

SCALING UP OF ECOLOGICAL FARMING IN INDIA: PROPOSALS OF ASHA'S *KISAN SWARAJ NEETI*

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1. INTRODUCTION AND SUMMARY OF DEMANDS

Agriculture as an occupation and a way of life is directly dependent on Nature. One of the main pillars of the Kisan Swaraj policy is a recognition that 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 crops ignoring biosafety and other

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

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 was against their release and various state governments also have raised their concern. The health concerns with GM food crops are increasing. The recent controversial and discredited report on biosafety of GM crops in general and Bt Brinjal in particular by six Science Academies put a huge question mark on the abilities of the Indian scientific establishment to assess GMOs in an independent, rigorous and unbiased fashion. All these experiences with regard to GM crops/foods point to the need for redesigning the biosafety assessment protocols and put up strong institutional systems for regulation. There is also a need to assess the technology beyond biosafety.

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 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.

As part of the Kisan Swaraj Policy, the following are **our main demands & proposals** with regard to ecological farming:

- 1. Scale up ecological farming, especially in the rainfed belts of the country, focusing on small and marginal farmers, 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 beginning with the extremely hazardous, endocrine-disrupting, carcinogenic pesticides**
- 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 share³:

- **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).

² This note uses Ecological Agriculture, Organic Farming, Zero-Budget Natural Farming and so on interchangeably

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

The Planning Commission's Agriculture Strategy for the Eleventh Plan ("Agriculture 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 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.

Rainfed farming: The Eleventh Plan of the Planning Commission in its section on Rainfed Agriculture acknowledges the neglect that the rainfed areas in the country have suffered. The Plan states that these areas are characterized by high incidence of poverty, low education and health status, high distress in farming sector, distress migration, low employment opportunities and vulnerability to a variety of high risks. Apart from participatory watershed development projects, integrated farming system approach is advocated for these areas to increase productivity in a sustainable manner and to contribute to livelihood security.

Just from these two key official documents of the Government of India, it appears that there is an acknowledgement of the degraded state of our environmental resources and the need for integrated farming approach/organic farming. 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 following⁴:

* *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

* *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.

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.

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 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

⁴ http://www.ifoam.org/about_ifoam/principles/index.html

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 percent. Overall, the world average organic yields are calculated to be 132 percent more than current food production levels.

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 sesame⁵. The following findings related to organic farming are also presented in the NABARD paper:

- 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.

- 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.

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 report⁶: 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.

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

⁵ Narayanan S, Organic Farming in India: Relevance, Problems and Constraints, Occasional Paper 38, NABARD, 2005

⁶ 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

use of agricultural biological diversity) and national strategies to implement the Convention to Combat Desertification⁷.

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 carbon dioxide and nitrous oxide, application of nitrogen fertilizers makes the soil emit nitrous oxide. These can be avoided through organic farming.

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

⁷ Organic agriculture fact sheets, FAO, 2003 - <http://www.fao.org/organicag/oa-publications/pub-cat/sustainability-and-perspectives/en/>

“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, devoted to agricultural development. Within RKVY, the following breakup emerges, when it comes to support to Organic Farming – only 2.55% of the amount spent.

RASHTRIYA KRISHI VIKAS YOJANA IN THE CONTEXT OF ORGANIC FARMING

(THE SECTOR IS ORG FARM/BIO-FERTILISERS & ANOTHER SECTOR IS CALLED IPM - USED FOR PEST SURVEILLANCE, IPM LABS, PROMOTION OF IPM ETC.)

YEAR	TOTAL NO. OF PROJECTS	TOTAL AMOUNT	NO. OF ORG FARM PROJECTS	AMOUNT FOR ORG FARM PROJECTS
2007-08	461	1176.47	15 (3.25)	22.06 (1.88)
2008-09	916	5567.46	28 (3.06)	273.43 (4.91)
2009-10	1047	7474.89	33 (3.15)	141.63 (1.89)
2010-11	1447	9530.91	52 (3.59)	168.2 (1.76)
TOTAL (4 YRS)	3871	23749.73	128 (3.31)	605.32 (2.55)

Source: <http://rkvy.nic.in/>

3. A ROAD MAP FOR SCALING UP ECOLOGICAL FARMING

ASHA proposes a 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. 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) 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

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 be 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/environmental 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-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 economies⁸.

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.

⁸ 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 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
- 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.