnes. This activity will further boost the waste paper collection which can be recycled to produce more paper.

Adoption of Cleaner Production Technologies which are Energy Efficient

Adoption of Best Available Technology and Best Management Practices with more Environment friendly process, VIZ. Modified Kraft Pulping, Oxygen De lignification and Elemental Chlorine Free (ECF)/ OZONE bleaching coupled with adoption of energy efficient process and plant & machinery and up gradation fo ETP with MBBR (Moving Bed Biological Reactor) technology minimising the impacts on environment.

Upgradation of Fibre Line

Modified Kraft pulping is a way to get more lignin out of the wood fibers during the pulping than conventional kraft pulping. If conventional pulping is continued too far, serious reduction in both the yield and the strength of the pulp occur. Modified pulping procedures developed over recent years for pulping is adopted for better pulp properties. In this direction **Super Batch** pulping has been adopted.

Effectiveness of Ozone Bleaching

The potential of ozone for replacing chlorine based chemicals in pre-bleaching is widely recognised. At equal bleaching power, ozone approximately equals to 1.5 times of chlorine dioxide. ECF sequences that combine ozone with chlorine dioxide are more cost effective than ECF sequences using only chlorine dioxide. The fact that ozone is finding growing acceptance as a bleaching chemical results from a combination of advances with regard to the bleaching process and associated equipment on the one hand and ozone production and handling on the other. Recent advances in ozone generation as well as the lowering of oxygen cost have established ozone as a highly competitive bleaching chemical. Industrial scale comparison of ECF bleaching using only chlorine dioxide on one hand and a combination of ozone and chlorine dioxide on the other has shown the application of 1 kg of ozone to be equivalent to about 1.5 kg of chlorine dioxide (4). New ECF bleaching lines will be most competitive when combining ozone and chlorine dioxide. This has resulted in further reduction of BOD, COD and AOX from bleach plant by recycling the effluent to the black liquor recover system and reduction of lignin in the pulp.

Adoption of Total Productive Maintenance (T P M)

It can be considered as the medical science of machines. Total Productive Maintenance (TPM) is a maintenance program which involves a newly defined concept for maintaining plants and equipment. The goal of the TPM program is to markedly increase

production while, at the same time, increasing employee morale and job satisfaction. TPM brings maintenance into focus as a necessary and vitally important part of the business (5). It is no longer regarded as a non-profit activity. Down time for maintenance is scheduled as a part of the manufacturing day and in some cases as an integral part of the manufacturing process. The goal is to hold emergency and unscheduled maintenance to a minimum. Each employee is made responsible of an equipment he owns it and takes care of it.

Waste Minimisation

ITC-PSPD, Unit: Bhadrachalam, has achieved the status of "Zero Solid Waste Generation" by adopting the four principles such as, Reduce, Reuse, Recycle and Recover. In any Paper mill, its emissions include Waste water and Solid wastes of both inorganic and organic in nature. At this mill, the waste water generation is minimised by effective recycling, treating them beyond the norms and utilizing it for crop irrigation. Thus providing irrigation facility throughout the year to near by agricultural fields and at the same time avoiding pollution in the receiving waters. The solid waste such as flyash from steam/ power boilers are totally given to manufacture environment friendly bricks. The fiber waste generated is utilised to manufacture low grade boards and the chipper dust along with wood waste is given to near by mini power plants. A new green boiler is installed to utilise the bio solid waste.

The total solid waste is utilised as raw material and also helping in generation of employment (6).

Customer's Delight

Understanding customers and addressing their needs and aspirations through strong and long term customer relationships continue to be the prime focus. The customer is delighted through improvement in product quality, value added services, on time delivery and cost competitiveness. Various innovative approaches such as market surveys, personal contacts/ visits, events, customer satisfaction surveys, dealer feedbacks etc are deployed to understand customer needs and preferences. At the same time giving importance to supply chain system also (7)

Social Performance

ITC believes that an effective growth strategy for our nation must address the needs of rural India home to 75% of its poor. It is imperative for the India's economic growth is inclusive embracing its villages so as to free millions of our disadvantaged citizens from the indignity of poverty. Hence, a development goal has been set up for eradication of poverty and hunger through the following sustaining livelihoods.

They are:

- **Empowering farmers by the e-Choupal rural digital-physical infrastructure**
- **Greening wastelands by Social and Farm Forestry Programmes**
- **Irrigating drylands by Integrated Watershed programmes**
- **Creating Women Enterpreneurs by Promoting Gender Equity and Empower Women**
- **Educating Rural Children by Universal Education Programmes**
- **Enhancing Livestock Quality pragrammes**

Conclusions

It is now generally recognised that population, resources, environment and development are inextricably linked and the relationship is extremely complex. These inter-relationships need to be understood for proper appreciation of the issues involved in the integration of environment with development with development. The major theme in the development of environment economics relates to the choice of the means of achieving an environmental goal.

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