SCALING UP OF ECOLOGICAL FARMING IN INDIA: PROPOSALS & ROAD MAP OF ASHA (Alliance for Sustainable & Holistic Agriculture)

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SUMMARY

This is a proposed road map prepared by Alliance for Sustainable and Holistic Agriculture (ASHA), based on the grassroots experience of associated organisations in establishing ecological agriculture on a large scale.

Rationale: ASHA believes that the current agrarian distress, led by the crisis of indebtedness, requires farmers to be supported to shift to low-cost, low-external-inputs approaches in farming given that market price support in a fair and remunerative way is a more challenging task to ensure viability in farming. Further, it is well-established that for climate change mitigation as well as adaptation in the field of agriculture, organic farming is the best approach. Promoting organic farming will also substantially reduce the public financing burden on governments, given that chemical agriculture is heavily subsidized. This shift is also to ensure that environmental resources are conserved, so that there is a strong base on which sustainable farm livelihoods can be built. In the growing debates on food safety, it also becomes important to ensure that consumers have access to healthy, nutritious food by cleaning up the production system of unwanted, unneeded and unsafe toxins.

Feasibility: There is usually skepticism expressed about productivity of organic farming, and around the availability of adequate inputs for taking up organic farming on a large scale. ASHA's recent compilation on scientific evidence present within the National Agricultural Research System (NARS) of India about the sustainability, viability, profitability and social justice possibilities with organic farming should answer the sceptics. This is quite apart from international bodies like the Food and Agriculture Organisation or studies like the IAASTD (International Assessment of Agricultural Science, Technology and Knowledge for Development) having answered these questions quite conclusively, in favor of smallholder ecological farming.

Strategies: From the experiences of establishing and scaling up ecological agriculture, it is seen that some main strategies – both technical as well as institutional – are important to be incorporated for successful implementation. On the technical front, it is seen that mixed cropping, crop rotation, soil health management resting on creating micro-climate for soil biological activity to come to the fore, plant protection resting on pest and disease management rather than killing of pests through the use of synthetic pesticides, appropriate crop planning based on diversity and integrated farming, seed selection that is essentially from participatory varietal selection of locally suitable, farmer-controlled varieties, and water management resting on essential and efficient water and moisture use are important. Further, integrated farming systems enhance the livelihood options for participating farmers.

On the institutional front, the approach rests mainly on large scale awareness campaigns, on farmers' collectivisation, on capacity building through farmer field schools, on innovative extension systems which have downward accountability to farmers and led by practising farmers becoming community resource persons. Further, providing marketing support, including with certification and working capital/processing/storage facilities is important. A very critical element on this front is the lead role played by women farmers.

On the financial front, scaling up of organic farming does not get driven by individual farmer level subsidies, but mainly rests on an intensive extension model, capacity building of the knowledge base of farmers, on organising farmers into collectives, and giving the collectives working capital for production of inputs at the community level, and also processing and sales at the collective level. It is seen that the pilot phase will cost slightly more than the scaling up phase given that 'transaction costs' will come down in addition to economies of scale kicking in.

Pilot and Mission Mode Scaling Up: It is proposed that a Pilot Phase be established in 100

carefully chosen districts of the country - ones where we can intensify organic farming in a subsistence, 'default organic' situation, as well as some districts where the distress is high in a commercial farming set up. This should neutralise any transition losses related to yields.

In the scaling-up phase of a transition of 10% additional area each year towards organic farming, with the first 100 pilot districts being the resource centres for the rest of the country, any potential yield losses during the transition phase can be managed by balancing the current rainfed areas opting for intensification of organic farming, and the current intensive agriculture belts transitioning to organic farming.

It is also proposed that to incentivize the transition to organic farming and sustaining the shift, a special bonus be given to all organic farmers for the eco-system services being rendered by them.

SCALING UP OF ECOLOGICAL FARMING IN INDIA: PROPOSALS OF ASHA

1. INTRODUCTION AND SUMMARY

Agriculture as an occupation and a way of life is directly dependent on Nature. Ecological sustainability of farming is intricately linked to the sustainability of farming livelihoods. If the very productive resources on which farming is based are eroded and degraded, it is obvious that farm-based livelihoods will be adversely impacted too.

The ecological damage caused by decades of intensive chemical-based agriculture is becoming increasingly clear and the adverse consequences are being faced by farmers on a large scale. Soil health and fertility has declined drastically; the farm ecosystem which includes earthworms, beneficial insects, birds and diverse plants, has been badly disrupted in chemical farms; water systems have been poisoned; and groundwater has been depleted creating extensive dark zones. Farmers are seeing productivity declines despite heavier fertilizer application. The government's chemical fertilizer subsidy bill almost reached Rs.1 lakh crores and has become unsustainable. As per the government's State of Environment 2009 report, "Direct consequences of agricultural development on the environment arise from intensive farming activities, which contribute to soil erosion, land salination and loss of nutrients. The introduction of Green Revolution in the country has been accompanied by over-exploitation of land and water resources and excessive usage of fertilizers and pesticides."[1] The report shows that about 44 million hectares of land in India are degraded due to salinity, alkalinity, acidity and waterlogging, compared to the net cultivated area of 142 MHa.

When it comes to Water, the competing demands for water, depleting ground water and variation in rainfall due to climate change have become challenging phenomena. Drought and floods have become the single largest reason for losing crops and livestock. The rapid increase in agro-chemical use in the past five decades has contributed significantly to the pollution of both surface and groundwater resources, says the State of the Environment Report, 2009. Promotion of water-intensive crops in unsuitable areas and increasing tubewells are leading to groundwater depletion and increasing debt burden. Water-efficient crops (like millets, pulses and oilseeds) and production practices (SRI, micro irrigation etc) need to be promoted. Rainfed agriculture needs a separate dispensation as most of the current subsidies are designed for irrigated areas.

Pesticide poisoning is killing thousands of farmers every year; pesticide residues and water contamination due to agrochemicals are causing diseases like cancer, birth defects, premature deliveries, impotency, kidney problems etc. It is important to acknowledge the various environmental and environmental health related problems that are caused by synthetic pesticides in our agriculture and address this squarely. There seems to be a mad rush towards Genetically Modified (GM) crops ignoring biosafety and other concerns. Without assessing the need, alternatives available, bio-safety, political rights of farmers and trade security, releasing of Genetically Modified (GM) crops into the environment would be a disaster for farmers, consumers and our environment. Public opinion on GM crops is against their release and various state governments also have raised their concern. The health concerns with GM food crops are increasing. It is also seen that GMOs are not compatible with organic farming, both in terms of regulatory standards, and agro-ecological approaches of organic farming.

On the other hand, there is a need for an urgent push to re-orient Indian agriculture into an ecologically sustainable model. This is also supported by the IAASTD report which says, "A powerful tool for meeting development and sustainability goals resides in empowering farmers to

[1] http://www.moef.gov.in/soer/2009/SoE%20Report_2009.pdf

innovatively manage soils, water, biological resources, pests, disease vectors, genetic diversity, and conserve natural resources in a culturally appropriate manner."[6]

Sustainable agriculture methods are now shown to work at a large scale in many places-including 28 lakhs of acres in Andhra Pradesh under Community Managed Sustainable Agriculture, which is being considered as the world's largest state-supported ecological farming project, lakhs of acres under System of Rice Intensification (SRI) and its variants in other crops like wheat, sugarcane and ragi in many states, organic farming in several states, zero-budget natural farming etc. – leading to good production and higher net incomes for farmers.

It can no longer be said that ecological agriculture cannot happen at a large scale or that it cannot feed the country's growing demand. It is high time that we re-orient our support systems and research towards ecological agriculture, and create the synergies required to make any system successful at a large scale.

Given all the above, the following are **<u>our main proposals</u>** with regard to ecological farming:

1. **Scale up ecological farming, especially in the rainfed belts of the country, focusing on small and marginal farmers, with women farmers taking the lead, drawing mainly from the success of the Community Managed Sustainable Agriculture programme of the Government of Andhra Pradesh (this note proposes a road map for such scaling-up)**
2. **Provide special bonus for the ecological services being rendered by organic farmers**
3. **Phase out agri-chemicals from our farming**
4. **Stop the approvals of any GMOs in our food and farming systems**

In this note, ASHA articulates why there is an imperative for a decisive shift to ecological farming, how it can be achieved, how organic farmers should be incentivized with a special bonus for the eco-services they render, especially in the era of climate change.

2. WHY SHOULD ECOLOGICAL FARMING BE PROMOTED AS AN IMPERATIVE?[2]

"Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved".

– IFOAM definition of Organic Agriculture

The state of environmental resources in India, especially related to agriculture, is a matter of concern for a variety of reasons. Food security as well as livelihood security are being jeopardized today with constant degradation and depletion of resources, esp. in the era of climate change in a predominantly rainfed agriculture situation, in a country where a vast majority of people derive their livelihoods off agriculture.

Degradation & Depletion of Environmental Resources: The State of the Environment report (2009) of the Ministry of Environment & Forests, Government of India, has the following facts to share[3]:

- ***Land***: Out of India's total geographical area of 328.73 Mha, 306Mha comprises the reporting area and 146.82Mha is degraded land. The varying degrees and types of degradation stem mainly from unsustainable use and inappropriate land management practices. Important factors responsible for large scale degradation include non-adoption of soil conservation measures, improper crop rotation, indiscriminate use of agro-chemicals such as fertilizers and pesticides, improper planning and management of irrigation systems and extraction of groundwater in excess of the recharge capacity. The introduction of Green Revolution in the country has been accompanied by over-exploitation of land and waer resources and excessive usage of fertilizers and pesticides. The report emphasizes the need to move towards more sustainable practices.
- On ***Water***, the report says that groundwater reserves are becoming more and more depleted even as surface water sources have become too polluted for human use.
- Amongst reasons for the current high rates of ***biodiversity loss***, the report points to various human activities including fragmentation and degradation due to agricultural activities.

On ***Food Security***, the report reiterates that the prevalence of widespread hunger is not due to non-availability of food but the lack of adequate purchasing power amongst the poor, which in turn is due to insufficient opportunities for gainful employment. The report then recommends that one of the measures to secure food security is through promotion of organic farming, a solution to ensure "economically sustainable agriculture" (our emphasis).

The Planning Commission's Agriculture Strategy for the Eleventh Plan ("Agricultre Strategy for Eleventh Plan: Some critical issues") acknowledges issues around deceleration in agriculture growth that too in states that are predominantly rainfed, about "technology fatigue" and also about degradation of natural resources. The intensively irrigated crop production regions that currently hold the key to food security of the country are experiencing technology fatigue and are under increasing environmental stress, it notes. The Strategy paper points out that 'nearly 2/3rds of our farmlands are in some way either degraded or sick and only about 1/3rds are in good health'. On this front, the strategy says that "action on these environmental fronts cannot wait, especially in the face of a possibly looming adverse climate change". It is important to note that

[2] This note uses Ecological Agriculture, Organic Farming, Zero-Budget Natural Farming and so on inter-changeably

[3] www.moef.nic.in/downloads/home/home-SoE-Report-2009.pdf

the eleventh plan approach states that agriculture is not only an important driver of macro-economic performance but is also an essential element of the strategy to make growth more inclusive.

There appears now an acknowledgement of the degraded state of our environmental resources and the need for integrated farming approach/organic farming. Additionally, there is also the issue of **increasing public financing burden** as the demand of inputs like chemical fertilisers in the current paradigm is projected to increase tremendously (in 2009-10, total fertilizer consumption in India was 26.5 million tonnes and is projected to be 41.5 mn tonnes by 2020)[4].

Let us look more closely at Ecological/Organic farming, especially given that skepticism is expressed repeatedly about its ability to ameliorate the current agrarian distress, improve livelihoods and regenerate productive resources.

Organic/Ecological Farming

In India, millions of farmers cultivate their crops through farming methods that take an agro-ecological approach that relies on nature's processes and products for taking care of their agriculture. It is reported that 2.5 million hectares is under certified organic today and many more million hectares are under "default organic". Further, on lakhs of hectares, farmers cultivate their crops through ecological farming, without anything to do with organic certification systems.

PRINCIPLES OF ORGANIC FARMING: Organic farming, a term used inter-changeably in this note with Ecological Farming (farming that adopts agro-ecological approaches), occasionally reaching the level of 'do-nothing' or 'natural' farming, manifesting itself as 'bio-dynamic farming' at times, 'zero-budget' farming at other times in its adoption by lakhs of farmers in India, rests on the following:

"Organic agriculture as a holistic production management system that avoids use of synthetic fertilizers, pesticides and genetically modified organisms, minimizes pollution of air, soil and water, and optimizes the health and productivity of interdependent communities of plants, animals and people". – Codex Alimentarius

"Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, cultural, biological and mechanical methods, as opposed to using synthetic materials, to fulfil any specific function within the system". – FAO (Glossary on Organic Agriculture, October 2009)

According to IFOAM (International Federation of Organic Agriculture Movements), organic agriculture is based on the following[5]:

Principle of health: Organic Agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.
Principle of ecology: Organic Agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.
Principle of fairness: Organic Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities

4 Vijay Paul Sharma and Hrima Thaker (2011): Demand for fertilizer in India-Determinants and Outlook for 2020. Working Paper No. 2011-04-01. Indian Institute of Management, Ahmedabad
5 http://www.ifoam.org/about_ifoam/principles/index.html

Principle of care: Organic Agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.

"Organic Agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic Agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved", as per the IFOAM (Interntaional Federation of Organic Agriculture Movements).

Because of the clearly laid down and accepted principles, standards and practices (there are admittedly different systems within this), organic farming ends up promoting use of local natural resources, avoids synthetic chemicals in farming and cuts down on fossil fuel use by different ways. Soil and water conservation are an integral part of this model along with enhancement of biodiversity and eco-system restoration.

Current Global Status of Organic Farming: OF is one of the fastest growing segments in agriculture around the world.

- On the consumer side, organic products worth almost US$ 64 bn were sold globally in 2012.
- The production side is also keeping pace, wherein organic farm land has grown in many countries, with some tropical crops showing area growth rates of more than 10%.
- New countries are joining the community of organic producers, with the number touching 164 in 2012[6].
- The total organic agricultural land reached 37.5 mn ha from 11 mn ha in 1999. Apart from this, non-agricultural organic areas certified as such are pegged at 31 million hectares.
- The number of producers engaged in organic agriculture is estimated at 1.9 million in 2012.
- 36% of world's organic producers are in Asia, followed by Africa (30%) and Europe (17%).
- About 1/3rd of the world's organic agricultural land and more than 80% of the producers are in developing countries and emerging markets.

It has to be noted that all of this data pertains to certified organic agriculture. There is a huge potential estimated for certified organic produce from particular pockets of countries like India, given their "default organic status". Some estimate that this sector is growing at nearly 50% per annum in India. In India, the total volume of organic exports is pegged at 1.6 lakh metric tonnes in 2012-13, and this was worth Rs. 1156 crore rupees[7].

Organic farming and food security, especially in rainfed areas: Very often, even as the degradation of environmental resources in an intensive farming paradigm is acknowledged, there are questions asked about the potential of organic farming in sustaining or improving yields. FAO says that when converting from poorly managed traditional systems, organic practices actually intensify the agricultural productivity, due to enhanced natural resources management and rotations. An FAO review states that organic agriculture can be described as "neo-traditional food system" as it uses scientific investigation to improve traditional farming practices anchored in

[6] Willer, Helga and Julia Lernoud (Eds.) (2014). The World of Organic Agriculture. Statistics and Emerging Trends 2014. FiBL-IFOAM Report. Research Institute of Organic Agriculture (FiBL), Frick, and International Federation of Organic Agriculture Movements (IFOAM), Bonn. Revised version of February 24, 2014

[7] Agri-exports in general (not just organic) are manifold higher, and these are also under threat from GMO open air releases.

multi-cropping systems, natural food preservation and storage, and risk aversion strategies that have traditionally secured local food needs. FAO also points out to the fact that the last decades provide uncompromising evidence of diminishing returns on grains despite the rapid increases of chemical pesticide and fertilizer applications resulting in lower confidence that these high input technologies will provide for equitable household and national food security in the next decades.

Various modeling studies looking at organic agriculture have concluded that it has the potential to secure a global food supply just as conventional agriculture today but with reduced environmental impacts. Findings suggest enough food could be produced on a global per capita basis for the current world population: 2640 and 4380 Kcal/person/day is the range. While productivity in organic production systems is management specific, studies show that in subsistence agricultural systems, it results in increased yields of upto 180%. Overall, the world average organic yields are calculated to be 132% more than current food production levels.

In the context of farm livelihoods, there is the whole issue of farm profitability. This is all the more important in the case of India where several manifestations of the agrarian distress are presenting themselves starkly in front of policy makers, including unabated farm suicides. A recent international review of over 50 economic studies demonstrated that in a majority of cases, organic systems are more profitable than non-organic systems[8]. There are quite a few studies from India too which point to the higher profitability in organic farming for the producer.

Long term studies from India also show that organic farming yields are comparable to 'conventional' cultivation yields (Rupela/CRIDA, 2009). A NABARD Occasional Paper (2005) citing various references reports that yields are substantially higher in rice-chickpea cropping sequence using organic manure and similar results in rice, ginger, sunflower, soyabean and sesame[9]. The following findings related to organic farming are also presented in the NABARD paper: (a) Results reported from 1050 field demonstration cum trials under the National Project on Development and Use of Biofertilizers in different parts of the country show an increase of 4 per cent in yield in plantation crops, 7 per cent in fruit crops, 9 per cent in wheat and sugarcane, 10 per cent in millet and vegetable, 11 per cent in fibre, condiments and spice crops, 14 per cent in oilseeds and flowers and 15 per cent in tobacco. (b) A study of 100 farmers in Himachal Pradesh during a period of 3 years found that the total cost of production of maize and wheat was lower under organic farming and the net income was 2 to 3 times higher. Both productivity and premium prices contributed to the increased profitability.

"During 3-4 years of conversion period, crop yields under organic farming were recorded to be comparable with conventional (chemical) farming in many regions. Some of these crops and their percent improvement in yield are: coarse rice (+2%), garlic (+20.4%), maize (+22.8%), tumeric (+51.5%), fodder crops (+14.4 to 89.9%) and basmati rice (-6%) at Ludhiana; kharif French bean (+19.0%), veg. pea (+62.1%), cabbage (+9.5%), garlic (+7.0%) and kharif cauliflower (-4.6%) at Bajaura; fodder berseem (+6.5%), chickpea (+1.5%), soybean (-2.3%) and mustard (-6.6%) at Raipur; Rice (+12.9%), Wheat (+24.4%), Potato (+7.3%), mustard (+9.6%) and lentil (+2.5%) at Ranchi, groundnut (+6.9%), rabi sorghum (+15.8%), soybean (+9.5%), durum wheat (+32.4%), chilli (+18.8%), cotton (+35.5%), potato (+3.3%), chickpea (+3.2%) and maize (-1.1%) at Dharwad; soybean (+10.7%), isabgol (+11.2%), durum wheat (+1.1%), mustard (+3.1%) and chickpea (+4.2%) at Bhopal; okra (+1.0%), berseem (-0.2%) and veg. pea (+1.8%) at Jabalpur; Dolichos bean (+16.6%) at Karjat; maize (+18.2%), cotton (+38.7%), chilli (+8.2%), brinjal (+14.9%) and sunflower (+29.1%) at Coimbatore; rice (+1.9%) at Pantnagar; fodder sorghum (+32.5%), okra (+11.3%), baby corn (+11.8%) and veg. pea (+2.2%) at Modipuram; and carrot (+5.8%), tomato (+30.6%), rice on raised beds (+7.3%),

8 Noemi Nemes (2013): Comparative analysis of organic and non-organic farming systems: a critical assessment of farm profitability. Trade and Environment Review. UNCTAD. Pp. 50-56

9 Narayanan S, Organic Farming in India: Relevance, Problems and Constraints, Occasional Paper 38, NABARD, 2005

french bean (+17.7%) and potato (+3.0%) at Umiam". *The above is recorded in 'Vision 2030, Project Directorate for Farming Systems Research, Modipuram' (2011) of Indian Council For Agricultural Research (pp14-15), based on the All India Network Project on Organic Farming.*

MAIN FINDINGS OF THE ALL INDIA NETWORK PROJECT ON ORGANIC FARMING COORDINATED BY PROJECT DIRECTORATE FOR FARMING SYSTEMS RESEARCH, MODIPURAM

Okra, turmeric, cotton, carrot, black pepper and cowpea have recorded more than 20% increase in yield under organic nutrient input system compared to inorganic system. The increase in yield of onion, ginger, dolichos bean are in the range of 10-20% while greengram, sunflower and garlic recorded 5 to 10% increase in yield. An increase of up to 5% was observed in maize, soybean, berseem, brinjal, chilli, capsicum, tomato, sorghum and peas across the seasons and locations.

The above network project, across 13 locations indicates consistent results across locations, seasons and crops (for 21 of the 28 crops for which research was undertaken) which show yield increases under organic systems.

A large scale state-supported ecological farming project in the state of Andhra Pradesh, called the Community Managed Sustainable Agriculture (CMSA) programme had the following results to report[10]: The yield of principal crops raised through CMSA has been compared to that of conventional agriculture through surveys which closely monitored 400 farmers' fields in five districts to track changes in the yield of paddy, chilli, groundnut, redgram and cotton crops after they switched over to CMSA and found that yields have remained the same or increased slightly when farmers gave up chemical pesticides. Findings from the official evaluation of this large programme are given in an annexure to this note.

Climate change and organic farming: Organic agriculture stresses diversification and adaptive management which significantly decreases vulnerability to weather vagaries or other factors. In organic agriculture, the restricted use of mineral fertilizers reduces the use of non-renewable energy (fossil fuels) and reduces the emissions of agricultural greenhouse gases. The FAO says that the positive impact of organic agriculture practices on air, soil, water and biodiversity offers opportunities to implement international environmental agreements such as the Convention on Climate Change (the Kyoto Protocol), Convention on Biological Diversity (Decision III/11 on the conservation and use of agricultural biological diversity) and national strategies to implement the Convention to Combat Desertification[11].

Changes in farming models and practices towards sustainable agriculture offer a significant opportunity at reducing GHG emissions. Organic farms use on an average 33 to 56 per cent less energy per hectare, as per FAO (2007). According to FAO, organic agriculture systems contribute to reduced consumption of fossil fuel energy (especially nitrogen fertilizers), reduced carbon dioxide emissions (48 to 60 percent less, except for very intensive crops), reduced nitrous dioxide (due to less mobile nitrogen concentrations and good soil structure), reduced soil erosion and increased carbon stocks, especially in already degraded soils. Nitrous oxide, result of overdoses and losses on nitrogen, can be effectively minimized through sustainable agriculture practices. While production of chemical fertilizers is an energy-intensive process that emits carbondioxide and nitrous oxide, application of nitrogen fertilizers makes the soil emit nitrous oxide. These can be avoided through organic farming.

[10] T Vijay Kumar, D V Raidu, Jayaram Killi, Madhavi Pillai, Parmesh Shah, Vijayasekar Kalavakonda and Smriti Lakhey, 'Ecologically Sound, Economically Viable: Community Managed Sustainable Agriculture in Andhra Pradesh, India', World Bank, 2009

[11] Organic agriculture fact sheets, FAO, 2003 - http://www.fao.org/organicag/oa-publications/pub-cat/sustainability-and-perspectives/en/

IFOAM notes that avoidance of methane emission is also possible through organic agriculture – through the promotion of aerobic micro-organisms and high biological activity in soils, oxidation of methane can be increased. Through practices like System of Rice Intensification, which is mostly based on principles of ecological farming, flooding in rice paddies can be reduced and thereby, methane emissions.

Sustainable agriculture also increases the Soil Organic Carbon (SOC) by incorporating organic materials into the soil. Soil can be a major source of storage of carbon, about twice as much carbon as in the atmosphere. Fertiliser use replaces soil organic matter in intensive systems, which reduces potential sequestration.

Extreme and unpredictable weather conditions are part of the reality of climate change even as temperature rise and changes in rainfall, changes in pest and disease incidence etc., will also be the stark reality for farmers. What the situation then requires are resilient and adaptive farming systems with the least amount of loss to the productive resources, production and the farmer. One of the most important requirements for adaptation would be farmers' knowledge, in negotiating complex agro-ecosystems. As a philosophical approach, organic farming has always laid thrust on farmers' skills, knowledge, innovation, horizontal sharing, observations and intuition etc. Several large organic farming projects across the world have built successful institutional models for systematic support for farmers' knowledge and innovation and constant enhancement. This forms a key part of the adaptation potential of sustainable agriculture. Organic farming is also associated with decreased irrigation needs by about 30-50%. This becomes an important part of adaptation in drought conditions. The better drainage and water holding capacity of organic soils reduces the risk of drought and soil erosion, for instance. Organic farming practices are in a good position to maintain productivity in the event of drought, irregular rainfall events and rising temperatures, notes a recent technical paper from International Trade Center (WTO) and FiBL. This paper notes that soils under organic management retain significantly more rainwater thanks to the "sponge properties" of organic matter. Water percolation is 15-20% more in organic systems. Water capture in organic plots was twice as high as conventional plots during torrential rains, which in turn reduces the risk of floods. Given both the mitigation and adaptation potential that organic farming presents in the context of climate change, it becomes important that more emphasis is placed in promoting such farming systems on a wider scale.

It is based on these arguments (that organic agriculture improves food and nutrition security, leads to sustainable livelihoods, enhances mitigation of and adaptation to climate change and regenerates our environmental resources) that ASHA demands a scaling-up of ecological farming all over the country. While demanding this, ASHA realizes that there are indeed efforts underway on State-supported programmes/projects on ecological farming like NPOP, NPOF/NCOF, Community Managed Sustainable Agriculture in Andhra Pradesh (implemented by the Agriculture and Rural Development departments from 2011 Kharif onwards), Jeevika in Bihar, National Rural Livelihoods Mission etc.; However, ASHA believes that these efforts are inadequate in the face of the urgency to regenerate our productive resources, improve farm livelihoods and bring out our farmers from the current agrarian distress.

For instance, the following data on Rashtriya Krishi Vikas Yojana gives a good picture of the low priority given to Organic Farming in this flagship programme of the government.

To begin with, RKVY saw only 18,550 crores spent on a flagship development programme in agriculture, compared to, let us say, 156,301 crores spent on MGNREGS during the eleventh plan and compared to 691,976 crores in all for various flagship programmes. This is just 2.68% of the flagship development programmes, that is devoted to agricultural development.

Within RKVY, the following breakup emerges, for support to Organic Farming being only 2.1% of total amount, and only 2.5% of the total number of projects.

RASHTRIYA KRISHI VIKAS YOJANA AND ORGANIC FARMING SUB-SECTOR

YEAR	TOTAL NO. OF RKVY PROJECTS	TOTAL AMOUNT (in crores of Rs.)	NO. OF ORG FARM PROJECTS	AMOUNT FOR ORG FARM PROJECTS
2007-08	482	1475.88	19 (3.9)	65.20 (4.4)
2008-09	867	3985.49	25 (2.9)	110.32 (2.8)
2009-10	1172	4748.06	27 (2.3)	59.16 (1.3)
2010-11	1614	8389.13	48 (2.9)	129.91 (1.6)
2011-12	1614	8809.30	37 (2.3)	311.31 (3.5)
2012-13	1806	12358.70	41 (2.3)	145.55 (1.2)
2013-14	1496	9968.72	33 (2.2)	217.04 (2.2)
TOTAL	9051	49735.30	230 (2.5%)	1038.49 (2.1%)

Source: www.rkvy.nic.in accessed on January 1, 2015

3. A ROAD MAP FOR SCALING UP ECOLOGICAL FARMING

The objectives for scaling up could be to:

- Reduce the dependency on external inputs and reduce the costs of cultivation
- Reduce the risks with uncertain weather conditions and degraded and limited natural resources in these regions, by adopting suitable cropping patterns and production practices,
- Diversify the assets and income sources to sustain the livelihoods by integrating livestock and horticulture into agriculture and promoting on-farm and off-farm employment opportunities,
- Conserve and efficiently use the available natural resources like soil and water, and promote biomass generation,
- Organize farmers into institutions which can help them to have better planning, greater control over their production, help to access resources and support, improve food security and move up in the value chain, and link to markets

ASHA proposes an incremental and progressive approach towards scaling up of ecological farming and realizes that an overnight shift to organic farming is not feasible. We believe that a small pilot in thousand villages each per state should be the first step, lasting for at least 3-4 seasons, wherein a mix of subsistence and market-based agriculture scenarios exist. The focus should be on small and marginal farmers, in the rainfed and ecologically fragile areas/biodiverse areas in addition to crisis-ridden farming belts. The pilots should primarily focus on production related changes but also be able to pilot innovative approaches around collective enterprises around inputs, collective marketing, processing and value addition, systems for running community level seed banks etc. It has been found that working with women's SHGs for management of the programme and through FFS (farmer field schools, with participation of both women and men farmers) for capacity building, knowledge enhancement, horizontal sharing and learning etc., works out well.

The objective should be to make farming a viable and sustainable profession, thereby restoring farmers' dignity in their profession by improving their social status.

Despite a number of government-funded projects and programmes on agriculture on the ground, these lack the ability to pull out farmers from their distress due to problems in approach, design and implementation, and importantly, lack of convergence. One important component missing is farmers' organizations being built so that farming can be made into a collective enterprise both in the production phase and post-production marketing phase.

ASHA believes that the government should invest in research and extension that support ecological farming (including by adopting institutional innovations that seemed to have worked around the country) and should recast support systems/subsidies to support farmers' own resources, labour, knowledge & skills.

This needs enhancing the knowledge and skills of farmers on effectively conserving and using their resources for sustainable production; building institutional platforms at the village level for managing, planning and implementation by the farmers themselves; convergence of various government programmes to maximize the benefit.

This also requires a livelihoods approach to farming.

A. Strategies to be adopted: Technical/Programmatic

1. **Promoting Sustainable agriculture:** Sustainable Agriculture which is an integrated farming system based on locally adapted cropping patterns and local resource (natural resources and natural processes) use based on local knowledge, skills and innovations.

The capacity of a farming system to adapt to changing climate and weather conditions is based on its natural resource endowment and associated economic, social, cultural and conditions. The viability of these elements also constitutes the basis for sustainable agriculture, understood as agricultural production that: ensures adequacy of food production; does not harm the resource base; is economically viable; and enhances quality of life. Many climate and weather risk management strategies fit squarely into sustainable agriculture practices and can, therefore, be promoted with several of the programs and policies targeting environmentally responsible production. Monocropping also leads to less labour days and peak labour requirement at the same and for a short time, which increases migration - hence mixed cropping models need to be encouraged.

Strategies to be adopted

a. *Changes in cropping patterns and cropping systems to suit the local resource and weather conditions. Multiple/mixed cropping, intercropping systems with legume components, tree integration etc.*

b. *Ecological farming practices which can maximise the local resource use. Many of these practices are based on indigenous knowledge and focus on building soil biological productivity. Non Pesticidal Management, Organic Soil Management, Community Seed Banks, System of Rice Intensification, Soil moisture management etc have already proven to be useful.*

c. *Locally adopted crop varieties specially in saline and flood prone areas, drought prone areas, making suitable selections adopting Participatory Plant Breeding and Participatory Varietal Selection.*

d. *Developing suitable farming systems integrating agriculture, horticulture and livestock.*

e. *Within livestock interventions too, it is important to focus on diversity and locally suitable breeds.*

f. *At the macro level, there is a need to revisit the paradigms governing the agricultural research in the country. Probably one needs to revisit the concept of agro-climatic zones and consider regrouping them in the changed context; further, sustainability indices should be used to appraise research outcomes and not just the conventional cost-benefit analysis.*

g. *There are many technologies/varieties that are sitting in the laboratories of the public sector research organizations. One needs to take stock of these and test them in the field to see which of them work in the changed context*

2. **Natural resource generation:** There need to be efforts towards natural resource regeneration (especially in rain shadow districts like Anantapur, rainfed areas like Bundelkhand or tribal areas of central, eastern and north eastern India) so that there is ensured water supply for agriculture, livestock and human consumption.

Strategy to be adopted –

a. *Soil fertility should be recognized as the national property and government should invest in building it. Suitable incentives should be given to encourage for increasing the soil organic matter and soil conservation.*
b. *There is a greater need to revive the traditional water harvesting structures in the drought affected villages. These structures can be revived through the imaginative use of MNREGA funds and watershed funds.*

3. **Food and livelihood Security:** Shift to sustainable agriculture is often seen as a compromise on food security. This is mainly because food is understood as only wheat and rice, few pulses, oilseeds and vegetables. The food basket can be increased if we can expand the scope to include millets, coarse cereals, dryland fruits, uncultivated greens etc which can also bring in nutrition security. Data from National Centre for Organic Farming (NCOF), ICRISAT and CMSA have proven that crop productivity can also be maintained with organic/ecological farming. Going beyond the current food security systems like PDS and mid-day meal schemes, systems need to be established to improve livelihood security in terms of sustaining food production in the village, improving income generation opportunities to the small farmers and agriculture labor is important in the rural areas especially in rainfed regions. The frequent monsoon failures results in droughts and support systems needs to be built to help the farm families and livestock to tide over.
   a. *Building house hold food security systems by adopting suitable cropping patterns*
   b. *Village level management systems for alternative models like grain banks would be appropriate and attempted. There is also a need for community seed banks to be set up and nurtured, for food and nutrition security needs to be met.*
   c. *Suitable off-farm and non-farm employment opportunities would be identified and promoted.*

The above are technical components to be integrated for successful scaling up. Further, the programmatic strategies should rest on large scale awareness campaigns amongst farmers and consumers (including exposure trips, capacity building, IEC materials), and equal emphasis on supporting producers both at the production end as well as the marketing end.

B. Strategies to be adopted: Farmer-centric Institutional Strategies

1. **Farmers' Institutions:** Organized communities have proven to be more effective in planning and managing their resources and livelihoods, value addition and marketing. Appropriate institutional systems for each of the purposes need be established.

Strategy to be adopted –

a. *The farmers would be organised into common interest groups federated into producer collectives. Existing institutions like Women's SHGs play a critical role in anchoring such programmes, and can be the basis for CIGs, federations and producer collectives.*
b. *These institutions would take the roles of planning, mobilising resources, organising production, and take up post-harvest management and marketing activities.*
c. *The producer collectives will improve the collective bargaining power of the farmers, will internalize market activities like bulking, primary and secondary processing which improve the village economy.*

2. **Innovative farmer-led research and extension systems:** It is seen that in a knowledge-intensive approach like organic farming, the research and extension systems have to be recast, so that they are farmer-led and farmer-centric. This also requires reorientation to include women farmers squarely into the programme.

Strategy to be adopted -

a. *Farmer Field Schools, with at least 50% women participation as one of the main approaches for capacity building and extension;*
b. *Participatory research protocols which also take into cognizance validation of farmer innovations;*
c. *Using successful practicing farmers as Community Resource Persons;*
d. *Ensuring that the extension workers' salaries are paid through the women's SHGs with downward accountability to women's collectives fixed, for all functionaries.*
e. *Women's groups to be treated as farmers' groups for credit support, marketing support and for lead role in key-decision making processes in the programme.*
f. *Intensive extension systems, which include village level personnel, cluster level staff and block level staff is very important.*

3. **Convergence**: Another key institutional strategy that is critical for scaling up of ecological agriculture is convergence across departments, agencies and programmes/schemes. This includes rural development (livelihoods projects as well as MGNREGS), land resources, cooperatives, marketing, water resources, watershed, horticulture, agriculture, fisheries and animal husbandry departments.

4. **Partnerships**: There is a need to build partnerships between various governmental and non-governmental agencies to implement the program. At the national level we need to build an alliance of Public sector research organisations, extension agencies, departments dealing with rural livelihoods and NGOs which are working on sustainable agriculture/organic/natural/ecological farming.

C. Financial Support Systems: Currently all the financial support systems to agriculture are given only for external inputs. We need to create proper support systems for farm internalized inputs, community based infrastructure, knowledge and skill building and sharing etc.

a. *Direct Subsidies to farmers rather than input subsidies including for their own inputs*
b. *Integrating NREGA with sustainable agriculture so that each farmer gets 100 labor days for farming can provide ample scope in this direction.*
c. *There needs to be community level investments for both input and output related facilities and infrastructure. Further, on the marketing front, adequate financial capital has to be infused into the farmers' collectives.*

PILOT PHASE OF COMMUNITY MANAGED SUSTAINABLE AGRICULTURE

Given under is our proposal for the pilot project related to Community Managed Sustainable Agriculture:

- Identify 1000 villages across different agro-climatic conditions in each state; map out and draw in local resource agencies and nearest practicing ecological/organic farmers once these locations are finalised in addition to mapping out and understanding local resources.
- The package of practices for most crops is already well-evolved; any fine-tuning to be done for particular agro-ecological conditions should be taken up.
- Identifying resource agencies who would take up creation of appropriate IEC materials as well as take up trainers' training in a cascading model would be important.
- Large scale awareness campaigns to be taken up on ecological/economic problems of conventional farming and benefits of ecological farming
- Developing resource persons at all levels, including ones who will be with the participating farmers constantly is a necessary pre-requisite.
- In terms of programme management, in the pilot phase, around 500 acres spread over 5 villages can be treated as a cluster, work of which will be coordinated by one trained cluster coordinator, in addition to one village-level extension worker for each village. Further on-the-job training would be provided by the government agencies/NGOs who provide technical support.
- The staff at village and cluster level should be accountable to the farmers' group/cooperative. The funds have to be released to the farmers' group which conducts monthly reviews and releases the funds.
- Participating farmers need to be organized into groups based on homogeneity and proximity of landholdings, crops etc.
- Regular Farmers' Field Schools (FFS) should be organized for learning. These groups can also engage themselves in issues of quality management, production planning, processing, marketing etc.
- Farmers Groups can be federated at cluster level to form Farmers' Cooperatives/Producer Companies for storage, value addition and marketing which forms single window for everything. Village Institutions can plan for the needed infrastructure by mobilizing financial support for various ongoing schemes and through banks.
- Village plans can be prepared and submitted to the District Planning Board. The village production plans can be integrated with the district level plans sourcing funds from RKVY, FSM, NHM and NREGS–this can be based on new partnerships between NGOs, CBOs, and government departments.
- Beyond block level, the program should be integrated with the Departments of Agriculture, Horticulture, Animal Husbandry, Sericulture etc.
- At the district and state levels, special project management unit should be set up with people from agriculture, horticulture, animal husbandry and rural Development departments etc along with representatives of farmers institutions.
- Draw in some research agencies to work along with the resource organizations to document and validate the models (parameters of assessment should be evolved differently) including collection of baseline information etc.
- As sustainable agriculture practices are largely based on local resources mapping local resources which can used as inputs in agriculture and planning for their sustainability becomes important. An inventory of such resources would be prepared for each identified village.

ASHA feels that the entry point can be any successfully-established practice to address the most pressing problem locally and move on to other components in an incremental fashion (for instance, the CMSA programme in AP began with dealing with the issue of synthetic pesticides in

farming, by promoting NPM on a large scale; later, it moved to localised seed production systems at the grassroots level; zero-budget farming etc.). In each cluster of villages, thrust could be on creating at least one village that will become completely organic with integrated farming systems in 3-5 years' time. It has been found in the past that such iconic examples leave an inspiring impression on participating farmers and help the scaling out of the effort. The need for data-based documentation from Day 1 cannot be over-emphasised.

ORGANISING FARMER FIELD SCHOOLS

ASHA believes that one of the most critical activities in the spread of ecological farming is that of organising farmer field schools on a regular basis, facilitated by a knowledgeable/experienced/trained extension worker (the cluster coordinator along with the village level extension worker), since ecological farming is a knowledge-intensive production process, as opposed to chemical agriculture which is input-intensive.

Experience shows that FFS plays a very important role for farmers to acquire knowledge and skills over sustainable production practices and these fora have been used to take up collective crop planning, programme planning, monitoring and implementation.

Every farmer has to undergo such a training for at least 4 seasons.

Farmer field schools which are taken up on a rotational basis in various farms throughout the season also help in identifying innovative and successful farmers who can then be trained as future resource persons during the expansion phase.

MISSION MODE SCALING UP

Preparations for the main phase will have to begin in the pilot phase itself through season-long capacity building programmes on the technical as well as institution-building facets of the programme from the end of the first year of pilot. The pilot project should be used to develop modules of trainings, materials in different languages (for farmers, for motivators etc.) and for locating as many resource agencies as possible in all districts in the state. The third and fourth seasons of the pilot can be used for exposure visits etc.

The main phase of the programme's mission-mode scaling up should be centred not on the technical/technological aspects (which would get firmed up in the pilot phase, given that enormous knowledge exists already across crops and locations on agro-ecological approaches) but on creation of sustainable institutions, systems and mechanisms by which the livelihood needs of farm households can be met comprehensively. This should include livestock integration, insurance, marketing, collective enterprises etc. It is important therefore, to carefully combine various existing programmes towards a common objective. The example of CMSA in Andhra Pradesh where convergence with ongoing programmes like NREGA, NRHM, credit coverage for agriculture, marketing support etc. is well worth emulating.

The main phase should attempt to scale up the pilots by adding other components like building infrastructure facilities for storage and value addition, support for marketing etc.

FINANCIAL REQUIREMENTS FOR THIS SCALING UP

Funds are required for such a scaling up mainly for campaigns, IEC materials, capacity building efforts, institution-building efforts, and most importantly, for extension support from village upwards. They are also needed for administrative costs especially in the pilot phase.

Finances are also needed for seed capital for setting up Seed Banks, for marketing by farmers' collectives, for any infrastructure and capital costs around storage, processing etc., funds for insurance and risk management funds etc.

Resources can be tapped from the ongoing schemes like RKVY, NRLM, NFSM, NHM etc.

The Andhra Pradesh experience shows that the per acre investment in the CMSA programme was Rs. 800/acre in 2005 when the programme started on 25000 acres and that this has become Rs. 175/acre when the programme reached two lakh acres. The investment of the project at present is around Rs. 100/acre, after it reached 25 lakh acres.

The pilot is expected to cost Rs. 800 crores per year (1000 villages, 25 states, each village reaching 400 acres in the pilot phase, at the rate of Rs. 800/acre).

Thereafter, it is expected that scaling up would have targets of 10% of India's agricultural land per year (incrementally), over the next 10 years. From the sixth year onwards, the first year's intervention areas can be closed for intervention; in the seventh year, the second year's intervention areas and so on.

Each year, the investment is expected to be on 14 million hectares across India (out of 140 million hectares net sown area at the national level). This is around 35 million acres or 350 lakh acres. With a per-acre investment in the scaling up phase of Rs. 200/acre, **this works out to around 700 crore rupees per year**.

While this is for the production-related aspects, for marketing infrastructure-related support for such organic farming produce, fixed investments can be staggered between regions based on some parameters evolved in the programme. In the CMSA programme in Andhra Pradesh, it has been seen that an investment of 1 – 1.5 lakh rupees per village for seed banks, community level storage facilities, processing facilities etc., is of immense value. **This would require financing to the tune of Rs. 675 crores**, for forty five thousand villages approximately each year.

4. OTHER POLICY/LEGISLATIVE IMPERATIVES

For the above scaling up to happen smoothly and for conserving farm livelihoods/enviornmental resources/food safety for all Indians, ASHA demands that the government should take up a few policy/legislative measures with regard to agricultural technologies. These include:

- phasing out of agri-chemicals through a variety of means including banning at least:
    - those pesticides which have been banned in other countries (67 of them, as per the Government of India's statement in the Parliament in March 2011);
    - all Class Ia and Class Ib pesticides (extremely hazardous and highly hazardous pesticides in terms of acute toxicity as per WHO classification – tens of thousands of farm workers are reported to die or fall sick due to pesticide poisoning each year in countries like India);
    - endocrine-disrupting, carcinogenic and teratogenic pesticides

- stopping the deliberate environmental release of GMOs in our food and farming systems; the government also has to review the impacts of Bt cotton on our environment and health and take necessary remedial steps for adverse impacts emerging.

5. ECO-SYSTEM SERVICES PRODUCTION BONUS

It is apparent that given the current status of degraded environmental resources in the country and the ability of organic farming to address food security, improve farm livelihoods and help deal with climate change issues, organic farming needs to be supported and promoted by the government through a variety of measures. The ***following is a proposal for direct payment for ecosystem services rendered by organic farmers in India, to incentivise such farming on a large scale.*** All rainfed ecological farmers who right now do not have irrigation sources are proposed to be made a priority in these payments. By not buying inputs from outside, which would have been energy-intensive in their production/supply and/or by managing their farms without depleting or contaminating their resources, these farms render an enormous ecological service. Eco-system services are broadly understood as benefits of Nature to households, communities and economies[12].

OBJECTIVE:

- Conserving productive environmental resources like soil and water;
- Improving food security through intensive ecological farming in the rainfed belts;
- Incentivising mitigation and adaptation measures to climate change.

RATIONALE:

- Will augment sustainable food production from the rainfed areas of the country, where (intensive) organic agriculture will increase food production
- Will promote conservation of environmental resources including soil and water
- Will reduce pollution of water and food systems due to the use of chemical pesticides and fertilizers
- Will promote the spread of ecological farming through incentivising environmental services rendered
- Will address equity issues with regard to a vast majority of rainfed farmers in the country who have by default been kept out of the purview of state support in terms of input subsidies, infrastructure like irrigation, marketing and procurement support etc. So far, such support like chemical fertilizer subsidy, surface irrigation investments, pricing and procurement interventions etc., have mostly benefited the "Green Revolution" belts and not the rainfed belts of the country.
- Will also ensure improvements in incomes of a set of farmers in the country, given that Indian agriculture is reeling under severe distress.

Strengths

- Will be able to cover subsistence farmers, many tribal and dalit farmers in the country, many marginal and small farmers and therefore, can be a poverty reduction strategy

[12] Twenty-four specific ecosystem services were identified and assessed by the Millennium Ecosystem Assessment, a 2005 UN-sponsored report designed to assess the state of the world's ecosystems. The report defined the broad categories of ecosystem services as food production (in the form of crops, livestock, capture fisheries, aquaculture, and wild foods), fiber (in the form of timber, cotton, hemp, and silk), genetic resources (biochemicals, natural medicines, and pharmaceuticals), fresh water, air quality regulation, climate regulation, water regulation, erosion regulation, water purification and waste treatment, disease regulation, pest regulation, pollination, natural hazard regulation, and cultural services (including spiritual, religious, and aesthetic values, recreation and ecotourism). Notably, however, there is a "big three" among these 24 services which are currently receiving the most money and interest worldwide. These are climate change mitigation, watershed services and biodiversity conservation.

- Will be able to cover tenant farmers who are practicing ecological agriculture, irrespective of ownership of land in a new certification system evolved for the purpose
- Will ensure greater availability of safe, nutritious and greater quantities of food for all Indians
- Decoupled support and therefore, WTO compliant
- Existing certification systems including Participatory Guarantee System, recognized by National Centre for Organic Farming can be modified where needed and extended to cover this entire programme swiftly.
- Parameters for data collection have been well worked out in existing certification systems – additional information on water use through public irrigation systems or private borewells can also be incorporated so that the environmental services around water use can also be calculated appropriately.

Additional possibilities:
* At a later stage, additional classifications and slab rates can be proposed for incentivising food crop cultivation by agro-ecological practices.
* If verifiable, transparent systems can be put into place including in terms of village level institutions, this support can be extended to even incremental shifts towards a full range of eco-systems services (agro biodiversity in the farm, tree intergration, conservation of water through practices like SRI).

Organisational Mechanism proposed:

For oversight of the programme (to ensure that farmers are indeed practicing ecological farming and particular chosen practices in case of incremental shifts) as well actual delivery of the payment support, the following existing institutional frameworks can be utilized:

- the existing certification system and the registration information with organizations like APEDA and NCOF (National Centre for Organic Farming) whether it is third party certification or PGS – payment can be made from the district level, through either the DRDA or highest agriculture dept office at district level. This should be a direct bank transfer.
- All participating farmers in programmes like NRLM which are promoting sustainable agriculture for improvement in livelihoods of the poor – the institutional structure within the programme can be used both for PGS certification and for payments to farmers.
- A separate community-led identification system for all practicing organic farmers in the country can be evolved from Panchayat upwards, coupled with a scientific sample for residue and other analysis for comprehensive identification of such farmers immediately. Certain regions that are assumed to be 'default organic' could be prioritized here within a system of identification and registration of such farmers everywhere.

Budgetary implication:

ASHA proposes that the government should set aside Rs. 5000/- at least per acre of ecological farming, per annum. This would mean a budgetary implication of **540 crore rupees** for the current certified organic acreage in the country (10.8 lakh hectares).

For the "default organic" to be converted into a certified system of organic in three years' time, such a payment should be budgeted for, provided intensification of ecological farming practices is incorporated. It is not clear at this point of time what the extent of such area is, for provisioning for this payment. Similarly, it is not clear what the targets for programmes like National Rural Livelihoods Mission are.

However, if it is assumed that this payment would be made only to those land areas which have been verified/certified through a third party or a community-level peer-reviewed process, and **if the additional land declared as organic each year is pegged at 10 lakh hectares as per this programme's systems, then an annual additional budgetary outlay of around 540 crore rupees would be needed for this direct payment scheme.**

We propose that this outlay come from the budgets allocated under National Mission on Sustainable Agriculture (NMSA) which is part of the National Action Plan on Climate Change.

Data collection parameters:

It is proposed that in addition to a PGS system for which individual participating farmers do not need to pay for (free certification), the government has to invest from the district level downwards on suitable systems of additional data analysis residue analyses and soil sample testing to actually monitor compliance but more importantly improvements/progress in conservation of resources.

ANNEXURE: EVALUATION FINDINGS RELATED TO CMSA PROGRAMME OF A.P.

a) Summary

In order to increase the production and productivity of major crops and to accelerate the growth of agricultural and allied sectors, a special additional central assistance scheme namely Rastriya Krishi Vikas Yojana (RKVY) was launched by the Government of India. Under the programme, more emphasis was given on planning and maximizing returns to the small & marginal farmers especially in rain fed areas.

In Andhra Pradesh, the funding from RKVY scheme was provided for three major components of agricultural sectors namely farm mechanization, seed management and soil health management. The project for 3rd party evaluation is with the community managed organic farming in rain fed areas which aims at encouraging the farmers to practice organic farming and other eco friendly technologies contributing towards sustainable agricultural development.

The project is implemented by Society for Elimination of Rural Poverty(SREP) through DRDA, government of Andhra Pradesh assisted by District Project Officer, Cluster Activists, Village Activists and Sasyamitra groups.

The project is implemented in 18 districts of Andhra Pradesh covering 240 mandal, 625 clusters and 3171 villages of Andhra Pradesh. This study was under taken in all the districts and 24 mandal, 62 clusters, 320 villages and 3200 beneficiaries. The proportionate random sample methodology (10%) was used. In order to collect the data, an interview schedule, focus group discussions and participatory tools were used. In addition, the EEI monitoring and evaluation expert staff has generated additional data through field visits and FGDs. Success stories and observations were also documented. The summaries of findings are given below.

1. Majority of the sample respondents are literates, belongs to middle level age group (40-50 years) and operating small farmer holdings ranging from 2-4 acres.
2. The major emphasis in the programme is on promoting SRI paddy, crop models, 36 x 36 model, raising vegetable & fruits, NADEP compost, NPM practices, NPM shops, seed banks, Customer hiring centres, cattle shed lining & farm ponds.
3. The targets were fulfilled to the extent of 50-60%.
4. It was found out that majority of beneficiaries received 1-2 training programmes and exposure visits suggesting for need to undertake more capacity building programmes at various levels.
5. Regarding institutional support most of the participants said that they are member of the group and federated at mandal level.
6. About 60% expressed that seed banks were established in their villages and 55% of the sample farmers were contributing to the seed banks. The NPM input shop also established on small scale.
7. Regarding the awareness and knowledge of the sample respondents about major interventions initiated under the project indicates that they possess medium range of knowledge. However, with respect to crop models and biomass nurseries, NPM input shops more than 60% of respondent's awareness / knowledge was low. Majority of respondents could not explain the rational behind the use of technology promoted under the project.
8. About 60% of sample respondents have adopted SRI / Line planting, NPM technology and vegetable growing in 36 x 36 model. The adoption of group models, biomass nurseries were done by 10-12% farmers.
9. On an average about 2200/- – 3300/- was the reduction in costs is the use of pesticides and chemical fertilizers due to adoption of NPM practices. Besides there was yield increase about 1 - 2 quintal/acre in different crops.

10. There was increase in net additional income due to project interventions in the range of Rs.4500/- to Rs.8500/- improving nutritional status and livelihoods.
11. There was no strong formalized convergence initiative with line departments and other organisations.
12. Several problems and suggestions were expressed by the stakeholders who will have pointers for stream lining the project activities and arrangements.

Source: 3rd Party Evaluation of Rashtriya Krishi Vikas Yojana (RKVY): Community Managed Organic Farming implemented by SERP, Evaluation Report by Extension Education Institute, Ministry Of Agriculture, Govt of India, October 2010, pp 45-46.