



## IV Case: Anantapur

Anantapur district in Andhra Pradesh is the second most drought-affected district of India. It receives around 500 mm rainfall annually. The distribution of rainfall varies considerably from year to year and season to season.



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Over the years the process of desertification has been taking place in large tracts of the district because of soil erosion and sand casting on the one

hand, and mono-cropping, chemicalisation, deforestation, excess use of ground water on the other. The total forest cover in the district is less than 5% of the total area.

Prior to the 1960s, rain-fed farming in this region was primarily for meeting home consumption requirements of the farmer and demands of the local market for food and fodder. Minor millets were grown as the main crop in most areas. In small patches either pigeon-pea, castor, sorghum or groundnut were grown as the main crops; whereas groundnut was used primarily as a condiment, oil was also produced using traditional bullock powered mills.

This complex cropping system had evolved over a long period and hence was presumably tailored to the climate variability of the region. The last three decades witnessed major changes in the cropping pattern as well as in the technological options. The variety of groundnut cultivated in the 1960s and early 1970s was a traditional runner variety, which required about 150 days for maturity. The variety TMV-2 was introduced in the region during

Hardy Options

the early 1970s. Gradually by the late 1970s, the bunch type had replaced the runner type completely. At present, groundnut (variety TMV-2) is the major crop cultivated in the rain-fed regions of the Anantapur District.

Such extensive mono-cropping of groundnut has emerged only in the last two decades. Hence farmers do not as yet have adequate experience of the impact of climate variability on different facets of crop growth, development and yield (Gadgil, S., 1999).

The farmer in Anantapur treats groundnut more like a lottery, as every four or five years, he gets a bumper yield which makes up his losses. When there are major losses there is also some compensation from government. In the preceding chapter, Prof Sheshagiri Rao spoke of how the livelihood of people in the semi arid zones, is spread across different economic activities like sheep rearing, trees, kitchen garden, handicraft, wage labour including NREGA, foraging etc. Thus ground nut farmers in Anantapur can afford risk, as the basis of poor peoples' livelihood security comes from other sources.

This however is being drastically compromised due to climate change. At the recent public hearing on climate change in Anantapur, Usha of Rappthadu in Anantapur spoke how dairy and sheep and goat are decreasing due to

decrease in the commons for grazing. Side by side there has been a decrease in fodder availability as the farmers have shifted to cultivation of

commercial crops. Now due to climate change,

rains have been erratic & insufficient. Because of this, many farmers have given up rearing farm animals. Likewise, Lingamma from the same region spoke of the livelihoods of 10,000 households of fisherfolk dependant on 3000 odd lakes in Anantapur district. Their livelihood is at stake due to non-filling of



the tanks. She lamented the loss of babul (acacia) trees in the tank bed areas, which are source of nutrition for the fish in the tanks.

Srinath Reddy, a farmer from Papampalli spoke of the changing patterns in rainfall and how it affects them. He said that earlier it used to rain in three spells. Now it is hardly once or twice. The rains in June-July are good for the crops, but now it follows no particular pattern. If it rains too much, the seeds rot. If it rains too little, the crops wither.

Dr Malla Reddy of Accion Fraternal, a large NGO working in Anantapur district of Andhra Pradesh says that the present mode of agriculture is contributing to climate change because we are using an enormous amount of chemical-fertilizers, chemical-pesticides and machines. Machines contribute a lot to climate change. If you are using a tractor, you are using oil. Not only you are using oil for running the tractor, you use much more energy in producing a tractor.

The repercussions of climate change are already being felt in Anantapur. According to Dr Malla Reddy, the rainy season in the district is very short and there is a huge gap in temperature extremes. In addition there is a huge difference between the minimum and maximum temperatures within one day – sometimes around 22 °C, compared to the normal difference between the maximum temperature and minimum temperatures of about 12-13 °C. This huge difference can cause adverse impact on the crops which cannot withstand this kind of extremes in temperature.” Thus the next important thing is what are the adaptation strategies. This is where a lot of research is needed. So, we will have to find short duration varieties, we will have to find crops that can withstand these kind of temperatures, and we will have to diversify quite a lot.

One of the programmes of AF is promotion of multi-cropping and crop rotation. The conventional paradigm of agriculture has gone more and more into mono-cropping. Like in paddy area, you have only paddy, like when you come to Anantapur everywhere there is groundnut, nothing but groundnut. This type of mono-cropping is not a good practice.”

In the preface, we saw how Sooryanarayana family has taken to multicropping and crop rotation.



He says “We have learnt that crop rotation helps in retaining the fertility of the soil. Poojari Nagendra his elder brother said that they also have dairy. This helps them hedge their food security as well as provide cash.

Shiv Shankar, the AF field worker at Mallenipalli, spoke of another family Venkat, which has adopted the Palekar model. They take a small 36 by 36 feet plot, and practice complex intensive vegetation and thereby increase productivity and efficiency of resources. It is a mix of short terms and long term crops. Some are horticultural plants, others vegetables and different varieties. The same of 2 to 3 cents will be lined or interspersed with Mango trees, Drumstick and custard apple trees. The planting done in such a ways that the farmers gets a continuous seasonal flow of produce, both for consumption and for the market.



The flowering plants are helpful in recognizing the insects, and controlling them. The fertility of the soil also increases. In this way each and every farmer will get benefited.

A version of this model is being practiced by the Mottam family in Kudurpi. It has worked well for them as they have a regular market in the village and they are able to send out small amounts of different vegetables, every week, thereby ensure a regular income stream. In addition the Mottam family has now started adopting NPM ( Non-Pesticidal Management) practices. Such Intensive practices are possible when self-labour is highly valued and used instead of machines. Thus the Mottam model promotes low external inputs, uses the available water efficiently, and maintains the soil and environmental resources. The Accion Fraterna has been propagating this as the Mottam Model in other areas of Anantapur.

In the neighbouring mandals of Chennethapalli, Roddam and Ramgiri, Dharani is another effort promoted by Timbaktu, which seeks to revive traditionally hardy and suitable crops, and develops the forward linkages right upto the market. Says Srinath, an organic farmer “ we are not properly ‘feeding’ the earth. The

Hardy Options

farmers should have their own seed so that they can take up sowings in time. H Obulesu explains that under Dharani, they use native seeds and the native breeds of animals. Soil health is restored with organic manures. The government on the other hand actually discourages us by subsidizing chemical fertilizers and pesticides.



Dr. Sheshagiri Rao an agricultural Scientist, who is also a practicing farmer, in Pavagada in Karnataka, another semi –arid region neighbouring Anantapur, says that the local small farmers can manage climate change well. He says “people in the semi-arid region like ours or the entire South India semi arid region, need not be too worried about climate change or increasing extremes. We are used to climate variability and we have always lived with climate variability. variability in rainfall and variability of temperature, which we already have. We have seen the simulation model results of these scenarios. It shows a variability of 2-3 degrees of temperature, and may be 10% shift in the rainfall. But look at our variability.

“If for Anantapur & our region annual rainfall is 51cms, the standard deviation is about 19.6 or about 21, you see almost 40% of the average is variability itself. In this huge bandwidth of

variability if there is going to be a shift, it is not going to cause a huge problem for us farmers. It may cause a lot of problem to the nature. Even that I believe as farmers and farming are concerned climate change is not going to be a big problem because we have a larger problem of the climate variability in any case in which climate change affects are hidden. So I believe that if you adapt to climate variability, which we have been doing for so long, you don't need a special adaptation to change itself. The small farmer cannot take a hit in production. His adaption must mean resilience at his farm level itself. This means that he must go in for diversification.”