

Combating Drought & Desertification and Mitigating Agricultural Crisis and Farmers Distress in Anantapur District A 10 point programme

Dr. Y.V.Malla Reddy,
AF Ecology Centre,
Anantapur – 515002
Dt: 17.06.2013

1.Introduction:

Earlier the experience of farmers in this district was that they used to get a good crop once in every 2-3 years. But now they get only one or two good crops in 10 years. The rainfall which is always low in this district is getting more and more dispersed and unpredictable. It is no more following the pattern which it used to. The climate change is negatively affecting the health of crops, animals and human beings. Further the process of desertification is hastened.

The present situation has deepened the farmers distress and rainfed farmers saw no hope of making a livelihood in agriculture. So, they are abandoning agriculture and migrating to cities desperately to work as casual labor in construction or industry. The sudden outmigration from rainfed farming is alarming in last 2 or 3 years. If it continues, 50% of farmers may give up farming in next 5 years and might live in city slums under untold suffering. This may ever be a biggest displacement of farmers and largest disgraceful downward occupation mobility from farmers to casual labor.

This 10 point programme aims to combat drought & desertification and to mitigate agricultural crisis through protective irrigation and climate resilient sustainable agriculture and provide certain amount of income, food and nutritional security, particularly to rainfed farmers. Further it improves the endowment of environmental resources and fights the desertification process by adding tree cover, Bio-diversity rain water harvesting and enhanced ground water.

1.1 Salient features of Anantapur agro-climate

- 1) Low and ill-distributed rainfall (521 mm) with 1850 Potential Evapo-transpiration. Winter temperatures 12-15^o minimum 25-33^o maximum. Summer temperatures 40-43^o maximum and 26-31^o minimum.
- 2) Cultivated Area of 11 lakh ha, 85% shallow red-gravelly soils, 15% Black soils
- 3) Almost 10 lakh (90%) ha. is rainfed, only 10% is under irrigation that too mostly under tube wells,
- 4) 7 lakh farming families, 90% of them are small and marginal from SC, ST & BC Communities.
- 5) Small holdings, mostly slopy, rolling, undulating and shallow
- 6) 2 lakh ha. of forest area almost without tree cover
- 7) 2 lakh ha. of Revenue hillocks, wastelands, streams, tank beds etc. without tree or grass cover.
- 8) Overall the frequency of droughts and process of desertification has been accentuated.

1.2 Given this situation of Anantapur District of severe agriculture crisis and severe distress of farmers, a 10 point programme is proposed to address the problems of Droughts, Desertification and Poverty. If this 10 point programme is implemented systematically with a sense of urgency in next 10 years we can by and large overcome the frequent droughts and alleviate rural poverty on sustainable basis. And importantly combat desertification.

2.1 Provide Protective Irrigation to rainfed crops during dry spells through "Anantapur Water Grid" for Drought mitigation

In this district, under rainfed conditions, mainly groundnut and some other crops are grown in 10 lakh ha. Generally droughts occur because of long dry spells in the months of July & August (which is a peg penetration and pod formation time for Groundnut crop) resulting in huge crop failures. If we can provide 1 or 2 protective irrigations during these dry spells we can protect rainfed crops and prevent droughts to a great extent. This protective irrigation could be made possible through "Anantapur Water Grid". Anantapur District is endowed with thousands of traditional small and medium irrigation tanks spread across the district. We have to build "Anantapur Water Grid" by interlinking these water bodies with river waters from Tungabhadra & Handri-Neeva Projects and synergizing different water sources viz., rain water, ground water, local surface water and river waters in a "conjunctive use of water". The water from the Water Grid could be used for protective irrigation for rainfed crops. We have to do the following in order to build "Anantapur Water Grid " and conjunctive use of water; and be able to provide protective irrigation to rainfed crops.

- 1) Restore traditional irrigation tanks to their full capacity.
- 2) Convert all traditional irrigation tanks into percolation tanks and storage reservoirs.
- 3) Supplement the local surface water with River waters in order to fill all the traditional (percolation) tanks. This is called "Ananta Water Grid".
- 4) Build a distribution network system to rainfed lands through piped or tanker system and mobile sprinkler units.
- 5) Use this distribution system (Anantha Water Grid) for giving protective irrigation (10mm?) to rainfed crops during long dry spells by using mobile sprinkler units.
- 6) It will improve the ground water recharge across the District and stabilize the bore wells. Use the augmented ground water also for protective irrigation when necessary.

With this system of protective irrigation, droughts could be mitigated and relief provided to lakhs of rainfed poor farmers. The proposed Anantapur Water Grid will also create a more spatially equitable distribution of water across all regions of the district. And will achieve a greater social equity by benefitting large number of small and marginal rainfed farmers, belonging to SC, ST, BC and other poor farmers.

2.2. Promotion of rainfed horticulture and agro forestry in 33% of cultivated area : Tree crops are more drought tolerant and improve environment.

The soil and climate in this district are favorable for certain crops of rainfed horticulture. There is an urgent need to develop rainfed fruit trees and other tree crops in 33% of cultivable land in the district i.e., 4 lakh ha. It will also enhance tree cover in the district and compensate for lack of adequate forest cover in the district. AF-Ecology Centre has successfully established since 20 years that fruit trees like Mango, Sopota, Amla, Custard Apple, Jamun, Ber etc can be grown in rainfed lands provided initial irrigation for establishment. The Government is now scaling up this successful programme under DWMA. There is further a plenty of scope for establishing rainfed trees for fodder, manure, biomass, medicinal, timber etc. The tree crops not only improve green cover in the district but also add livelihood support to poor farmers. To ensure survival of tree crops, there is need to undertake in-situ soil and rain water harvesting measures; and to "hand hold" farmers from planting to yielding for 3-5 years. Tree crops begin yielding only after 3 to 5 years of planting, so the hand holding has to be attractive to motivate all rainfed farmers to go for tree crops.

2.3. Increase fodder availability through afforestation and common lands development : Vegetation improves environmental endowment and combats desertification:

In Anantapur District there is 2 lakh ha. forest land without forest cover. In addition to this, there is another 2 lakh ha. Revenue Land with hillocks, streams, uncultivable wastelands etc and also without tree or grass cover. It amounts to 20% of the Geographical area of the District. These 4 lakh ha. is a common property resource useful for support of livelihoods of poor farmers and landless as well as combating desertification by improving environment. In Anantapur District the main livelihood after agriculture is sheep/ goat rearing and dairy. The shepherds in the district are migrating for months to distant places as there is not enough fodder available for sheep. Also the farmers are selling away cattle for a throw away price as there is no sufficient fodder. Grasses and trees that give fodder, fruit, biomass, timber etc could be grown in this 2 lakh ha. forest land plus 2 lakh ha. Revenue common lands to augment fodder (and biomass) for sheep and cattle. Several traditional water bodies in forest land need be renovated and appropriate soil conservation and rain water harvesting measures have to be taken up. Seetaphal, Jamun, tamarind and other native forest fruit trees (with market value) along with fodder trees like neem, narepi, peepal, banyan etc have to be grown in these lands. Once they are grown, semi-intensive sheep and cattle grazing or cut and carry fodder could be allowed. Developing tree cover and soil conservation & rain water conservation in 4 lakh ha. of forest lands and common lands would also add greatly to the ground water recharge, biomass enhancement, increase soil organic matter and help combating desertification.

2.4. Promote Integrated Farming System (IFS) at each rainfed household level: Each rainfed farmer to own atleast 100 fruit trees plus 2 or 3 cows / 10 sheep in order to supplement annual crops:

There is a need to promote IFS for every rainfed farmer. The IFS should integrate annual crops, tree crops and cattle / sheep / goats. This system would diversify income sources, spread risk and provide income stability in case of droughts as farmers will get income from multiple sources like annual crops, tree crops, cattle and sheep. Even if one source fails, other will come to his / her rescue. About relevance of tree

crops was already discussed in the previous point. Regarding cattle, we have to follow a two pronged approach.

- a) Promote local / native drought-tolerant breed cattle as they are best suited to this region. They will freely move on and graze on hillocks, streams and can survive well even on dry fodder from annual crops like millets, pulses and groundnut. Different native breeds of cattle suitable to our area are punganur, thaparkar, hallikar, ongole and sindhi etc. These will survive on grazing in common lands and crop residues. The farmers can own more no. of cattle as they are inexpensive. They may give less milk compared to exotic cattle, but compensate with more no. of animals. Also the productivity of common lands will increase when cattle move in these lands. The local breeds are best suited for rainfed farmers and they are important resource by way of cow dung and cow urine for Jeevamrutham for practicing Sustainable Agriculture.
- b) Promote dairying with the exotic milch animals like Jersey, Heifer etc for farmers with irrigation facilities, who have green fodder; and better equipped to manage the sensitive animals.

2.5. Promote mixed /inter cropping with millets and pulses and ensure food and nutritional security: Provide locally grown food in ICDS, Mid-day Meals and PDS and Reduce Food Miles:

In Anantapur district the crop area of millets has reduced drastically because of extensive cultivation of groundnut . Due to this the villagers are completely dependent on only rice under PDS for food. Consequently the malnutrition is increasing and immunity of villagers is decreasing. So there is need to diversify the rainfed crops with millets and pulses and reduce Groundnut cultivation. Suitable millet and pulses for Anantapur District are Jowar, Bajra, Fox-tail millet, Redgram, Cow-pea, Lab-Lab, Gingilly, Green Gram etc. In order to bring back millets and pulses, Government should provide adequate incentives. Government should provide crop insurance, credit facility, support price, and procurement facility for millet and pulses. The millets & pulses produced in the district should be consumed locally as much as possible by supplying in PDS programme and by providing millet & pulse based cooked food in mid-day meal scheme and Integrated Child Development Scheme (ICDS) in order to create food and nutritional security for children students and mothers. Such a localized food production and distribution system would reduce food miles, save distribution costs and enhance food and nutritional security.

2.6 Shift Green Revolution model (HEIDA) to LEISA

The Green Revolution model which I called High External Input Destructive Agriculture (HEIDA), is not suitable for Anantapur agro-climate and particularly inimical to rainfed small and marginal farmers. High use of chemicals in agriculture is leading to increased cost of cultivation and polluting the environment. Farmers are caught in the debt trap and losing a lot due to HEIDA. The rainfed farmers and small farmers are being thrown out of agriculture as they cannot afford high crop investments and cannot take risks. This is also destroying the health of people, environment and ecology. The productivity of soils are decreasing because of high use of chemicals. So there is a need to replace HEIDA and campaign intensively the Low External Input Sustainable Agriculture (LEISA) practices. Government under HEIDA is giving direct and indirect subsidy of about Rs 10,000/- per ha. on chemical fertilizers, mechanization, free electricity etc. So the Government should provide atleast Rs 7500/- incentive per ha. to all farmers who shift from HEIDA to LEISA, So that they grow diversified crops, prepare and use their own manures and practice bio-management of pests and diseases.

Further in order to mitigate climate change also we have to shift from HEIDA to LEISA. This LEISA is thus eco-friendly and very beneficial to small and marginal rainfed farmers.

2.7. Processing and value addition of Agri-produce and Remunerative prices:

The agri-produce grown in this district is known for its high quality . Anantapur farmers are growing vegetables and high value fruits like sweet lime, pomegranate, sapota, guava, citrus, water melon , grapes, mango etc., and other crops like groundnut, bengal gram, jowar and lentils .These is no proper processing and marketing facility for these crops. Cold storages and ware houses should be build adequately for storage. Atleast first stage processing units have to be established in the district. Assured market or procurement facility and a price stabilization mechanism has to be provided for all agri products. The agri processing industries like fruit juice, pulp tomato ketchup can help in stabilizing prices and give remunerative price to farmers. A price stabilization fund should be setup to cushion the price fluctuations and avoid distress sale.

2.8 Industrialisation – An essential and urgent necessity for the district.

Anantapur is also the least industrialized and otherwise also most backward district in Andhra Pradesh. Given a population of over 40 lakhs, there are only about 20,000 industrial workers in Anantapur district. Anantapur district is rich with good educational institutions and human resources. Bangalore

International airport is just about 75 Kms away from the borders of Anantapur district. A longest and most important National Highway from Kanyakumari to Delhi runs through the length of Anantapur. And the district strategically located between Bangalore and Hyderabad offering good scope for an industrial corridor between Bangalore and Hyderabad. The crop land is least productive given chronically drought-prone and desert like agro-climate. Perhaps this is the only District in the country where farmers themselves are inviting industry and prepared to sell their land at a lower rate compared to any other district! The farmers are keen to see their children employed in industry as they cannot see future in agriculture for their children.

However one constraint for industrialization is the scarcity of water in the district. So, there is an urgent and high priority need to allocate 5 TMC of water exclusively for industry in the district. The water availability will trigger a rapid industrialization in the district given other congenial factors. Given the climatic constraints for agriculture sector, it is fair, logical and essential to incentivise and encourage intensive industrialization of micro, small, medium and big.

2.9. Health security & Education Support

One of the main causes (apart from droughts) for poverty and increasing rural indebtedness is ever increasing health expenditure. So all the villagers have to be provided with health security to come out of poverty. Rajiv ArogyaSri has to be extended to all, augmented to include all diseases in it and implement effectively. And the infrastructure and functioning of all Government health institutions should be improved at all levels in order to reach out to the people.

Another major cause for poverty and high rural indebtedness is increasing costs on their children's education. Unable to see any future in agriculture farmers desperately want to provide higher education to all their children which is becoming costly day by day. So all the rural children who want to go for higher education should be supported fully by the government. Also there is a strong need to improve quality of education in all the Government institutions in the rural areas and for higher education.

2.10. A time bound 5 year action plan for comprehensive development of Anantapuram District.

Alleviating the crisis in agriculture which is caused by drought and desertification is basic and a necessary condition, but not sufficient. A piece-meal approach to address the chronic problems of drought and poverty in Anantapur District will not solve the gigantic problem of being the most backward district in the state. Multi-sectoral interventions and convergence is necessary. A time bound comprehensive 5 year action plan has to be worked out including the above measures as well as other sectoral interventions such as the need for industrialization, (micro, small, medium & large) non-farm skilled employment for under educated youth, additional and alternate income generation programmes for women, landless etc. And further, adequate financial, human and institutional resources to implement such a plan should be made available at the disposal of the District Administration. The elected people's representatives, including Panchayath Raj Institutions, Political parties, the Government machinery and the civil society organizations have to work in cohesion and concerted manner in implementation and monitoring the comprehensive plan.

3. Conclusion :

There is a need for immediate action with a sense of urgency and seriousness. Lest we all may be late for ever! Farmers may disappear in desperation and disgrace to cities to work as casual labor ! Farmers becoming casual labor will be disgraceful. In the absence of industrialization, the educated community also has to migrate in search of employment. Then who else will remain in Anantapur District !

A sense of urgency and political commitment is needed to address the problems of chronic drought, desertification, poverty and backwardness in Anantapuram District.

Brot
für die Welt

