

Tales from the Coast Part 3: Post Thane Cyclone, Cuddalore farmers shift to climate-friendly Vettiver plant

This is a Suno India production and you're listening to Climate Emergency.

In 2011, Cyclone Thane had a serious impact on the livelihood of farmers in Cuddalore, the eastern coast of Tamilnadu. The farmers in this region could only grow casuarina, cashew, due to the soil conditions here. After the cyclone, many farmers looked for an alternative crop. Vettiver, a perennial grass variety, turned out to be the only feasible alternative. This hard grass could survive drought, rain and tolerate salinity. Many farmers shifted to vettiver cultivation here after 2011. Though the state was traditionally growing this crop for bund strengthening, the practice reduced over time. A few traditional farmers still practiced it. What further gave an impetus to vettiver farming in Tamilnadu was the announcement of Aroma Mission in 2016 by the Indian government. Cuddalore was declared as the hub for vettiver cultivation by the Prime Minister. Over the last five years, the acreage of vettiver plants increased in Cuddalore due to climate change, and the announcement of aroma mission. The crop made environmental and business sense, as the profits seemed good. However, the graph changed this year, with fluctuating prices. The plant is climate-resilient, good for the environment, and makes good business sense. To make vettiver a robust climate-resilient crop that also gives sustainable income to farmers, government support is needed. Farmers believe that if the government supports marketing, setting a minimum price, gives concessions on solar pumps, and encourages exports, it would be greatly beneficial for them to sustain.

It is 6 am in the coastal town of Cuddalore on a fine Monday morning. As the sun slowly rises up the horizon, temple bells ring, right outside the bus stand. The sea breeze gently wafts through. Women are busy stitching flowers, selling them outside the temple. As I walk outside the bus stand, I see an over bridge, and underneath, the Gadilam river was glistening in the morning sun.

Cuddalore, a relatively smaller town of Tamilnadu, lies on the eastern coast of India. The coastal farmers here usually cultivate cashew, casuarina, or eucalyptus. In some pockets, traditional farmers have been cultivating vettiver, an aromatic perennial grass.

Centuries ago, Raja Raja Cholan, the Chola King had planted vettiver for river bund strengthening. Some of the wild vettiver plants can still be found in these riverbanks.

In 2011, Cyclone Thane toppled many Casuarina trees, and damaged the cashew plantations. With a host of issues like rising sea level, salinity, and increasing cyclones, the farmers started looking at alternative crops. In one village, Nochikkadu, traditional farmers were growing

vettiver, an aromatic grass variety. While talking to the local farmers, I got to know that vettiver was not only flood, drought and saline tolerant, but it also gave a good income to the farmers here. As vettiver is an eco-friendly grass variety, it could also be used for cattle feeding.

And then, many farmers started growing vettiver as a climate-friendly crop.

Hello, I am Sharada Balasubramanian, and I am here in Cuddalore for the third episode on 'Tales from the Coast' for Suno India. At Cuddalore, I spoke to farmers on how they shifted to growing vettiver in the times of changing climate.

In Cuddalore, the youth played a vital role in expanding the land area under vettiver cultivation. College graduates, dropouts, sons of traditional farmers, all turned to agriculture, leaving behind their corporate jobs. Also, many farmers living here shifted to vettiver cultivation, leaving aside cashew and casuarina.

I took off to Chinnandikuzhi village, traversing through a 27-km patch of lush green paddy field. Ilayaraja's famous Tamil song "Vettiver vasam" (the aroma of vettiver) was playing in the background on the radio while I travelled.

After a while, I stopped at a vast stretch of arid land on an empty road. Getting off the road, I saw short thorny stubs of grass standing out on this land. The sun was right above my head. A few birds like lapwings were running rapidly with their thin long legs.

I walked into a sheltered corner in this land. Here, I saw stacks of vettiver, packed tightly, wrapped in a huge cover. I was here to meet the 21-year old farmer, Gowtham.

Walking around his farm, I could sense and inhale the aroma of vettiver. The plants swayed in the wind. There were sprinklers in his farm for watering the plants. In the midst of the land, there were solar panels for irrigation. I could hear the sound of the motor as I moved in closer.

Gowtham is from Nochikkadu, a village, where most of the vettiver farming was practiced from many decades, traditionally. Gowtham talks more about his land and farming.

I am from Nochikkadu. We are into agriculture from 40 years. We do it whether we get profits or losses. Both cashew and casuarina farming has reduced now. Now, the main thing here is vettiver farming. So, we all are doing this farming.

We have a 20 acre land. From one acre, we harvest two tonnes of vettiver. If we take care of the plant very well, we get three tonnes.

Like Gowtham, a handful of youth in Cuddalore, mostly from Nochikkadu village, stepped into vettiver farming. After Cyclone Thane devastated the crops of many farmers in Cuddalore, and

when farmers were looking for an alternative, they turned to vetiver. The youth travelled around in the district, in an attempt to find where vetiver farming was still practiced.

Enbarasan, a 25-year old member of the India Vetiver Network, spearheaded the formation of youth groups for vetiver farming in Cuddalore. He came to know about Vetiver through his mentor CK Ashok Kumar from the Cavin Care group of companies.

During his travel in the district, he was surprised that there were a handful of traditional farmers, who were still into vetiver cultivation. He talks more about this.

When we were searching for vetiver farmers, we came to know that 15-20 acres of farming is done in Cuddalore. When we approached those farmers, they said that the produce was sold in local herbal markets, or nattu marundhu kadai. They also sold vetiver to pharma companies.

These youngsters found a climate-resilient crop. They formed a youth group to promote and expand vetiver cultivation in the district. However, they had to tie this to income generation and business as well. CK Ashok Kumar found out that vetiver oil was in high demand in foreign countries. And that's when Enbarsan looked at companies he could tie up with. He gives us the details.

We increased the farming area by 300 acres. Our vision was to look at unutilised lands in the coastal belt and how can that be used. There are abundant empty lands. As there are industries here, there is pollution. Also, because it is a coastal area, there is sea erosion. This is the only plant which will survive in any climate, any situation, we thought.

During their research, Enbarasan found out the environmental benefits of vetiver are huge. He talks more about it.

When we were doing research, we got to know the environmental benefits. We found that this one plant purifies air, water, gives fertility to land. On various fronts, this plant is beneficial.

In many other countries, like Haiti, Philippines, Vietnam, Thailand, this plant is more used for environmental reasons. Enbarasan explains.

When we talk about the most eco-friendly plant, we talk about bamboo. Per year 400 kg of carbon is sequestered from bamboo. In vetiver, 2.5 kilos of carbon is sequestered. When we do agriculture, we plant 40,000 saplings. Yearly, 80,000 tonnes of carbon is sequestered in one acre. The plant is used for phytoremediation, slope strengthening, river bund strengthening. In other countries, they are using it for environmental reasons.

In India, during 2016, the launch of Aroma Mission by Prime Minister Narendra Modi triggered a boomerang. He declared Cuddalore as a hub for vetiver farming. When people heard this, they were surprised. Also, they thought, if the government is announcing this, we might as well invest in this, and expand the cultivable area in Cuddalore.

For many farmers, climate resilience and profitability were the key reasons for choosing this plant. Sadanandam, a farmer from Vandiampalayam village has his story on how he entered into vetiver cultivation. He had actually gone to see a prospective bride in Nochikkadu village. While he was there, local people told him about vetiver farming, and how it was giving them profits. Sadanandam is now managing a 20-acre vetiver farm. He has been doing it for the last seven years now. He talks more..

Here, it is a dry land. I had planted cashew, casuarina and eucalyptus from the beginning, as nothing else can be grown here. People from Nochikkadu village were doing it even ten twelve years ago. Looking at that, people have started doing this.

I felt that there was a good income in this from the beginning. In the first year, there wasn't much income. From second year it was good, and I thought I would continue this full time.

Right now, his land is full of vetiver. He has stopped growing other crops after the cyclone.

I spoke to a few farmers on what really happened during Cyclone Thane, and how it impacted their livelihood.

I went to meet Chandrasekhar, a 57-year old farmer who was into vetiver farming. As I walked through a long tract of arid land, laden with beach sand, I saw that the sea was just 50 metres away from the cultivation area. Vetiver harvest was just happening then. A huge vehicle was uprooting the hard grass from the soil. The women picked these harvested crops, loaded them on their head, walked up a few metres, and then passed on the stack to another woman. The woman who picked up the harvest, stood on top of the stacked up vetiver. And she was placing the harvested crop, one, on top of another, building a tall tower of vetiver harvest. I caught up with Chandrasekar to hear more.

In 2011, When Cyclone Thane struck, casuarina trees broke, and were wiped out, and we could not do any sales. There was loss in lakhs. The government also did not give any compensation. When we tried to look at alternative crops, in Cuddalore and Porto Novo, people told me to plant vetiver. They said it was profitable, and I started doing it.

Cyclones have been increasing after the tsunami. Earlier there were lesser cyclones. Maybe once in a year or twice it happened. It takes 4-5 years for casuarina to grow. For 3- 4 years, it

grows and then one year, there is heavy loss. In comparison, Vettiver is a yearly yield. So we shifted to it because it was profitable. Cashew season is 3-4 months. In January, February, if there is rain, yield won't be there. So, this seemed to be more profitable. Everyone came to do this on their wish.

Vettiver, a perennial grass, has no particular crop season, and there is a difference between this crop and other crops that are usually grown here. Chandrasekhar speaks more.

When a tsunami comes, the difference between this and other crops is that this can sustain while other crops won't. This plant can withstand salt water intrusion, and is also drought-tolerant. We cannot do anything except casuarina and cashew, because there is no water and we cannot grow crops like peanuts. Hence, vettiver is the best.

Though the crop is flood tolerant, if excessive rain pours, it will lead to decomposition of vettiver roots. When that happens, new roots emerge, and this has to grow again. And as a result, the harvest time is extended. Sadanandam says more.

Vettiver can withstand flood so there is no loss. If there is a cyclone and when there is rain, then there is loss. When the crop is ready to be harvested, and then it rains, it's a loss. We start in March and in the 9th month, we take the yield. In this time, if a cyclone is formed and if it rains for a week continuously, water will come up and the existing roots will decompose and new ones will come. The normal rains are like 2-3 days. If it is for one hour or two hours, then it is good. When there is summer rain, it will be good, and it will last for a week. But if it's heavy, then it's a loss.

Enbarasan says that the cyclone does not impact the plants. He gives us the details.

Cyclone doesn't and hasn't affected vettiver. It can survive, as this is a perennial grass variety, it can handle any climate change. The plant can naturally adapt and sustain, and we are benefitted by that.

However, there is a specific cycle for vettiver cultivation, as Enbarasan explains.

From October 22nd, annual rainfall starts in Cuddalore. So, we start planting in August or September. We irrigate for 40 days until the plants mature. After that, there is no issue even if the plant stays up in water. We also need not water the plant in October, November, December and January. The impact of water will be there for four months. We need not give water. In February, for a month we leave it. In March or April, we harvest. We use this cycle widely for vettiver cultivation.

In Cuddalore, post 2016, essential oil companies have been procuring roots from the farmers here. Enbarasan gives us the details.

There are 800 acres of vetiver farm. Per acre, we get 2 tonnes. So, it is 16000 tonnes from Cuddalore.

Despite all the climatic, environmental and business benefits, from planting to harvesting, vetiver is one of the most difficult crops to manage and harvest. It is highly labour intensive, and that also means, higher expenditure. Sadanandam said that the yield he gets depends on the money he invests. He talks more about it.

The yield depends on the money you invest. Earlier, I had taken 8-9 tonnes in five acres. Last year, in five acres I took 15 tonnes. Today, in the same five acres, I could harvest only 3 tonnes.

For vetiver, only if you have money, you can bring the yield. For one week, if there is no money, yield would be gone. Weed has to be removed on time, and only then the plant will grow. If weed is removed later, or watering is delayed, or manure is given late, the plant will take more time to grow. If things are done on time, it will work out.

The farmers in this region face another issue. Electric lines cannot pass through this area as it is a coastal belt because during cyclones, it could be life threatening. So, unlike other farmers, these farmers do not have even access to free electricity. Also, they cannot dig borewells due to proximity to the sea and groundwater salinity. Enbarasan elaborates.

Since this is a coastal belt, there is no free service. There is no possibility for an electric line. Wind issues will be there and if the electric lines fall, it will impact everyone. There are some norms. So, we use diesel engines for irrigation.

Surprisingly, sometimes, cyclones, and the rainfall they bring along, is also a boon in disguise. Enbarasan talks more.

In case cyclones come, we are benefitted more. Because, we spend 40,000 for diesel for just watering.

If cyclones arrive, we save Rs 30,000.

The diesel-powered motors add to the expenses of this crop. Enbarasan explains more.

Fuel costs are high for vetiver cultivation. For an acre, for a year, Rs 1.5 lakhs are the expenses. In that sense, the most expensive crop is vetiver. The reason is that there is no

great technology for this. If you look at harvesting itself, we are spending over 80,000 for labour. That's why expenses are high.

Rajalakshmi who managed a vettiver farm, broke into tears, as she spoke about the hardships she had to go through right from planting to harvesting this crop. It's not easy, and I had no one to support me, she said.

Many women are employed in both planting, and separating roots from the plants. In that sense, vettiver plantation has expanded employment opportunities for rural women.

In her farm, I spoke to some women. They were sitting under a huge dry palm leaf in the shape of a fan. The leaf was just right to cover their heads from the harsh sun. With a cloth wrapped around their head, and a sickle in their hand, they were busy separating the roots from the plants. Each day, they would get Rs 200 for labour work. Earlier, women did not really step outside their houses. Now they could support their families with this income.

Everything was fine until 2019. The prices that were offered to farmers were good enough to spend on labour, harvesting and diesel. In the early 2020, the tides changed. The procurement price of vettiver fell drastically, raising many questions for farmers on their sustenance.

Enbarasan talks about these fluctuations.

Normally, in the aromatic crop, market was at peak in 2015-18, in 2019 September, price fell. Gradually, 50% reduced in 2020. In agriculture, we always see fluctuations once in three years.

Farmers told me that the procurement companies could approach other people if the farmers did not agree to their price. Sadanandam also told me that sometimes farmers themselves talk to these companies individually and push their produce. This could make things difficult for the other farmers in the village, as their produce will remain uncollected.

When I spoke to Chandrasekharan, he raised an important point- price reduction by companies is one issue, the other issue is also reducing the procurement quantity. He talks more about this.

People don't have their own land. They work on others' land. They have to spend on labour, diesel and food. The oil producing companies give money, but they are reducing the tonnage. From 500, it is reduced to 300 tonne. This extra tonnage, people sell it in the local market. In the local market, there is a lot of delay in payment- it sometimes takes four months, five months. Farmers would have taken a loan, so their livelihood becomes a question.

Along with the fall in the tonnage procurement, and price per tonne, diesel prices have also increased, adding pressure to the farmer's profit and income. Chandrasekharan explains more.

Until last year, it was fine. From last year, the prices have dropped. Because of that, labour cost has increased. Diesel prices have gone up. But, for a tonne of vettiver we were getting Rs 1,40,000. Today, we are getting only Rs 1,00,000. In an acre, even if I get two tonnes, it is 80,000 less now, for one person, per acre. The profit is also minus 80,000 now. It is just a very neck to neck situation. For people who have higher productivity it is profitable, but not for others.

Though these price fluctuations are a part of cyclical changes in agriculture, there are some steps that can help farmers cushion these shocks. Sadanandam says more about this.

The solution for this is that the government or us, we should set up a fixed price of Rs 130. Then we get profit. For an acre, we would get Rs 50,000, if we sell at Rs.130.

The government could also benefit by supporting the farmers, as Sadanandam says:

If the government takes and exports from us, it will be profitable even to the government.

Since farmers have to spend a lot on diesel, if the solar pumps are subsidized, their expenditure on fuel costs will reduce. Also installation of sprinklers will reduce the pressure on labourers. Sadanandam explains more.

If we are given solar pumps, diesel consumption will reduce. If we install sprinklers, it will reduce the labour cost too. Then, we can take higher yield. We are spending a high amount on diesel. One day, for one and half acre, we spent Rs 500. You can calculate that for 20 acres. For diesel, we spend Rs 500, plus for one labourer we spend another Rs 500. That is Rs 1000 a day for one and half acre of land. And, we have to do this continuously except the rainy season.

Gowtham, who has invested in a solar pump himself, says how it is beneficial.

Diesel is more expensive. In the first one year, the expenses are high for solar pump, we can recover the money in the first year itself. It is beneficial.

However, for farmers like Sadanandam, who don't own lands and are managing the vettiver land, getting loans in the bank is very difficult. The loans are given to those who own the land. A 5HP solar pump costs Rs 5 lakhs, Chandrasekharan told me.

The locals also talk about marketing support from the government, which can give further impetus to the farmers. Enbarasan says more.

It will be great if the government can support in marketing initiative. To immediately promote and develop, free saplings, free units, efforts were put in, and it ended there. There is a gap between marketing and procurement. Because of this gap, we farmers are suffering.

If there is a right bridge for this, enough studying and analysing market trends is done, and if there is a control system, it would be supportive for us.

The current problems of middlemen controlling the price would be put to an end, if the government steps in. It would be profitable for farmers to pursue this in the long run.

Beyond farming and business of vetiver, with rising environmental concerns in India, Vetiver could offer solutions for such issues. Enbarasan explains.

If you see Cuddalore, the coastal belt is an industrial area now. The air is polluted. If vetiver is planted in 800 acres, we feel some 10 percent air pollution is less. It sequesters carbon and reduces toxicity in the atmosphere. It makes the land fertile, purifies the air. Not just that, it absorbs toxins in the soil and converts into biomass. It removes heavy metals from soil.

It can be used in tannery effluent treatment for purification. High systems are used for purification in such places. If we plant vetiver using red soil, total dissolved solids, or TDS percentage reduces.

There is scientific evidence to this fact as well.

That's not all. In India, where municipal solid waste is a huge problem, vetiver could be used. Enbarasan explains.

Waste accumulation in the landfills is an issue. We use many acres for landfilling. One person generates 300 gms of waste per day, and if we calculate that with the population, it will be large. Just in Cuddalore, landfilling happens over 20 acres of land. When we fill plastic waste, and it rains, leach will be generated. It will spoil the groundwater. When we did trials, we observed that, vetiver grows in the leached land. It sustained and converted into biomass. From an environmental aspect, this is helpful. Researchers should work together in India on this plant. Also, if they give an advisory on how to use this plant, it will be useful for the people and the system.

In my next episode, I will take you to Pamban, where I will be talking to Kadal Osai, a community radio, exclusively for fishermen. The community radio sources information through connections with the fisheries department, marine police among others. Any information on new schemes from the government, announcements, are all communicated to the fishermen through this community radio. The team also ran a special series on climate change, and they

spoke to various old fishermen, on their perceptions about this issue. We will hear all about those stories in the next episode.