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CMSA: A Strategy of Sustainable Agriculture

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Abstract: Globally, agriculture has performed remarkably well over the last decade by keeping pace with rapid population growth and delivered food at progressively lower prices. But this all is made without considering sustainability. Agriculture can be said to sustainable when current as well as future food demands can be met without unnecessary compromising economic, ecological and social needs. So our Indian agriculture needs some change because change is the nature of law, if you don't change you can't be survived. Changing with the fast changing environment makes you more efficient and more comprehensive or sometimes change is the only option that you have like Andhra Pradesh govt. which came with the unique initiative called CMSA. This program consider as a boom for the farmers. CMSA is showing trends of being economically viable and ecologically friendly. In this article we will have insight about the condition of the farmers in AP around 2004, CMSA, the concept, the initial result of economic and environmental impact of CMSA, its success stories, draws possible implications for future.

Keywords: Sustainable, Ecological and Social needs, CMSA, Farmers of AP

I. INTRODUCTION

Farmers in India became the centre of substantial worry in the 1990's when the Journalist P. Sainath highlighted the large number of suicides among them. Initially, it was not under any focus, media was not interested at all but when these suicide cases went on alarming scale & came to light then the government began to accept the stressful life of farmers. Government realized that Indian farmers were actually had undergone very pity situation. Then the actual analysis was taken and that resultant was very shocking that more than 17500 farmers in a year actually killed themselves between 2002 and 2006 & the state topping the chart with large number of suicide cases was Andhra Pradesh. Andhra Pradesh was in the middle of an agrarian emergency in 2004. The tragic farmer's suicides were a severe symptom of a much deeper rural distress.

This was resultant into a decade – long attack on the livelihoods of millions. The crisis went beyond the families devastated by the suicides. For every farmer who committed suicide, countless others faced morale-sapping despair. Large no. of people was also in a zone marked by growing hunger and a fragile equilibrium. So there were hunger deaths too. Not only drought was the main reason for this situation; other factors also shared the credit well which was, collapsed agricultural credit and financial systems, skyrocketing prices of inputs beyond the reach of small farmers and an area marked by huge power tariff hikes, lake of irrigation facilities, no availability of pesticides, and fertilizers, and lack of high yielding seeds and very much portion contributed by exploiters. These farmers ad incredible levels of debt and they failed to pay off the credit because they all had seen crop failure for two or more years. Almost every one of them had much distress sales of land and cattle or both in past few years. Most had changed crops in recent years. All of them spent unbelievable amounts in search of water. They were sinking their funds in bore wells. All was selling their produce to creditors at well below market price as creditors forced them to repay their borrowed amount or sell of their produce at extremely low price. Thus in this way farmers were exploited too much and there was no scope left for the farmers to revive, hence most of them undergo suicide.

II. CMSA MODEL: A MODEL CEASES FARMERS S' SUICIDE

By analyzing the above situation government was in hurry to implement an effective model to cater needs of farmers .There was an urgent need to put a halt an increasing number of farmers' suicides So SERP (Society for Elimination of Rural Poverty) of Andhra Pradesh started an ecologically driven agricultural program which is commonly known as CMSA in the year 2004. CMSA is basically Community managed Sustainable Agriculture that focused on making best use of the natural resources both biological and physical. This model focused on community managed support system by using local knowledge, skills and labor. As the name suggest its main emphasis on sustainable development of Agriculture or Sustainable Agriculture. Now, what this sustainability of agriculture actually means?

A. Evolution of thinking on Sustainability

In 1798, Thomas Malthus, who is an eminent economist, first put forth the observation that, if unrestrained, population growth

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would eventually overtake the ability to produce food leading t starvation and war. But since mid 20th century, rising food demand has led to improved agricultural technologies so that the so-called Malthusian Trap has been avoided, at least for the time being.
Sustainable Development was defined as 'meeting the needs of the present without comprising the ability of future generations to meet their own needs.' The concept implied both limits to growth and idea of different patterns of growth. In 1992, the UN conference on Environment and Development held in Rio de Janeiro raised the international profile of threats to agricultural sustainability.

B. The overriding challenge is 'sustainable and profitable growth' in agriculture …

Any definition of sustainability must recognize its multiple dimensions: physical, economic, social culture and ethical. Sustainability can be defined only in the boundaries of a system's framework, that is, after specification of what is to be sustained. Choosing the boundary is difficult because agricultural systems operate at multiple levels; socio-plant system, cropping system or framing system, agro ecosystem and so on to higher regional, national and global levels. The level chosen thus also defines the spatial scale of operation for the definition. The linkages between agricultural systems at different level of hierarchy are important.

C. Starting Stage of CMSA

This model replaces the use of chemical pesticides with friendly bio pesticides. It was started on 400 acres in a dozen villages which now has reached over 6 lakh farmers on 17 lakh acres. It has marked its presence in 4025 villages and 21 of 23 districts of state. The idea not only had ecological benefits but also had social benefits as it started as a counter move towards the farmers' suicide in the state. The method taught farmers how to cultivate with pesticides. AP government has done a splendid job by taking up the concept of agriculture without pesticides to a large scale as state is the highest consumer of pesticides in India at 0.82 kg/hectare against the national average of 0.3 kg/hectare.

III. MAIN OBJECTIVES

To sustain agricultural based livelihoods

Special focus on small and marginal farmers, women, tenants, agricultural workers

Technology

- Local natural resource based
- Knowledge centric than product centric
- Community resource person

Management

- Community managed(SHGs)- financial and personnel

The main Stepping- Stone of the model: Components

Non Pesticide Management as Stepping- Stone

- Focus on use of more bio- pesticides.
- Integrating management practices to prevent insects from reaching, damaging stage and damaging proportion.
- A natural ecological balance will ensure that pests do not reach a critical number in the field that endangers the yield.
- Nature can restore such a balance if it is not meddled with too much- hence no chemical pesticides at all.
- Understanding the insect biology and crop ecology is important to manage pests- it is not enough if reactive sprays are taken up during outbreak.
- Prevention rather than control.
- Crop diversity and soil health play an important role in pest and disease management.
- That pest and disease management is possible with local, natural market.

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Success Stories

Out of Poverty through Chemical free-Agriculture

Inspiring entire village and neighboring villages

Smt.Nagamma

Tribal landless agriculture labourer Kothapeta (V), Ananthapur District

Achievements

Took 2 Acres land on lease
Grown groundnut and onion with zero pesticide
Got Rs.37,000 as her share
Purchased one she-buffalow @ Rs.10,000/- last year
Cleared Rs.5000/- high cost debt (at 48%)
Completed her own house construction
Helped daughters to construct houses and medicare
Inspired entire village to become Pesticide free

Coming out of indebtedness with pesticide free farming..

Veera Venkata Rao

Marginal farmer (1Acre)Narsapuram, Visakapatnam (D)

Achievements

Accumulated Rs.1 Lakh debt over a period
Took up pesticide free, low cost agriculuture
Got Rs.25,000/- net, last Rabi / 1 Acre
His Khariff Brinjal – sofar net income Rs.60,000/- further Rs.30,000/- net expected
Cleared Rs.60,000/- debt
Took 2 Acres land on lease – sown sunflower last month

A. Dr. Pari Naidu, a farmer of Thotapati village grew brinjal over 5 months in multi-cropping pattern. He used seeds collected from tribals of the district and used cow dung, cow urine, neem cakes to fertilize the plot. Each plot yielding 50 kg of brinjal which experts declared a phenomenon.

B. Mr. Ramchandra Reddy from Kurnool, who used to grow groundnut on his 2 acres piece of land. He suffered from health problems due to pesticide spray. Yield from his land rose to 12 quintal/acre from 10 quintal/acre and income inclined to Rs. 200/acre from Rs. 1200/acre after going for NPM.

C. Mr. M. Applanaidu from Vijayanagaram owned 2 acres of land. He used to suffer from health problem due to pesticide spray in the paddy field. Yield from the field before NPM was 24 quintal and net income was 12,000.Then he went for 100% fertilizer replacement with Azolla. The yield rose to 28 quintals and income climbed to Rs. 22,000 and last you can't ignore the health benefits.

IV. IMPACT OF CMSA

Some of the benefits of CMSA are:

A. Cases of severe hospitalization due to pesticide poising reduced from 242 to 146 in CMSA villages and it is zero in case of farmers who are adopted NPM.

B. The cost of cultivation was drastically reduced. The range of savings varied from crop to crop it ranging from Rs.2500/ha in

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case of Paddy to Rs.12500/ha incase of Cotton and Rs.37500/ha for Chillies. In 2007-08, total savings across the 18 districts reached to an estimated amount of Rs.150.4 crores.

C. Savings in cost of cultivation enabled many farmers to reclaim their land from mortgage.

D. Small and marginal farmers have taken additional land on lease.

E. Large farmers preferring CMSA farmers for share cropping to save their costs on inputs.

F. There are several instances of migrated people coming back for agriculture.

G. There is a considerable increase in yield. Average increase in yield in Paddy is 10Qt/ha, for Red gram it is 2Qt/ha and in case of Castor it is 0.25Qt/ha, due to increased grain weight and preventive mode of plant protection.

H. CMSA is now making efforts to ensure percolation of benefits to poorest of the poor by adopting different innovative approaches like 10 gunta model/1 gunta model etc. 10 Gunta model provides regular income by growing cereals, pulses, oilseeds, livestock etc on sholapur model. 1 Gunta model is fruit crop based multi storied vegetable crop model that ensures nutritional security to a family in the back yard for landless labor for cultivating vegetables.

I. Under CMSA, 3.18 lakh farm families (around 14 lakh people) are able to eat pesticide free food. There are 58411 kitchen gardens with a variety of vegetables to provide house hold nutritional security. In addition to these kitchen gardens, 3038 multi storied diversified crop models with fruit crops were developed to enrich crop diversity and to harvest maximum sunlight and to bring sustainability.

J. Many policy changes happened at state level and national level. Government of India approved the program under "innovation window" and sanctioned Rs.162 crores under Rashtriya Krishi Vikas Yojana (RKVY) for a period of five years from 2007 – 08 to 2011-12. This is under implementation.

K. State government of Andhra Pradesh made special provisions for CMSA/NPM farmers under National Rural Employment Guarantee Scheme (NREGS). These provisions include application of tank silt, digging compost pits, raising biomass nurseries, construction of vermin compost units, land development and construction of farm ponds. So far Rs.6.3 crores worth works was executed under NREGS in four months.

L. The National Plant Protection and Training Institute (NPPTI) team have, after their field visits, promised to recommend CMSA methods into the FFS modules, across the country. Prime Minister's Council on climate change is looking seriously to incorporate CMSA methods into their sustainable agriculture mission.

To enable these farmers to use these methods, a massive capacity building on Life cycles of pests and enabling climatic condition for disease prevalence and spreading, Farming systems, Sustainable use of resources, Maximizing output from a unit land area, Effective utilization of inputs like Seed, organic fertilizers, light, water, land etc, Conservation of Renewable Natural Resources & Genetic bio diversity both flora and fauna – SRI in Paddy and Program management, was given for Coordinators, Cluster Activists, and CRP's at various levels.

The concept of Farmer Field School was promoted vigorously in villages so as to introduce various NPM methods to the farmers. The NPM shops served the double purpose, of making the botanical extracts available in the village and providing the livelihood for another family. Along with the NPM shops, custom hiring centers were set up, where in the farmers could hire the markers, weeders and other agriculture equipment.

Progress during 2008-09: The major strategy change during the year 2008-09 is a Greater role to be played by Samakhyas. Some of the mandals are to mange NPM without the intervention of NGOs. For this purpose, samakhyas have undergone intensive capacity building process. Focus has been to build and strengthen the functional team till the village level. In old villages / clusters, NGO/MMS would be doing deepening i.e NPM leading into organic farming working with Samakhyas. The facilitation fee payment is changed from per acre basis to slab system.

Registration fee: Registration fee is collected @ Rs.30 per family per year. The total registration fee collected so far is Rs. 66lakhs/-.To sustain the program on its own it was decided collect Rs.100/- per acre as registration fee from 2009-10 onwards.

Strategy to reduce fertilizer usage: A comprehensive strategy was developed to reduce fertilizers. 13 components were identified to replace fertilizers.

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These components includes: Promoting compost pits and plantation of Glyrecedia around the compost pits, Bund plantation with Glyrecedia and Subabul, Neem cake application, Mulching ,Application of biofertilisers, Promoting tank silt application through NPM EGS,Promoting Azolla in Paddy on large scale, Promoting efficient composting methods like NADEP, Earth worms (Vermicomposting), Application of dung based inoculants,Green manure crops – Perennial and annuals,Green leaf manure, Biofertilisers, Crop diversification, Application of FYM

Monitoring of the program

Based on the field level experiences agenda items of the sub committees were developed and sent to districts. Month wise agenda items were prepared for effective implementation of the program. Program is monitoring regularly through fortnightly video conferences and monthly review meetings, in which all stake holders are participating. During these video conferences and monthly meetings special focus is laid on samakhya members. Efforts are being made to utilize MANA TV for reaching the community through video conference at mandal/village level. Three mandal level trainings were planned during the kharif season and first round of mandal level trainings were completed in all the 237 mandals. Month wise training calendars were developed.

Capacity building and documentation: Many workshops and capacity building programmes were undertaken to strengthen the functionaries and resource persons both on the technology and managerial aspects. Farmers own monthly magazine called “Nagali” has been updating the farmers on various developments in organic agriculture and farmer’s innovations across the state. Films have been produced on sustainable agriculture, on different practices adopted in NPM and crop wise.

PoP Strategy: The NPM / CMSA component has a major role to play in improving the lives of poor as it is low investment and high returns oriented. The strategy being adopted by NPM / CMSA has been proved effective in quick upliftment of the poor. PoP have been identified in the NPM villages, and these identified PoP are to be facilitated with the following.

Lease of 0.5 acre of land
Purchase of Cow (1 no)
Investment for 36*36 model
Investment for NPM Shop
Purchase of 1 weeder and 1 marker per village, for cultivation of Sri Paddy, in the villages where PoP has been identified. At present 493 PoP have been identified in 106 villages from 18 districts.

The road ahead for CMSA The road ahead is both scaling up and deepening. Our plan is to cover 2 million hectares of cultivable land by 2013-14. Table scaling up of NPM

Year	Total Area in lakh acres
2009-10	25
2010-11	40
2011-12	60
2012-13	80
2013-14	100

Program management to done by the SHG women
Separate sub committees with practicing SHG women, NPM farmers, at village, Mandal (Sub district) and district level are formed to monitor day to day activities. 3171 village level sub committees, 240 Sub district level (Mandal) sub committees and 18 district level sub committees were formed in 18 districts. All these sub committees meet once in a month to review the program Budget is provided for subcommittee’s field visits and review meetings. Sub committees will review the performance of Village activist, cluster activist and DPM on monthly basis. 65 NGOs are working with MMS on a paid facilitation basis. Their performance is reviewed by Samkhyas. Samakhyas attend FFS meetings, make field inspections, pay salaries of VA/CA. Communities are involved in decision making process. The final word in programme management lies with the VOs and MMSs.

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At village level, the farmers are organized into small Organic Farmer Groups on similar lines of women SHGs. These groups are trained on institution building, savings etc. There are 581 farmer groups were established in Srikakulam and Warangal district on pilot basis. This year these models will be scaled up in all districts.

To sum up CMSA has many unique features which make its success sustainable. The main factor contributing success can be attributed to the platform of women SHGs and their federations. The initiative taken by SERP and NGOs is to support the women's organizations in implementing this programme.

Budget Estimates for 2009-10 the budget estimates for implementation of Community Managed Sustainable Agriculture in 4010 villages covering 21 districts In AP is Rs.23.96 crores.

V. CONCLUSION

Scaling up of this kind of initiatives essentially requires strong gross root institutions of farmers or women. It also calls for a strong and responsive structure of SERP and NGOs' supporting the sustainable agricultural plan. All the essential elements such as extension and program management should be lead by community. The critical factor for successful scaling up is capacity building. Financial support should be in the form of Capacity Building rather than supply of inputs on subsidy to individuals. This program may find its new flight with states like Maharashtra, Karnataka, Kerala and Punjab etc. where farmers' suicide rate is high. If we leave this point of farmers' suicide to one side, then also benefits of CMSA can't b denied as we can skip problems like pesticides entering in food chain, health hazards and most importantly it may help in global warming, the problem about which the whole world is concerned.

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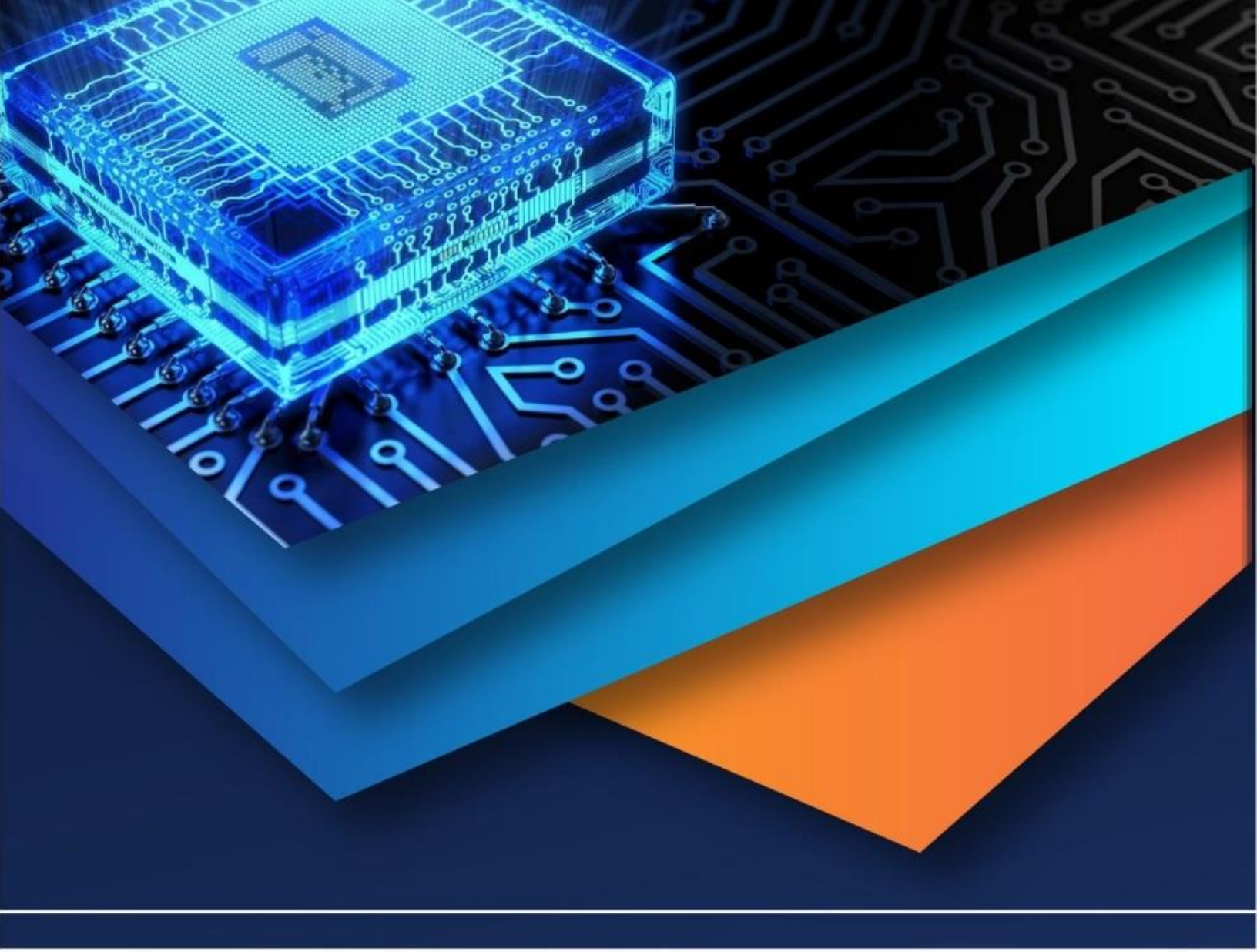

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