

An imaginative scheme in one of India's poorest states means small farmers can sell carbon credits on the world market by growing trees. **Malcolm Doney** reports.



**S**urrounded by the high, forested hills of Rayagada in southern Orissa, Syakma Adinarayema (above right) has started saving the planet. It is a win-win situation for the 22-year-old farmer. While he is doing the rest of the world a big favour, he is also helping his own family overcome grinding poverty and – with luck and a fair wind –

he might also provide his 15-year-old brother (pictured) with the chance of training as an engineer. The reason? Syakma has become a player in the global carbon credit market.

Three years ago this young farmer's family had the same few acres they have now, but nothing was growing there. "I couldn't afford to grow anything," he recalls. "I didn't have money for the seed or the fertilizer, and no way of borrowing any to buy it. So 90% of my land was doing nothing. I was able to plant a few pulses, that was all."

In fact his land was doing worse than laying idle, it was deteriorating, losing its inherent productivity as it was left untended. And he was not alone. In this part of southern Orissa, around 60% of arable land goes uncultivated. It is a

stunningly beautiful landscape marked by misty, tree-covered hills, but most of people here live in chronic poverty, barely able to survive on the little they can produce from their small plots of land – low-value subsistence crops such as root vegetables, pulses and rice. Few can grow enough to hold body and soul together.

Here in the Rayagada district, where more than half the people come from the historically disadvantaged scheduled tribes or castes (see box on page 6). They are fiercely loyal to place and people. As much of India becomes socially and geographically mobile, they will not leave their land or their communities.

Stigmatised by their social status, poorly educated (illiteracy is around 90%) and poorly served by infrastructure, sanitation and health services, they are at risk of being

# cutting carbon

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► cast adrift as global India surfs ahead.

All of which explains why the transformation in the prospects of Syakma Adinarayema has been so dramatic and unexpected. Suddenly he found someone eager to lend him money to plant a crop which had a guaranteed sale – and which would net him a cash bonus over and above the money he sold it for.

His part of the contract was to turn some of his (unused) land over to a eucalyptus plantation. A local paper mill arranged a loan for him to buy seedlings developed for local soil and climate conditions and offer him advice on how to cultivate them. On top of that they would also guarantee to buy the fast-growing trees four years later for pulping – leaving him with the tops and the lopped branches to use for fuel. But that is not the end of the story. Because his plantation, over the four year growth cycle, has been providing a vital additional value – busily absorbing carbon from the atmosphere. And Syakma is also able to get up to 20% more revenue by selling this invisible but vital ‘carbon capture’ in the form of carbon credits to the World Bank.

So how did he and hundreds of other farmers in Orissa, and the

neighbouring state of Andhra Pradesh, become players in the world market?

The story involves an imaginative partnership between farmers, the World Bank, India’s second largest paper mill, local banks, and a small Indian NGO. And it begins with the brains behind the scheme, in the form of Mr Masabathula Satyanarayana, a natural resource management professional with a forestry background and a flair for lateral thinking. The slight figure and unassuming manner of the one-time Deputy Inspector General in the Ministry of Environment and Forests belies a fiery determination to make forestry work for the poor. He’s someone who admits to a rare but valuable ardour. “Carbon finance is my passion,” he says cheerfully.

When the 1997 Kyoto Protocol launched the idea of carbon credits – the process by which those who were creating greenhouse gases could neutralize their emissions by paying for products which were absorbing CO<sub>2</sub> – Mr Satyanarayana was quick to see the opportunities for India, particularly in Orissa where he had worked in forestry for several years. Unsurprisingly the bureaucracy of local and state government proved too cumbersome to make it work, and so he left for the voluntary sector – setting up, in his spare time, an NGO to take the idea forward.

Through VEDA MACS, a co-operative society focusing on sustainable development,

Mr Satyanarayana (pictured left) made contact with Mr A K Sharda, Vice President of JK Paper in Rayagada, Orissa, the second largest paper mill in

the country. The vast paper mill with its towering chimneys dominates the landscape and the local economy. Established in the 1960s, JK came here for the natural resources of the forest – especially the wood pulp – and today employs over 1,000 people, many housed in the plant’s own township with its own school, and medical centre. It even has its own railway station.

In these more enlightened times the mill only uses wood from renewable sources. In fact it has established an impressive nursery for cloning saplings based on ‘relentless’ research to find varieties which both suit local conditions and are optimum for paper manufacture. Much of this has focused on eucalyptus, and, conscious of the tree’s reputation as a water-guzzling plant, hostile to forest floor growth, JK’s botanists have settled on a variety which environmental impact assessments gauge to have “no negative effects on groundwater”. Further research has shown that ‘intercropping’ (growing such crops as kale, sunflowers and pineapples in between the rows) is viable.

JK’s own plantations will be producing 10 million trees a year by 2010 but this is not enough to feed Asia’s voracious appetite for paper. It needs new sources, the more local the better. The genius of

Farmers can harvest eucalyptus trees in four years.

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## How forest farmers are saving the planet

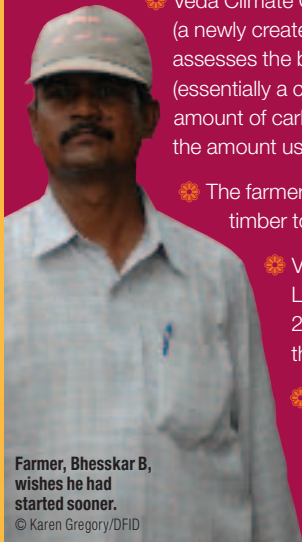
- ✿ Farmers are recruited by a team from the JK paper mill who explain the benefits of the programme and provide training.
- ✿ Farmers are helped to arrange short term loans with banks for up-front costs and to buy (subsidised) plants.
- ✿ JK commits to buying the timber at market prices.
- ✿ Long-term credit is arranged for small or marginal farmers to meet the cost of plantation and maintenance.

✿ Veda Climate Change Solutions Ltd (a newly created VEDA MAC offshoot) assesses the bio mass of each plantation (essentially a calculation based on the amount of carbon sequestered minus the amount used in production).

✿ The farmer harvests the trees and sells the timber to JK (or on the open market).

✿ Veda Climate Change Solutions Ltd pays the farmer more (up to 20% of the price of the timber) for the plantation's carbon value.

✿ The World Bank buys the carbon value and sells it as carbon credits on the carbon market.



Farmer, Bheskar B, wishes he had started sooner.  
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Mr Satyanarayana's idea is that it brings together JK's need for raw material, vacant land that is going to ruin, poor farmers desperate for sustainable income, with the global demand for industry to offset its carbon emissions, and the World Bank's commitment to encouraging 'clean development' initiatives.

It took Mr Satyanarayana four years to bring the scheme to fruition, beating a path to the door of the World Bank, literally walking them through the project. "Washington officials spent five days in the field, talking to tribal farmers, to JK and all the other stakeholders," he explains. "And they thought it was a project that needed to be supported". But there was a snag. "They decided VEDA MACS was too small to run the project. But Mr Satyanarayana was not to be denied. "We fought back. I told them 'this is not a trial, we've done the homework. This is going to work'. In the end, they were convinced."

The scheme as agreed with the World Bank favours smaller farmers – many with plots as small as 2.5 acres. "The forestation has to take place on degraded land – it needs to be original, you can't get carbon credits for planting that is already in existence," explains Mr Satyanarayana. So it works for the least well-off farmers in the area.

And it's also transforming the way that farmers in Orissa and Andhra Pradesh look at trees. "Farmers have always looked at trees in terms of timber or firewood, or as the source of fruit or bark," muses Mr Satyanarayana. "They always knew there were other values, such as shade and breeze, now there is also a cash value. That's what we're trying to capture."

There are other benefits too. Growing trees halts erosion and degradation, protects water sources, and reduces people's dependence on local forests, thereby protecting local biodiversity.

The World Bank thinks "this will be a model for sustainably sourcing natural resources for rapidly growing economies". But it is time-consuming, arduous and complex. Sunil Ghargava who manages JK's plantations and heads the team recruiting and managing the farmers, smiles ruefully. "Frankly, it would be a lot easier to work with larger farmers, because they are much more ambitious and better organized." Legal ownership of smaller plots is harder to determine for farms which have been passed on in families for generation – while the World Bank for reasons of transparency demands paper work, photo ID and other authentication not readily accessible in remote rural areas. Also says Mr Ghargava, considerable education is required: "These farmers have been always been poor, so were their ancestors. If you experiment and it goes wrong, there's no cushion, it's a disaster. We have to spend a long time building their confidence, demonstrating how it will work, introducing them to farmers who are already growing plantations."

The message is getting through, slowly at first, but as more farmers take the plunge, increasing numbers draw on their success.

Bheskar B straightens his back, and gazes across the field where he and a team of helpers are planting seedlings. "Five or six of my neighbours planted eucalyptus, three years ago, but I wasn't convinced. But I've been watching them and talking to them." He makes a face. "Now I wish I'd planted when they did, because they're already getting money and they'll be able to cut the trees next year."

"Still, there was nothing growing here yesterday, and when I start getting some money in I'll invest in another plantation. And we're helping the environment, too. I'm pleased to be doing it."

The plan is to cover 3,500 hectares (around 8,750 acres) during the seven year programme. That means anything up to 3,000 Indian farmers could be selling carbon credits on the international market.

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