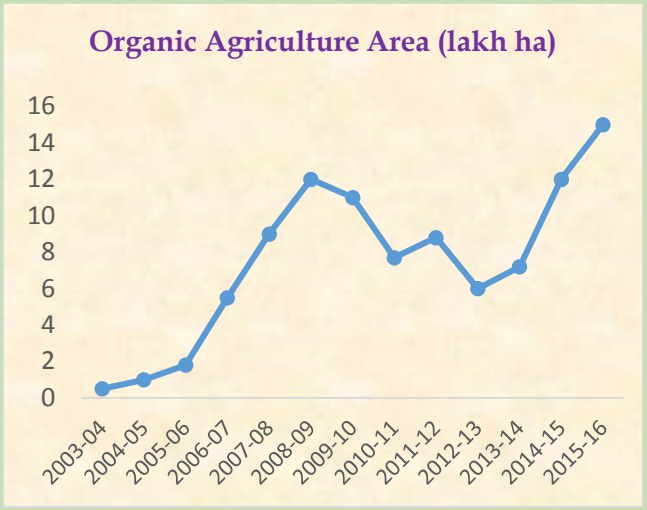
Impact Study of
Paramparagath Krishi Vikas Yoyana



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Foreword

Government of India has launched Paramparagath Krishi Vikas Yojana (PKVY) to encourage organic farming. Though consumers have been demanding organic products since a long time, producer is often perflexed to take up organic agriculture as a system of getting certificate and establishing credibility is a complex phenomenon. To simplify the whole process PKVY is launched by Govt. of India. MANAGE has been entrusted for conduct of an impact study of this scheme.

I congratulate Dr. A. Amarender Reddy and his team for doing hard work in collecting data, analysis and its interpretation. There is no doubt, both producers and consumers are very much interested in organic farming but the necessary supporting structures like Research, and knowledge and conviction among Extension staff towards organic farming seems to be real challenge for taking the scheme forward.

The study also brought out various limitations regarding quality and easy availability of bio-inputs. However, the scheme made a good beginning in many states sensitizing farmers as well as consumers regarding need for organic farming. It has hugely impacted in reducing the input cost and also provided opportunity for the products from hitherto neglected areas like tribal, hilly, dryland and remote areas. I hope this study gives a direction for the future – **the way to go about organic farming.**

(V. Usha Rani)

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Dr. A. Amarender Reddy

Content

List of tables

List of Figures

Executive Summary

Indian agricultural sector is in distress with reducing profitability due to rising cost of inputs and stagnant output prices. These twin problems of agricultural can be effectively tackled by the wider adoption of organic agriculture (Seufert et al., 2012). Given this, Indian government is encouraging organic agriculture under centrally sponsored scheme of Paramparagath Krishi Vikas Yojana (PKKVY). There are about two million farmers across the globe who practice certified organic farming methods and roughly 80 per cent of these farms are in India (IFOAM, 2013). It wouldn't be wrong to assume that our country is at the centre of an organic revolution that is set to take the world by storm. Organic farming has become increasingly important in India given the rising costs and increased losses due to climate change and aberrations in rainfall and extreme climatic events like floods and droughts. Consumers are also able to and willing to purchase organic agricultural products at higher premium prices as they are free from chemical fertilizers and pesticides. There is also uncertainty of benefits and costs of using GMOs (genetically modified) crops on a wider scale. This resulted in a larger scope for increased demand for organic agriculture. Apart from this, there has been a significant rise in the demand for organic food across the world due to increased consciousness related to health problems arising with the chemical pesticides and fertilizers contaminated food. Keeping these in focus, there is higher thrust on PKVY to promote organic agriculture. It is basically a scheme of supporting organic farming via cluster approach with Participatory Guarantee System (PGS).

Terms of Reference of the study:

This nationwide impact study of PKVY entrusted to MANAGE by the Ministry of Agriculture and Farmers Welfare with the following objectives.

- To examine the design of PKVY and MOVCDNER scheme in terms of planning, stakeholder capacity, implementation challenges, input procurement and distribution activities (clusters formed, trainings, labs established, inspection of clusters and certification, input supplied) and output (area under organic expanded, organic production and market linkages)
- To assess the modalities of delivery of the scheme in terms of clusters selection, farmers training, cluster formation, inspection of field, certification, input supply, value chain development, producer companies, market infrastructure and market support linkage like organic commodity boards.

- To assess the level of utilization of outcomes of PKVY and MOVCDNER by the farmers across farm size classes, irrigated and rain fed situations especially in NE and hilly states.
- To assess the impact of PKVY and MOVCDNER scheme on area expansion under organic agriculture, reduction in input cost and cost of cultivation, use of bio fertilisers, farm productivity, value chain development, price premium due to labelling, profitability and sustainability.
- To recommend for improvement of overall design of the programme for improving the effectiveness of the scheme.

Methodology

This study used structured questionnaires to collect data from different stakeholders mainly farmers who practiced organic agriculture and cluster representatives. The study also included a control group of farmers who are practising conventional agriculture to compare the costs and benefits of organic agriculture with the conventional agriculture. The study team also conducted focus group interactions with agricultural officers, KVKs, Regional Councils and other resource NGOs and implementing agencies who are directly involved in implementation of PKVY. The secondary data on fund flow and deliverables were collected from all states.

A cluster level questionnaire was designed for the cluster groups to know the progress of implementation of the PKVY Scheme. We have send the questionnaire to 40% of the total 6211 clusters, but the study got responses from only 690 PKVY clusters. Due care was taken to cover all agro-climatic zones and also regions of the country. The questionnaire was shared with Lead Resource Person (LRP) of each cluster group and also members to fill up. Few field investigators were directed to collect the information in person with the implementing agencies and cluster groups and leads. The collected data was analysed using simple tabular analysis by using with and without and also before and after method.

Analysis is based on the limited samples of 690 clusters, it is more likely that the best functioning clusters were filled up the questionnaires, whereas non-functional clusters were not filled up. This limitation of the study needs to be kept in mind while concluding and interpreting the results. As the PKVY scheme is implemented since last 2 years, while PGS certified production requires minimum of three years, the results are the study are only indicative in nature and the ultimate final impacts will be visible only after three years. The Present Analysis provides the insights about how the scheme is being

implemented, what are the bottlenecks in implementing the scheme and outputs and outcomes are in line with the objectives of the scheme. The PKVY scheme is found to well-planned and very useful for promoting sustainable agriculture and also branding and marketing farmer produce. There are some components of PKVY need to be also redefined for the benefit of farmers.

- **Results of design, delivery and level of utilization of PKVY**
  - ✓ This study shows the PKVY scheme is picking up in in states like Sikkim (complete organic state), Tamil Nadu, Chhattisgarh, Karnataka, Kerala and Maharashtra. But in other states the scheme is lagging behind. Within states also progress is good in rainfed areas, hilly and remote areas compared to irrigate and plains. Hence there was need to focus on expansion of PKVY scheme vertically in the rainfed, hilly and remote areas/districts where there was a lot of potential.
  - ✓ As on 7th November 2017, 6211 clusters were formed, of which Maharashtra (1043), Madhya Pradesh (992), Uttar Pradesh (806), Karnataka (538), Uttarakhand (491), Rajasthan (410), and Chhattisgarh (338) together contribute to about 75% of the total clusters.
  - ✓ Training programmes conducted on organic production practices and exposure visits are effective in states like Kerala, Tamil Nadu, Maharashtra and Chhattisgarh where ATMAs are involved in the PKVY implementation. Training programmes needs to be comprehensive. The training of farmers under PKVY may be converted to training cum field demonstration (Various organic input production and practices may be demonstrated to make more understanding of organic input technologies).
  - ✓ Farmers are the best educators of other farmers and so farmer to farmer extension will be given importance that can greatly help in information exchange and dissemination. Most common are farmer exchange visits, in which farmers are brought to the site of successful innovation or useful practice, where they discuss and observe benefits and costs with adopting farmers.
  - ✓ Release of funds in some of the states is delayed which impacted the implementation of the PKVY at block level. In some states 1st year there was a release of funds, but second year there was no release of funds, but again in third year there was a release of funds. This created some sort of uncertainty about the PKVY programme among farmers as well as local agricultural officers. This needs to be corrected and funds should be released in advance before the sowing season,

so that the local agricultural officers and cluster LRPs can implement the scheme with proper planning.

- ✓ About 19.6 % of the clusters are producing compost followed by green manure (15.4%) and organic seed (13.1%) which is a good sign in success of this scheme. About 7.7% of clusters produced traditional inputs like *Panchamruth*, 13.8% produced *Panchagavya* and 14.3% produced B*eejamruth*.

- ✓ Majority of farmers involved were large and medium farmers and they simultaneously practice conventional and organic agriculture in different plots, as they were having more number of plots. Mostly commercial crops (like chillies and cotton) were grown in conventional way, whereas pulses and oilseeds are grown in organic way. There was a need to encourage small and marginal farmers to take up organic agriculture.

- ✓ About 96 % of the clusters prepared annual action plan and started organic production (95 %). About 83% clusters were PGS certified and 78 % clusters were having packaging and labelling facilities. About 80 % of clusters have marketing facilities. And about 28 % of the clusters were having certification process and 76% farmers expressed willingness to move towards organic methods.

- ✓ Use of green leaf manure, compost and organic seeds was increased in the clusters, especially in less developed states compared to developed states.

- ✓ About 93 % of the sample clusters using biological nitrogen harvesting planting, but only 87% are getting benefit out of it. About 65 %of clusters are using botanical extract production units out of which 60 % are were benefitted. Average percentage of clusters producing Bio-Fertilizers is 11% out of this 82% of clusters are using it. About 12% of the clusters are producing Bio-pesticides, 24% clusters are using it in farming.

- ✓ Clusters are producing neem oil or neem cake as natural pest control mechanism. About 5.4% of the clusters are producing, and about 11.2% of the clusters are using it by collecting or purchased from markets.

- ✓ More than 95 per cent of the clusters were using Organic input production unit and more than 92 per cent were using Biological nitrogen harvest planting (Gliricidia, Sesbania).About 65 per cent were using Botanical extract production unit and 18.1 per cent Phosphate rich organic manure. Only about 5.7% of the

clusters are using this custom hiring centre services and only 4.1% are getting benefit out of it.

- ✓ Average percentage of cluster using walk in tunnels for horticulture crops is only 1.3% and all of them are using, but only 0.1% are benefited.
- ✓ Only 0.3% clusters are availing subsidy under *Gokul* Scheme, but no one is benefited. Under cattle shed scheme, about 6.8% clusters are taken financial support, but only 4.8% clusters were benefited.

Farmer's perception

- ✓ Reasons for adoption of organic agriculture: majority (46%) of the farmers mentioned that they adopted organic agriculture to reduce costs and to get health benefits (43%) and about 32% mentioned that because of promotion by agricultural officers.
- ✓ Problems in converting to organic farming: majority mentioned that due to lack of certification (no premium price) (57%) they are not converting to organic farming.
- ✓ Area needing government support: Majority of farmers mentioned that government should support in "Supply of organic inputs at subsidised rates (85%), followed by market identification/creation (74%) and certification (71%).
- ✓ Reasons for expanding organic area: Major reasons are less cost (56%), improving soil fertility (56%).
- ✓ Reasons for not expanding organic area: No subsidy (56%), no premium price (47%) and limited area (47%).

Impact of PKVY

The results show that the average cost per ha in wheat was lower in organic agriculture 11.3%, while gross returns decreased by 5.6%. The combined net effect of higher reduction in costs with slightly reduced gross returns was an increase in net return by 15.8%. The yields of organic agriculture was less than conventional by 5.6%. The use of green manure increased by 50%. The cost of cultivation per ha for paddy for the year 2016-17. It shows that the average cost per ha in paddy was lower in organic agriculture by 15.1%, while gross returns decreased by 7.3%. The combined net effect of higher reduction in costs with slightly reduced gross returns was an increase in net return by 36.7%. The yields of organic agriculture was less than conventional by 7.3%. The use of green manure increased by 25%. The cost of cultivation per ha for soybean for the year

2016-17. It shows that the average cost per ha in paddy was lower in organic agriculture by 17.2%, while gross returns decreased by 9%. The combined net effect of higher reduction in costs with slightly reduced gross returns was an increase in net return by 50.6%. The yields of organic agriculture was less than conventional by 9.1%. The use of green manure increased by 9.5%.

Overall impact

1. **Cost reduction (cost saving)**: There is an immediate reduction in the cost of cultivation (cost saving) up to 10 to 20% as the beneficiaries are not using purchased fertilizers and pesticides.
2. Due to reduction in costs, there was increase in net returns ranging from 20 to 50%.
3. Savings in purchased inputs (cash expenses): The benefits are significant in crops like paddy and cotton, for which farmers spend huge amount of money on purchase of fertilizers and pesticides before PKVY.
4. Price premium was observed in some clusters, which are nearer to large cities and have good linkages with large markets (the price premium was ranged from 10% to 30% based on the type of market linkage, commodity and market linkage. In general price premium is not widely observed.
5. Yield improvement observed only in a few farmers who do all PKVY practices since last few years, but in general there was no significant yield increase in first year.
6. There was huge scope of area increase of organic area in tribal, rainfed, hilly and remote areas.

Constraints of PKVY Programme:

1. Insufficient and delay in fund release from state governments and spread across much larger areas. There was a need for identification of potential crops and locations for vertical promotion with all-out efforts.
2. Preparation of organic-inputs is labour intensive due to this many farmers are reluctant to convert to organic farming, there is a need to train farmers on producing some of the organic inputs at their level itself, this will ensure the quality. The scheme is only encouraging input companies manufacturing biopesticides/the agencies rather than the farmers. ------- manufacturing at their level needs to be incentivized.
3. Price premium is not realized by most of the farmers, due to lack of awareness about PGS certification among consumers, retailers and wholesalers. Credibility and awareness needs to be increased among different stakeholders by introducing

mobile-PGS certified produce shops, separate sale counters of PGS certified produce in APMC markets.

4. Facilitating role of regional centres are not up to the mark. There is a need for increasing efficiency and effectiveness of regional centres in facilitating handholding PKVY clusters. There is a need for encouraging multiple agencies (technical NGOs, private agencies who are involved in organic agriculture, state department of agriculture, Farmer Producer Companies, ATMA and KVKs) to compete to bid for regional centres.
5. Establishing separate Regional Centres for market promotion of PGS certified commodities with PPP mode. (As private companies are comparative advantage in marketing and brand development).
6. Farmers groups needs to be strengthened and federated at higher level as FPO's to increase bargaining power and brand building with the help of good NGOs (after screening). LRPs and progressive farmers needs to be trained by NGOs/KVKs.
7. Transition period of first and second years increase in yields are not significant and needs support/incentives from department of agriculture.
8. Lack of integration of livestock (which provides alternate incomes and resources as bio-inputs), farm machinery and horticulture departments.
9. PKVY guidelines are not flexible enough, they need to be more flexible to adopt depending upon the local situations (state requirements).
10. Duplication of beneficiaries in many areas – Existing organic farmers were selected who were already part of other schemes. (Convergence and cooperation between schemes which has common components of organic farming).

Recommendations (design, delivery and utilisation)

- **Timely action:** Plan preparation, release of fund and implementation needs to be streamlined. Release of fund was delayed and diverted in many states, hence the continuity of the second year activities suffered, which needs to be streamlined. District level action plans should be ready at least one month before sowing period.

- **Identification of potential zones (Organic Special economic Zones):** There was a need for identification of potential zones like rainfed areas, tribal areas, where traditionally farmers use less fertilizers for intensive efforts for promoting organic clusters. Creation of organic special Economic zones (OSEZ) where the tribal population is more such as Chhattisgarh, Jharkhand, Srikakulam in Andhra Pradesh,

Bhadrachalam in Telangana where there is huge potential for reaping forest based produce like honey, soapnut, tamarind, vippa flowers.

- **Contiguous areas:** identification of complete village/block/mandal as organic cluster will help in building brand and providing other logistic services at less cost and also help in marketing. Selection of area should be contiguous. Whole area approach (saturation) may be followed at least a few cluster of villages or blocks should be completely covered to build organic brands. There is a success story of AP wherein they encouraged SHG's to setup village level organic shops as a part of ------ in ZBNF. This kind of initiative is encouraging to faster spread of PKVY scheme.

- **Focused approach:** Focused approach based on the experience in the initial years of the PKVY programme to identify potential areas of expansion. Identify and map the default organic growing areas and declared as organic and efforts would be made to get them a recognition and marketing.

- **Incentives:** Announcing incentives to the farmers (master farmers) who adopt organic farming for the first 3 – 5 years to compensate low yields.

- **Training Modules:** Need to develop a training module on organic crop production practices in local languages in more farmer friendly language with diagrams, figures and illustrations. These standard package of practices should be developed block wise and crop wise. Educating the farmers about important indigenous breeds in their farming systems and integrated farming system should be intensified.

- **Scientific backing**: Research & Development should be encouraged is required to be established to validate and produce bio-inputs at low cost. Scientific backing of the practices followed in organic agriculture needs to be proved for wider acceptability of organic produce both by SAU''s and ------. The Biological control labs which are entrusted with production of biopesticides like T.Viridae and Pseudomonas florescence are focused only bio pesticides but not bio fertilizers like Azolla, Azatobactor, Phosphate solubilising bacteria, potassium mobilizing bacteria. All BC labs should be equipped with man power and modernized / revamped to cater to the growing organic needs.

- **Provide village-level support systems** (like organic input shops) and build capacity of farmers on technical front to establish homemade bio-fertilizers like BGA, Azolla and bio pesticides, Composting (Vermicomposting, NADEP, BD compost, Coir pith composting methods) at local level.

- **Appointing district level PKVY officers:** The in-charge-agricultural officers of PKVY are engaged in multiple activities, which is hindering the progress of implementation. Hence there is a need for appointing special officers at least at district level. In those states where ATMA is working, training components under PKVY should be handed over to ATMA for effective dissemination of technology.
- **A multi-agency approach** involving public, private and NGOs may be encouraged. Currently there was little involvement of institutions like KVKs, ATMAs and SAUs to promote organic agriculture. A strong monitoring for quality and production and transfer technology should be given more emphasis by involving all Departments (NCOF/RCOFs/ICAR institutes/APEDA)
- **Regional centres for Market Promotion**: Specialised separate regional centres should be established for marketing in each zone in community-PPP mode. As most of the existing regional centres don't have the marketing skills to build brands and expansion of market for organic agriculture.
- **Farmer producer organizations (FPOs) and linking to corporates:** The Government should encourage formation of FPOs including Co-operatives and Producer companies - exclusively for promotion of organic farming in all the districts and states and FPOs to be empowered to handle all activities related to organic farming viz., capacity building, production of organic inputs, processing, certification, marketing etc. The group should be preferably homogeneous, compact, and manageable and based on area approach/crop approach. All the clusters identified under PKVY should be formed as Farmer Interest Groups (FIG's) / Commodity Interest Groups (CIGs) and trained in Management of groups with respect to finance, finally linked with private sector for marketing..
- Promotion of FPOs will enable to increase access to bio-inputs, seeds and other critical inputs..
- **Separate stalls for organic produce in APMC markets:** APMC markets are already existing in every block/mandal level. In these APMC markets (mandis) separate organic certified stalls may be established, which will be maintained by PGS certified clusters to fetch premium prices.

- **Promoting local processing and value addition** of organics through establishing mini-processing plants at cluster level or federation level before entering to wholesale supply chain to get maximum share of consumer rupee by cluster farmers.

- **Market survey** and demand estimation and product development may be done in collaboration with specialized Regional Councils (marketing) in partnership with private firms who are already involved in marketing of organic produce. Simplification of procedure to get PGS certification has to be ……..

- **Market and Brand development**: To access better prices branding need to be developed by farmers.. Convergence with marketing and cooperative department and explore a new supply chain on Farmer to Consumer models which helps increasing farmers share. Similarly, consumers must also be made aware about the health benefits of organic produce and necessity for premium price.

- **Popularizing PGS certification to get premium prices** among the wholesalers, retailers and consumers for creating demand for produce of PKVY clusters. The details on the labels of PGS certified product should be on par with private labelling to increase authenticity and transparency. Processed food shall be labelled as per food safety and standards (FSSASI) regulations. Use of E-platform and mobile Apps for direct marketing of organic produce. In addition to PGS-certification, third party certification may be encouraged if clusters (farmer producer companies) are willing to take with subsidised cost. Certification procedures may be simplified with online filling of the data twice in a year for both kharif and rabi seasons. Common packing, branding and labelling unit can be established at state level to promote a common brand for each state organic produce like (Himachal organic apples). Each state headquarters should have organic market places established where farmers can directly sell to consumers/retailers.

- **Start-ups and agri-entrepreneurs:** There is a growing market for the organic agriculture, some of the private companies (even farmer producer companies) are making huge profits by marketing the organic produce. Imparting skills in identification of market opportunities for organic agriculture and development and capturing of these markets can be done by encouraging agripreneurs..

- **Mass production of bio-inputs:** Encouraging and incentivising establishment of large input-suppliers of bio-inputs like Panchamruth, Panchagavya and Beejamruth.

- **Leveraging ICT**: Information and Communication technologies for digitization of organic farmers, crops produced, prices, development of virtual market place or

linking to eNAM would help farmers to realize better prices for their produce. PGS - INDIA web-portal should be linked to national and international markets and ultimately tracing back the product.

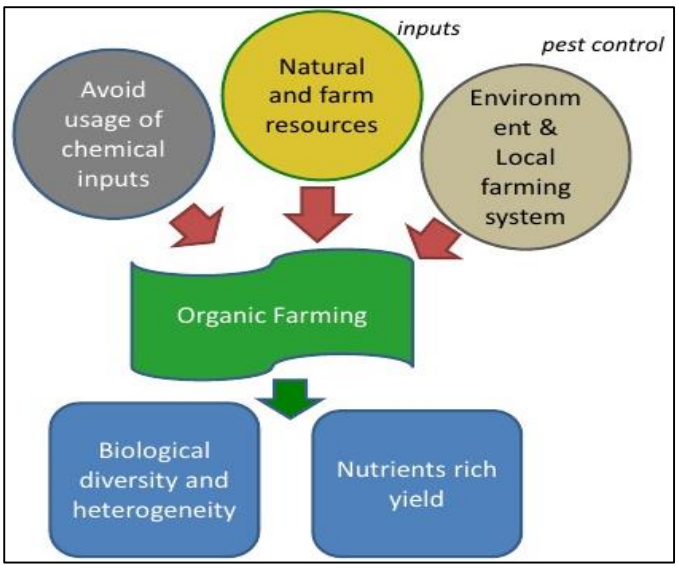
- **Revolving fund** to farmers federations/FPOs/ farmers associations, etc. to meet their working capital needs and to facilitate purchase of organic inputs. This will help in avoiding distress sale. The existing unit ---- can be converted as revolving fund and given to FPO's who take up organic farming.
- **Eco Agri-Tourism**: Encouraging Eco Agri-Tourism in fully organic clusters as supplementary income to organic farmers can be explored in the suburban areas of metro-cities.

Chapter – I

Introduction

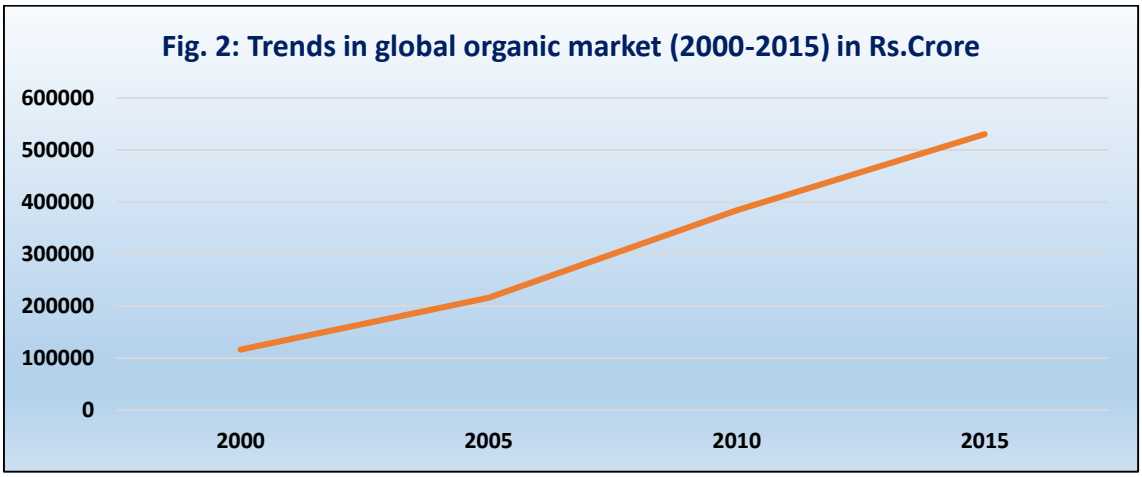
Indian agricultural sector is in distress with reducing profitability due to rising cost of inputs and stagnant output prices. These twin problems of agricultural can be effectively tackled by the wider adoption of organic agriculture (Seufert et al., 2012). Given this, Indian government is encouraging organic agriculture under centrally sponsored scheme of Paramparagath Krishi Vikas Yojana (PKKVY). There are about two million farmers across the globe who practice certified organic farming methods and roughly 80 per cent of these farms are in India (IFOAM, 2013). Organic farming is gaining momentum recognizing the problems associated with chemical agriculture, increasing costs of cultivation and its impact on environment and health. It is now accepted globally that Organic farming methods can bring in ecological and economic sustainability in farming. Organic farming is a production system which avoids, or largely excludes, the use of synthetic fertilizers, pesticides, growth regulators, and livestock feed additives. In the past decade there was growing demand for organic agricultural products from Rs. One lakh crore to six lakh crore.

Fig. 1: Concept of Organic Farming



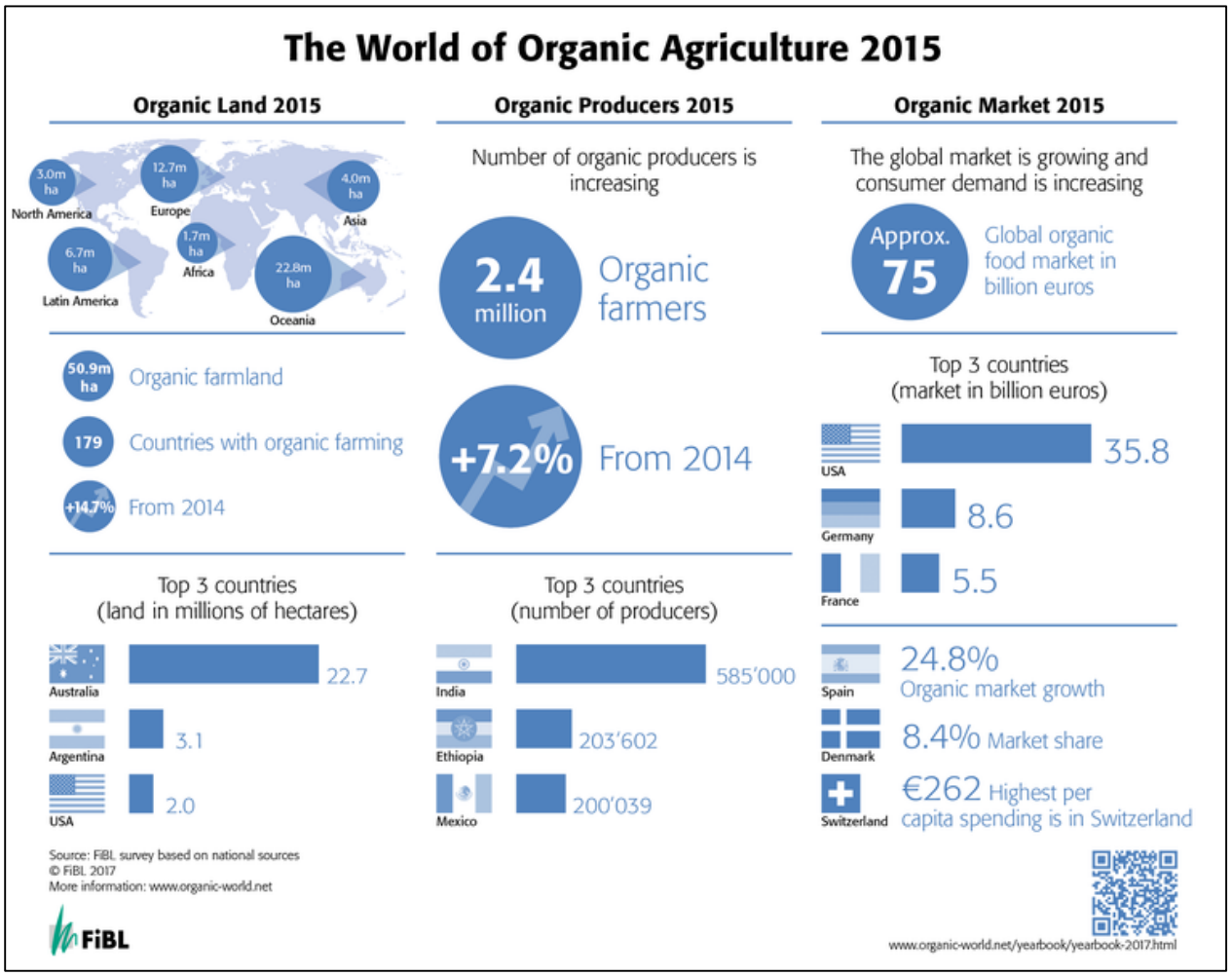
Globally and nationally, various agencies have sought to define Organic farming. The united Nation's Food and Agriculture Organization (FAO) states that "Organic Agriculture is a unique production management system that promotes and enhances agro ecosystem, health, biodiversity, biological cycles and biological activity and this is accomplished by single or combination of on-farm agronomic, biological and mechanical methods in inclusion of all synthetic off farm inputs.

Codex Alimentarius Commission, a joint body of FAO/WHO defines "Organic agriculture as holistic food production management systems, 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, agronomic, biological and mechanical methods, as opposed to using synthetic materials, to fulfil any specific function within the systems.



In the world total organic land was 50.9 million hectares with 2.4 million farmers cultivating in 2015 spreading in 179 countries. There was a double digit growth in area under organic agriculture in the recent years with about 15% growth recorded between 2014 and 2015. Global organic market is 75 billion euros (approximately 6 lakh crore) with USA, Germany and France together contributing to about 65% of the total market. Out of 2.4 million organic farmers India is having largest share with 25%, but in terms of area Australia contributes to about 50%.

Fig. 3: The world Organic Agriculture, 2015



1.1 Principles of organic agriculture:

Organic farming methods offer the best currently available practical model for addressing climate-friendly food production, in addition to sustaining soil productivity and health while taking care of profitability of farmers. The basic principles of organic agriculture is given in Table 1.

Table1. Principles of Organic Agriculture	
The Principle of Health	**Good governance – Certification** Organic agriculture should sustain and enhance the health of soil, plant, animal and human as one and indivisible.
The Principle of Ecology	**Preservation of Environment** Organic Agriculture should be based on living ecological systems and cycles, work with them and help sustain them.
The Principle of Fairness	**Sustainable and Equitable Socioeconomic Development** Organic Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.
The Principle of Care	**Preservation and Promotion of Cultural Values** 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.

1.2 Components of Organic Farming:

Organic farming explicitly prohibits the use of synthetic fertilizers, pesticides, hormones, irradiation, untreated sewage, Genetically modified organisms (GMOs) and products thereof. The national Programme on Organic production (NPOP) of India defined organic agriculture as "a system of farm design and management to create an ecosystem which can achieve sustainable productivity without the use of artificial external inputs such as chemical fertilizers and pesticides".

Organic farming consists integrated components as mentioned below.

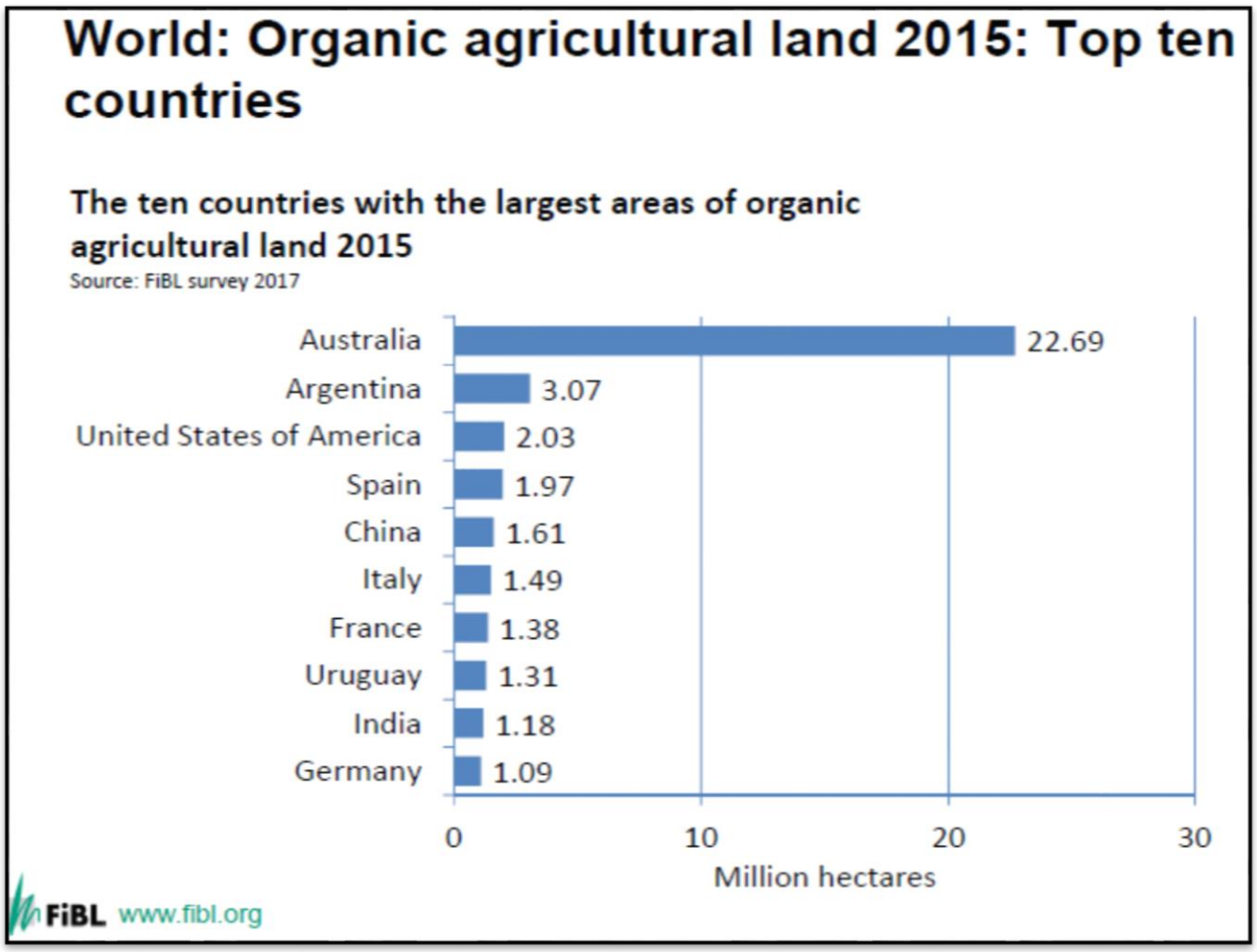
1. Maintaining genetic diversity
2. Managing soil health
3. Selection of variety
4. Nutrient management
5. Water management
6. Weed management
7. Pest and Disease management
8. Livestock management

Fig. 4: Components of Organic Farming

The last two decades have shown a very sharp increase in the consumption of and market demand for organic products with a rapid expansion in area under organic cultivation and diversity of products – however, the potential lysing untapped is huge. In the world 50.9million hectares of area is covered under organic production being practices by 2.4 million producers across 179 countries (BioFach report, 2016). Among, 74% of the world's organic land is with top ten countries. Next 11 countries have 10% or more of their agricultural land under organic management. Compared with 2014, almost 6.5 million hectares more area was reported in 2015.

Compared with 2014. However, with regard to area, Asia occupies 8 percent of total global organic land.

Fig. 5: Top ten countries with the largest areas of organic agricultural land, 2015



India has shown rapid progress in organic sector since 2003. From just 73,000 ha of organically certified land in 2003, the figure has reached to 14.18 lakh ha under organic crop management by 2016 (8.9 lakh ha land is fully certified another 6.2lakh ha is under conversion). In 2016 the global trade of organic touched USD 38.6 bn and India's Organic exports is around Rs.1900 Crores. The area currently farmed by organic methods is about 1.2 million hectares, plus several hundred thousand hectares in the conversion phase. Currently, India ranks 33 in terms of total land under organic cultivation and 70 for agricultural land devoted to organic crops compared to total farming. The organic farming area has to increase to five million hectares in the coming years according to the ambitious plans under various development programmes including Paramparagath Krishi Vikas Yojana (PKVY) and MOVCDNER.

1.3 About the PKVY Programme

In India, 54.6% of the population is engaged in Agriculture and allied activities (census 2011) which contributes 17% to the country's Gross Value Added. Given the importance for Agriculture sector, Government of India has been implementing several flag ship schemes for its sustainable development. The prominent schemes are Prime Minister Krishi Sinchai Yojana (PMKSY), Prime Minister Fasal Bima Yojana (PMFBY), Soil Health Card (SHC) scheme, RKVY (Rashtriya Krishi Vikas Yojana, PKVY and MOVCDNER. Among these programmes PKVY and MOVCDNER are particularly addressed to promote organic agriculture. However, the organic sector presently is very small when compared to the total cropping area of our country. Development in agriculture are in favour of sustainable farming practices and in several for a, Organic farming is singled out as a sector that should be promoted in a big way. It is acknowledged that there are opportunities for organic farming that need to be identified and effective strategies used to be bridge the significant gap between supply and demand. During 12th Five-year plan to making agriculture more productive, sustainable, and remunerative and climate resilient by promoting location specific integrated farming systems, soil and moisture conservation measures, comprehensive soil health management, efficient water management practices and mainstreaming rainfed technologies National Mission for Sustainable Agriculture (NMSA) made operational from the year 2014-15. In particular, steps have been taken to improve soil fertility on a sustainable basis through the soil health card scheme, to provide improved access to irrigation and enhanced water efficiency through Pradhan Mantri Krishi Sinchai Yojana (PMKSY), to boost the net incomes of farmers. Further, to mitigate risk in agriculture sector "Pradhan Mantri Fasal Bima Yojana (PMFBY) has been launched for implementation from Kharif 2016. Soil Health Management (SHM) is one of the most important interventions under NMSA along with soil health card scheme and INM. In addition, given the rising number of concerns that use of chemical fertilizers and pesticides and rise in the demand for organic food both PKVY and MOVCDNER were introduced.

Considering the potential that exists and the future demand of organically produced food products, now a sunrise sector, this study was undertaken to assess the impact of PKVY which was sponsored by the Ministry of Agriculture and Farmers Welfare, Government of India. The study aimed at examining all aspects pertaining to organic farming and recommend an action plan for implementation.

Chapter – II

Study Methodology

Paramparagat Krishi Vikas Yojana (Traditional Farming Improvement Programme) has been launched by Government of India to support and promote organic farming and thereby improving soil health. This will encourage farmers to adopt eco-friendly concept of cultivation and reduce their dependence on fertilizers and agricultural chemicals to improve yields.

2.1 Objectives and Scope of the Evaluation Study:

The PKVY scheme was launched in the year 2015 and has now completed more than 2 years of implementation across states.

The objectives of the study are as follows:

I. The basic objective of the impact study is **to review different components** of PKVY and the spread of area under organic agriculture.

II. To examine the **design of PKVY** scheme in terms of planning, stakeholder capacity, implementation challenges, input procurement and distribution activities (clusters formed, trainings, labs established, inspection of clusters and certification, input supplied) and output (area under organic expanded, organic production and market linkages)

III. To assess the **modalities of delivery** of the scheme in terms of clusters selection, farmers training, cluster formation, inspection of field, certification, input supply, value chain development, producer companies, market infrastructure and market support linkage like organic commodity boards.

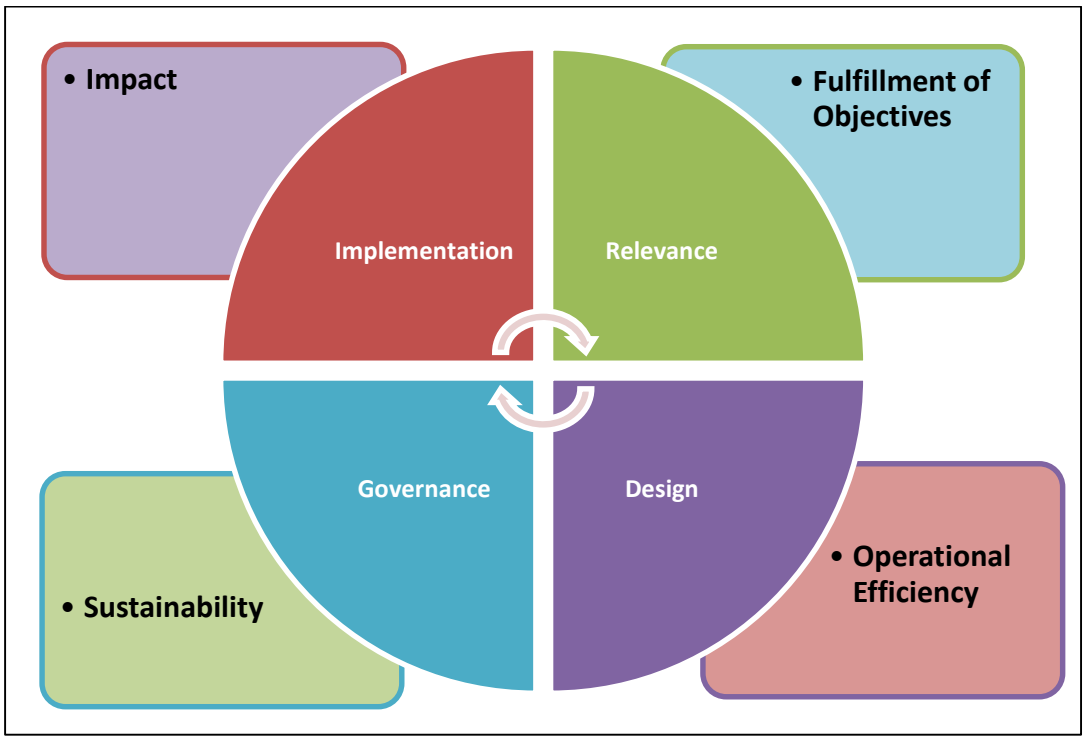
IV. To assess the **impact of PKVY scheme** on area expansion under organic agriculture, reduction in cost, use of bio fertilisers, farm productivity, value chain development, price premium due to labelling, profitability and sustainability.

V. To suggest **recommendations** for improvement of overall design of the programme and state specific measures for improving the effectiveness of the scheme.

2.2 Evaluation Study and Results Framework

The aim of the Study is to assess the PKVY Programme's in terms of 1. Relevance 2. Scheme Design 3. Governance 4. Delivery and to evaluate the results in terms of 1. Fulfilment of Objectives 2. Operational Efficiency 3. Impact and Sustainability.

Fig. 6: Evaluation Study and Results Framework



2.3 Evaluation Study Approach:

The study assessed different components of PKVY and their impact on the spread of organic agriculture and effectiveness of Organic Farming Certification System in increasing area under organic agriculture by organic clusters and can suggest policy recommendations.

The study was based on collection of both secondary and primary level data. The secondary data on fund allocation, release and expenditure and other information was taken from website and other reports of Ministry of Agriculture, Govt of India. PKVY is being implementing in 29 states. However, for the purpose of study, fifteen major states were selected for primary data collection. Due care was taken to represent all the zones in India. All the clusters names and contact details were taken from the groups registered in the PGS in India. Then clusters were listed in descending order of area under cluster in each state. Then we have selected the clusters by random to get representative sample of clusters from each selected state. We have also identified a few best clusters in each state and examined in detail through case study approach.

The study was based on both quantitative and qualitative approaches to achieve the objectives of the study. Qualitative information in the form of stakeholder interviews across the states under the study, expert opinion gathering information from Regional Council, Lead Resource Person (LRPs), progressive farmers and agricultural officers

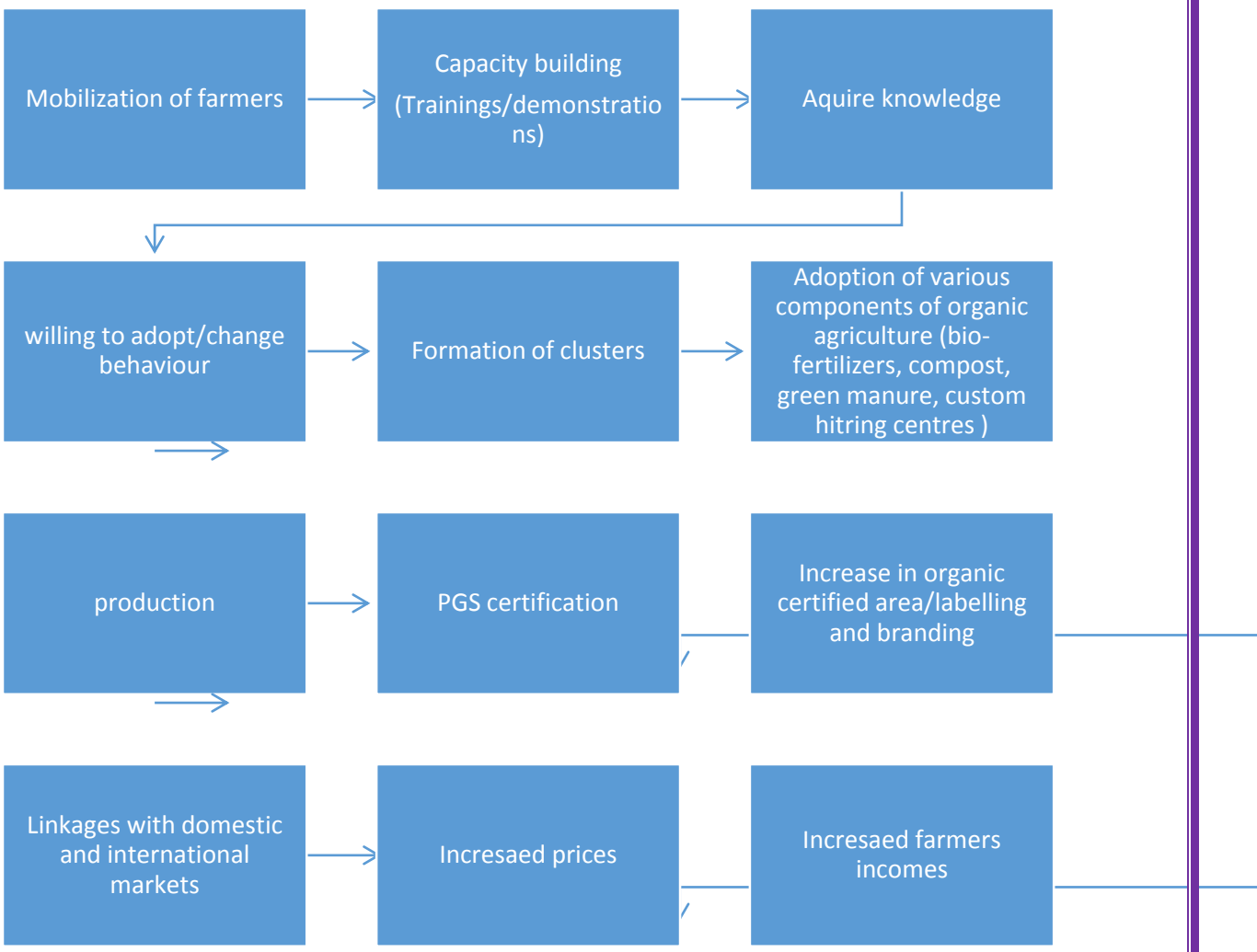
were carried out. At the quantitative level, both secondary and primary data was collected at the national, state and farmer levels.

All the indicators collected from field survey were classified as inputs (financial and physical inputs under the scheme), activities (different activities organized under the scheme), outputs (actual outputs of the scheme), outcomes (whether generated outputs were utilized by the clusters) and impacts (what are the ultimate benefits of organic farming to the farmers). The analyses were carried based on the clusters groups formed in the year 2015-16 & 2016-17. The theory of change behind the PKVY scheme was given in figure 7. This framework was developed after interaction with all the stakeholders in focus group interactions.

Table 2: Sampling Framework

Zone	No. of State	No. of Districts	No. of Blocks	No. of Villages	No. clusters
Central	2	4	17	45	88
East	3	8	14	77	149
North	4	10	30	110	202
south	3	16	38	54	70
West	3	16	56	120	181
All	15	54	155	406	690

Fig. 7: Theory of change (results framework)



Chapter – III

Review of different components of PKVY

Review of different components of PKVY and spread of area under organic agriculture

Government has launched Cluster based programme to encourage the farmer for promoting organic farming and certification called Paramparagat Krishi Vikas Yojana (PKVY). "Paramparagat Krishi Vikas Yojana" is an elaborated component of Soil Health Management (SHM) of major project National Mission of Sustainable Agriculture (NMSA).

3.1 Objectives of PKVY scheme

a. To reduce the use of chemical fertilizers for growing crops.

b. To encourage farmers for adopting eco-friendly, technically-endowed and economical way for farming.

c. To make use of natural resources for agriculture.

d. To maintain the fertility of the soil.

e. To check dependency on fertilizers and chemicals to improve agricultural yields

3.2 Components and pattern of assistance

Adoption of Participatory Guarantee System (PGS) certification through cluster approach:

I. Mobilization of farmers / local people to form cluster in 50 acres for PGS certification

- Conducting of meetings and discussions of farmers in targeted areas to form organic farming cluster @ Rs. 200 / farmer
- Exposure visit to member of cluster to organic farming fields @ Rs. 200 / farmer
- Formation of cluster, farmer pledge to PGS and Identification of Lead Resourceful Person (LRP) from cluster
- Training of cluster members on organic farming (3 trainings @ Rs. 20000 per training).

II. PGS Certification and Quality control

- Training on PGS Certification in 2 days @ Rs. 200 per LRP
- Training of Trainers (20) Lead Resource Persons@ Rs. 250 /day/ cluster for 3 days.
- Online Registration of farmer @ Rs.100 per member cluster x 50
- Soil sample collection and testing (21 samples/year/cluster) @ Rs. 190 per sample for three years
- Process documentation of conversion into organic methods, inputs used, cropping pattern followed, organic manures and fertilizer used etc., for PGS certification @ Rs.100 per member x 50
- Inspection of fields of cluster member @ Rs. 400 /inspection x 3 (3 inspections will be done per cluster per year)
- Residue analysis of samples in NABL (8 samples per year per cluster) @ Rs. 10, 000/ sample
- Certification Charges
- Administrative expenses for certification

III. Adoption of organic village for manure management and biological nitrogen harvesting through cluster approach

Action plan for Organic Farming for one cluster

- Conversion of land to organic @ Rs.1000/acre x 50
- Introduction of cropping system; Organic seed procurement or raising organic nursery @ Rs.500/acre/year x 50 acres
- Traditional organic Input Production units like Panchagavya, Beejamruth and Jeevamruth etc. @ Rs.1500 /unit / acre x 50 acre
- Biological Nitrogen Harvest planting (Glyricidia, Sesbania, etc) @ Rs. 2000/acre x 50 acre
- Botanical extracts production units (Neem cake, Neem oil) @ Rs.1000/unit/ acre x 50 acre

IV. Integrated Manure Management

- Liquid Biofertilizer consortia (Nitrogen fixing / Phosphate Solubilizing/ potassium mobilizing biofertilizer) @ Rs. 500/acre x 50
- Liquid Biopesticdes (Trichoderma viridae, Pseudomonas fluorescens, Metarhizium anisopliae, beauveria bassiana, Paecilomyces) @ Rs. 500 /acre x 50
- Neem Cake/ Neem Oil @ Rs.500/acre x 50
- Phosphate Rich Organic Manure / Zyme Granules @ Rs. 1000/acre x 50
- Vermicomposting (size 7'x3'x1') @ Rs.5000/ unit x 50

V. Custom Hiring Centre (CHC) charges

- Agricultural implements (As per SMAM guidelines) - Power tiller, Cono weeder, Paddy thresher, Furrow opener, Sprayer, Rose can, Top Pan balance
- Walk-in tunnels for horticulture (As per guidelines of MIDH)
- Cattle shed / poultry / piggery for animal compost (As per Guidelines of Gokhul Scheme)

VI. Packing, Labelling and Branding of organic products of cluster

- Packing material with PGS logo + Hologram printing @ Rs. 2500 / acre x 50
- Transportation of organic produce (Four-wheeler, 1.5-ton load capacity) @Rs. 120000 max. assistance for 1 cluster
- Organic Fairs (maximum assistance will be given @ 36330 per cluster)

3.3 Implementation arrangements:

PKVY is implanted by department of agriculture in respective states. At each district, Joint director of Agriculture (JDA) is supported by Agriculture officers (AO) and Agriculture Extension officers (AEO).

Implementation of the PKVY programme is through farmer groups at village or cluster level.

- Groups of farmers would be motivated to take up organic farming under Paramparagat Krishi Vikas Yojana (PKVY).
- Fifty or more farmers will form a cluster having 50-acre land to take up the organic farming under the scheme. In this way during three years 10,000 clusters will be formed covering 5.0 lakh acre area under organic farming.

- There will be no liability on the farmers for expenditure on certification.
- Every farmer will be provided Rs. 20,000 per acre in three years for seed to harvesting of crops and to transport produce to the market.
- Organic farming will be promoted by using traditional resources and the organic products will be linked with the market.
- It will increase domestic production and certification of organic produce by involving farmers.

3.4 Expected outcomes

The Scheme envisages:

a) Promotion of commercial organic production through certified organic farming.

b) The produce will be pesticide residue free and will contribute to improve the health of consumer.

c) It will raise farmer's income and create potential market for traders.

d) It will motivate the farmers for natural resource mobilization for input production

3.5 Review of progress of PKVY scheme

Importance of PKVY scheme

Desktop study was done to understand the relevance and importance for promotion of traditional agriculture in India under the PKVY schemes and the results are as follows:

The green revolution gave boost to the agriculture production in India with the introduction of High yielding varieties, extension of irrigated areas, use of fertilizers and pesticides and increase in cropping intensity. These modern farming practices of total external dependence input agriculture had started contributing to concerns of soil health, environmental pollution, pesticide toxicity, and sustainability of agricultural production.

Against the background Scientists and policy planners are, therefore, reassessing agricultural practices based on internalizing the inputs which relied more on biological inputs rather than heavy usage of chemical. In India, certified organic food products including basmati rice, pulses, honey, tea, spices, coffee, oilseeds, fruits, cereals, herbal medicines, and their value-added products and Non-edible organic products include cotton, garments, cosmetics, functional food products, body care products are produced.

Many studies reported that, the organic farming has comparable yields with conventional farming systems in major crops and the yields will be higher in organic farming in long run with the increase in soil microorganisms and reduced pathogen population with integration of organic amendments. Also, that the organic matter

incorporation increases soil water retention in soil which enhances the yields. Practices like application of biogas slurry, Panchagavya has reported increasing yields in maize and beans.

Also, Organic farming provides quality food without adversely affecting the soil's health and the environment. This also provides ample opportunity for employment and bring prosperity in the region. In addition, there is huge international demand for organic products. Table below indicates the growth of Organic Agriculture globally.

Similarly, many other research reports say that studies proves that the Organic farming a means to address food self-reliance, natural conservation and rural development. The common thread in this approach is the sustainable use of bio-diversity.

According to a 2013 study conducted by the International Federation of Organic Agricultural Movements (IFOAM), there are about two million farmers across the globe who practice organic farming methods and roughly 80 percent of these farms are in India. It wouldn't be wrong to assume that our country is at the centre of an organic revolution that is set to take the world by storm. Certified or not, the abundance of organic farms in India is certainly not surprising since it is only a continuation of the age-old farming practices followed by our ancestors.

Organic farming has become increasingly important in India given the rising number of concerns that use of chemical fertilizers and pesticides are throwing up. GMO (genetically modified) crops may provide an excellent yield but their long-term effects are as yet untested and people are not quite ready to trust these foods. Apart from this, there has been a significant rise in the demand for organic food across the world. Promoting these organic-farming techniques only leaves India best poised to cash in on the immense export potential of these foods. Keeping these in focus, the government of India has decided to launch the Paramparagat Krishi Vikas Yojana.

3.6 Status of Organic Farming:

Global status

Considering all the aforesaid aspects, Organic agriculture is now being practiced in more than 179 countries with a total area of 50.9 million hectare of agricultural land under organic (including conversion areas) with 2.4 million producers globally.

Table 3: Global status of organic farming

Indicators	World	Top countries
Countries with organic activities	2015: 179 countries	Brunei Darussalam, Cap Verde, Hong Kong, Kuwait, Monaco, Sierra Leone and Somalia
Organic Agricultural land	2015: 50.9 million hectares	Australia (22.7 million ha) Argentina (3.1 million ha) U.S. (2 million ha)
Organic share of total agricultural land	2015: 1.1%	Liechtenstein (30.2%) Austria (21.3%) Sweden (16.9%)
Wild collection and further non-agricultural area	2015: 39.7 million hectare	Finland (12.2) Zambia (6.6) India(3.7)
Producers	2015: 2.4 million producers	India(585200) Ethiopia (203602) Mexico(200039)
Organic market	2015: 81.6 billion US dollars	US (39.7 Billion USD) Germany (9.5 billion USD) France (6.1 billion USD)
No. of countries with organic regulations	2016: 87 countries	
No. of affiliates of IFOAM	2016: 833 from 121 countries	Germany (91) India (73) China (55) US(49)

Source: The World of Organic Agriculture 2017 (www.organic-world.net)

Fig. 8: The World of Organic Farmland 2015

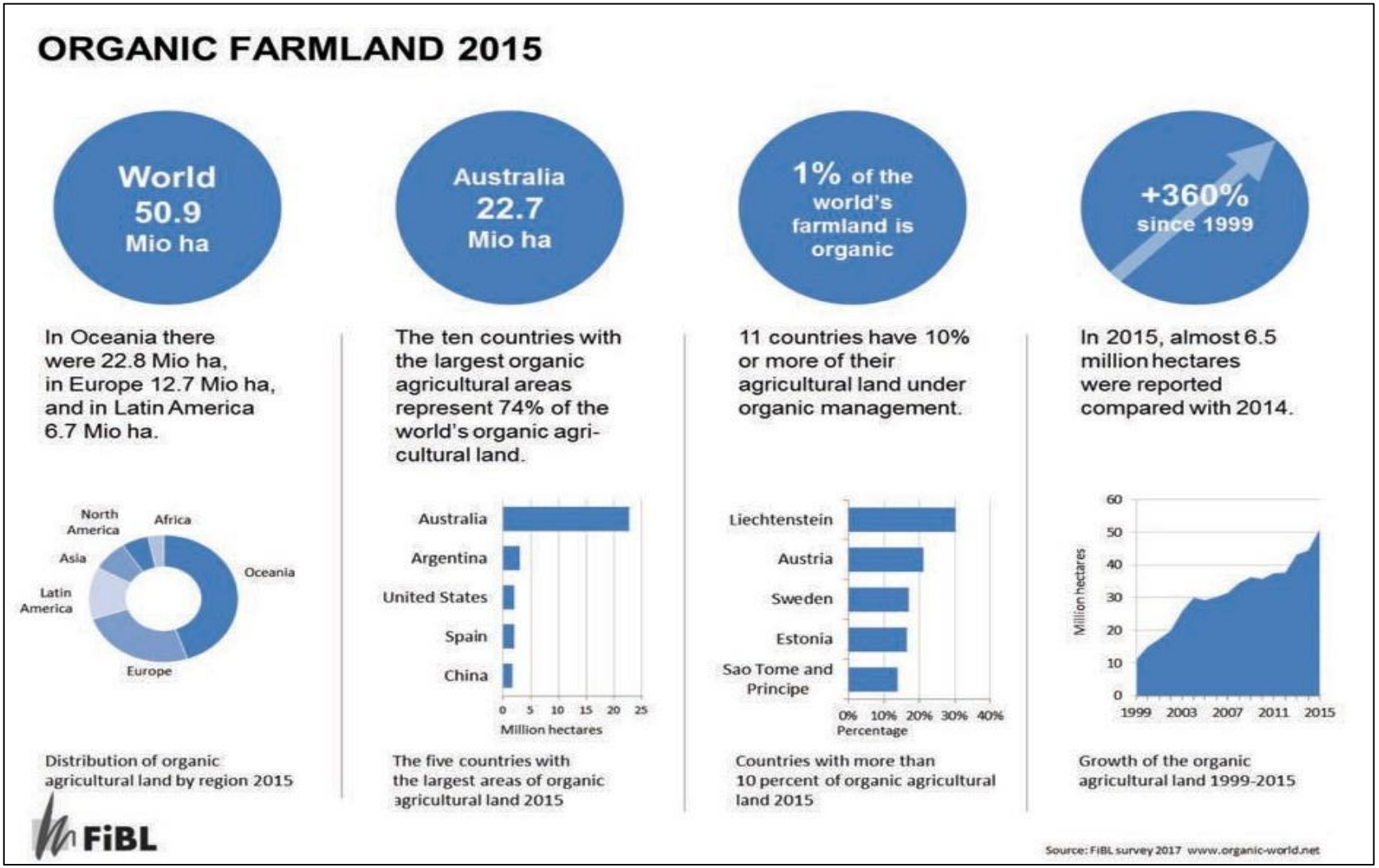


Fig. 9: The World of Organic Producers 2015

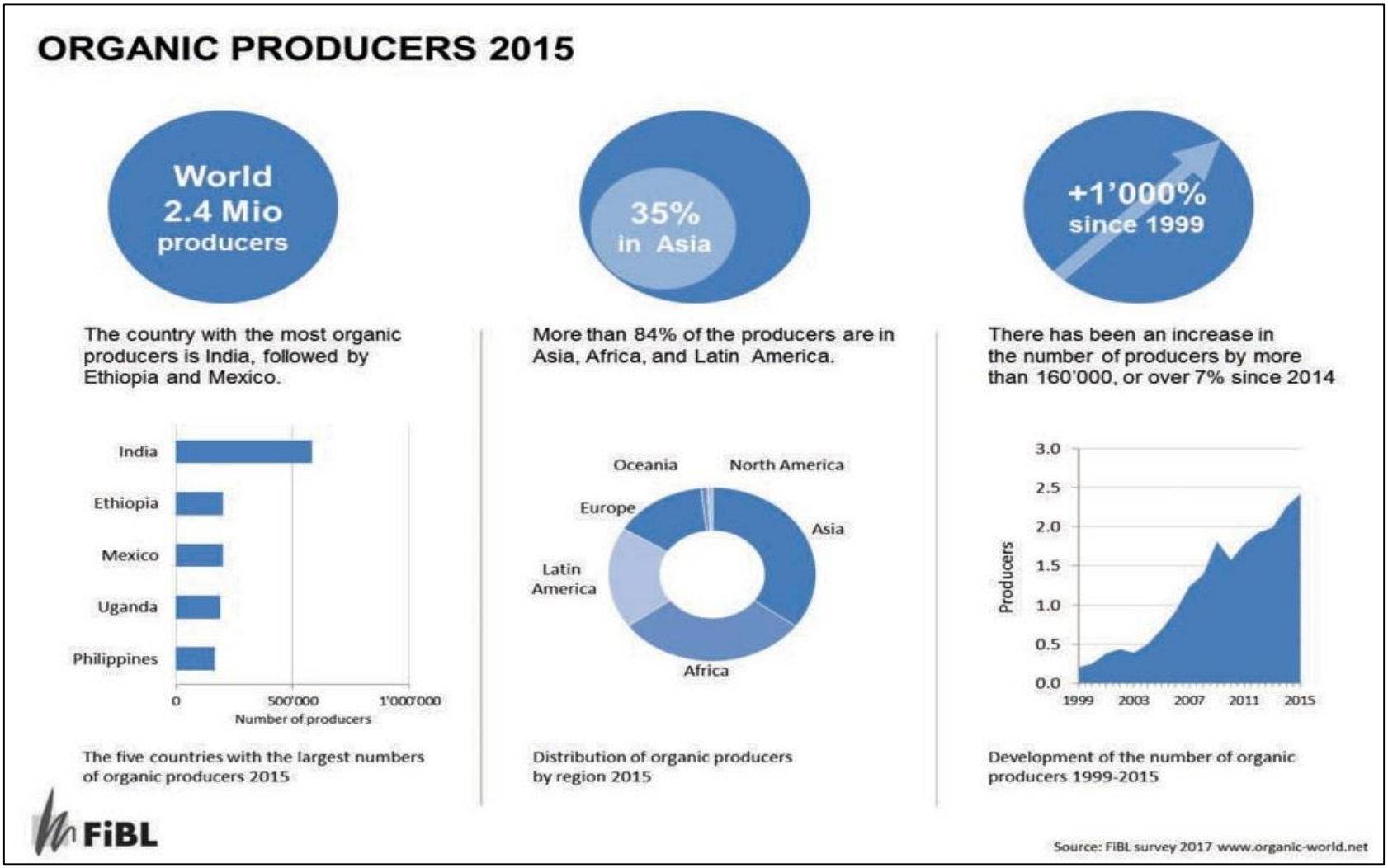
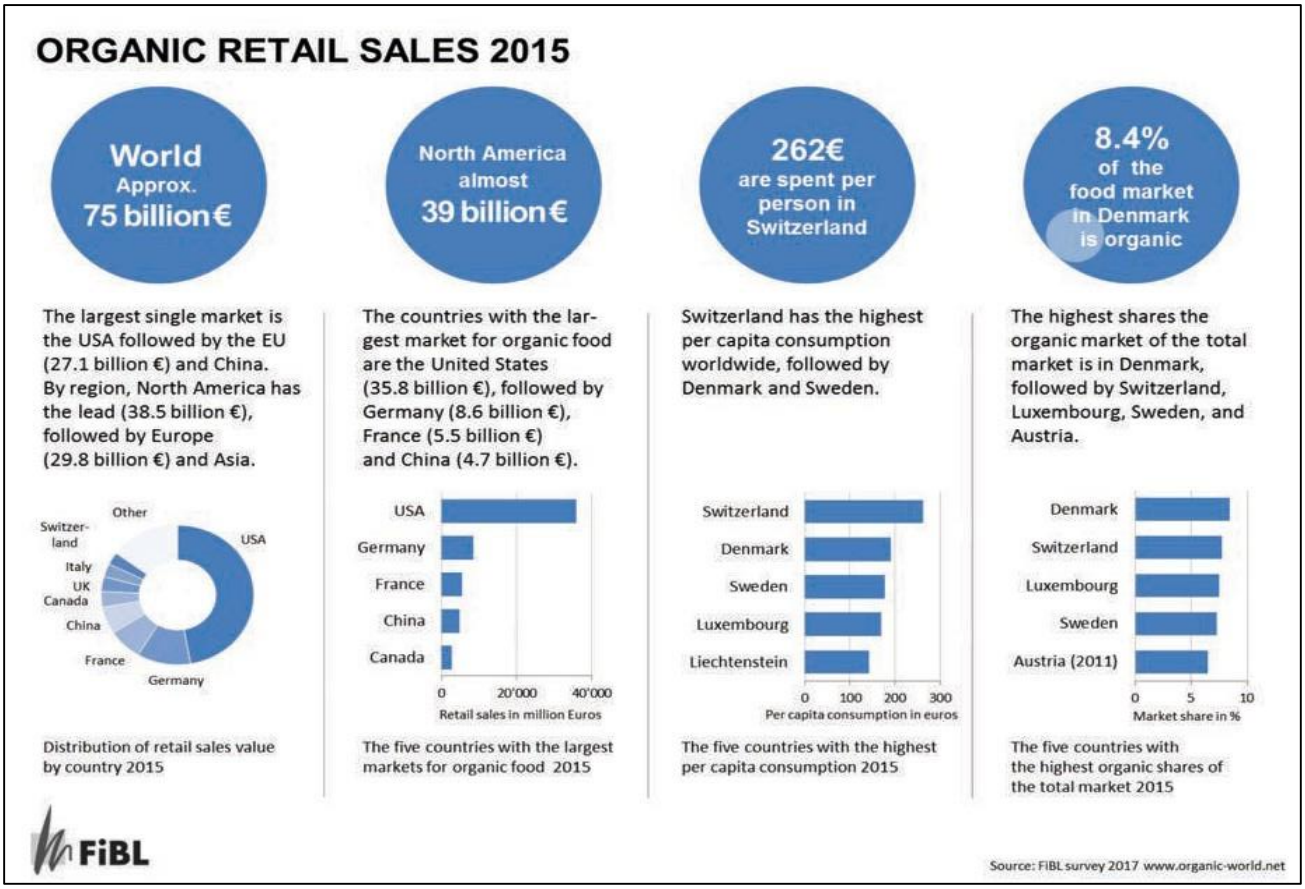


Fig. 10: The World of Organic Retail Sale 2015



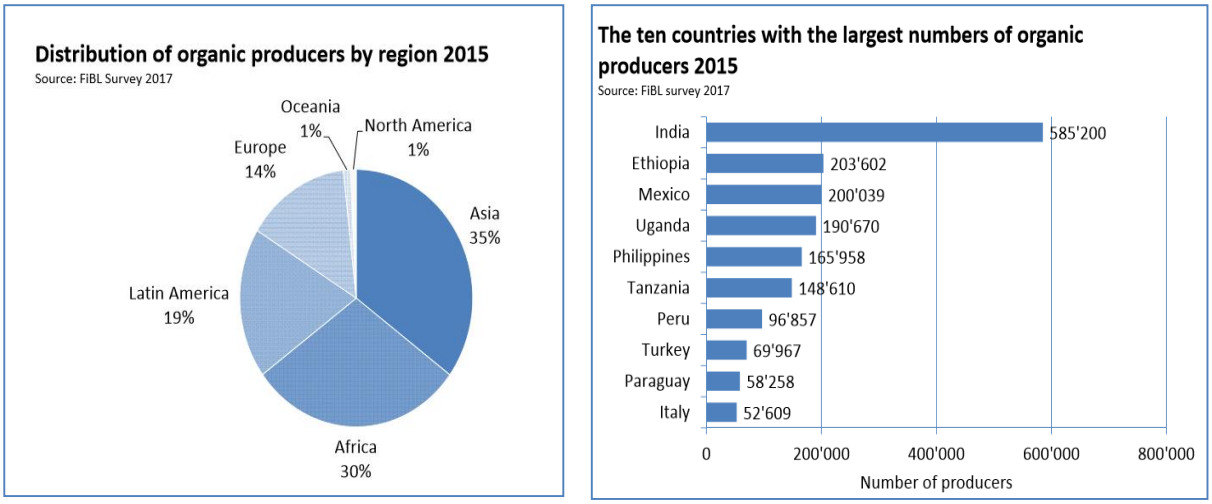
All the above development indicates to many analysts that organic is becoming the mainstream now. Global figures from (The world of organic agriculture, 2017) is depicting that there is a positive growth with respect to organic agricultural land and share from 1999 to 2015. In terms of absolute area of organic agriculture land, Australia (22.8 million hectares), Argentina (3.1 million hectares) and United States of America (2 million ha) are supposed to be top three countries. By the same year, the ten countries with the largest organic agricultural areas represent 74% of the world's organic agricultural land, 11 countries have 10% or more of their agricultural land under organic management. In 2015, almost 6.5 million hectares more were reported compared with 2014. However, Asia occupies 8 percent of total global organic land ((Willer & Lernoud, -World of organic agriculture, 2016).

Non – Agricultural organic areas which are classified and certified as such mainly for wild collection constitutes another 39.7 million hectares globally. Here Finland (12.2 million ha), Zambia (6.6 million ha) and India (3.7 million ha) are the top three countries.

The organic market size was estimated to be 81.6 billion US dollars in 2015, up from 72 billion US dollars in 2013, which is more much more impressive growth. Here USA, Germany and France are the largest organic markets, with the United States of America constituting a significantly large share (about 49% of the global market).

By 2015, 87 countries has regulatory systems for organic, while 179 countries had data on certified organic agriculture. In these countries, as alternative to third party certification, community supported Agriculture and PGS approaches grew rapidly in the recent past. Participatory guarantee system (PGS) can be defined locally –focused quality assurance system, where producers are certified based on active participation of stakeholders and are built on a foundation of trust, social networks, peer regulation and knowledge exchange. This is seen to be particularly suitable for poor small holders.

Fig. 11: The World of Organic Agriculture 2015



Source: IFOAM- FiBl survey, 2016

Further, with regard to Organic producers, a total of 2.4 million organic producers was reported. However, more than three quarters of the producers are located in Asia, Africa and Latin America. Surprisingly India has largest share of organic producers (585'200), followed by Ethiopia (203'602) and Mexico (200'039). This is an increase of more than 162'000 producers compared with 2014.

National status

While discussing all the above data, it has to be noted that there are serious and large data gaps present in India with regard to organic farming. No systematic documentation mandate exists right now with any agency with regard to data related to organic farming, and most data cited from India about organic farm

ing is put out by Agricultural and Processed Food Products Export Development Authority (APEDA, in the ministry of Commerce, Government of India) which is only limited to certified area that the agency tracks through its traceability platform called Trace net. However, there is much organic farming that happens outside this purview and not necessarily for organized trade as is on the radar of APEDA.

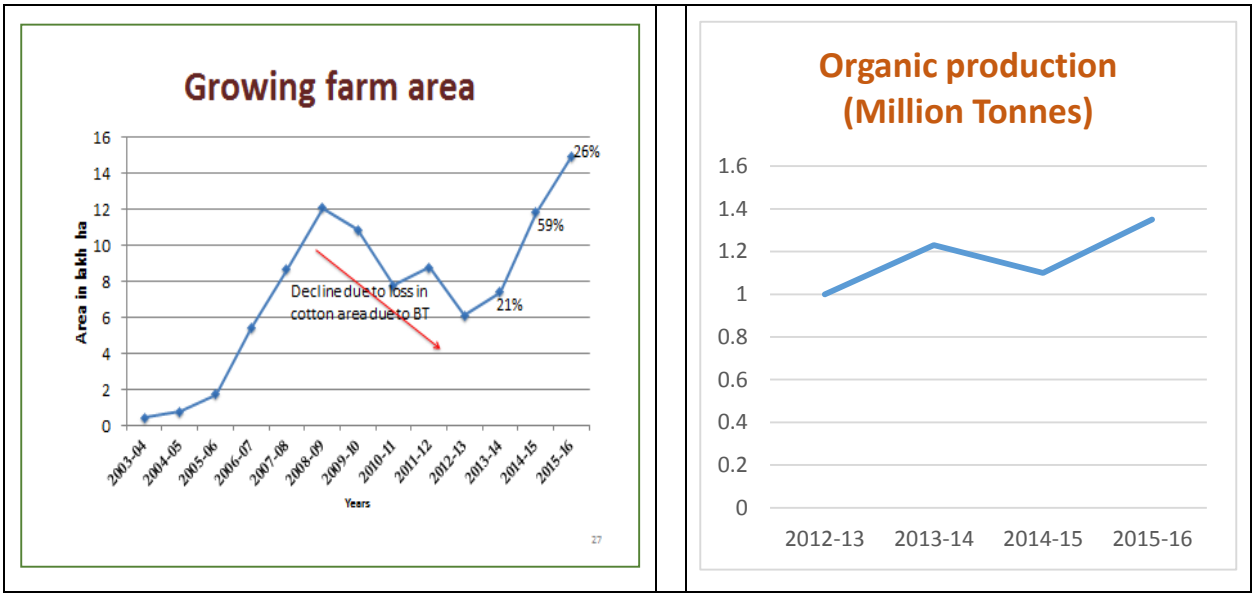
Table 4: Organic farming details in India (2015-16)

Total area under organic certification	**14.8 lakh ha**
Share of forest area and wild area	74%
Production of certified organic products	13.4 lakh tons
Exports	2.64 lakh tons
Domestic	10.76 lakh tonnes

Source: APEDA, 2017

According to APEDA, the National Programme for Organic Production (NPOP) that involves accreditation of certification agencies and export related promotion of organic farming – the total area under organic certification was 14.8 lakh hectares. It is reported that India produced around 13.4 lakh ton organic products in 2015-16 including sugarcane, cotton, oilseeds, basmati rice and pulses.

Fig. 12: Organic agricultural area and Production



Source: APEDA report, 2016

Further, Data from APEDA report reveals that there is constant increase in organic area from 2003-04 except during 2009 to 2012 where there is slight decline in area due to loss in cotton area due to introduction of Bt-cotton. Globally India, ranks 15 place in terms of total land under organic cultivation with an area of 5.71 million ha (2015-16) with 1.34 million tonnes including cultivable area of 1.49 m ha (26 %) and rest 4.22 m ha (74%) under forest and wild area harvest India Madhya Pradesh has highest area under organic farming followed by Maharashtra and Rajasthan. Besides these states Meghalaya has committed to have 2 lakh ha of certified organic land by 2020 and Sikkim aiming to become 100 per cent organic which was an official announcement during 2016.

As per APEDA discussions no correct data on Organic farming area is recorded, since 57% of the organic produce sold as conventional. Whereas recorded data by APEDA-Trace net and PGS India shows only registered farms under organic certification.

State-wise trends in organic agriculture

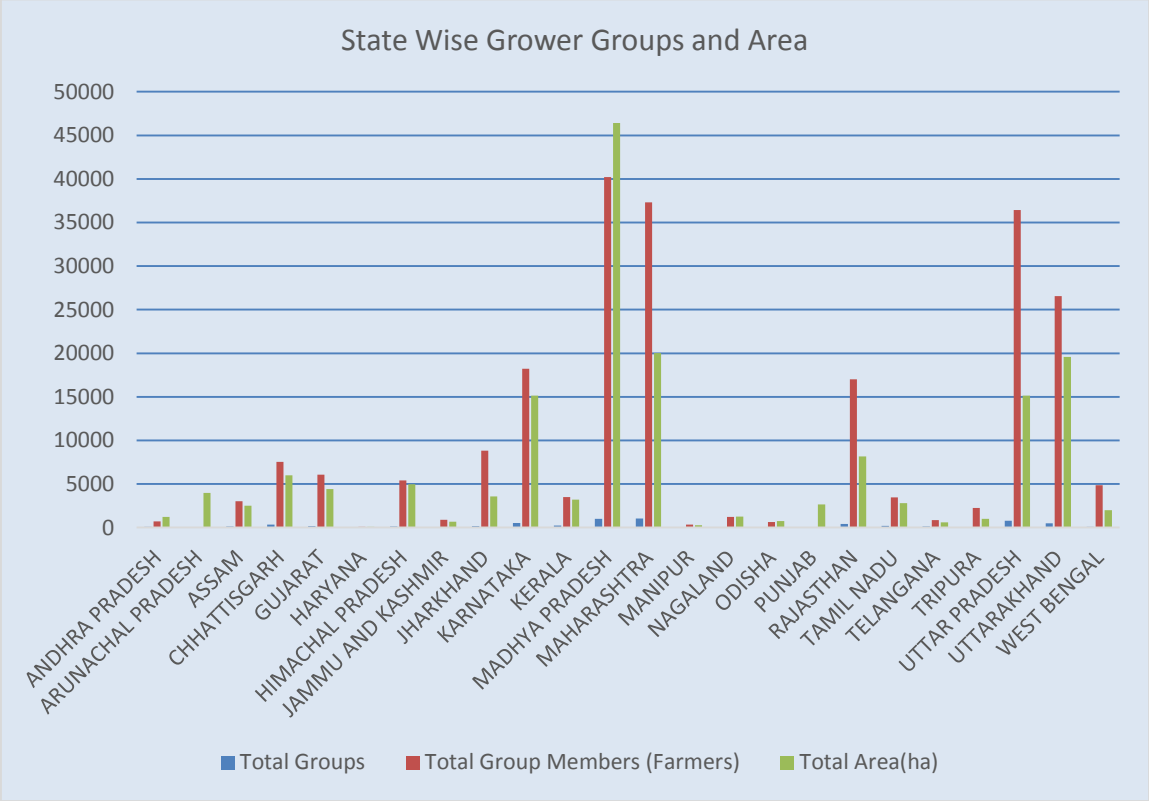
The data shows that there were 6211 farmer groups registered under PGS certification which is one of the milestone of PKVY scheme. About 2,25,635 farmers were registered across 25 states and 1.66 lakh ha covered under certification. With regard to number of farmer group's registration Maharashtra leads among states with followed by Madhya Pradesh. Average area per cluster is 27 hectares with highest reported in Arunachal Pradesh, Punjab and J & K. The average number of farmers per cluster were 36, with highest reported in J&K, Uttarakhand and Jharkhand.

Table 5: State wise status of organic agriculture in India (2016-17)

S. No	State Name	Total Groups	Total Group Members (Farmers)	Total Area(Ha)	Area per group (ha)	Members per group	% to total area
1	Madhya Pradesh	992	40200	46413	47	41	28
2	Maharashtra	1043	37317	20012	19	36	12
3	Uttarakhand	491	26560	19572	40	54	12
4	Uttar Pradesh	806	36429	15154	19	45	9
5	Karnataka	538	18238	15130	28	34	9
6	Rajasthan	410	17029	8162	20	42	5
7	Chhattisgarh	338	7538	6004	18	22	4
8	Himachal Pradesh	142	5413	4971	35	38	3
9	Gujarat	173	6073	4412	26	35	3
10	Arunachal Pradesh	1	6	4000	4000	6	2
11	Jharkhand	180	8828	3571	20	49	2
12	Kerala	247	3510	3196	13	14	2
13	Tamil Nadu	210	3466	2824	13	17	2
14	Punjab	1	18	2643	2643	18	2
15	Assam	119	3044	2526	21	26	2
16	West Bengal	105	4879	2013	19	46	1
17	Nagaland	34	1247	1265	37	37	1
18	Andhra Pradesh	79	707	1215	15	9	1
19	Tripura	61	2267	1000	16	37	1
20	Odisha	21	643	770	37	31	0.5
21	Jammu And Kashmir	14	914	692	49	65	0.4
22	Telangana	138	871	600	4	6	0.4
23	Manipur	57	358	282	5	6	0.2
24	Haryana	11	80	106	10	7	0.1
25	Total	6211	225635	166534	27	36	100

Source: PGS India website (9th sept. 2017)

Fig. 13: State Wise Grower Groups and Area



3.7 Potential for growth of organic farming:

India is a country with very diverse agricultural production systems with 21 varied agro-climatic zones, existence of different types of soils, natural vegetation and blessed with farmers who are hardworking and innovative mind and thus possess unlimited possibilities for adoption of organic farming practices without affecting the present food grain production. Further India consists states with default organic, Low or no external input use areas if tapped these areas, would lead to growth in organic farming in the country.

Further India possess sufficient availability of organic manures like animal dung manure (791.6 MT), crop residues (603.5 MT), green manure (4.50 m ha), rural compost (148.3 MT), city compost (12.2 MT) and bio fertilizer (0.41 MT) and these may become a good substitute of chemical fertilizers (Bhattacharya and Chakraborty, 2015).

The Indian Government has recognized the export potential of organic agriculture and is in the process of strengthening the sector by putting a legal framework in place. This

includes creating national organic standards (NPOP and NOP standards) and the possibility of accrediting in-country inspection and certification bodies.

Consumer Demand: It is said that by 2020, India's organic food market value is estimated at USD 1.4 billion. According to some market research firm between 2010 and 2014, it is noted that organic food market has grown at a CAGR of 17.45% and is forecast to grow more than 25%. The rising effect is not only because of exports but also growing Domestic market. Increased consumer awareness about conventionally-grown food. Currently India exports 2.64lakh tons worth of Rs.1900 crores (2015-16) out of total production of 13.4 lakh tons. However only 3lakh tons can able to find domestic market worth of Rs.1000 crores. This data show Europe, USA and Canada are the best export destinations for Indian organic produce. (APEDA Data analysis, 2016). Export products Oil seeds (50%), processed food products (25%), Cereals & Millets (17%), Tea (2%), Pulses (2%), Spices (1%), Dry fruits (1%), and others.

In view of huge potential for organic production in India, recent past many states have created projects from RKVY funds, state governments have also set aside their own funds to back up organic farming policies. Since 2015 one of its kind schemes is initiated by the government of India called Paramparagat Krishi Vikas yojana which is expected to provide great move to organic farming in India.

Chapter – IV

Design of PKVY

4.1 Design of the Schemes

Overall, the gradually growing health and environmental consciousness, on various continents, in supporting organic agriculture, whether from a production or from consumption point of view is a noticeable trend. However, outcomes will be influenced by the competition for public funds between various agricultural systems (mostly organic and conventional) and the entrenchment of various supports for conventional systems.

4.2 Benchmarking and Comparison for design of Schemes:

Comparison India is ranked number one in the highest number of organic producers worldwide and emerging as a good competitor in the field of organic market due to some of its exclusive products like spices. But area under organic agriculture is still growing at very slow pace. The table below is a comparative analysis of the India and the other leading countries like Europe and USA depicts that the countries have more strategic vision, they are more stable, and government is more involved with new initiatives to encourage farmers to go organic due to reliable and feasible policies.

Table 6: Scheme Comparison of PKVY with International and National programs

Components	India	China	USA	Australia	France	Germany
Organic action plan	Need location specific focused action plans	Need strong support	Present	Absent	Present	Absent
Government Aid	Subsidies or incentives are provided to organic farmers	Support is mainly towards covering the cost of certificati on and support is low	Subsidies during conversion period is given provided by govt and state support is also there in some through EQIP	Provides grants and financial assistance programmes to Australian businesses and individuals to help boost productivity and exports	Governmenta l support for organic farming is the Organic Ambition 2017 program	More support and motivation for young farmers
Inspection cost support	Partially under PGS	Present	Present	Absent	Present	Absent
Vocational/ training program	Active	Less active	Highly Active / Frequent	Less active	Active	Less active
global awareness among farmers	Low	High	High	High	High	High

Initial marketing assistance /support/processing	Marketing focus is missing in RCs/ZCs. Need strengthening	The support is provided	The support is provided through GO's & NGO's	Lack of support for organic food marketing initiatives	The support is provided through GO's	Support covers the foundation of and action taken by the producer groups
Awareness among domestic Consumers	There is good demand in niche areas mostly catered by private organic certified companies/PGS is not percolated	More a part of a way of life and attitude or habit for many people	High (U.S.A is the leading country in global organic market)	Low as it is export oriented		High (Germany stands at second largest country in world's organic market)
domestic market	Huge market is there, but needs to tap the potential	High and active as consumers are highly aware	High and active	Less focused	High and active as the growth rate is 10%	High and active as the growth rate is 4.8%
Export market	Unlimited opportunities, if	High rate	High rate	High rate	High rate	High rate

	tapped with plan					
Government involvement	PKVY/MOVCDNER, but focused efforts needed	High	High	High	High	High
national administrative body	National Programme on Organic Production (NPOP)	Certification and Accreditation Administration of the People's Republic of China (CNCA)	USDA	NASAA		
PGS	Present	Not so prevalent	Present with third-party certification	Not so prevalent	Present	Present

India is ranked number one in the highest number of organic producers worldwide and emerging as a good competitor in the field of organic market due to some of its exclusive products like spices. But area under organic agriculture is still growing at very slow pace. The above table comparative analysis of the India and the other leading countries like Europe and USA depicts that the countries have more strategic vision, they are more stable, and government is more involved with new initiatives to encourage farmers to go organic due to reliable and feasible policies.

Europe has been the front runner in terms of public support to organic Agriculture both in the EU and other European states. The first scheme specifically targeted at organic farming was introduced in Denmark in 1987, followed by other countries such as Austria and Switzerland. As part of the reform of the EU Common Agricultural Policy (CAP) in 1992, the introduction of agri-environment programs provided a unified framework for supporting conversion to and maintenance of organic production across EU. In the new EU CAP for 2014 2020, the role of organic farming is recognized as a way of farming that responds to consumer demand for more environmentally friendly farming practices. In line with the motto "Public money for public goods", the new CAP 2014 2020 makes organic farming more visible and confirms its role as a measure for providing public goods. As a result, the expansion of organic farming has itself become policy goal in EU countries.

Similarly, Public policies towards the organic sector in Canada and the USA have focused mainly on fostering orderly markets and public confidence in the organic label through regulation and enforcement. On the other hand, these governments have implemented measures to ensure that the organic sector has equal importance with other govt programmes. In a span of several years the USDA has: increased budgets for organic agriculture research, adjusted its risk management (crop insurance) program to reduce barriers to access by organic farmers, and introduced more organic data collection and dissemination. Canada supports organic market promotion through an organic roundtable, which is one of 15 such working groups on specific agricultural sub sectors.

However, In India we lack such comprehensive strategies, absence of financial support from the governments. Indian organic agriculture is suffering from poor linkage between farmers and markets. Majority of the countries are providing incentives to support organic farmers in transition period and focusing on next generation which is a most important for sustainability of farming in long run. However, in India because of small holdings Supplies do not match the demand which is another problem caused by lack of direct linkage between producer and customer either caused by the manipulation of the

traders or confusion in consumer demand. More over processing industry in India is badly fragmented, not organized.

Government should play important role by giving various supports to the producer and consumer associations to market the products. To increase the market value of organic products in domestic and export markets some new improved refined processing technologies are introduced.

Governments should take an enabling and facilitating role for improving the overall policy covering a wide range of area from production, marketing, supply chain, training and research and training of the both civil servant and private e sector should be the main area of concern. In addition, fair, quick and efficient delivery system for such assistance should be made.

Comparison of design of various government schemes related to organic agriculture

The figure 14 all the central and state government schemes which have organic agriculture component are given. The detailed comparison of these schemes is presented in table 6. Most of these schemes also have in built element of subsidy for various components which enhances production capacity of farmers. Implementation of the programmes through farmer groups' rather individual farmers is an added advantage to the schemes. The schemes were designed such way few households may benefit from that more than one scheme.

The National programme on Organic Production was initiated (NPOP) in 2001. In 2002, the India organic logo was released under NPOP. In the tenth plan, ministry of agriculture launched the National Project on Organic Farming. After running it through the eleventh plan period, during the middle of the twelfth plan period, this was combined with NMSA and made into a sub component of soil health mission, which itself is a component of NMSA.

Further, all schemes were meant to promote some of the organic production activities. To mention specifically Under National Project on Organic Farming (NPOF) scheme, assistance up to 25% and 33% of financial outlay up to a ceiling of Rs. 40 lakhs and Rs. 60 lakhs respectively is provided as back ended subsidy through NABARD for establishment of bio- pesticides/bio fertilizers production units and agro waste compost production units respectively.

Besides, under National Horticulture Mission (NHM) and Horticulture Mission for North East & Himalayan States (HMNEH), financial assistance is provided for setting up vermi-compost production units @ 50% of the cost subject to a maximum of Rs. 30,000/- per beneficiary, for adoption of organic farming @ Rs. 10,000/- per hectare for maximum area

of 4 hectare per beneficiary and for organic farming certification @ Rs.5.00 lakh for a group of farmers covering an area of 50 hectares.

Similarly, under RKVY assistance for promotion of organic farming on different components are also available with the approval of State Level Sanctioning Committee. Other schemes like NMSA and NPMSH has also various components which helps to intensive promotion of organic farming in the country. Under RKVY state government have flexibility and autonomy in planning, approval and execution of approved projects, including for organic farming.

The operation of the schemes was in isolation. Integration of all agriculture schemes rather than component based approach and converging with other departments helps in better results. With the current approach, few households are benefiting with more than one scheme for the same component leaving others aside (RKVY evaluation study in Rajasthan, 2015).

Along with existing schemes a newly initiated first of its kind exclusive organic farming scheme in India is Paramparagat Krishi Vikas Yojana. PKVY scheme has a financial outlay of Rs.300 crore during 12th five-year plan for promoting organic farming in a cluster approach with an aim to form 10000 clusters (with each covering 50 acres) across the country, to bring 2 lakh hectares under organic farming through PGS – organic certification.

Fig. 14. Various government schemes to promote organic agriculture

Table 7: Design of the Projects relevant to Organic Agriculture

Title	Objective	Beneficiaries	Pattern of Assistances
PKVY	• Organic agriculture is a production of agricultural products free from chemicals and pesticides residues by adopting eco-friendly low cost technologies. • "Paramparagath Krishi Vikas Yojana" is an elaborated component of Soil Health Management (SHM) of Major project National Mission of Sustainable Agriculture (NMSA). • Under PKVY Organic farming is promoted through adoption of organic village by cluster approach and PGs certification.	• Farmers Groups • Agril. Entrepreneur • Service Provider • Consumers	• In case of demonstration by institutions/agencies the funding pattern is 100% grant from Central Government which required necessary approval of the competent authority. NGOs registered with NITI Aayog/Regional Councils with NCOF shall also be eligible to be the implementing agencies with the condition that at least 10% of the total project cost is contributed by them. • The financial assistance is provided to clusters on different sub components for mobilization of farmers, organic seeds, to harvest biological nitrogen etc.
NHM	• To provide holistic growth through an area based regionally differentiated strategies. • To establish confluence and alliance among on-going and planned programme. • To boost, develop and propagate technologies through modern scientific with traditional knowledge • To create employment opportunities.	• Farmer's association • Farmers' companies • Registered Farmers' Societies • Farmers cooperative • Extension workers	• Centrally sponsored scheme in which GOI provide 100% assistance to state mission • To provide backing to help the comprehensive development of Horticulture in state through Area expansion, marketing and processing, HRD etc.

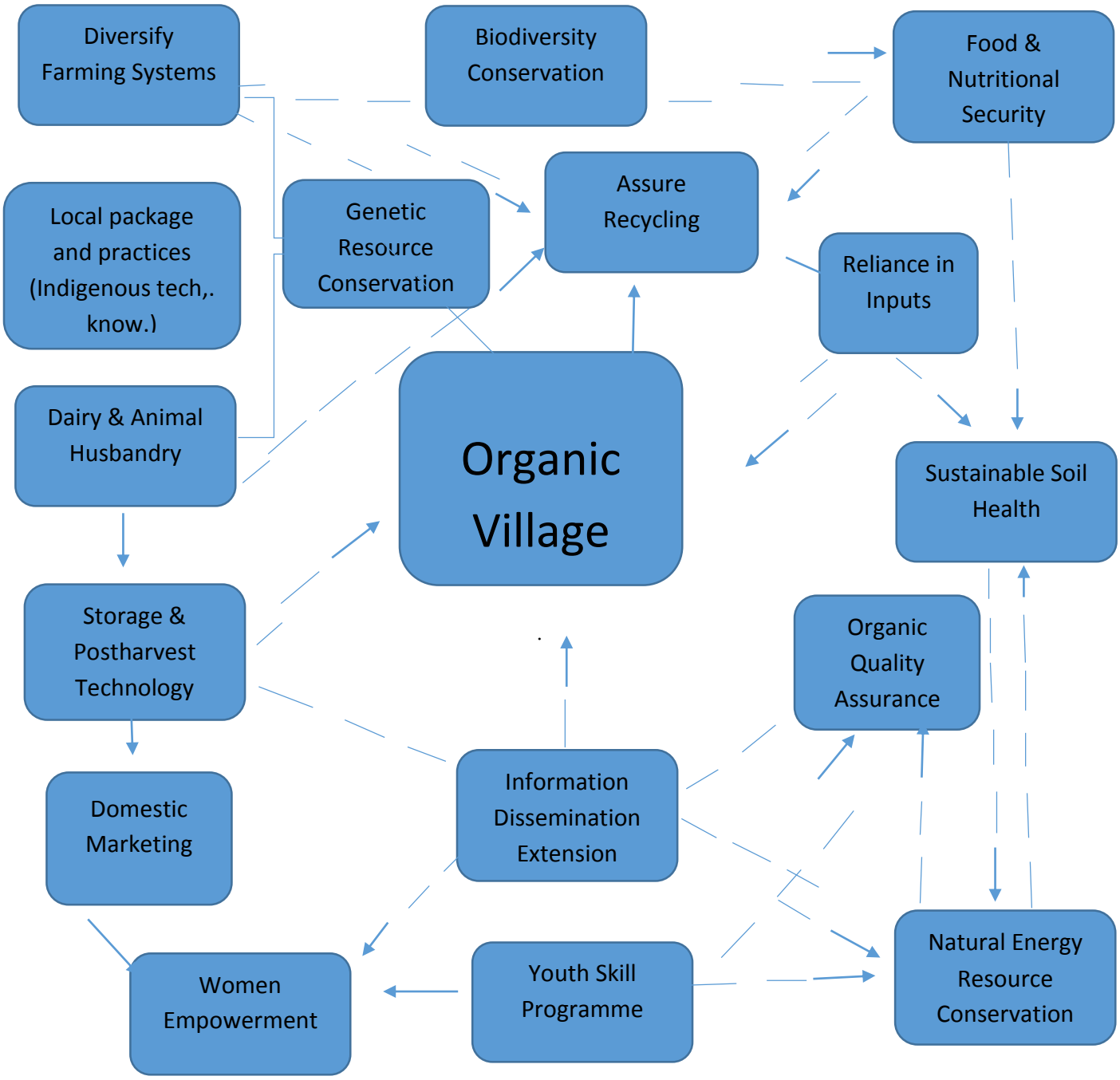
HMNEHR	• To augment economic, ecological and social benefits from current infrastructure and investment conceive for Horticulture development • To boost ecologically sustainable aggregation and economically enticing diversification of horticulture. • To establish confluence and alliance among on-going governmental programmes. To achieve horizontal and vertical integration of these programmes	• Farmer's association • Farmers' companies • Registered Farmers' Societies • Farmers' cooperative • Extension workers	• MINI MISSION-1, based 100% for public sector include seed and planting material – production and supply of parental lines, quality seeds, rootstocks, motherstocks and maximum permissible cost per project is Rs. 15 lakh. • Technology standardisation/refinement and dissemination permissible cost per project is Rs. 20 lakh. • Acquisition of technologies including import of planting material from other countries permissible cost per project is Rs. 10 lakh. • Imparting training through on farm trials/ demonstration cost Rs. 5 lakh per project.
NPMSHF	• To aid and promote Integrated Nutrient Management (INM) through considerate use of chemical fertilisers, including secondary and micro nutrient, in conjunction with organic manure and bio-fertilisers, for improving soil health and its productivity. • To strengthen soil testing facilities and provide soil test based recommendations to farmers for improving soil fertility and economic return to farmers • To promote use of micro nutrients • Conducting training and demonstration to upgrade	• Farmers group • Extension staff • Agril. Entrepreneur • Individual farmer • Area	• Arrange new soil testing laboratories and Mobile Soil Testing Laboratories (MSTLs) • Strengthening of existing static STLs for micronutrient analysis. • Capacity building through training and demonstration. • Creation of data bank for balanced use of fertilisers • Adoption of village by STLs through frontline field demonstration. • Preparation of digital district soil matter, a soil fertility monitoring system by ICAR SAUs. • Setting up of fertilisers testing laboratories for advisory purpose, under the private/cooperative sector.

	the skill and knowledge of staff and farmers • Strengthening of fertiliser's quality control facility.		
NPOF	To popularize organic farming for enhancing farm income	• Individual farmer • Farmers group • Agri-entrepreneur • Service provider	• Human Resource Development by providing training state government officers, Fertilisers Inspector, organic Fertilizers Analysts. • Statutory Quality Analysis of Bio fertilizers and Organic Fertilizers under Fertilizer Control Order (FCO) and Testing of other organic inputs for study purpose. • Capacity building for low cost alternative, farmers group centric certification system- PGS • Support for organic input production units under Capital Investment back ended subsidy scheme through NABARD • Awareness creation through publicity, publication and other print and electronic media.
RKVY	• To impetus the States to increase public investment in agriculture and allied sectors. • To provide flexibility and autonomy to the States in planning and executing agriculture and allied sectors schemes. • To ensure the preparation of plants for the districts and the States based on agro-climatic conditions, availability of technology and natural resources. • To ensure that the local	• Farmers association • Unemployed youth • Researchers • Extension workers • Processors • Registered Farmers Societies	RKVY funds would be provided to the state as 100% grant by the central government in production growth (35% of annual outlay), infrastructure and assets (35% of annual outlay), special scheme (20% of annual outlay), flexi fund (10% of annual outlay) Activities/component proposed under RKVY are generally covered under various on-going schemes/programmes of central government and the technical support or financial norms will be according to the scheme/programme.

	needs/crops/priorities are better reflected. • To achieve the goal of reducing the yield gaps in important crops, through focused interventions. • To maximize returns to the farmers. Price Stabilization Fund Scheme (PSFS)		
NMSA	• To promote location specific Integrated/composite Farming System to make agriculture more productive, sustainable, remunerative and climate resilient. • To adopt comprehensive SHM practices • Optimize utilization of water resources through efficient water Management for achieving 'more crop per drop' • To pilot models in selected blocks for improving productivity of rain fed farming by mainstreaming rainfall technologies refined through NICRA	• Farmers groups • Individuals farmers • Private agencies	• Setting up of vegetable market waste/agro waste compost production units, through NABARD @25% of total financial outlay (TFO) • Setting up of state of the art liquid/ carrier based bio fertiliser/ bio-pesticide units, again through NABARD @33% of TFO. • Setting up of bio-fertiliser and organic fertilisers testing quality control laboratory or strengthening of existing laboratory under FCO @ 85 lakh/unit for new and 45 lakh/unit for strengthening. • Promotion of organic inputs on farmer's field with assistance of 50% of cost subject to a limit of Rs.5000/ hectare and Rs.10000 per beneficiary, with a target of 1 million hectares.

4.3 Organic Village concept

Fig. 15: Framework of organic village



4.4 PGS certification in India and abroad

As per IFOAM (2008), Participatory Guarantee Systems in are locally focused quality assurance systems which certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange. They can also complement third party certification with a private label that brings additional guarantees and transparency. PGS also enables the direct participation of producers, consumers and other stakeholders with their choice and definition of the standards and implementation of certification procedures. Large number of organic producers are certified through Participatory Guarantee Systems (PGS) across the world. It is estimated that around 1,09317 small operators are involved in PGS certification. The leading countries with regards to PGS are located in the global south. The PGS Organic India Council was set up after a consultation process in 2006. In April 2011, it is registered as a society Participatory Guarantee Systems Organic Council (PGSOC). PGS in India is managed by Department of Agriculture and cooperation Ministry of Agriculture and Farmer welfare, Government of India.

4.5 State wise comparison in design and Modalities

Many of sates have announced organic farming policies. Started with Sikkim in 2003, and Karnataka in 2004, Kerala 2008, Gujarat becomes the 9th state to announce state organic farming policy. The state wise detailed comparison of design and modalities in certification, farm inputs, awareness and training, marketing, financial incentives, campaign, SAU having separate department of organic farming and fully certified organic state were given in table**.

In order to improve the sustainability of farm livelihoods, many states in India has introduced state organic policies to support a set of policy instruments that will put the organic sector on a higher growth path. The common aim of the all-state polices is strengthen the production systems, supply chain and marketing systems by creating an enabling environment, required infrastructure, regulations and providing necessary incentives and support.

Political commitment to organic agriculture in Sikkim started in 2003 and was accompanied by "Sikkim State Organic Board" creation which supported the production and use of organic fertilizers and organic seeds, and capacity building for extension officers, farmers and young people. Followed by a number of pilot projects on organic group certification were implemented in cooperation with NGOs, service providers from

2006 onwards. In 2010, the Chamling government launched the Sikkim Organic Mission with a clear road map and target of converting 50,000 hectares of land, thereby bringing the entire state to organic status by 2015.

Followed by Sikkim's incredible achievement many states has declared state organic policies, emphasizing on capacity building of staff and farmers, Subsidies and other incentives for inputs to support small and marginal farmers during conversion period. Special consideration was given for development and support of alternative quality control systems like group and PGS certification systems. Also farmers were encouraged to register their farms under organic certification for free of cost. Further, policy has included support for small entrepreneurs for bio fertilizers, biopesticdes preparations, so that all the inputs can be accessed by the organic farmers for affordable prices. There are innovative schemes initiated by state governments like the organic village scheme of Karnataka government. They have supported adequate number of certification agencies and financial support to carry out the free certification for the farmers for intended export of organic produce. A step ahead Sikkim state has announced brand name for their organic products and all the organic products are marketing under brand name and given 'Sikkim organic logo". Similar concept is following in Kerala under "Jaiva Keralam". In addition, Kerala organic policy also focusing on promotion of farmer producer organizations (FPOs) with organic farmers and moving to further step of organic food processing with the FPOs.

Table 8: Comparison of design and modalities of delivery of organic agriculture in different states

Components	Kerala	Sikkim	Nagaland	Himachal Pradesh	Karnataka
Certification	• Will develop an Organic Kerala certification and logo and "jaiva Keralam" as brand. • Fix local standards for quality • Certification free of cost for organic farmers farming for 3 years • Include organic livestock	• Local Self Help Groups and NGOs to be involved. • Local educated youth to be trained to create employment • Conducting orientation and training	Government assistance to be provided to certify organic produce.	• Will put support regulation for local market on local conditions • Third party certification only for export outside state • Develop the concept of niche branding in case of some produce for marketing within state	• Government shall provide service providers for record keeping • Government would bear a part of certification charges during initial three years • Financial assistance shall be provided for establishment of domestic certification agencies
Farm inputs	• Organic waste treatment plant should be made compulsory for the flat. • Formulate legislative measures to empower the Local Self Government Institutions for ensuring quality of inputs • Establish special financial assistance	• Use of eco-friendly inputs and strict policy for no use of chemical inputs • Providing subsidies for infrastructure for farm production of inputs • Adopt villages for organic input demonstration • Encourage IPM practices, train and adopt Non Pesticidal	• IPM technologies shall be adopted • Strengthen the existing laboratories for R&D of bio agent • Promote the production of Bio-agent by private entrepreneurs • Collaborate with firm and business house for development	• Major emphasis on on-farm input production, management and quality control. • Farmers will get support Setting up of different organic/biological input production units	• Critical input to be made available at reasonable prices. • Govt to provide financial assistance to associations or groups for production and purchase of inputs. • Additional subsidies for industry producing organic inputs.

	schemes and/or link existing scheme.	Pest Management			
Awareness and training	• The model of kudumbasree would be designated as "Karshaka Sevakar" • Develop the existing Agro-clinics of the department into organic farming resource centres	• Educating school children on basic concept of organic farming by including in the course curriculum • Integrate the various government departments, institutions, civil societies, and their schemes in a harmonious manner duly considering organic farming principles and local situation	• Extensive programme to educate and create awareness campaigns. • Organic farming system to be incorporated into the syllabi of the school education.	• Awareness through print and electronic media. • Model organic farms of the farmers as training centres • Creating cadre of farmers trainers • Extension training programmes	• Separate training shall be arranged especially for women. • Educational tour would be arranged for both departmental officers and farmers. • Farmers who excel in organic farming would be identified and awarded
Marketing	• Set up separate markets for organic produce certified by PGS process. • Disallow large private retail corporations through suitable legislation • Encourage existing	• The entire organic product should be given brand name with "Sikkim Organic" logo. • Cold storages and refrigerated van facilities should be created. • Separate cell for	• State government shall facilitates Marketing Process of the surplus organic products through the APMC • Involvement of private enterprises will be accorded the highest priority.	• Set up retail organic stores in the market centres across the state • Encouraging private parties to set up private markets. • Setting up of the COMMON FACILITY CENTRES at focal points would be considered to facilitate	• Separate space with requisite storage facilities would be created exclusively. • Transport of produce from point of production to customers will be subsidised. • Organise periodic organic produce melas/exhibition at cities/towns.

	vegetable, fruits and grocery vendors to promote organic products • Ensure through Responsible Tourism Initiative, source organic produce from local producers for their hotels and resorts.	marketing to be establish with all required facilities and manpower • Proper tie up with retail outlets and whole sale markets of the metro cities.		availability of organic inputs. • In APMC mandi areas, the concept of few organic shops for whole sale supplies	• Information pertaining to availability of organic produce/products with farmers/groups would be made available on the internet.
Financial incentives	• Provide interest-free loans to organic farmers • Credits linked to bank shall be subsidized through central/state government. • Promote revolving funds system. • Provide assistance during conversion period. • Introduce a state led insurance scheme for SMOF • Introduce pension for		• The organic Board will maintain funds • This shall consist funds from central and state government. • Funding support to implement the various policy initiatives from the programme funds of various department which shall include subsidies of the state and institutional finances from financing		• Interest rates would be subsidized by the central/state government on the loans availed by the individual organic farmers/group/co-operatives • Financial institution like NABARD, RRB etc would be persuaded to extend special line of credit to farmers association apart from input industries involved in production of organic inputs

	organic farmers		agencies and private investors.		
Campaign	• "Jaiva Keralam" • "Karshaka Sevakar"	• "Sikkim Organic" • "Jaivik Sikkim"		• "Himachal Organic Farmers Forum" • "Primary Organic Niches"	• Organic village scheme
SAU having separate department of organic farming	No separate department	No separate department	No separate department	CSK Himachal Pradesh Agricultural University, Palampur	University of Agricultural Sciences, Dharwad
Fully certified organic state	NO	YES	NO	NO	NO

Source: Government report of Kerala, Sikkim, Karnataka, Himachal Pradesh on state policy on organic farming.

Table 9: Review of similar Case Studies in organic agriculture (India and abroad):

Reference	Context	Methodology	Analysis
Organic Agriculture In India And Participatory Guarantee Systems (Pgs): A Case Study From West Bengal			
Joe K. W. Hill	West Bengal ,India	This study is based on the qualitative research strategy. It was conducted independently and in a limited time period. SEVA's projects were selected from IFOAM database through PGS groups registered with PGSOC. . It is based on the case study from West Bengal, where the NGO SEVA has worked in organic agriculture since 1991, supporting PGS group since 2005. Semi-structured interview were conducted with current and former farmers staff at Vikas Kendra, SEVA's project and with various organic farmers. Sellers and several consumers were also interviewed. Data collected from NGO's were analyzed	In this study, they have given an overview of organic agriculture, its marketing and certification with a focus on Participatory Guarantee System (PGS). It is based on the case study from West Bengal, where the NGO SEVA has worked in organic agriculture since 1991, supporting PGS group since 2005. The results were divided into four sections. First, SEVA's organic experience, they set up 53 PGS group and then further each was divided into 2 peer groups to check organic cultivation and certification. After this no. of farmers supported by SEVA were increased making SEVA's initiative a success. Second, farmer's view on PGS, for them it is a success, as it helps them to sell their produce beyond local markets. Also the farmers related to this have developed various skills. Third, the NGO's experience with PGS, earlier there was no support from the state government, only in 2015 the central govt. launched PKVY under which new PGS groups of JVES and SEVA each has 50 farmers, as they are too big and facing problems they are unable to maintain PGS system properly. Fourth, urban consumer's views of the organic produce, they found organic produce tastier and easier to cook, also they don't want to eat chemicals.

Impact of Saline Soil Reclamation on Enhancing Farm Productivity and Farmers Income in Karnataka – An Economic Analysis			
Raju R. ***Thimmappa K.*** ***A.L. Pathan*** ***Siddayya -*** ***NAAS***	Karnataka	Study was conducted in Ugar Budruk village in Karnataka. There 70% of cultivable land was affected by salinity and waterlogging. SSD was installed between 2009-10 and 2011-12 in 925 ha covering 644 farmers. Study was based on both primary as well as secondary data which was collected from 120 sample farmers by area random sampling. The costs and returns were estimated by using inputs and outputs and multiplying it by the current year prices as well as by using the cost concepts. These were them used to compare the pre and post SSD effects.	Soil salinity- major cause of land degradation. Surface drainage technology for saline land reclamation is technically viable, economically feasible and socially acceptable. Land use was intensified, cropping patterns changed in favour of more remunerative crops and crop yields increased. Cropping intensity increased showing positive effect. There was a significant reduction in the max and min salinity. There was a wide gap in the salinity of drainage water after installation. Mean yield of all crops grown significantly increased. Yield increase by 186%. Cost of Cultivation increased due to better performance of crops due to demands for more inputs. Increase in net income was largely related to the increase in crop yield due to intervention of SSD. Significant increase in net income from off seasonal crops was also observed. Benefit-cost ratio increased more than one. Value of land increased. Thus we can say that to overcome the problem of waterlogging and soil salinity installation of SSD technology is very much required.
Participatory organic certification in Mexico: an alternative approach to maintaining the integrity of the organic label			
Erin Nelson, Laura Gomez Tovar, **Rita Schwentesius Rindermann,**	Mexico		The paper presents the case of Mexico as an example of how an alternative form of participatory certification has emerged. Paper suggests that participatory guarantee systems are reflective of the growing "Beyond Organic" movement, which focuses on the reconstructing the local and re-embedding food systems into their socio ecological

Manuel Angel Gomez Cruz **Springer Science+Business Media B.V. 2009**			contexts. PGS offers a no. of benefits for producers and consumers, but it faces challenges as well such as a lack of formal recognition, social and personal conflicts and dependence on donated resources. PGS encourages and relies on the active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange. But PGS is not currently viable for the certified organic exports industry because this peer review of organic certification is not consistent with ISO standards. PGs seeks to bring an element of social justice into creation of sustainable food systems, for e.g., by seeking to increase local food security and by attempting to price local organic goods in manner that is fair to producers but nor entirely inaccessible to the consumers.

According to Joe K. will in his study about PGS certification he found that PGS has provided an assurance system that helps small and marginal farmers for marketing their organic produce with premium price. The study also highlights the PGS creates a link between rural farmers and urban consumers.

Other paper from Nelson depicts that PGS emerged as alternative to third party certification is working as participatory guarantee systems (PGS) are reflective of the growing "beyond organic" movement, which focuses on reconstructing the local and re-embedding food systems into their socio-ecological contexts. It argues that PGS offers a number of benefits for producers and consumers, particularly in the South, but that it faces a number of challenges as well, such as a lack of formal recognition, social conflicts and dependence on donated resource.

4.6 Governance issues of Organic Farming across different countries

Currently there are 73 countries with organic standards and 16 countries in the progress of drafting legislations. There are 488 certification bodies existing across the globe and most of the certification bodies are in European Union, United States, Japan, South Korea, China, Canada, and Brazil. With regard to standards and regulations there were major developments with new EU regulation, Canadian organic standard and implementation of Australian domestic organic standards. In 2009, FAO, IFOAM and UNCTAD started the Global Organic Market Access.

Table 10: Issues related to food markets

	India	China	USA	Australia	France	Germany
Consumer protection	P	P	P	A	P	P
Consumer demand	P	P	P		P	P
Domestic Market	P	P	P		P	P
Foreign Market Access	P	P		P	P	P

Note: P = Present, A= Absent

The coverage of regulations on organic agriculture and food are quite similar among all countries. Above table shows except Australia all others countries have focus on consumer protection policies. Also all countries have organic domestic and foreign market regulations in place. The protection of consumers from false claims is the most frequently quoted motivation for organic regulations. In Australia except for exported

production government doesn't have any dedicated framework. Domestic markets here are regulated through Consumer law.

Table 11: Benefits of Organic Agriculture and Food

	India	China	USA	Australia	France	Germany
Environmental benefits	P	P	P		P	P
Animal welfare	P	P	P		P	P
Consumer health	P	P			P	P
Employment	P	P	P			

Note: P = Present, A= Absent

All the countries have proven studies showing organic food have benefits with regard to environmental benefits, consumer health and employment. In case of Canada whose government is neutral regarding the benefits of organic farming.

Table 12: Coverage of Organic Agriculture Regulations

Production rules for organic agriculture

	India	China	USA	Australia	France	Germany
Domestic market		R	R	NR	R	R
Exported production	HR	R	R	R	R	R
Crops and livestock	R		R	R	R	R
Aqua-culture			NR	R	R	R
Processing of organic food		R	R	R	R	R
Processing of organic feed			R	R	R	R
Packaging, Storing, transport	R		HR	R	R	R
Labelling of organic products	R	R	HR	R	HR	HR
Control, inspection, certification	R	R	HR	R	HR	HR
Imported feed and foodstuff	R	R	R	HR	HR	HR
Export compliance	HR		R	HR	R	R

Note: HR= Highly Regulated, R= Regulated, NR= Not regulated

The above data shows USA and Germany had highly regulated to regulated markets for domestic, export markets and for processed foods. Europe and USA have well developed domestic regulations in place and they have compressive organic legislations, and the

term "organic" is used by only certified producers. In the US National Organic Programme (NOP) was enacted as federal legislation. In Australia, the Australian Quarantine and Inspection Service (AQIS) is the controlling body for organic certification because there are no domestic standards for organic produce within Australia. Till date there are no domestic standards for organic produce within India. But FSSAI is coming up with a domestic regulation soon. However, export compliance is highly regulated. India's organic certification process under NPOP has been granted equivalence with European Union. It has also been recognized for conformity assessment by USDA's NOP. Where as in countries like France and Germany are the most important international players in organic market and they have highly regulated systems for import stuff and inspection and certification procedures. The organic produce imported from Non-EU countries must be produced, inspected in a manner equivalent to the internal EU requirements.

India exports major products like oil crops (soya bean), basmati rice, sugar, tea, pulses and dry fruits, spices, processed foods, medicinal and herbal plants. In 2015-16 out of total production of 13.4lakh tons 19 % i.e. 2.64 lakh tons got exported worth of 1900 crore. Estimated domestic market quantity is 3lakh ton with 1000 crores estimation. Whereas 57% (7.76 tons) are marketed as conventional produce in India (APEDA, 2016).

Table 13: No. of Control Bodies for Organic Agricultural Regulations

	India	China	USA	Australia	France	Germany
Public bodies	10	20	19	0	0	0
Private bodies	18		63	6	8	18

According to the data private organic standards are operating in majority countries except India and USA. Generally, governments are not interacting with private organic standards. Comparing the six countries the number of control bodies for organic agricultural regulation first comes in USA which has 82 control bodies (19 public and 63 private) and is followed by India with 28 third party certification agencies (10 public and 18 private). Similarly, Germany consists private certification agencies in 18 number.

Table 14: Policy measure supporting organic farmers

	India	China	USA	Australia	France	Germany
Inspection services	PGS inspection	P	NP	NP	NP	NP
Coverage of certification costs	P	P	P	NP	NP	P
Advice and technical assistance	P	P	P	NP	NP	P
Vocational training	P		NP	NP	NP	NP
Integration in curricular			NP	NP	NP	NP
Support for capacity building	P		NP	NP	NP	NP
Payment for conversion	P		NP	NP	P	P
Payment for production	NP	P	P	NP	P	P
Tax breaks			NP	NP	P	NP
Output-based support	P		NP	NP	NP	NP
Investment grant to individual farmers	P		NP	NP	NP	NP
Investment grant to collective projects	P		NP	NP	NP	NP

Note: P= Present; NP= No Policy

The table above shows that India, USA and Germany has support mechanisms for organic farmers with regard to inspection charges, technical advice support during conversion period. Other countries do not have any policy measures in place to support organic producers. Whereas no country has commitment towards support grants individual farmers or collective projects.

Table 15: Policy measures supporting Organic Food Marketing Channels

	India	China	USA	Australia	France	Germany
Public procurement	NP		NP	NP	P	NP
Investments grants	P	P	NP	NP	NP	NP
Support for new sales structure	NP		NP	NP	NP	NP
Support for organic food marketing initiatives	PKVY		NP	NP	NP	NP
Support for organic fairs	P		NP	NP	NP	NP

Note: P = Present; NP = Not Present

With regard to food marketing channels except France no other country has a strategy for public procurement process and support of organic sales. Organic food market initiatives has seen only in India through PKVY and promotion of organic fairs in India to some extent. All other countries governments have no role in organic market channels and organic fairs promotion.

Table 16. Other measures supporting the growth of the organic sector

	India	China	USA	Australia	France	Germany
Information and promotion campaign	P		P	NP	P	NP
Public education	P		P	NP	NP	P
Support to research projects	NP	P (Extensive research)	NP	NP	NP	P
Provision of sector information	NP	WP	P	NP	P	P

Note: P=Present, NP=Not Present, WP=Weakly Present

Source*:compiled by the studies of various authors: Sylvian Rousset, Koen Deconinck, Hyunchul Jeong, and Martin von Lampe., EU china Trade reports, Willer, H. and Kilcher, L. (Eds.), APEDA

One of the major bottlenecks highlighted by various studies was a lack of large scale systematic research on organic farming due to absence of dedicated institutions and shortage of adequately trained human institutions. Above table depicts that only USA and Germany governments are promoting organic research project

India as an emerging country has started awareness campaigns on organic farming to farmers and other stakeholders through different policy instruments like organic policies and establishing certification standards. But there is lack of focus on research projects.

Chapter – V

Implementation and Modalities of Delivery

5.1 Programme implementation

A. Groups of farmers would be motivated to take up organic farming under Paramparagat Krishi Vikas Yojana (PKVY).

B. Fifty or more farmers will form a cluster having 50 acre land to take up the organic farming under the scheme. In this way during three years 10,000 clusters will be formed covering 5.0 lakh acre area under organic farming.

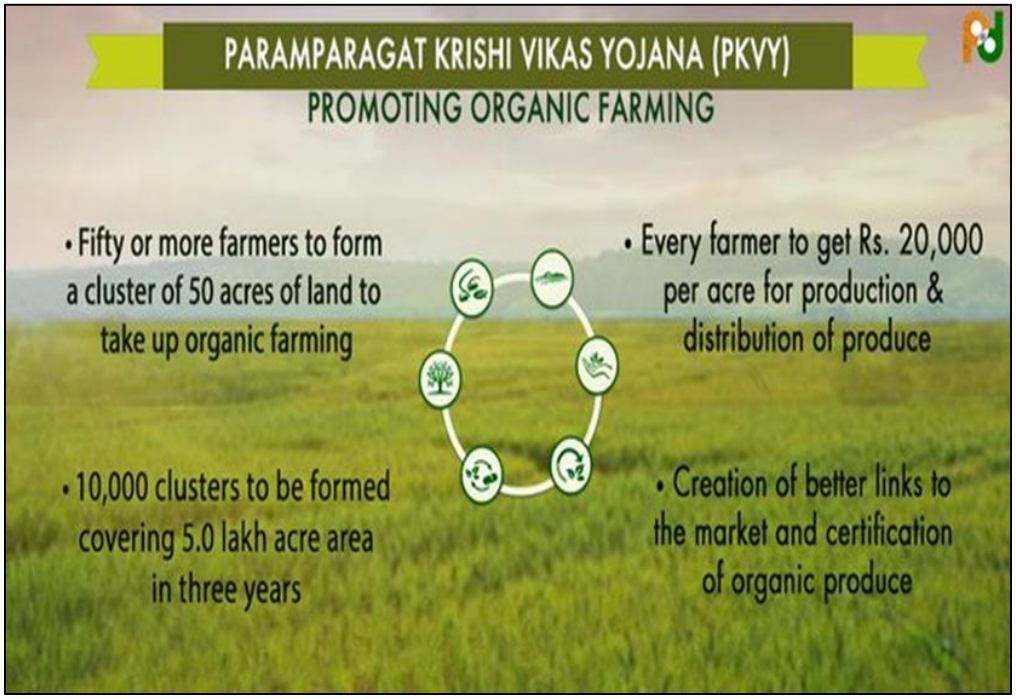
C. There will be no liability on the farmers for expenditure on certification.

D. Every farmer will be provided Rs. 20,000 per acre in three years for seed to harvesting of crops and to transport produce to the market.

E. Organic farming will be promoted by using traditional resources and the organic products will be linked with the market.

F. It will increase domestic production and certification of organic produce by involving farmers.

Fig: 16 Programme implementation (Pictorial Representation)



5.2 Important Features of PKVY scheme

Table 17: Important features of the PKVY scheme	
Name of scheme	Paramparagat Krishi Vikas Yojana
Total annual Budget allocation	Rs. 300 crore in 2015 – 2016 budget
Promotion of farming	Organic farming
Implementation technique	Cluster approach
No. of farmers in a cluster	50 or more
Area of land covered in one cluster	50 acre
Per acre fund allocation to each farmer	Rs. 20,000
Time period of scheme per farmer	3 years
Total no. of clusters to be targeted in 3 years ***Total farming area to be covered in 3 years***	10 thousand 5 lakh acres

The Paramparagat Krishi Vikas Yojana of the current government is basically a scheme of supporting organic farming via cluster approach. This scheme is also a repackaged version of various earlier government schemes which were mentioned below.

Above mentioned earlier schemes of UPA government, one or few of the organic components were implementing in majority of the schemes like NPOP and NPOF but the operation of the schemes were isolated and there is no consolidation of the activities at beneficiary level and were not successful because of several factors like ill procedure of implementation or lack of transparency in fund allocation and fund management. So all those schemes were dissolved and a new and improvised scheme started with PKVY name with a cluster approach of implementation where a group of 50 or more cultivators

will work together in a specified piece of land, for a period of three years. PKVY is exclusively framed for holistic promotion of Organic farming from seed to certification and marketing.

Several organic techniques will be implemented in the PKVY farming scheme. These methods of farming will not include the use of harmful pesticides or fertilizers at all. Cropping techniques like promoting an organic nursery to develop organic seeds will be implemented. Apart from this, development and production of bio – fertilizers, bio – pesticides and other organic manures will be done. These will add to the production yield as they are rich in manures and they are also good for health. Organic manure management will be performed in the clusters of the PKVY.

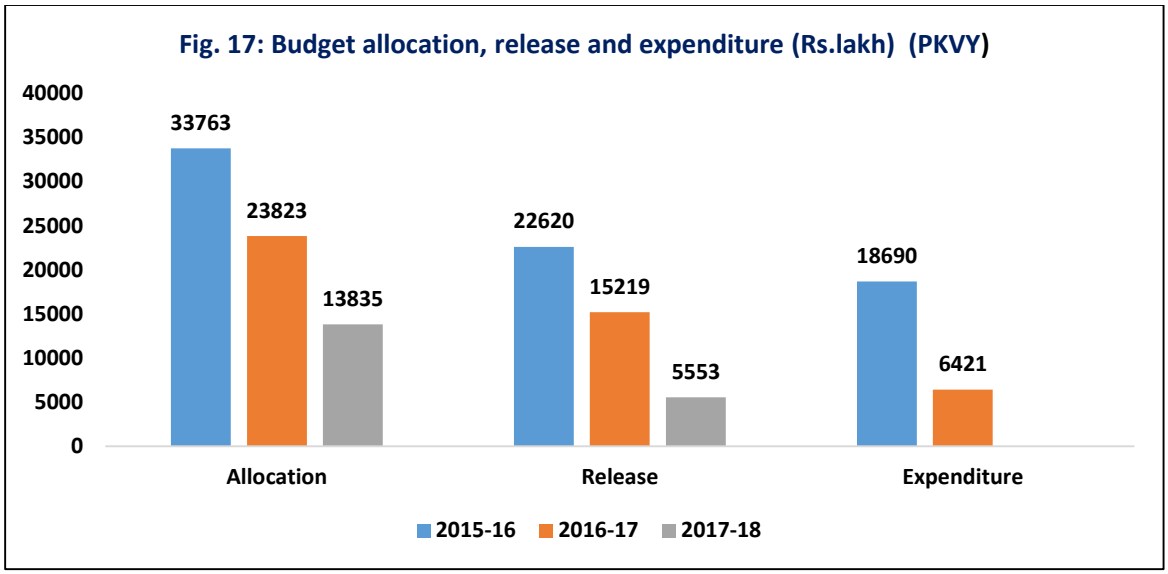
Under the scheme, the farmers will also be assisted how to market the organic products from their cluster farms. Branding and labelling of the organic products will be done which will prove the authenticity of the organic materials. Proper certification of the organic products will be done. Transportation assistance to the farmers will be given under this scheme.

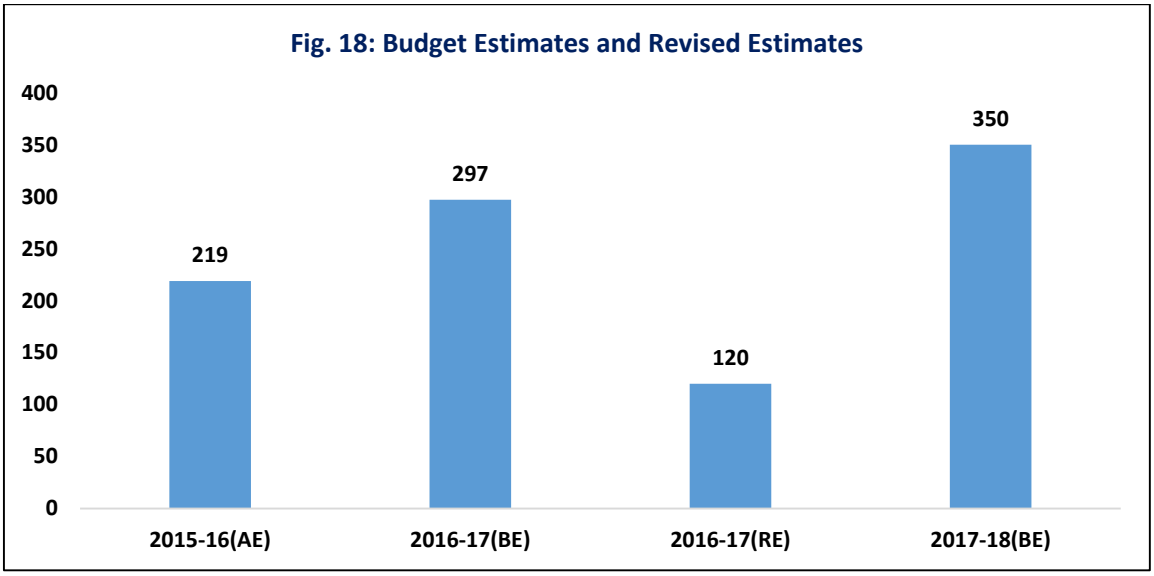
Budget allocation, release and expenditure

The funding pattern for PKVY is given in the table below. Centre share is 90% for union territories and North-East, but only 60% for the plains states.

States:	Central : State
All Plain states	60 :40
NE and Hill states	90:10
Union territories	90:10

Allocations to PKVY over the last three years were decreased. It is also to be noted that in most of the states and all-India also only 50 to 60% of the allocated funds were released. Out of the released amount about 60 to 70% is utilized by the states. It indicates that there was a need to reduce gap between allocation, release and expenditure across states. Among states Nagaland, Karnataka and Tamil Nadu are better in fund utilization.





Given that the 1st year expenses under PGS certification are Rs.7, 06,950 per each cluster, to cover expenses for 5859 clusters, the total expenses should be near about Rs.410 crore. Even though budget estimate for 2017-18 is in line with the requirements, 2016-17 (RE) are just Rs.120 crore, indicating under spending on the programme.

5.3 Budget Allocation of PKVY

Table: 18 Details of the State-wise fund allocated, Release and Expenditure under PKVY during 2015-16 to 2017-18

		2015-16 (Rs in lakh) 1 st year				2016-17 (Rs in lakh) 2nd year			2017-18 (Rs in lakh) 3rd year		
S. No	Name of the State	No of Cluster	Allocation	Release as % of allocation	Expenditure as % of release	Allocation	Release as % of allocation	Expenditure as % of release	Allocation	Release as % of allocation	Expenditure
1	Andhra Pradesh	433	1854	59	100	1309	61	100	760	0	0
2	Bihar	327	1400	75	0	988	67	0	574	0	0
3	Chhattisgarh	188	805	75	41	568	55	100	330	0	0
4	Gujarat	100	428	42	0	302	79	7	175	0	0
5	Goa	4	17	41	0	12	0	0	7	0	0
6	Haryana	20	86	63	0	60	77	0	35	0	0
7	Jharkhand	100	428	75	55	302	67	0	175	0	0
8	Karnataka	545	2334	83	100	1647	49	96	956	114	0
9	Kerala	119	510	75	93	360	0	0	209	0	0
10	Madhya Pradesh	880	3769	75	100	2659	67	29	1544	0	0
11	Maharashtra	932	3992	65	100	2816	105	0	1636	0	0
12	Odisha	320	1371	75	100	967	67	100	562	109	0
13	Punjab	50	214	75	100	151	0	0	88	0	0
14	Rajasthan	755	3234	73	88	2282	65	40	1325	0	0
15	Tamil Nadu	112	480	83	74	338	61	0	197	0	0
16	Telangana	300	1285	83	0	907	50	0	526	0	0
17	Uttar Pradesh	575	2463	83	98	1738	73	32	1009	0	0
18	West Bengal	120	514	42	100	363	109	69	211	0	0
19	Assam	220	1413	41	97	997	0	0	579	0	0
20	Arunachal Pradesh	19	122	42	100	86	94	100	50	190	0
21	Mizoram	34	218	41	100	154	90	0	90	0	0
22	Manipur	30	193	55	0	136	0	0	79	0	0
23	Nagaland	24	154	100	100	109	0	0	63	205	0
24	Sikkim	150	964	42	49	680	0	0	395	0	0
25	Tripura	50	321	42	100	227	136	100	132	125	0
26	Meghalaya	45	289	50	100	204	145	0	118	0	0
27	Himachal Pradesh	110	707	56	87	499	0	0	290	275	0
28	Jammu and Kashmir	28	180	42	100	127	69	31	74	0	0
29	Uttarakhand	550	3533	56	97	2493	81	81	1448	184	0
30	Andaman & Nicobar	68	485	27	0	342	0	0	199	0	0
31	Other admin. charges		0		0	0	0	0	0	0	0
	Total	7208	33763	67	83	23823	64	42	13835	40	0

Source : Compiled from different reports sent by states

Budget allocations was made based on the proposals made for number of clusters in concerned states. An amount of Rs.33763 lakhs were allocated for 29 states. Releases were invariably made to the (nearly 70- 85%) allocations in majority states. Nagaland has received 100 percent allocated budget to implement the project in 24 clusters. Surprisingly except Nagaland for all other north-eastern states only half of the allocated budget was released for 2015-16. Overall utilization was good. However, in some states (Bihar, Goa, Gujarat, Haryana, Telangana, Manipur, Andaman and Nicobar) utilization was zero despite having its entitlements of funds under the scheme.

During the year 2016-17, in some states like Goa, Kerala, Punjab, Assam, Manipur, Nagaland and Sikkim were no releases were made and utilization in 2016-17 seems very poor in majority of the states compared to 2015-16. However, states like Bihar, goa, Haryana, Telangana and Manipur irrespective of allocations and releases the expenditure is nil in both the years. Contrary to this states like Andhra Pradesh, Chhattisgarh, Odisha, Arunachal Pradesh, Tripura has utilized 100 percent of allocated funds. The interaction with some of the officials say that the delay is one of the reasons for underutilization of funds. Both years together Tripura, Odisha, Karnataka utilized the amount reasonably and rest of the states were not even utilizing 50% of released funds. Similarly, for 2018-19, total amount of 13834.6 lakhs were allotted for the year and 5553.1 Lakhs across 6 states were released till date.

Total of Rs. 71420.65 lakhs were allocated for the 3 years period. Maharashtra being the first with highest budget allocation of Rs.8443 lakhs for 932 clusters and followed by Madhya Pradesh Rs.7972 lakhs for implementing in 880 clusters followed by Uttarakhand and Rajasthan.

5.4 Budget allocation for across components within PKVY scheme:

Table 19: Budget allocations for different Components of PKVY clusters

(Rs. in Lakhs)

S.No	Components	Total Financial Assistance per cluster in 3 years	1st Year	2nd Year	3rd Year
1.	Mobilization of farmers/Local People to form cluster.	Rs. 0.80	0.80	0.0	0.0
2.	PGS-India Certification and Quality Control	Rs. 2.64	0.37	1.15	1.12
3.	Adoption of Organic Villages: Organic seeds, Organic inputs, Biological nitrogen, etc.	Rs. 4.5	2.50	1.0	1.0
4.	Integrated Manure Management	Rs. 3.75	3.25	0.50	0.0
5.	Custom Hiring Centre Charges	Rs. 0.45	0.15	0.15	0.15
6.	Labeling, Branding and Transportation	Rs. 2.81	0.0	2.19	0.62
Total		Rs. 14.95	7.07	4.99	2.89

The above table shows three years budget across components and major allotments were made for promotion of input manufacturing units, organic certification and labelling of products.

5.4 Budget details under other organic related schemes:

Similarly allocations and investments were made towards organic farming through other schemes like RKVY, NMSA and Horticulture schemes are presented in tables 20.

Table 20: State-wise Funds Released for Promotion of Organic Farming under Rashtriya Krishi Rashtriya Krishi Vikas Yojana (RKVY) in crores

State	2011-12	2012-13	2013-14	2014-15	Total 2012-15
Gujarat	108.2	11.6	22.6		142.3
Uttar Pradesh	16.6	28.2	95		139.8
Bihar	101.1				101.1
Karnataka	33	21	14.4	12.5	80.9
Uttarakhand	13.3	9.4	19.4	13.9	56.1
Assam	9	11.6	11.7	11	43.3
Andhra Pradesh		15	16	9.5	40.5
Himachal Pradesh	10.1	10.5	7.5	8	36.1
Madhya Pradesh	4.4	5.7	3		13.1
Rajasthan	3.7	0.7		4.8	9.1
Maharashtra			4.9	3.1	8
Jammu and Kashmir	0.8	2.4	1.6	3	7.8
Manipur	2.8	0.8	0.3	3.7	7.5
Haryana	1.5	3.4	2		6.9
Tamil Nadu		6.6			6.6
Nagaland	1.5	3	0.6	1	6.1
West Bengal		6.1			6.1
Jharkhand	1.6	4			5.6
Telangana				5	5
Kerala	1.2	1.4		1.4	4.1
Sikkim	2.5	1.2			3.7
Arunachal Pradesh		3			3
Chhattisgarh			1.3		1.3
Goa	0.2				0.2
Mizoram			0.1		0.1
Meghalaya					0
Odisha					0
Punjab					0
Tripura					0
India	311.3	145.6	200.5	76.8	734.2

Table 21: National Mission for Sustainable Agriculture

States/UTs	NMSA (CISS)* (Rs. in Lakh)			
	2011-12	2012-13	2013-14	2014-15
Andaman and Nicobar Islands				
Andhra Pradesh	20	20	14	
Telangana				
Arunachal Pradesh				
Assam	22	1	35	
Bihar	5			
Chhattisgarh				
Goa				
Gujarat		2	40	37
Haryana				
Himachal Pradesh				12
Jammu and Kashmir				77
Jharkhand				
Karnataka			124	
Kerala	7			
Madhya Pradesh	0	2		
Maharashtra	43	23	11	
Manipur				
Meghalaya				
Mizoram				
Nagaland				
Odisha				
Punjab	14		19	105
Rajasthan	21			471
Sikkim				
Tamil Nadu			98	
Tripura	20			
Uttar Pradesh	3			
Uttarakhand				
West Bengal				79
India	156	48	341	780

Table 22: Mission for Integrated Development of Horticulture

States/UTs	MIDH (NHM and HMNEH) (Rs. in Lakh)			
	2011-12	2012-13	2013-14	2014-15
Andaman and Nicobar Islands				5
Andhra Pradesh	417	13	47	
Telangana				6
Arunachal Pradesh	123	170	132	50
Assam	36	74	200	80
Bihar	6	85	43	
Chhattisgarh	1463	150	128	
Goa	3	3	5	
Gujarat	64	28	21	
Haryana	37	31	45	
Himachal Pradesh	398	79	157	42
Jammu and Kashmir	117	145	0	138
Jharkhand	64	228	158	
Karnataka	237	544	459	
Kerala	217	89	51	
Madhya Pradesh		29	132	
Maharashtra				
Manipur	110	260	70	33
Meghalaya	0	0	52	13
Mizoram	17	20	30	
Nagaland	123	102	90	36
Odisha	77	425	760	
Punjab	67	23	28	
Rajasthan	49	102	98	
Sikkim	493	266	166	50
Tamil Nadu	21	30	133	
Tripura	79	52	73	67
Uttar Pradesh	73	39	23	
Uttarakhand	54	40	55	
West Bengal		98		
India	4343	3123	3153	520

Abbr.: NMSA: National Mission for Sustainable Agriculture.
MIDH: Mission for Integrated Development of Horticulture.
RKVY: Rashtriya Krishi Vikas Yojana.

Note: *: Capital Investment Subsidy Scheme (CISS) through NABARD.

**: Cost of project approved by state Level Sanctioning Committee (SLSC).

#: Punjab & Haryana MIDH includes (NHM & HMNEH).

Source: Lok Sabha Unstarred Question No. 72, dated on 21.07.2015.

Chapter-VI

Impact of PKVY Scheme

Primary survey was conducted by selecting a representative sample of clusters from fifteen states. The results were presented in this section. As mentioned in methodology few states were selected among PKVY implementing states and data was collected at state, district and cluster level.

Table 23: Details of Sampling

Zone	No. of State	No. of Districts	No. of Blocks	No. of Villages	No. clusters
Central	2	4	17	45	88
East	3	8	14	77	149
North	4	10	30	110	202
south	3	16	38	54	70
West	3	16	56	120	181
All	15	54	155	406	690

Since two years the project has been under implementation in all zones, sample data has been taken up from clusters of all zones (Bihar, Chhattisgarh, Goa, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan and Tamil Nadu). Along with this Mizoram and Sikkim has also chosen for survey in north eastern states (analysis report made separately for north eastern states). According to the samples drawn from different zones data in above table shows the implementation of PKVY is high in North zone with 202 clusters out of 690 clusters considered for study. Followed by West and East.

6.1 Farmers perceptions

Basic characteristics

Table 11 provides the details of the state zone wise area and farmers covered under PKVY schemes. The data shows that the average area under cluster in East and North zone followed by Central and West zone. Average number of farmers in each cluster were more than above 50 in all zones. Percentage of registered members was high in south zone and remaining zones also more than 80 per cent except in Central zone. With regard to small farmers bringing into the scheme south zone covered 89 per cent Gujarat has covered majority of small and marginal farmers within the scheme followed by Kerala. Whereas in Rajasthan central zone though the number of farmers registration is quite good, but the small farmers are were in negligible less number (12.628.7%).

Table 24: basic characteristics of clusters:

Zone	Average Area under the Cluster in acres	Average number of farmers the cluster	percentage of registered members	percentage of Small farmers
Central zone	67.3	57.5	77.1	28.7
East zone	78.3	53.7	86.7	52.1
North zone	75.0	57.1	82.7	49.4
South zone	51.0	55.5	92.7	89.1
West zone	63.0	51.0	86.3	53.6
All	**69.1**	**54.6**	84.7	52.3

The clusters were formed in two phases i.e.; 2015-16 and 2016-17. It is seen that the percentage of clusters was more in developed state (66%). Average area under each cluster was 69 acres. Average area under the cluster using bio fertilizer was 70 acre. Average number of farmers in each cluster was 55 and almost equal in case of developed and less developed states. Nearly 85 per cent of farmers were registered under PKVY scheme. About 50 per cent of small farmers were using bio fertilizers. Total number of registered members and coverage of small farmers are high in 2nd phase i.e 2016-17 compared to the first phase of the programme. This show that farmers are taking good advantage of the scheme and moving towards organic farming year by year. The average area and average number of farmers under cluster has also shown positive indication from first phase to second phase of the schemes. This shows that the farmers are showing interest towards organic farming with increasing in awareness, campaigns by ATMA, department of Agriculture and other different stakeholders implementing PKVY. Around 23 ATMAs were implementing PKVY in the different districts of Maharashtra.

Table 25: Basic characteristics of clusters by different categories

Criteria	Cluster Group	Percentage of clusters	Average Area under the Cluster in acres	Average number of farmers the cluster	percentage of registered members	percentage of Small farmers
Year of Establishment	Old	41	66	57	81	41
	New	59	71	53	87	61
Share of small farmers	Less	20	63	57	79	9
	Medium	41	77	56	83	48
	More	39	64	52	90	81
State category	Developed	66	66	54	86	57
	less developed	34	74	55	83	43
Number of farmers	less	28	59	44	96	72
	More	72	73	59	81	47
Bio-fertilizer	Not used	18	67	55	88	65
	Used	82	70	55	84	50
Regional Council	Govt.	66	65	54	85	51
	Non-Govt.	34	77	56	84	55
All		100	69	55	85	52

Procedures followed for certification

Data from above table depicts that except few, majority of the clusters have prepared the annual action plan and they even succeeded in execution of organic production in nearly 95 96 percent of clusters. With regard to appointment of technical staff and data entry operators' second new phase (2016-17) clusters are were achieved far progress than in first phase. In all clusters wherever production has started in 95 per cent, but only 83 per cent tried to bring under PGS certification process., and About 78 per cent clusters have made efforts were made to establish packaging and labelling facilities. Totally 83 percent clusters could achieve to bring the organic farms under PGS certification and about 80 percent of clusters could achieve in establishing marketing facilities. The responses regarding continuing of organic farming in the future by farmers from clusters shows encouraging results from second phase clusters i.e 97 whereas from first year data only about half of the clusters has showed positive impressions.

Table 26: Procedure under PKVY

% of clusters are saying yes										
Criteria	Cluster Group	annual action plan prepared	production under cluster started	PGS certified	Packaging and labelling facilities exist	Marketing facilities exists	Appointed consultant	Appointed data entry operator	Does the cluster has a certification process	Do you think more farmers will move towards organic methods
Year of Establishment	Old	94	94	85	76	81	74	74	13	49
	New	98	95	82	79	81	86	92	39	98
Share of small farmers	Less	99	99	90	84	84	82	76	9	14
	Medium	99	98	95	94	94	94	94	21	96
	More	92	89	68	58	66	66	80	47	90
State category	Developed	95	93	77	70	75	77	85	33	83
	less developed	100	100	95	94	92	89	85	21	68
Number of farmers	less	89	88	55	37	46	55	73	47	94
	More	99	98	94	94	94	90	89	21	71
Bio-fertilizer	Not used	94	90	87	80	84	83	85	79	87
	Used	97	96	83	78	80	80	85	17	75
Regional Council	Govt.	95	93	77	69	73	74	81	31	68
	Non-Govt	99	98	96	96	96	94	93	23	97
All		96	95	83	78	81	81	85	28	78

The data from the table shows that the number of clusters involved in production of the bio inputs were very few when compared to execution of the PKVY scheme in total number of clusters. Within this more clusters were into bio input production in the new phase clusters. The percentage of bio input production were high in case of farmers using bio fertilizers. Practices like use of organic seed, green manure and compost making were high in number when compared to other products. Whereas practices like drip irrigation is seen with very few clusters i. e 1.7 percent because of technology and financial components involved in it.

Table 27: Pattern of production of inputs by cluster categories (in %)

Criteria	Cluster Group	1	2	3	4	5	6	7	8	9	10	11	12
Year of Establishment	Old	13.7	16.2	19.7	7.0	4.9	15.5	2.1	8.5	13.7	9.9	2.8	4.9
	New	13.8	14.8	19.5	13.3	10.1	9.6	6.4	13.1	15.0	8.4	1.0	5.7
Share of small farmers	Less	12.5	9.6	12.5	10.3	10.3	2.2	5.1	9.6	9.6	1.5	0.7	2.2
	Medium	3.2	4.9	4.9	3.2	2.5	3.5	1.4	2.8	2.5	3.2	0.7	1.4
	More	25.5	29.2	38.4	18.8	12.5	25.8	7.7	20.7	29.5	18.8	2.2	11.1
State category	Developed	18.1	21.0	27.4	14.1	11.5	16.1	6.6	15.2	20.5	12.1	2.2	7.7
	less developed	5.5	4.6	4.6	4.2	1.3	4.2	0.8	3.4	3.0	3.0	0.8	0.8
Number of farmers	less	42.6	47.4	61.1	33.7	26.3	37.4	16.3	36.8	46.8	28.9	5.3	17.9
	More	2.8	3.2	3.8	2.0	1.0	2.4	0.2	1.4	2.2	1.4	0.2	0.6
Bio-fertilizer	Not used	10.5	5.6	12.9	1.6	2.4	8.1	1.6	2.4	12.1	4.0	0.0	4.0
	Used	14.5	17.5	21.0	12.7	9.2	12.9	5.3	13.1	15.0	10.1	2.1	5.7
Regional Council	Govt.	19.8	22.0	28.4	15.4	11.2	17.1	6.2	15.6	20.7	12.3	2.7	7.9
	Non-Govt.	2.1	2.6	2.6	1.7	1.7	2.1	1.7	2.6	2.6	2.6	0.0	0.4
All		13.8	15.4	19.6	10.7	8.0	12.0	4.6	11.2	14.5	9.0	1.7	5.4

1= Organic seed, 2=Green manure, 3= Compost, 4= Bio fertilizer, 5= Fertilizers, 6= Bio pesticide, 7= Pesticides, 8= Panchamruth, 9= Panchagavya, 10= Beejamruth, 11= Drip Irrigation, 12= Neem oil or neem cake

The PKVY scheme is visioning to improve yields in sustainable way by integrating varied practices which will help in conversion to organic farming from intensive chemical farming which is in high demand in today's society. The data from the table ** shows the regular traditional practices like organic seed, green manure and compost making, were easily accepted by the farmers and adoption is higher since from old phase. However, the consumption of Fertilizers, Bio pesticide, Pesticides, Panchamruth, Panchagavya, Beejamruth, Drip Irrigation and Neem oil or neem cake were reduced significantly. About 99 per cent of organic seed, green manure and compost were used by clusters managed by non-governmental agencies, whereas around 93 per cent of it were used by clusters managed by government departments.

Table: 28 Pattern of use of inputs by different cluster categories (in %)

Criteria	Cluster Group	1	2	3	4	5	6	7	8	9	10	11	12
Year of Establishment	Old	93	95	98	92	65	32	10	11	15	11	9	16
	New	94	97	98	75	30	18	1	5	13	17	11	8
Share of small farmers	Less	99	99	99	95	57	31	7	4	7	10	9	3
	Medium	86	92	99	81	50	6	1	2	3	5	4	3
	More	98	99	95	76	32	40	6	16	28	27	17	24
State category	Developed	90	94	97	82	30	28	4	8	19	20	15	17
	less developed	99	99	99	83	71	17	5	6	5	3	1	1
Number of farmers	less	79	89	95	88	36	54	6	21	42	48	32	34
	More	99	99	99	80	47	13	4	3	3	1	2	3
Bio-fertilizer	Not used	86	84	99	0	1	7	0	2	9	3	4	8
	Used	95	99	99	99	54	28	5	9	15	17	11	12
Regional Council	Govt	90	95	97	82	43	35	5	10	19	20	14	15
	Non-Govt	99	99	99	83	47	3	3	3	3	3	3	3
All		93	96	98	82	44	24	4	8	14	14	10	11

1= Organic seed, 2=Green manure, 3= Compost, 4= Bio fertilizer, 5= Fertilizers, 6= Bio pesticide, 7= Pesticides, 8= Panchamruth, 9= Panchagavya, 10= Beejamruth, 11= Drip Irrigation, 12= Neem oil or neem cake

Table 29: Using of Technologies at Cluster Level (in %)

Criteria	Cluster Group	Organic input production unit	Biological nitrogen harvest planting (Gliricidia,sesbania)	Botanical extract production unit	Phosphate rich organic manure	Custom hiring center services	Walk in tunnel for horticultural crops	Cattle shed	Subsidy under Gokul Scheme
Year of Establishment	Old	93.3	92.3	60.2	18.3	6.0	2.8	7.0	0.4
	New	96.6	92.9	68.0	18.0	5.4	0.2	6.7	0.2
Share of small farmers	Less	99.3	99.9	44.1	10.3	1.5	0.0	0.0	0.0
	Medium	96.1	92.6	72.8	6.4	1.4	0.0	16.6	0.0
	More	92.3	88.9	66.8	34.3	12.2	3.3	0.7	0.7
State category	Developed	94.5	91.6	66.0	25.1	6.6	2.0	10.4	0.4
	less developed	96.6	94.5	62.4	4.6	3.8	0.0	0.0	0.0
Number of farmers	less	89.5	85.3	74.7	50.5	15.8	3.2	20.5	1.1
	More	97.4	95.4	61.0	5.8	1.8	0.6	1.6	0.0
Bio-fertilizer	Not used	91.1	87.9	12.9	11.3	5.6	1.6	7.3	1.6
	Used	96.1	93.6	76.1	19.6	5.7	1.2	6.7	0.0
Regional Council	Govt	94.9	91.9	59.8	26.8	8.1	1.8	8.8	0.4
	Non-Govt	95.7	94.0	74.5	1.3	0.9	0.4	3.0	0.0
All		95.2	92.6	64.8	18.1	5.7	1.3	6.8	0.3

Data from table 16 shows that cluster level technologies were introduced and execution of the activities were showing good results in majority of the clusters. Among all interventions like organic input production unit, biological nitrogen harvesting planting implementation is shown above 90 per cent at cluster level. About 18 per cent of the clusters were using Phosphate rich organic manure. Negligible number of clusters were seen in adopting technologies like custom hiring centres, walk in tunnel for horticulture crops, cattle shed and utilizing subsidy under Gokul scheme. There is much attention needed to promote them.

Table 30: % of clusters benefited from using Cluster Level Technologies (response from lead resource person)

Criteria	Cluster Group	Organic input production unit	Biological nitrogen harvest planting (Gliricidia, sesbania)	Botanical extract production unit	Phosphate rich organic manure	Custom hiring center services	Walk in tunnel for horticultural crops	Cattle shed	Subsidy under GokulScheme
Year of Establishment	Old	86.6	83.1	52.5	14.1	2.5	0.4	3.9	0.0
	New	94.8	90.4	65.3	17.2	5.2	0.0	5.4	0.0
Share of small farmers	Less	98.5	98.5	43.4	10.3	1.5	0.0	0.0	0.0
	Medium	93.3	88.7	67.1	6.4	1.1	0.0	0.7	0.0
	More	86.0	80.4	60.9	28.8	8.5	0.4	11.4	0.0
State category	Developed	90.1	85.7	60.3	21.6	4.4	0.2	7.3	0.0
	less developed	94.1	90.7	59.5	5.1	3.4	0.0	0.0	0.0
Number of farmers	less	82.6	74.7	67.9	46.3	12.6	0.0	14.7	0.0
	More	94.8	92.2	57.0	4.4	0.8	0.2	1.0	0.0
Bio-fertilizer	Not used	84.7	80.6	6.5	5.6	0.8	0.0	2.4	0.0
	Used	92.9	88.9	71.7	18.2	4.8	0.2	5.3	0.0
Regional Council	Govt	90.5	85.9	54.5	23.5	5.9	0.2	5.9	0.0
	Non-Govt	93.2	90.2	70.6	1.3	0.4	0.0	2.6	0.0
All		91.4	87.4	60.0	15.9	4.1	0.1	4.8	0.0

From the table 30cluster level survey shows that the farmers have shown interest/acceptance for all most all technologies because of their role in replacing chemical inputs. Among mentioned technologies farmers have benefited more from organic input production unit and biological nitrogen planting followed by botanical extract production unit. Benefits from custom hiring centres, walk in tunnel for horticulture crops, and cattle shed and utilizing subsidy under Gokul scheme were found less by the clusters.

Table 31: Mobilization of farmers

Criteria	Cluster Group	Average number of farmers in the cluster	Average number of Farmers Mobilized	Average Number of days Mobilization camp	Usefulness (Rank: scaling 1 to5)*
Year of Establishment	Old	57	36	5	4.09
	New	53	35	8	4.15
Share of small farmers	Less	57	36	4	4.10
	Medium	52	35	6	4.11
	More	56	36	8	4.15
State category	Developed	54	36	6	4.12
	less developed	55	35	7	4.14
Number of farmers	less	44	36	6	4.08
	More	59	36	7	4.14
Bio-fertilizer	Not used	55	29	5	3.95
	Used	55	37	7	4.16
Regional Council	Govt	54	36	6	4.08
	Non-Govt	56	36	8	4.21
All		55	36	7	4.13
Note: 5 is best; 1 is least					

Data from above table shows that the average number of mobilization of farmers is high in old year of establishment as the farmers showed much interest in organic farming in the first year. The study shows that the ranking given for usefulness of mobilization is impressive. There is still potential for getting more farmers into the scheme by mobilization process by using different mobilization techniques.

Table 32: Meeting conducted

Criteria	Cluster Group	Average number of Meetings Conducted	Average Number of members attended	Average Number of hours of Meetings Conducted	Usefulness(Rank: scaling 1 to5)
Year of Establishment	Old	6	43	5	4.12
	New	7	42	7	3.94
Share of small farmers	Less	6	46	4	4.06
	Medium	6	43	6	3.96
	More	8	41	8	4.04
State category	Developed	6	43	7	4.06
	less developed	8	42	6	3.94
Number of farmers	less	8	40	7	4.14
	More	7	44	6	3.97
Bio-fertilizer	Not used	4	43	5	3.31
	Used	7	43	7	4.16
Regional Council	Govt	6	43	6	4.03
	Non-Govt	8	43	8	3.99
All		7	43	6	4.01

As per the scheme guidelines meetings should be conducted for the cluster groups. Table above shows that the average number of farmers were 50 in a cluster group. The average number of meetings conducted and average numbers of members attended were more merely same in old and new phase. Capacity building trainings are on of different topics like technology dissemination, Certification procedure, Soil health benefits, Input preparation, and Record maintenance. Based on the sample data shows that there is active participation of farmers in the meetings conducted and also the farmers say that meetings are very useful and they ranked the indicator as 4 out of 5.

Table 33: Exposure visits

Criteria	Cluster Group	Average number of Exposure Visits	Average Number of days Exposure Visits Conducted	Usefulness(Rank: scaling 1 to5)
Year of Establishment	Old	5	4	4.24
	New	7	6	4.34
Share of small farmers	Less	5	4	4.10
	Medium	5	4	4.31
	More	7	6	4.39
State category	Developed	5	5	4.26
	less developed	7	5	4.37
Number of farmers	less	4	3	4.46
	More	7	6	4.25
Bio-fertilizer	Not used	7	4	4.10
	Used	6	5	4.34
Regional Council	Govt	5	4	4.28
	Non-Govt	8	7	4.34
All		6	5	4.30

As a part of capacity building, exposure visit were conducted to beneficiaries to make them convenience about practices by interacting with fellow farmers. "Seeing is believing" so farmers responded saying that the exposure visits were of much benefit to them. In the above table, the study on exposure visits show that farmers are being educated on Market linkages and labelling branding, best practices, Profitability etc. The data shows the average exposure visits conducted were 6and the average number of days was 5 with participation of average of 55 farmers in each visit.

Table 34: Trainings conducted

Criteria	Cluster Group	Average number of Trainings Conducted	Average Number of days Trainings Conducted	Usefulness(Rank: scaling 1 to5)
Year of Establishment	Old	6	5	4.14
	New	7	6	4.16
Share of small farmers	Less	6	4	4.15
	Medium	6	5	4.21
	More	8	7	4.09
State category	Developed	6	5	4.20
	less developed	8	6	4.06
Number of farmers	less	6	5	4.36
	More	7	6	4.07
Bio-fertilizer	Not used	6	4	4.03
	Used	7	6	4.17
Regional Council	Govt	6	5	4.18
	Non-Govt	9	7	4.10
All		7	6	4.15

Table above shows there were quite good number of trainings conducted in both phases and same in case of clusters using bio fertilizers and non-using bio fertilizers. During the trainings, the Lead Resource Persons (LRPs) of the cluster group will be trained by the agricultural officer and the farmers being trained on different topics like organic practices, certification, best practices etc. The response from the farmers shows that the trainings were useful for them to practice organic practices. Usefulness of the training was ranked 4 out of 5 points. This is the foremost component in PKVY scheme. Implementing Agency had to organise three trainings separately for members of clusters within early 6 months of project. However according to this study average number of training conducted is 7 and the average number of days for training conducted is 6 with an average number of farmers of 55 attending each training.

Table 35: Peer inspections conducted and usefulness

Criteria	Cluster Group	Average of Peer Inspection Number	Number of clusters full certification	Number of clusters conversion certification	Number of rejections	Average of Peer Inspection Usefulness(Rank 1 to 5)
Year of Establishment	Old	6	6	20	5	3.80
	New	10	5	61	2	3.83
Share of small farmers	Less	13	2	14	0	3.92
	Medium	8	2	56	6	3.71
	More	9	7	11	1	4.14
State category	Developed	9	10	72	6	3.84
	less developed	3	1	9	1	3.50
Number of farmers	less	9	9	77	6	3.95
	More	4	2	4	1	3.00
Bio-fertilizer	Not used	8	1	3	0	2.50
	Used	9	10	78	7	3.88
Regional Council	Govt	8	10	78	6	3.72
	Non-Govt	19	1	3	1	5.00
All		8.6	11	81	7	3.82

Based on the study data shows that farmers are under process of organic certification as part of PKVY scheme. To get the products certified as "Organic" it takes minimum of three years period if all the quality aspects were as per standard. The data shows that maximum numbers of beneficiaries, covering under certification process and average of 54.6 percent of farmers, registered under organic certification and together 70 clusters achieved completely organic certification and 81 more clusters are under conversion period.

Research findings of All India Network Project on Organic Farming (NePOF) are very encouraging pointers towards the performance of organic farming and its potentials in future. NePOF after 8 cycles of research work found that in crops like Basmati rice, Non-Basmati Rice, Maize , Sorghum, Green gram, Chickpea, Soybeans, Groundnut, Peas, Okra Chilli, Onion, Garlic, Cauliflower, Cabbage, Tomato, Ginger and Turmeric(covering cereals, pulses, oilseeds, vegetables and spices) average yield of organic crops is higher by 100 to 146 kilos per hectare across crops over the conventional crops. Further net returns under organic production systems were 17% higher compared to conventional

cultivation system. Soil Organic Carbon increased by 22% over a period of 6 years. (IIFSR presentation at NASC complex, Delhi, on July 30th 2015).

Impact of PKVY on yields, costs and returns to farmers

Table 36 show that the average cost per ha in wheat was lower in organic agriculture 11.3%, while gross returns decreased by 5.6%. The combined net effect of higher reduction in costs with slightly reduced gross returns was an increase in net return by 15.8%. The yields of organic agriculture was less than conventional by 5.6%. The use of green manure increased by 50%(in line with Ramesh et al, 2010; 4. Tuomistoa, et al., 2012).

Table 36: Impact of PKVY for crops – Wheat (per ha)

Criteria	Cluster Group	cost of cultivation	Gross return	Net Return	Yield (qtl)	Manure (qtl)	Manure (Rs)
Year of Estabt.	Old	40712	59958	19246	35	7	441
	New	42820	58018	15198	33	5	315
Share of small farmers	Less	43271	55690	12419	32	7	441
	Medium	42080	62132	20052	37	4	252
	More	46408	72783	26375	45	5	315
State category	Developed	46728	57936	11208	35	10	630
	less developed	40598	57705	17107	33	4	252
Number of farmers	less	44458	55690	11232	32	7	441
	More	44855	62067	17212	36	4	252
Bio-fertilizer	Not used	41870	56646	14776	31	8	504
	Used	45187	60871	15684	33	5	315
Regional Council	ATMA	47600	70834	23234	45	7	441
	Non-ATMA Govt	43754	54715	10961	30	7	441
	Non-Govt	44451	57615	13164	32	5	315
All organic		42752	57800	15048	34	6	378
Conventional		48202	61200	12998	36	4	253
Change in organic compared to conventional		-11.3	-5.6	15.8	-5.6	50.0	49.4

*only cash expenses were included

Table 37: Impact of PKVY for crops – Paddy (per ha)

Criteria	Cluster Group	cost of cultivation	Gross return	Net Return	Yield (qtl)	Manure (qtl)	Manure (Rs)
Year of Estabt	Old	60583	79012	18429	42	20	1421
	New	45241	57542	12302	35	9	712
Share of small farmers	Less	52836	62814	9978	36	16	1184
	Medium	50598	77332	26734	44	11	814
	More	61281	91234	29954	55	13	776
State category	Developed	62823	83508	20685	46	17	1265
	less developed	46296	56500	10204	35	9	792
Number of farmers	less	49445	62814	13369	36	16	1181
	More	53370	78799	25429	55	13	830
Bio-fertilizer	Not used	43226	56412	13186	32	12	813
	Used	50423	68444	18021	41	18	1109
Regional Council	ATMA	61281	88261	26980	47	13	778
	Non-ATMA Govt	52839	69369	16530	35	15	1237
	Non-Govt	51734	77332	25598	42	11	716
All organic		51598	66183	14584	38	15	1091
Convention		60742	71408	10665	41	12	876
Change in organic compared to conventional		-15.1	-7.3	36.7	-7.3	25.0	24.6

Table 37 presented cost of cultivation per ha for paddy for the year 2016-17. It shows that the average cost per ha in paddy was lower in organic agriculture by 15.1%, while gross returns decreased by 7.3%. The combined net effect of higher reduction in costs with slightly reduced gross returns was an increase in net return by 36.7%. The yields of organic agriculture was less than conventional by 7.3%. The use of green manure increased by 25%.

Table 38: Impact of PKVY for crops – Soybean

Criteria	Cluster Group	cost of cultivation	Gross return	Net Return	Yield (qtl)	Manure (qtl)	Manure (Rs)
Year of Estabt.	**Old**	34028	41371	7343	13	9	1021
	New	25041	29389	4348	9	5	754
Share of small farmers	**Less**	32753	38081	5328	13	7	972
	Medium	25155	30520	5365	10	4	634
	More	21506	23071	1566	8	5	826
State category	**Developed**	35207	44414	9207	15	5	951
	less developed	23968	25838	1870	8	6	709
Number of farmers	**less**	32753	38081	5328	13	7	971
	More	21501	23071	1570	8	5	722
Bio-fertilizer	**Not used**	25869	31302	5433	10	6	745
	Used	32105	40136	8031	12	8	963
Regional Council	**ATMA**	31700	37557	5857	11	7	953
	Non-ATMA Govt	26310	30520	4210	10	5	641
	Non-Govt	23648	26894	3247	8	6	818
All		27468	34376	6908	11	6	821
		33183	37771	4588	12	5	937
		-17.2	**-9.0**	**50.6**	**-9.1**	**9.5**	**-12.4**

Table 38 presented cost of cultivation per ha for soybean for the year 2016-17. It shows that the average cost per ha in paddy was lower in organic agriculture by 17.2%, while gross returns decreased by 9%. The combined net effect of higher reduction in costs with slightly reduced gross returns was an increase in net return by 50.6%. The yields of organic agriculture was less than conventional by 9.1%. The use of green manure increased by 9.5%.

Table 39: Areas Needing Government Support (N = 282)

Areas	Percentage (%)
First rank	
Supply production inputs (i.e., green manure)	60.1
Market identification / creation	34.3
Managerial / technical knowledge	30.6
Certify organic agriculture standard	22.3
Second rank	
Market identification / creation	41.1
Managerial / technical knowledge	46.9
Certify organic agriculture standard	40.9
Third rank	
Market identification / creation	80.4
Managerial / technical knowledge	37.4

N = sample size
Source = 2006 field survey result

Farmer's perception about organic agriculture

Fig. 19: Motivation for adoption of organic agriculture

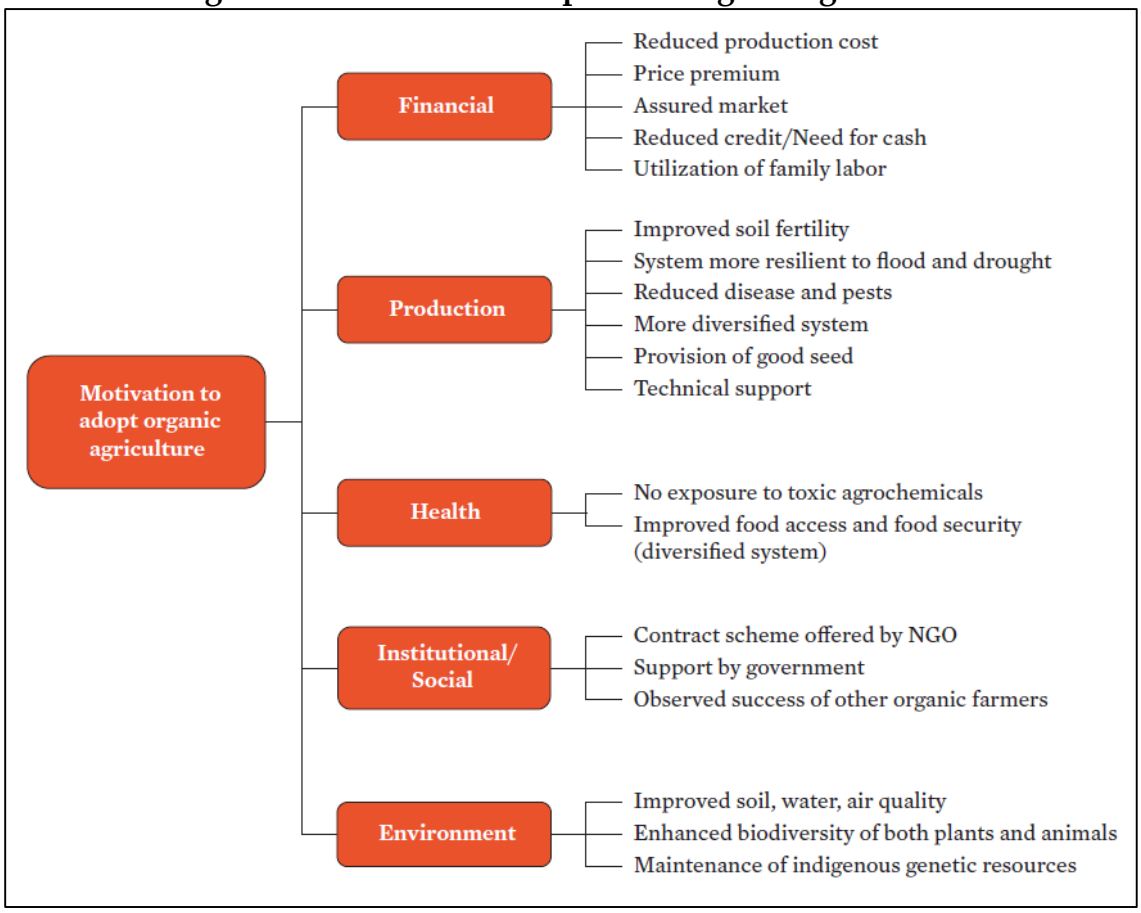


Table 40: Perceptions of the farmers

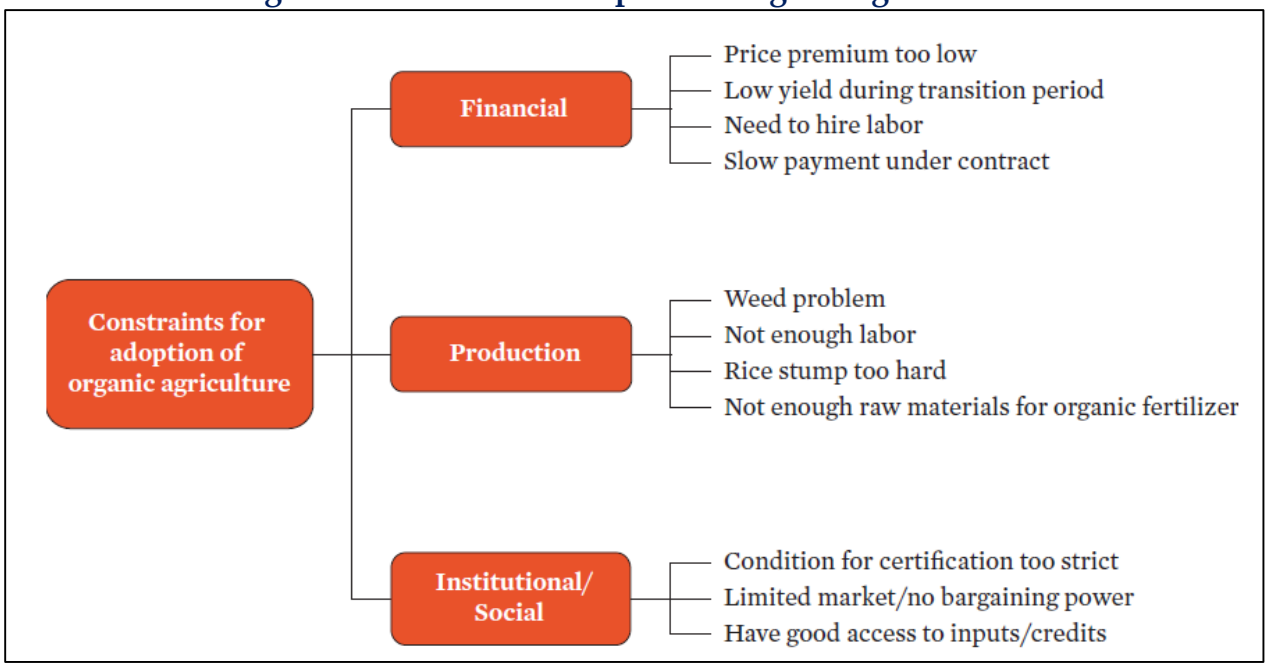
	% of respondents
Reasons for adoption of organic agriculture	
Want to reduce costs	43
Promotion by private/NGOs	12
Promotion by agricultural officers	32
Health/food safety reasons	46
Price premium	24
Availability of family labour	21
Problems in converting to organic agriculture	
Low yield during transition period	18
Highest pests and disease	21
Higher weeds	14
Lack of certification (no premium price)	57
Lack of family labour	28
Lack of availability of organic inputs	30
Areas needing government support	
Knowledge dissemination	27
Supply of organic inputs at subsidized rates	85
Market identification/creation	74
Managerial/technical knowledge	46
Certification	71
Reasons for expanding organic area	
Higher price	32
Improve soil fertility	56
Less cost	56
More yield	11
Home consumption	35
Reasons for not expanding organic area	
Not enough labour	32
No subsidy	56
Limited land	47
Low yield	25
No premium price	47
Disease and pests attack	45

Farmer's opinion

The following tables explains farmer's perception about organic agriculture. The results are based on the focus group interaction with a few organic agricultural clusters.

- ✓ Reasons for adoption of organic agriculture: majority (46%) of the farmers mentioned that they adopted organic agriculture to reduce costs and to get health benefits (43%) and about 32% mentioned that because of promotion by agricultural officers.
- ✓ Problems in converting to organic farming: majority mentioned that due to lack of certification (no premium price) (57%) they are not converting to organic farming.
- ✓ Area needing government support: Majority of farmers mentioned that government should support in "Supply of organic inputs at subsidised rates (85%), followed by market identification/creation (74%) and certification (71%).
- ✓ Reasons for expanding organic area: Major reasons are less cost (56%), improving soil fertility (56%).
- ✓ Reasons for not expanding organic area: No subsidy (56%), no premium price (47%) and limited area (47%).

Fig. 20. Constraints in adoption of organic agriculture



6.2 Barriers to the Growth of Organic Farming

While the potential for growth of organic farming is very high in India, but there are various constraints and barriers which need to be addressed. The study team conducted stakeholder focus group discussions and came up with the following barriers for wider adoption of the organic farming by the farmers.

1. **Marketing Support and Facilities:** at present for organic products there is no organised and integrated supply chain. Even if organic farming taking place, organic farmers have to sell their high-quality produce in the conventional markets. The issues related to marketing support to organic produce was not addressed until recently that

there was clear understanding that unless marketing constraints are removed, merely supporting organic production will not help this sector to grow. Organic produce required separate supply chain facilities which include distinct godowns, outlets, processing facilities etc. There is still a long way to create integrated markets for organic produce.

2. **Certification Processes:** It is noted that in past; the expensive and cumbersome nature of certification process affected the market opportunities for organic farmers. The process is not only cumbersome but also expensive addition to support only consumers' need. However today, through PKVY, PGS is available free of cost. Many states have mandated their seed certification agencies to take up organic certification and also to promote certification, group certification is being partially or fully subsidized. Unless these changes are for better, spread of organic farming would be affected.

3. **Subsidized supply of Chemical Inputs:** presently chemical inputs are highly subsidised whereas the organic farmers don't depend on such subsidized inputs so they hardly get any support. This has been a major constraint in growth of organic farming in India. It is very difficult to phase out chemical inputs as it requires political will and also strategic planning. As in the case of Sikkim, the regulation on supply of inputs was majorly responsible which made Sikkim fully organic state.
4. **Regulation of Chemical Inputs:** according to some reports it was noted that there are serious loopholes in the regulation of chemical inputs like pesticides. On one hand government want to promote organic farming but on the other hand taking no efforts in reducing aggressive marketing of chemical inputs, even there is no equivalent marketing for organic produce. This unequal treatment is a barrier in adoption of organic and agro-ecology farming. Strict regulation of chemical inputs is missing.

5. **Labour Intensive:** organic farming includes careful design and planting which is labour-intensive. Inputs like bio-fertilisers and botanical pest repellents require input production and processing activities to be taken up farm household level. While it is considered, as the strength of organic farming but it has been listed as constraint here.

6. **Lack of Institutional support:** Currently organic farming is promoted in the same environment as chemical farming in the current agricultural institutional frameworks. For instance, the main organic farming promotion apparatus in the Government of India is located under a joint secretary in charge of Integrated Nutrient Management

(INM), whereas organic farming is a lot more and cannot be equated with INM. Current institutional approaches are dichotomized with no committed push for organic farming. Organic farming should be promoted through farmer producer organisations for better sustainability of the initiative.

7. **Less financial allocation and incentives:** under RKVY, less than 2% of the project was for organic farming so far. This gives the clear picture of investment for organic farming. There has been very little investment on establishing or strengthening organic farming on a large scale. Even there is no major investment can be seen in state government budget for organic farming promotion. A meagre financial outlay for organic farming becomes the barrier for growth of organic farming.

8. **"Mind-set":** one of the biggest constraints is what could be termed as an "established mind-set". For several decades now we have seen the agricultural development machinery or institutions such as agriculture education or extension or research has been oriented toward only the chemical agriculture pattern. For example, all seed breeding happens only around chemical-response conditions. Even in Agricultural Education System, there is very less or hardly any curriculum related to agro-ecology. That means students who pass out have been trained accordingly which they end up doing further research on same pattern. There was no or hardly any significant work in any of these domains on organic farming so it needs to be re-oriented. Most of the people confuse organic farming with "traditional farming" or "do-nothing farming" but organic farming is about intensified agro-ecological processes with traditional knowledge and practices enforced by modern scientific understanding. Establishing and expansion of organic farming requires equivalent efforts from state as lent to the green revolution decades ago. Organic farming deserves similar support now.

9. **Gaps in Extension:** As according to several micro-studies point out in organic farming it is input dealer and not government who provide extension support or act as extension agent who again are not best suited for this, for obvious reasons. The public-sector extension has weakened over the years and private input industries has mostly taken over the extension system which becomes a big constraint in spread of agro-ecological knowledge. It needs to be addressed that public extension system should be strengthened to reach the last farmer as well as re-orientation and capacity building related organic farming. Experiences from Community Managed Sustainable Agriculture (CMSA) program in Andhra Pradesh and Mahila Krishi

Sasashktikaran Pariyojana (MKSP) have shown that using experienced farmers as resource persons to provide the last mile extension services.

10. **Availability of Suitable Seeds:** as it is known that agro-diversity is a very important component of organic farming. There are several factors related to seeds which are constraint on the growth of organic farming. First, agro-diversity depends on physical availability of seeds of a diverse set of crop and varieties within crop. Second, the entire seed breeding programmes in India whether it is public or private sector is in chemical growing conditions and also mostly in irrigated conditions which are not suitable for organic growing conditions. Third, the lack of supply of seed which are not chemically treated in the commercial seed market. Unless special efforts are made up to revive agro-diversity including by setting up community level seed banks, seed breeding by participatory varietal selection, change regulations related to chemical seed treatment procedure and standards, the spread of organic farming will be affected adversely.

11. **Knowledge Intensive Process:** Chemical agriculture paradigm is physical-input-centric, organic farming is driven by knowledge. Organic farmers need to understand the science of their farm ecology and agriculture which again is major constraint in growth of organic farming. The government machinery hardly provides process-centric delivery such as training, organising of farmer field schools etc.
12. **Agriculture Research Establishment:** as we know in ICAR, All-India Network Project on organic farming running for several years now, it is noted that except some institutions and universities, the agriculture research establishment in India is yet to catch up with the many innovations and practices adopted in organic farming. Special incentives be instituted to draw skilled researchers into this fields. But constraints like lack of land to lab approach, dissemination of package of practices is not happening in the extension set up.

13. **Co-existence with GMOs:** Organic Farming prohibits the use of Genetically Modified Organisms as seeds or in other inputs. In countries like India with its small landholding and under-developed infrastructure it is clear that both these approaches cannot co-exist. Unless the government evolves a clear policy to stop the release of GMOs it will continue to be the barrier for spread of organic farming.

14. **Affordability and consumer confidence:** organic farmers do enjoy premium prices compared to conventional farmers but due to its high cost in the market, it is out of

the reach of most ordinary consumers. The lack of well-organised supply chain, other unique cost related to certification, segregation, traceability systems etc. are something that indeed adds to the cost of organic products. Until and unless supply chain constraint, scale and volume, easing of certification processes and establishing of fair trade value in the mind of consumer are not addressed, it will continue to be the barrier for growth of organic farming in India.

Chapter -VII

Summary & Conclusion

Indian agricultural sector is in distress with reducing profitability due to rising cost of inputs and stagnant output prices. These twin problems of agricultural can be effectively tackled by the wider adoption of organic agriculture (Seufert et al., 2012). Given this, Indian government is encouraging organic agriculture under centrally sponsored scheme of Paramparagath Krishi Vikas Yojana (PKKVY). There are about two million farmers across the globe who practice certified organic farming methods and roughly 80 per cent of these farms are in India (IFOAM, 2013). It wouldn't be wrong to assume that our country is at the centre of an organic revolution that is set to take the world by storm. Organic farming has become increasingly important in India given the rising costs and increased losses due to climate change and aberrations in rainfall and extreme climatic events like floods and droughts. Consumers are also able to and willing to purchase organic agricultural products at higher premium prices as they are free from chemical fertilizers and pesticides. There is also uncertainty of benefits and costs of using GMOs (genetically modified) crops on a wider scale. This resulted in a larger scope for increased demand for organic agriculture. Apart from this, there has been a significant rise in the demand for organic food across the world due to increased consciousness related to health problems arising with the chemical pesticides and fertilizers contaminated food. Keeping these in focus, there is higher thrust on PKVY to promote organic agriculture. It is basically a scheme of supporting organic farming via cluster approach with Participatory Guarantee System (PGS).

Terms of Reference of the study:

This nationwide impact study of PKVY entrusted to MANAGE by the Ministry of Agriculture and Farmers Welfare with the following objectives.

- To examine the design of PKVY and MOVCDNER scheme in terms of planning, stakeholder capacity, implementation challenges, input procurement and distribution activities (clusters formed, trainings, labs established, inspection of clusters and certification, input supplied) and output (area under organic expanded, organic production and market linkages)
- To assess the modalities of delivery of the scheme in terms of clusters selection, farmers training, cluster formation, inspection of field, certification, input supply,

value chain development, producer companies, market infrastructure and market support linkage like organic commodity boards.

- To assess the level of utilization of outcomes of PKVY and MOVCDNER by the farmers across farm size classes, irrigated and rain fed situations especially in NE and hilly states.
- To assess the impact of PKVY and MOVCDNER scheme on area expansion under organic agriculture, reduction in input cost and cost of cultivation, use of bio fertilisers, farm productivity, value chain development, price premium due to labelling, profitability and sustainability.
- To recommend for improvement of overall design of the programme for improving the effectiveness of the scheme.

Results of design, delivery and level of utilization of PKVY

- ✓ This study shows the PKVY scheme is picking up in in states like Sikkim (complete organic state), Tamil Nadu, Chhattisgarh, Karnataka, Kerala and Maharashtra. But in other states the scheme is lagging behind. Within states also progress is good in rainfed areas, hilly and remote areas compared to irrigate and plains. Hence there was need to focus on expansion of PKVY scheme vertically in the rainfed, hilly and remote areas/districts where there was a lot of potential.
- ✓ As on 7th November 2017, 6211 clusters were formed, of which Maharashtra (1043), Madhya Pradesh (992), Uttar Pradesh (806), Karnataka (538), Uttarakhand (491), Rajasthan (410), and Chhattisgarh (338) together contribute to about 75% of the total clusters.
- ✓ Training programmes conducted on organic production practices and exposure visits are effective in states like Kerala, Tamil Nadu, Maharashtra and Chhattisgarh where ATMAs are involved in the PKVY implementation. Training programmes needs to be comprehensive. The training of farmers under PKVY may be converted to training cum field demonstration (Various organic input production and practices may be demonstrated to make more understanding of organic input technologies).
- ✓ Farmers are the best educators of other farmers and so farmer to farmer extension will be given importance that can greatly help in information exchange and dissemination. Most common are farmer exchange visits, in which farmers are

brought to the site of successful innovation or useful practice, where they discuss and observe benefits and costs with adopting farmers.

- ✓ Release of funds in some of the states is delayed which impacted the implementation of the PKVY at block level. In some states 1st year there was a release of funds, but second year there was no release of funds, but again in third year there was a release of funds. This created some sort of uncertainty about the PKVY programme among farmers as well as local agricultural officers. This needs to be corrected and funds should be released in advance before the sowing season, so that the local agricultural officers and cluster LRPs can implement the scheme with proper planning.

- ✓ About 19.6 % of the clusters are producing compost followed by green manure (15.4%) and organic seed (13.1%) which is a good sign in success of this scheme. About 7.7% of clusters produced traditional inputs like *Panchamruth*, 13.8% produced *Panchagavya* and 14.3% produced B*eejamruth*.

- ✓ Majority of farmers involved were large and medium farmers and they simultaneously practice conventional and organic agriculture in different plots, as they were having more number of plots. Mostly commercial crops (like chillies and cotton) were grown in conventional way, whereas pulses and oilseeds are grown in organic way. There was a need to encourage small and marginal farmers to take up organic agriculture.

- ✓ About 96 % of the clusters prepared annual action plan and started organic production (95 %). About 83% clusters were PGS certified and 78 % clusters were having packaging and labelling facilities. About 80 % of clusters have marketing facilities. And about 28 % of the clusters were having certification process and 76% farmers expressed willingness to move towards organic methods.

- ✓ Use of green leaf manure, compost and organic seeds was increased in the clusters, especially in less developed states compared to developed states.

- ✓ About 93 % of the sample clusters using biological nitrogen harvesting planting, but only 87% are getting benefit out of it. About 65 %of clusters are using botanical extract production units out of which 60 % are were benefitted. Average percentage of clusters producing Bio-Fertilizers is 11% out of this 82% of clusters are using it. About 12% of the clusters are producing Bio-pesticides, 24% clusters are using it in farming.

- ✓ Clusters are producing neem oil or neem cake as natural pest control mechanism. About 5.4% of the clusters are producing, and about 11.2% of the clusters are using it by collecting or purchased from markets.
- ✓ More than 95 per cent of the clusters were using Organic input production unit and more than 92 per cent were using Biological nitrogen harvest planting (Gliricidia, Sesbania).About 65 per cent were using Botanical extract production unit and 18.1 per cent Phosphate rich organic manure. Only about 5.7% of the clusters are using this custom hiring centre services and only 4.1% are getting benefit out of it.
- ✓ Average percentage of cluster using walk in tunnels for horticulture crops is only 1.3% and all of them are using, but only 0.1% are benefited.
- ✓ Only 0.3% clusters are availing subsidy under *Gokul* Scheme, but no one is benefited. Under cattle shed scheme, about 6.8% clusters are taken financial support, but only 4.8% clusters were benefited.

Farmer's perception

- ✓ Reasons for adoption of organic agriculture: majority (46%) of the farmers mentioned that they adopted organic agriculture to reduce costs and to get health benefits (43%) and about 32% mentioned that because of promotion by agricultural officers.
- ✓ Problems in converting to organic farming: majority mentioned that due to lack of certification (no premium price) (57%) they are not converting to organic farming.
- ✓ Area needing government support: Majority of farmers mentioned that government should support in "Supply of organic inputs at subsidised rates (85%), followed by market identification/creation (74%) and certification (71%).
- ✓ Reasons for expanding organic area: Major reasons are less cost (56%), improving soil fertility (56%).
- ✓ Reasons for not expanding organic area: No subsidy (56%), no premium price (47%) and limited area (47%).

Impact of PKVY

The results show that the average cost per ha in wheat was lower in organic agriculture 11.3%, while gross returns decreased by 5.6%. The combined net effect of higher

reduction in costs with slightly reduced gross returns was an increase in net return by 15.8%. The yields of organic agriculture was less than conventional by 5.6%. The use of green manure increased by 50%. The cost of cultivation per ha for paddy for the year 2016-17. It shows that the average cost per ha in paddy was lower in organic agriculture by 15.1%, while gross returns decreased by 7.3%. The combined net effect of higher reduction in costs with slightly reduced gross returns was an increase in net return by 36.7%. The yields of organic agriculture was less than conventional by 7.3%. The use of green manure increased by 25%. The cost of cultivation per ha for soybean for the year 2016-17. It shows that the average cost per ha in paddy was lower in organic agriculture by 17.2%, while gross returns decreased by 9%. The combined net effect of higher reduction in costs with slightly reduced gross returns was an increase in net return by 50.6%. The yields of organic agriculture was less than conventional by 9.1%. The use of green manure increased by 9.5%.

Overall impact

1. **Cost reduction (cost saving)**: There is an immediate reduction in the cost of cultivation (cost saving) up to 10 to 20% as the beneficiaries are not using purchased fertilizers and pesticides.
2. Due to reduction in costs, there was increase in net returns ranging from 20 to 50%.
3. Savings in purchased inputs (cash expenses): The benefits are significant in crops like paddy and cotton, for which farmers spend huge amount of money on purchase of fertilizers and pesticides before PKVY.
4. Price premium was observed in some clusters, which are nearer to large cities and have good linkages with large markets (the price premium was ranged from 10% to 30% based on the type of market linkage, commodity and market linkage. In general price premium is not widely observed.
5. Yield improvement observed only in a few farmers who do all PKVY practices since last few years, but in general there was no significant yield increase in first year.
6. There was huge scope of area increase of organic area in tribal, rainfed, hilly and remote areas.

Constraints of PKVY Programme:

1. Insufficient and delay in fund release from state governments and spread across much larger areas. There was a need for identification of potential crops and locations for vertical promotion with all-out efforts.

2. Preparation of organic-inputs is labour intensive due to this many farmers are reluctant to convert to organic farming, there is a need to train farmers on producing some of the organic inputs at their level itself, this will ensure the quality. The scheme is only encouraging input companies manufacturing biopesticides/the agencies rather than the farmers. ------- manufacturing at their level needs to be incentivized.
3. Price premium is not realized by most of the farmers, due to lack of awareness about PGS certification among consumers, retailers and wholesalers. Credibility and awareness needs to be increased among different stakeholders by introducing mobile-PGS certified produce shops, separate sale counters of PGS certified produce in APMC markets.
4. Facilitating role of regional centres are not up to the mark. There is a need for increasing efficiency and effectiveness of regional centres in facilitating handholding PKVY clusters. There is a need for encouraging multiple agencies (technical NGOs, private agencies who are involved in organic agriculture, state department of agriculture, Farmer Producer Companies, ATMA and KVKs) to compete to bid for regional centres.
5. Establishing separate Regional Centres for market promotion of PGS certified commodities with PPP mode. (As private companies are comparative advantage in marketing and brand development).
6. Farmers groups needs to be strengthened and federated at higher level as FPO's to increase bargaining power and brand building with the help of good NGOs (after screening). LRPs and progressive farmers needs to be trained by NGOs/KVKs.
7. Transition period of first and second years increase in yields are not significant and needs support/incentives from department of agriculture.
8. Lack of integration of livestock (which provides alternate incomes and resources as bio-inputs), farm machinery and horticulture departments.
9. PKVY guidelines are not flexible enough, they needs to be more flexible to adopt depending upon the local situations (state requirements).
10. Duplication of beneficiaries in many areas – Existing organic farmers were selected who were already part of other schemes. (Convergence and cooperation between schemes which has common components of organic farming).

Recommendations (design, delivery and utilisation)

- **Timely action:** Plan preparation, release of fund and implementation needs to be streamlined. Release of fund was delayed and diverted in many states, hence the

continuity of the second year activities suffered, which needs to be streamlined. District level action plans should be ready at least one month before sowing period.

- **Identification of potential zones (Organic Special economic Zones):** There was a need for identification of potential zones like rainfed areas, tribal areas, where traditionally farmers use less fertilizers for intensive efforts for promoting organic clusters. Creation of organic special Economic zones (OSEZ) where the tribal population is more such as Chhattisgarh, Jharkhand, Srikakulam in Andhra Pradesh, Bhadrachalam in Telangana where there is huge potential for reaping forest based produce like honey, soapnut, tamarind, vippa flowers.

- **Contiguous areas:** identification of complete village/block/mandal as organic cluster will help in building brand and providing other logistic services at less cost and also help in marketing. Selection of area should be contiguous. Whole area approach (saturation) may be followed at least a few cluster of villages or blocks should be completely covered to build organic brands. There is a success story of AP wherein they encouraged SHG's to setup village level organic shops as a part of ------ in ZBNF. This king of initiative is encouraging to faster spread of PKVY scheme.

- **Focused approach:** Focused approach based on the experience in the initial years of the PKVY programme to identify potential areas of expansion. Identify and map the default organic growing areas and declared as organic and efforts would be made to get them a recognition and marketing.

- **Incentives:** Announcing incentives to the farmers (master farmers) who adopt organic farming for the first 3 – 5 years to compensate low yields.

- **Training Modules:** Need to develop a training module on organic crop production practices in local languages in more farmer friendly language with diagrams, figures and illustrations. These standard package of practices should be developed block wise and crop wise. Educating the farmers about important indigenous breeds in their farming systems and integrated farming system should be intensified.

- **Scientific backing**: An Research & Development should be encouraged. is required to be established to validate and produce bio-inputs at low cost. Scientific backing of the practices followed in organic agriculture needs to be proved for wider acceptability of organic produce both by SAU''s and ------. The Biological control labs which are entrusted with production of biopesticides like T.Viridae and Pseudomonas florescence are focused only bio pesticides but not bio fertilizers like Azolla, Azatobactor, Phosphate solubilising bacteria, potassium mobilizing bacteria. All BC

labs should be equipped with man power and modernized / revamped to cater to the growing organic needs.

- **Provide village-level support systems** (like organic input shops) and build capacity of farmers on technical front to establish homemade bio-fertilizers like BGA, Azolla and bio pesticides, Composting (Vermicomposting, NADEP, BD compost, Coir pith composting methods) at local level.
- **Appointing district level PKVY officers:** The in-charge-agricultural officers of PKVY are engaged in multiple activities, which is hindering the progress of implementation. Hence there is a need for appointing special officers at least at district level. In those states where ATMA is working, training components under PKVY should be handed over to ATMA for effective dissemination of technology.
- **A multi-agency approach** involving public, private and NGOs may be encouraged. Currently there was little involvement of institutions like KVKs, ATMAs and SAUs to promote organic agriculture. A strong monitoring for quality and production and transfer technology should be given more emphasis by involving all Departments (NCOF/RCOFs/ICAR institutes/APEDA)
- **Regional centres for Market Promotion**: Specialised separate regional centres should be established for marketing in each zone in community-PPP mode. As most of the existing regional centres don't have the marketing skills to build brands and expansion of market for organic agriculture.
- **Farmer producer organizations (FPOs) and linking to corporates:** The Government should encourage formation of FPOs including Co-operatives and Producer companies - exclusively for promotion of organic farming in all the districts and states and FPOs to be empowered to handle all activities related to organic farming viz., capacity building, production of organic inputs, processing, certification, marketing etc. The group should be preferably homogeneous, compact, and manageable and based on area approach/crop approach. All the clusters identified under PKVY should be formed as Farmer Interest Groups (FIG's) / Commodity Interest Groups (CIGs) and trained in Management of groups with respect to finance, finally linked with private sector for marketing..
- Promotion of FPOs will enable to increase access to bio-inputs, seeds and other critical inputs..

- **Separate stalls for organic produce in APMC markets:** APMC markets are already existing in every block/mandal level. In these APMC markets (mandis) separate organic certified stalls may be established, which will be maintained by PGS certified clusters to fetch premium prices.

- **Promoting local processing and value addition** of organics through establishing mini-processing plants at cluster level or federation level before entering to wholesale supply chain to get maximum share of consumer rupee by cluster farmers.

- **Market survey** and demand estimation and product development may be done in collaboration with specialized Regional Councils (marketing) in partnership with private firms who are already involved in marketing of organic produce. Simplification of procedure to get PGS certification has to be ……..

- **Market and Brand development**: To access better prices branding need to be developed by farmers.. Convergence with marketing and cooperative department and explore a new supply chain on Farmer to Consumer models which helps increasing farmers share. Similarly, consumers must also be made aware about the health benefits of organic produce and necessity for premium price.

- **Popularizing PGS certification to get premium prices** among the wholesalers, retailers and consumers for creating demand for produce of PKVY clusters. The details on the labels of PGS certified product should be on par with private labelling to increase authenticity and transparency. Processed food shall be labelled as per food safety and standards (FSSASI) regulations. Use of E-platform and mobile Apps for direct marketing of organic produce. In addition to PGS-certification, third party certification may be encouraged if clusters (farmer producer companies) are willing to take with subsidised cost. Certification procedures may be simplified with online filling of the data twice in a year for both kharif and rabi seasons. Common packing, branding and labelling unit can be established at state level to promote a common brand for each state organic produce like (Himachal organic apples). Each state headquarters should have organic market places established where farmers can directly sell to consumers/retailers.

- **Start-ups and agri-entrepreneurs:** There is a growing market for the organic agriculture, some of the private companies (even farmer producer companies) are making huge profits by marketing the organic produce. Imparting skills in identification of market opportunities for organic agriculture and development and capturing of these markets can be done by encouraging agripreneurs..

- **Mass production of bio-inputs:** Encouraging and incentivising establishment of large input-suppliers of bio-inputs like Panchamruth, Panchagavya and Beejamruth.
- **Leveraging ICT**: Information and Communication technologies for digitization of organic farmers, crops produced, prices, development of virtual market place or linking to eNAM would help farmers to realize better prices for their produce. PGS - INDIA web-portal should be linked to national and international markets and ultimately tracing back the product.
- **Revolving fund** to farmers federations/FPOs/ farmers associations, etc. to meet their working capital needs and to facilitate purchase of organic inputs. This will help in avoiding distress sale. The existing unit ---- can be converted as revolving fund and given to FPO's who take up organic farming.
- **Eco Agri-Tourism**: Encouraging Eco Agri-Tourism in fully organic clusters as supplementary income to organic farmers can be explored in the suburban areas of metro-cities.

Annexures 1

PKVY guidelines

Name of Component	Assistance
A. Cluster Approach.	
Cluster formation	One cluster 50 acres (20 ha) contiguous area. Assistance eligibility to farmer maximum one ha @ Rs. 20,000/ - acre (Rs. 50,000/- per ha) Total Rs. 10.00 lakhs for three years. Rs. 4.95 lakh for mobilization and PGS certification. Total Rs. 14.95 lakh per cluster.
Meetings and discussions of farmers.	@ Rs. 200/- per farmer (Rs. 10,000/- for 3 years).
Exposure visit for farmer	@ Rs. 200/- per farmer (Rs. 10,000/- for 3 years).
Training of cluster member (3 Trainings)	@ Rs. 20,000/- per training (Total Rs. 60,000 for one cluster for 3 years).
Total	Rs. 80,000/-
B. PGS certification and quality control.	
Training on PGS certification (2 days)	@Rs. 200/- per Lead Resourceful Person (LRP) Total Rs. 400/- for 3 years.

Training of Trainers (LRP) (3 days)	@ Rs. 250/- day (Total Rs. 750/- for 3 years).
Online Registration of farmer	@ Rs. 100/- per member (Total Rs. 10,000/- for 2 years).
Soil sample collection and testing (21 samples/year/cluster)	@ Rs. 190/- per sample (Total = 21X190 = Rs. 3990/- per year). (Total Rs. 11970/- for 3 years).
Process documentation – inputs used, organic manures and fertilizer used etc. for PGS certification.	@ Rs. 100/- per member (Total Rs. 5000/- per year) (Total Rs. 15000/- for 3 years).
Inspection of cluster member fields (3 inspections)	@ Rs. 400/- per inspection (Total Rs. 1200/- per year and Rs. 3600/- for 3 years).
Residue analysis of samples in NABL (8 Samples/year/cluster)	@ Rs. 10,000/- per sample (Total Rs. 80,000/- per year). (Total Rs. 160,000/- for 2 years).
Certification charges	@ Rs. 2000/- for 3 years.
Administrative expenses for certification.	@ Rs. 59950/- (Salary & maintenance)- for 3 years
Total	Rs. 2,63,670/-
C. Adoption of organic village.	
Conversion of land to organic.	@ Rs. 1000/-per acre (Total Rs. 50,000/ – per year) (Total Rs. 1,50,000/- for 3 years)
Organic seed/nursery raising, procurement	@ Rs. 500/ - per acre/ (Total Rs. 25000/- per year (Total Rs. 75000/- for 3 years).
Production Units i.e. Pachagavya/Beejamruth/Jeevamruth etc.	@ Rs. 1500/ - per unit/acre (Total Rs. 75000/- for one cluster for 3 years).
Green Manuring/ Biological Nitrogen Harvest Planting.	@ Rs. 2000/- per acre (Total Rs. 1.00 lakh for 3 years).
Botanical extracts production units	@ Rs. 1000/- per unit/acre (Total Rs. 50,000/- for 3 years).
Total	Rs. 4,50,000/-
D. Integrated Manure Management.	
Liquid Bio- fertilizers	@ Rs. 500/- per acre (Total Rs. 25000)- for one cluster for 3 years.
Liquid Bi- pesticides	@ Rs. 500/- per acre (Total Rs. 25000/- for one cluster for 3 years.
Natural Pest control mechanism	@ Rs. 500/- per acre (Total Rs. 25000/- for one cluster for 3 years.
Phosphate Rich Organic Manure (PROM)	@ Rs.1000/- per acre (Total Rs. 50,000/- for one cluster for 3 years.
Vermi- compost (Size 7′X3X1′)	@ Rs. 5000/- per unit, 50 unit for one cluster (Total Rs. 2,50,000/- for one cluster for 3 years).
Total	Rs. 3,75,000/-
E. Custom Hiring Centre (CHC) Charges.	

Agriculture implements	@ Rs. 15,000/- per year (Total Rs. 45,000/- for 3 years)
Walk in tunnels for Horticulture crops	As per MIDH Guidelines.
Cattle shed/Poultry/Piggery for animal compost	As per Gokhul guidelines.
Total	Rs. 45000/-
F. Packing, Labelling and Branding.	
Packing material with PGS Logo +Hologram	@ Rs. 2500/- per acre (Total Rs. 1,25,000/- for 3 years) .
Transportation of organic products (four Wheeler1.5 Ton Capacity)	@ Rs. 1,20,000/- total for one cluster.
Organic Fairs	@ Rs. 36330/- per cluster total for 3 years.
Total	Rs. 281,330/-
Grand Total	Rs. 14,95,000/-

Annexures 2

Cluster Questionnaire

Paramparagath Krishi Vikas yojana(PKVY)

1. State
2. District
3. Block
4. Village
5. Name of the Cluster:
6. Cluster In-charge: Mobile no.
7. When the cluster was started (year)?
8. Area under the cluster (acres)
9. How many farmers are there in the cluster?
10. How many of them are registered members?
11. Do you have any Complaints, Appeals and Grievance redressal for the group members?Y/N
12. How many are small farmers (< 2.5 acres)
13. Total subsidy received for cluster development (Rs.): Onetime:
    Yearly:
14. How many Cattle or Buffalos are there?
15. Activities Carried out

Purpose	Number	Distance	Number of days	Nature of Inputs*	Usefulness (1-5 scale: 5 is best)
Mobilisation (farmers)					
Meetings conducted		Mention Number of people attended here:	Mention number of hours here:		
Exposure Visits					
Trainings Conducted					

Note: * 1. Information production technology dissemination, 2. Market linkages and labeling branding, 3. Certification procedure, 4. Soil health benefits, 5 best practices, 6. Input preparation, 7. Record maintenance, 8. Profitability

Peer Inspection

Number	
Topic	
Usefulness	
No. of full certification	
No. of Conversion certification	
No. of rejections	

Cluster is producing and using the following

Item	producing	Using
Organic seed		
Green manure		
Compost		
Bio-fertilizer		
Fertilizers		
Bio-pesticide		
Pesticides		
Panchamruth		
Panchagavya		
Beejamruth		
Drip irrigation		
Neem oil/neem cake		

16. Whether annual action plan prepared? Y/ N
17. Whether production under cluster started? Y/N
18. Whether PGS certified Y/N
19. Whether packaging and labeling facilities exists Y/N
20. Marketing facilities exists Y/ N
21. Appointed consultant? Y/N
22. Appointed data entry operator Y/N
23. Does the cluster has a certification process? Y/N

If Yes, Who is the service provider?

24. Do you think more farmers will move towards organic methods?

25. What are main constraints (give by importance)

Cluster Level Technologies

Owning /using	Y/N	Financial support (public/ Own) (in Rs.)	Benefit		Problems (if any)	Suggestions for improvement
Organic input production unit						
Biological nitrogen harvest planting(Gliricidia, sesbania)						
Botanical extract production unit						
Phosphate rich organic manure						
Custom hiring center services		NA				
Walk in tunnel for horticultural crops						
Cattle shed						
Subsidy under Gokul Scheme						

Organic Crops and Returns

Crop name	Season K/R/annual	Area (acre)	Irrigation (Y/N)	Yield (per care)	Cost (Rs/acre)	Price received Rs/Quintal	Labelled Y/N	Branded Y/N

Annexures 3

Budget Allocation of PKVY

		2015-16 (Rs in lakh) 1st year			2016-17 (Rs in lakh) 2nd year			2017-18 (Rs in lakh) 3rd year		
Zone	No of Clusters	Allocation	Release as % of allocation	Expenditure as % of release	Allocation	Release as % of allocation	Expenditure as % of release	Allocation	Release as % of allocation	Expenditure
Central zone	1068	4574	150	141	3227	122	129	1874	0	0
East zone	935	4198	294	255	2962	310	169	1721	109	0
North zone	2088	10417	448	570	7350	365	184	4269	459	0
North-East zone	572	3674	413	646	2593	465	200	1506	520	0
South zone	1509	6463	383	367	4561	221	196	2648	114	0
West zone	1036	4437	148	100	3130	184	7	1818	0	0
Total	7208	33763	67	83	23823	64	42	13835	40	0

State-wise Funds Released for Promotion of Organic Farming under Rashtriya Krishi Rashtriya Krishi Vikas Yojana (RKVY) in crores

Zone	2011-12	2012-13	2013-14	2014-15	Total 2012-15
Central zone	4.4	5.7	4.3		14.4
East zone	102.7	10.1			112.8
Nothe zone	46	54.6	125.5	29.7	255.8
Nothe-East zone	15.8	19.6	12.7	15.7	63.7
South zone	34.2	44	30.4	28.4	137.1
West zone	108.4	11.6	27.5	3.1	150.5
India	311.3	145.6	200.5	76.8	734.2

Annexures 4

Suggestions

- Kvk's ,Scientists must conduct some meetings and train the farmers
- Farmers should be educated about the fertilizers and pesticides thoroughly and also should be trained to prepare their own compost, Farmers should be aware of the benefits and how to process & use the components
- Educate the farmers about the importance of desi cow, buffalo
- The input costs are very low and there should be some minimum support price for the organic products
- Mandis should have separate organic certified stalls
- Organic food should be available for the farmers also.
- Subsidy should be given to organic farmers
- 18%GST is on farmer producing machines which should be reduced to 5%
- If any agro-based startups are looking for finance the interest rates should be taken into consideration. The interest rates should be low.

  In my views after observing this industry in past 10 years.

- CERTIFICATION PROCESS, INTERNAL AUDIT AND SUBSEQUENTLY ISSUE OF TC this needs complete complete re dressing. As of now most of the traders and business men not doing good and fair practice and selling goods only on TC, which they get from agencies / documents adjustments.
- We need "Proper ORGANIC INPUTS" for Organic farming - An R&D center is require to establish to produce EFFECTIVE Organic Pesticides / insecticides, ON LOW COST.
- All wild collection should be under"controlled price mechanism" be it for Herbs / seeds/ condiments or crops.

- **Rohit Vohra**
Aayam herbal & research Industries
Mahapura, Jaipur

- The documentation process of conversion for organic under PKVY is very difficult and burdensome for the department due to under staff of the department to carry out the scheme since most LRPs are illiterate and need full assistance and online works are hampered due to improper network in most of the districts.
- PKVY may not be implemented in a state where MOVCD is being implemented as both schemes deal with organic farming and make the farmers confusing. It will be better if only one organic scheme is implemented in a state.
- The documentation process must be made simple to reduce the workload of the department and LRPs.

(J.LALZAMLIANA)
Director of Agriculture,
Crop Husbandry,
Mizoram, Aizawl.

- Opinion & Feedback about organic food:

  I appreciate that organic farms use methods of farming that are kind to the environment, and they don't use pesticides, growth hormones or other chemicals to try and improve the quality of their produce like most conventional farms do. Their methods are much more natural and safer for the environment, and they are even kinder to the animals too.

- Suggestion:

  As I think if government wants to promote organic farming then the government should think about the marketing of organic produce and this organically produced crops should be exported, send to big cities and sale in the local market at higher rate. If farmer get higher price in the market then he will definitely be attracted to organic farming and the consumer will also get benefit by consuming a chemical free cereals. If we are able to produce everything in food organically, then you can think how much we can benefit our society and farmer of our country and people of other country also.

- **Rohitash Pareek**
Food safety Auditor

1. **Training of Trainers (ToT):**
   PKVY program is being implemented through ATMA in most of the state. BTM is the field extension person who is supposed to handle the program. A ToT is needed for BTM and LRPs (Lead Resource Person (Group leaders)). Which will help them to understand the program, Organic techniques, PGS Certification process and market linkages.
2. **Farmers Training:**
   There is provision of three training only for first year and no support for next two years. Our suggestion is that these trainings should be in the form of Farmer Field School (10 – 12 classes to be taken in each FFS) that should be for three years. This can be implemented in same budget i.e., Rs. 20,000/- per FFS or it can be rebudget.
3. **LRP Training:**
   There is provision of Two days training for first year (@ Rs. 200/- per day per trainee) and Three days training for second year (@ Rs. 250/- per day per trainee). The budget is too low. It should be Rs. 750/- per day per trainee.
4. **Support to LRP for Pear Appraisal:**
   LRP is supposed to do internal inspection (minimum three inspections per year) and remuneration for the same is Rs. 400/- per inspection which is too low. There should be provision of monthly remuneration for LRPs for doing his job vigorously.
5. **Office Expenses for PGS Certification:**
   There is provision of Rs. 26,150/- for first year and Rs. 16,900/- for second and third year for support of Office Expenses for PGS Certification. Considering the responsibility and work of Regional Council (RC) this should be increased at least Rs. 50,000/- per group per year. As per project guidelines internal inspection should be done by LRP but practically they are not able to do so in spite of continuous trainings. BTMs are also not capable to help them so RC representatives do the work for the sake of proper documentation. It needs time and expense too. The additional budget can be generated by reducing budget for Residue Testing (for the Labs).
6. **Support for Agri. Implements on rent:**
   Generally farmers have agri. Implements. This budget can be used for making information centres for group an other farmers who want to join Organic farming. Group or LRP can run the information centre. The information centre will provide guidance for Organic farming, Post harvest care, PGS Certification support and also market linkages. Separate budget can be allocated.

Regards
For SARG Vikas Samiti (RC)
Sanjay Roman

1. **Identification of potential zones:** There is a need for identification of potential zones like rainfed areas, tribal areas, where traditionally farmers use less fertilizer for intensive efforts for promoting organic clusters. Hill and Tribal areas rich in biodiversity are the other priority areas for undertaking organic farming. In rainfed areas, organic agriculture (with low external input) has shown the potentials to increase yields. Increasing soil organic matter/carbon is an important approach to build resilience for changing climate. Under drought conditions, crops in organic agriculture system produce significantly and sustainably higher yields than comparable conventional agriculture crops. Hence rainfed and drought prone areas are the priority areas for conversion to organic agriculture.
2. **Focused approach:** Focused approach based on the existing opportunities in the initial years of the PKVY programme will help in take-off programme. Identify and map the Default organic growing areas and declared as organic and efforts would be made to get them a recognition and marketing. Existing organic farming groups under PGS/ICS certification, farmer's cooperatives which are into organic production and marketing will be brought under the program. (ex: NGOs and Women SHG groups etc.).
3. **Provide village-level support systems** and builds capacities on technical front to establish homemade and commercial bio-fertilizers and bio pesticides, Composting (Vermicomposting, NADEP, BD compost, Coir pith composting methods).
4. Initial years of the programme should primarily focus on production related changes but also be able to pilot innovative approaches around collective enterprises around inputs, collective marketing including with processing and value addition.
5. **Contiguous areas:** Saturation of complete village/block/mandal as organic cluster will help in building brand and providing other logistic services at less cost and also help in marketing.
6. **Stakeholder Capacity:** Clusters should be aggregated to form commodity organisations at district level under PKVY. It has been found that working with farmer federations 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. Kisan Business Schools (KBS) is an approach to build farmers capacities to understand and deal with markets.

7. **Farmer producer organizations:** The Government should encourage formation of farmer producer organizations (FPOs) - including Co-operatives and Producer companies - exclusively for promotion of organic farming in all the districts and states and these FPOs will be empowered to handle all activities related to organic farming viz., production of organic inputs, processing, Certification, marketing etc. The group should be preferably homogeneous, compact, and manageable and based on area approach/crop approach.
8. **Specialized Regional centres for Market Promotion**: Specialised separate regional centres should be established for marketing in each zone in community-PPP mode.
9. **Timely action plan** preparation, Release of fund and implementation needs to be streamlined.
10. The in-charge-agricultural officers of PKVY are engaged in multiple activities, which is hindering the progress of implementation. Hence there is a need for appointing special officers at least at district level.
11. Develop extension modules for educating farmers for all the major crops through ATMA and KVKs. ARS and KVKs shall act as knowledge transfer centres for farmers and extension personals by starting modal organic farms in their research stations.
12. Farmers are the best educators of other farmers and so farmer to farmer extension will be given importance that can greatly help in information exchange and dissemination. Most common are farmer exchange visits, in which farmers are brought to the site of successful innovation or useful practice, where they discuss and observe benefits and costs with adopting farmers.
13. Continuous exposure visits should be arranged for both departmental officers and farmers to successful organic farming systems inside and outside the state.
14. The Government will support for on farm production or for local production of inputs) required for organic farming. Viz., support for establishing compost units, supply of pulverisers for NSKE preparation on subsidy, and imparting required technical trainings. Also extend necessary support for production of bio formulations, botanical formulations at farm level as well as small scale units for production by SHGs/Farmer groups etc. Govt will also supply traps and lures on subsidy.

15. Establishing Organic Poultry, Dairy, Piggery unit and others using local/indigenous breeds suitable to agro-ecological regions in order to meet the demand for organic dairy, poultry and other animal based products.
16. Encouraging Eco Agri-Tourism in fully organic clusters as supplementary income to organic farmers.
17. Revolving fund to farmers federations/FPOs/ farmers associations, etc. to tie up their working capital needs to facilitate purchase of organic produce to avoid distress sale
18. Promoting processing and value addition of organics at cluster level or federation level before entering to wholesale supply chain to get maximum share of consumer rupee by cluster farmers.
19. Market survey and demand estimation and product development may be done in collaboration with specialized Regional Councils (marketing) in partnership with private firms who are already involved in marketing of organic produce.
20. Govt. schemes should extend financial assistance for farming processing activities taken up by individual farmers or groups of farmers in the value addition of their produce. Suitable financial help will also be extended for infrastructure facilities, storage facilities of organically grown produce.
21. Popularizing PGS certification among the wholesalers, retailers and consumers for creating demand for produce of PKVY clusters. The details on the labels of PGS certified product should be on par with private labelling to increase authenticity and transparency.
22. There were number of agriculture schemes on operating separately across value chains. Integrating the Integration of all agriculture schemes instead of isolation. Integrated approach rather than component based approach and converging with other departments.
23. Separate cell for PKVY with Transparency in plans, internal monitoring and social auditing should be initiated. Accountability need to be fixed at different levels for effective implementation of PKVY.
24. Market and Brand development: To access better prices register brand at state level and awareness campaigns to consumers. Convergence with marketing and cooperative department and explore a new supply chain on Farmer to Consumer models which helps increasing farmers share. Similarly, consumers must also be made aware about the high price of organic produce as it is necessary to sustain organic farmers in the initial years.

25. Each state headquarters should have organic market places established where farmers can directly sell to consumers/retailers.
26. Farmers adopting organic farming are grouped into common interest groups and cooperatives. All these farmer groups should be trained and regular farm appraisals will be facilitated.
27. Formation of a high level committee for looking into the issues related to organic cultivation, markets and linkages with farmers representation.
28. Leveraging ICT (Information and Communication technologies) for digitization of farmer's information, soil health monitoring for organic carbon improvement, Real-time soil moisture networks, virtual market place or linking to E-NAM would help farmers to realize better prices for their produce.
29. Monitoring the outcomes and impact of the scheme is important rather on physical and financial progress of PKVY scheme. It is therefore necessary to collect the information in terms of productivity, production and growth over the baseline situation.
30. More research is needed to prove the efficacy of other organic practices by agricultural universities and research institutions organic practices, so that farmers will be having multiple options based on the local resources availability.

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