

Tree-farming

Yields Bumper Harvest

Hit by the Forest Conservation Act, ITC chose the difficult option of farm forestry and came up trumps. BY N. MADHAVAN

The year was 1980. ITC, the tobacco major, through its subsidiary ITC Bhadrachalam and Paperboards (since merged with the parent company), had just commissioned a 40,000-tonne integrated pulp and paper mill — India's largest — at Bhadrachalam in Andhra Pradesh, 350 km east of Hyderabad. The location fitted in perfectly with the company's plan to make the unit the core for its paper business and attain global scale. It was close to the Godavari river (paper manufacturing is a water-intensive process), while Singareni Collieries was just 40 km away — coal is an important feed stock. The Andhra Pradesh government had also assured supply of wood from bamboo forests nearby.

Then, the unexpected happened. The Forest (Conservation) Act aimed at checking deforestation was enacted in October 1980. The Act sought to regulate the use of forest lands and ensure these are no longer exploited indiscriminately for raw materials.

As a result, in 1982 the Andhra Pradesh government went back on its commitment to ITC for assured

supply of wood from the state forests. The unit by then was consuming about 1,50,000 tonnes of wood (eucalyptus/casuarina) annually. Though the company managed to continue production by entering into a temporary arrangement with the state government for extraction of bamboo, the writing on the wall was clear: it had to act quickly to ensure sustained raw material supply or cut back production.

The company decided to approach the farmers of Khammam district — in which the town of Bhadrachalam lies — for its raw material needs, and started a plantation department in 1982.

ITC's bold move to source its raw materials from farmers by getting them to grow eucalyptus/casuarinas met with much resistance. Between 1982 and 1989 the company could get eucalyptus/casuarina

ITC not only ensured sustainable wood supply for its mill, but is also now a carbon positive company

"We had two options before us: import pulp from Brazil and Indonesia or put up pulping capacities in other countries where abundant raw material was available. Both moves would amount to exporting jobs to other countries. We were also keen to build a natural resource base. So we decided to take a third, most difficult route — that of farm forestry," says Pradeep Dhobale, Executive Director of ITC.

plantations going on only about 2,000 hectares.

"The farmers were reluctant for many reasons. The crop cycle of eucalyptus varieties that were available then was seven years and farmers were not financially strong enough to handle such a long cycle. Also, productivity was low at six to 10 tonnes per hectare. The plants had a low 40 per cent survival rate due to their low resistance



THE PROBLEM

Change in country's laws cut off supply of key raw material (wood) from the forests

THE OPTIONS

Either import pulp or shift pulp making capacity abroad. ITC decided to go in for farm forestry instead

THE CHALLENGE

Convincing farmers, who saw eucalyptus farming as risky and unremunerative, to take it up

THE SOLUTION

ITC invested in R&D, developed high-yielding varieties and devised attractive buyback schemes for farmers

PHOTOGRAPHS BY MONEY SHARMA

COMMENDABLE EFFORT

Any initiative sustains automatically when its successful implementation has a positive impact on the business. In this case, the issue was of insuring the fragile raw material condition through farm forestry. The need to meet growing volumes through expanding hectares and going for better varieties and strains of eucalyptus was but natural. A higher yield per hectare and higher survival rates have resulted in a significant lowering of raw material prices and thus enhanced business profitability.

That *irc* is carbon positive, in addition to being water positive and solid effluent positive, is indeed commendable. *irc* can add to its green credentials by looking at the type and extent of usage of electrical and other fuel-based energy, overall plant efficiency and raw material consumption. The more efficient the operations, the better is the input utilisation.



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It can also look at reducing the consumption of fresh pulp and increasing the ratio of recycled raw material. Also, substituting coal with waste-based or renewable energy based fuels could offer good results.

The management can work towards reducing power consumption, wastewater heat recovery, water recycling and reuse. The units should also show a trend of reduction in requirement of "fresh" water for plant operation on a per tonne basis of paper produced. Dust emissions should also be mapped and systematically addressed. Air quality has to be routinely monitored.



Wood from the farms being unloaded at the factory's yard

to pests, drought or floods," says H.D. Kulkarni, Vice President for Plantations at *irc*.

By then the Bhadrachalam unit's raw material requirement had increased to 1,80,000 tonnes. The idea of farm forestry was also increasingly beginning to be questioned within the organisation. *irc*, nevertheless, held its course. It still saw an opportunity. It was aware people in the region were looking for alternative crops that would be pest and flood resistant, offer better income and require less looking after — the region had a large share of absentee landlords and wasteland. It believed an improved eucalyptus crop could meet these needs.

Thus, in 1989 the company started a full-fledged research and development programme. "The idea was to clone various varieties of eucalyptus, casuarina and subabul (a large, fast-growing shrub) and arrive at ones offering higher yield, better resistance to pests, flood and drought and, most importantly, had a reduced harvest cycle," says Kulkarni, adding that seeds were also imported from Australia and the United States (Hawaii) for the purpose. "It took us four years to learn the art of

propagating clones vegetatively. By 1992, 10 clones were ready," he adds. Today *irc* has 107 high-yielding clones of eucalyptus and 12 clones of subabul.

Cautious Acceptance

Beginning with 15 hectares in 1992, the area under new varieties increased to 1,247 hectares by 1996, and today stands at 1,14,428 hectares (467 million saplings). At first farmers waited to see the results. Once convinced, acceptance rapidly increased. "The new varieties gave a higher yield of 50 tonnes per hectare, the survival rate of plants was a high 95 per cent and the crop life cycle dropped to four years from seven earlier. The crop became less risky and more profitable," says T.V. Chandrashekara Rao, a farmer at Venkatareddy Peta village, 11 km from Bhadrachalam, and among the first to take to eucalyptus.

Today, *irc* has overcome the raw material shock. In the financial year 2009-10, it sourced 99.41 per cent of its wood requirement from its farm forestry programme. It also created 50 million person days of employment for tribal and marginal

CHANGE FOR THE BETTER

I remember the Bhadrachalam plant of 1997—a mid-size mill that consumed more than 200 tonnes of water to produce a tonne of paper, used chlorine to bleach paper and discharged effluents into the Godavari river.

Fourteen years down the line, things seem to have changed drastically at the plant—and for the better. Today, ITC's farm forestry business is a case study in management classrooms as a model effort, and the company takes pride in, and widely publicises the fact that it is carbon, water and waste positive.

One can have differences with the methodology used in arriving at these conclusions, but the fact remains that the company seems to have internalised these transformational ideas, which will pay rich dividends in the future.

The company

still faces huge challenges. Its water and energy consumption is still high. ITC is planning to double its paper production capacity, and I believe it should use this opportunity to set up India's first chlorine-free paper plant which will allow it to completely recycle and reuse all waste streams. It will also have to keep expanding its farm forestry programme to meet future pulpwood requirements. All this will not be easy, but if ITC wants to become a truly sustainable company, there is no other path to tread.



CHANDRA BHUSHAN, Deputy Director, Centre for Science and Environment; Head, Green Rating Project, which rates Indian paper firms



Wood being fed into a disc chipper, which cuts it to chips measuring 20 mm in size before being fed into the chip digester

farmers. Its social forestry programme, which entails giving seedlings and other inputs free to tribals, has benefited 22,322 poor households in 525 villages in the state, earning them close to ₹11.74 crore so far.

Carbon Positive

This initiative along with other green measures have made ITC a carbon positive company. ITC's Sustainability Report 2010 says that by March 2010 the company had emitted 1,709 kilotonnes of carbon dioxide while reducing 4,785 kilotonnes through its farm forestry programme covering 1,01,462 hectares.

However, challenges remain. There is a general perception that eucalyptus is a water guzzler. Indeed, in neighbouring Tamil Nadu the government has banned its cultivation on forest lands. Company officials are at pains to dispel this notion. "Only if the trees stand for a long time do their roots go deep into the water table. Our trees are cut in four years and their roots do not go below two metres. They live on rainwater," says Kulkarni. He quotes research to show that average water con-

sumption per kg of biomass for eucalyptus is 785 litres, while it is 3,200 for cotton, coffee and banana, 2,400 for sunflower and 1,000 litres for potato and maize.

Another challenge is the need to increase production to meet the surging demand for paper. India consumes about 10 million tonnes of paper every year. Dhobale expects the industry to grow at 10 per cent. The per capita consumption of paper, paperboards and packaging in India is still a low five kg compared to China's 45 kg and 300 kg in the US.

ITC is planning to pump about ₹6,000 crore into its Bhadrachalam plant to more than double its capacity. This will mean a much larger farm forestry programme.

Y.C. Deveshwar, Chairman of the ₹26,260 crore giant, proudly announced at the recent annual general meeting that ITC was the only enterprise in the world of its size to be carbon positive, water positive and solid waste positive for successive years. He chose to invest heavily in innovation as only that would help ITC to maintain its sustainable business credentials. ♦