INFLUENCING POLICIES

10

90

IT IS TIME TO INFLUENCE THE 13TH PLAN

Planning is a massive and time consuming exercise in India, involving multi-agency and multi-stake holder consultations. Changing policies after formulation is not easy and there is no platform or forum for extensive deliberations, after the plan is finalised. All those interested in influencing the policy framework should therefore use the current plan document as the base paper for conferences, workshops, consultations, research and analysis and should start influencing the next plan. Policy discourses conducted without taking note of the Plan document often fails to yield results, argues Suresh Kumar.

The Five Year Plans form the basis of development planning indicating strategy, policy and programs of every sector including agriculture. Each plan is based upon recommendations of various subject matter working groups and sub-groups (Box 1). These groups and sub-groups comprise representatives of various ministries, public agencies, experts, activists and stakeholders. Every sector also has a steering committee to consider the recommendations of various working groups. Working group recommendations are formulated after detailed deliberations at v arious levels. For the 12th Five Year Plan (2012-17) preparations, 11 working groups were constituted for agricultural sector, including one for agricultural extension (Box 1).

Box 1: Planning for Agricultural Extension for the 12th Plan

The Planning Commission (Government of India) constituted a Working Group on "Agricultural Extension for Agriculture and Allied sectors" for the Twelfth Five Year Plan in March 2011 with 27 members representing different organisations and interests related to extension. The group was tasked to review the effectiveness of the on-going extension services including the recent innovations in it, and to recommend a more responsive and accountable extension mechanism to the farmers.

The working group constituted 9 sub-groups (comprising 8-11 members) to deal with different themes related to extension in May 2011. The working group and the sub-groups held extensive consultations to come up with specific recommendations. These were consolidated by the Working Group in its report submitted in November 2011.

The recommendations of the Working Group are grouped into 12 thematic areas: 1. Technology Solutions and Innovations; 2. Extension Policy and Systems; 3. Convergence, Programme Delivery, Governance and Innovations; 4. Manpower Planning, HRD and Accreditation; 5. Leveraging ICT, Mass media and e-Governance; 6. Partnership for Agri-preneurship and Business Development; 7. National and International Linkages and Partnerships; 8. Jai-Kisan- Mobilisation for Farmers Empowerment; 9. Women Empowerment and Household Food and Nutritional Security; 10. Leveraging Youth for Agriculture; 11. Extension Strategies for Difficult Areas and Disadvantaged Groups; and 12. Agrarian Distress and Conflicts, Instantaneous Response and Farm Studies (Planning Commission, 2013b).

The Planning Commission also invites suggestions from the general public during the plan preparation process. Planning process thus

provides the only forum for convergence of various intra and inter-sectoral objectives, concerns and interests.

These Plans are finalised after discussions in the National Development Council (NDC), which provides broadest political support. Programs are formulated in the light of the plan and announced after approvals by competent authorities. In between the plans, there is a mid-term review.

12th Plan Documents

The 12th Plan document (Planning Commission, 2013a) and the recommendations of the various working groups are uploaded on the Planning Commission website. The next opportunity to influence this plan is during the mid-term review and later during the formulation of the 13th Five Year Plan (2017-2022). If we are serious about influencing policy changes, we should start scrutinising the plan document and the working group reports, and organise policy advocacy events now so that the recommendations will be ripe for consideration during the 13th Plan.

This advocacy should meet the following requisites:

- Issues, concerns and demands should be reflected in public policy and pronouncement
- Public policy should be translated into specific legislations, schemes and programs
- Legislations should be enforced and schemes and programs are implemented

Influencing Plan Formulation

National plans provide the right forum for advocacy as multi-agency and multi-stakeholder consultations are easier and happen as part of the planning process. Advocacy with the Planning Commission should include getting the policy reflected in the reports of the various working groups and then the plan; ensuring that the plan write up is reflected in the schemes and programs and further that the same are implemented as proposed. This requires advocacy before and after plan formulation.

Advocacy before Plan Formulation

One could approach the Planning Commission well in time with suggestions about the constitution of working groups and sub-groups. This should include both the constitution and TORs of the groups.

TORs are most important as these determine the scope and contents of the reports. Even after the group composition is announced, concerned groups and the planning commission could be approached to include certain stakeholders and modify the TOR. One could send the proposals for inclusion in these groups and presentation of views by writing to the Chairman or Member Secretary of these groups.

In the event of the sub-groups not accepting the proposal, appropriate working groups may be approached and if the sub-groups accept the proposal, it needs to be ensured that the same

is included in the report of the working groups. In the event of a particular working group not accepting the recommendation, the matter may be taken up directly with the Planning Commission.

Advocacy after Plan Formulation

Issues and concerns not accepted in the plan may be referred to the Planning Commission for consideration in the mid-term review. It would be useful to prepare a directory of issues and concepts that are included in the Plan document and against each item indicate whether specific policies, schemes and programs have been formulated to operationalise these items.

Subsequent advocacy should be aimed at the gap between reflection of issues in the plan and their being operationalised through policies, schemes and programs. Planning commission may be approached during the mid-term review to examine operationalisation of the concepts that are yet to get reflected in policies and programs.

It is Time to Act

Considering the magnitude of the task, initiatives for influencing the 13th Plan (2017-2022) need to start now. Every sector has various dimensions and large number of stake holders with divergent views. Wider consultations are necessary to achieve maximum convergence of views and this requires time.

Workshops and seminars organised on specific policy issues should use the 12th Plan document and working group reports as a base document to make new recommendations. Making recommendations for policy without taking note of the 12th plan exercise doesn't yield results. More over specific recommendations for improving performances should be brought to the working groups and sub-groups during the plan formulation phase to make sure that these are included.

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91

WHY FISHERIES SECTOR NEEDS AN EXTENSION FRAMEWORK?

Though a large percentage of rural population in South Asia depend on capture fisheries and aquaculture, lack of an appropriate extension framework constrains this sector from optimizing its performance, argues, SN Ojha.

Both aquaculture and capture fisheries provide employment and nutrition to a large proportion of rural communities in South Asia. Aquaculture has expanded steadily in recent years, now contributing 40% of total fishery production in South Asia (World Fish, 2009). However this sector faces a number of challenges. For instance, the introduction of mechanized trawlers, use of purse seine nets and adoption of dynamite fishing have all contributed to over exploitation of fisheries resources. The other challenges include: habitat destruction, climate change, ultra-violet radiation, ocean acidification, and water pollution through nutrients, chemicals, human pathogens, and marine debris. In the case of small scale aquaculture, lack of community approach continues to discourage input suppliers and marketing agents to service this sector effectively. Limited access to information and lack of adequate training programmes further constrain those dependent on the fisheries sector (Geethalakshmi et al, 2012).

In India, several organizations exist to support fisheries sector. The overall responsibilities to manage this sector at the national level lies with the Department of Animal Husbandry and Dairying (DAH&D), now renamed as the Department of Animal Husbandry Dairying & Fisheries (DADF). The Fisheries Division under DADF supervises 6 centres involved in coastal engineering, survey and aquaculture. It also implements several development schemes for development of inland and marine fisheries, fishermen welfare, strengthening database and application of Geographical Information System. The National Federation of Fishermen`s Cooperatives Ltd., (FISHCOPFED) educate, guide and assist fishers in their efforts to build up and expand the fishery cooperatives. At the state level, the Department of Fisheries organizes training programmes and schemes on freshwater fish farming, use of modern fishing gears and methods and maintenance of marine diesel engines.

Despite having many departments and institutions working on fisheries, this sector needs a very high level of coordination as it deals with common resources to address the community needs whose livelihood is dependent on such common water bodies. Though the National Fisheries Development Board (NFDB) was set up in 2006 mainly to bring about better coordination among the different actors in the fisheries sector, "responsibilities are still not clearly defined between NFDB and the Department of Animal Husbandry, Dairying and Fisheries"(Planning Commission, 2012).Lack of coordination between Central and State Government agencies involved in research, education and training, NGOs

Box 1: Training and Information needs

Fishermen mostly need training and information on, fishing methods, navigation and safety, fishing gear design and construction, gas and diesel maintenance, vessel repairs and maintenance, coastal zone planning and management and exports. They also need training in fish handling, value addition and marketing. Mostly the fishers are dependent on credit to run their fish business. This may be because of the uncertainty of fish catch, high cost of fishing, and lack of trading activities and infrastructural facilities (Ulman et al, 2008).

Both fishers and fish farmers need training on, project management to improve their credit worthiness. Pollution is a major menace in common water bodies. While bringing awareness on marine pollution it was found that first priority should be given to a basic legal understanding of the regulatory framework (Kwak, 2012). Under this they may be made aware about how the pollution control boards work, levels of the courts and authorities related to pollution, and court terminologies. In addition to above fishers and fish farmers also need know-how on alternative livelihood options to sustain their rising population as mechanized harvest of fish lowered fish population though modern living amenities has been increasing fishers' population.

Gawde, et al, 2006, has reported that large fish farmers engaged in aquaculture may need training on, site selection, pond construction, testing of water parameters, proper bottom slope for drainage of water, formation of bloom in colour range of brownish to yellowish before stocking, PCR testing of seed for presence of WSSV, checking healthiness of seed before packing for transportation, acclimatization of seed, frequent checking of water parameter, use of feed probiotics, use of check trays and adjustment of feed accordingly, maintenance of bloom for initial two months, etc.

NGOs and community organizations also constrain addressing the training needs of fishers, fish farmers and development agencies.

While there are several ongoing efforts to address the issues of the fisheries sector and the training needs of fishers and fish farmers, there are several gaps in the field of knowledge management in this sector at the field level, the change agent level and the planning level (Box1).

Moreover there are not enough programmes on alternative livelihood options, aqua tourism, fish marketing, fish processing and value added product development and community management of water resources, etc. Finally, there is very little recognition of the role of fisheries and aquaculture extension.

Without addressing this gap, other interventions are unlikely to result in sustainable and long term improvements in the livelihoods of fishermen and fish farmers.

Way Forward

Need Assessment

Before deciding on the techno-organisational interventions to empower fishers and fish farmers, it is essential to conduct a need assessment at three levels.

- Situational analysis (sectoral needs in an area),
- Task/occupational analysis (expectations from the fishers, fish farmers, marketing agents and input suppliers by the development agencies) and
- Individual analysis (expectations of the fishers and fish farmers from the development agencies).

Establishing Fisheries Innovation Platforms at state level

Platforms comprising all the stakeholders in a given "aqua-eco-zone" involved in fisheries innovation should be constituted to plan and review needed interventions and also to draw lessons to guide future interventions. The platforms may be composed of fisheries research centers, fisheries colleges, fisheries training units, fisheries development agencies, NGOs and community organizations. The platform should analyze existing livelihoods and environmental changes and should review marketing strategies and develop a "Livelihood-Environmental-Governance (LEG) Security" for the fishers and fish farmers of the zone. This should form the basis for capacity development of fishers, fish farmers and development agencies in that region.

Convergent Fisheries and Aquacultural Extension Framework

The development agencies in the fisheries sector, especially the staff of the state department of fisheries needs to be first sensitized on emerging issues such as the Code of Conduct for Responsible Fisheries, Community Management of Water Resources, Alternative Livelihood Options like, Aqua Tourism, Ornamental Fishery, Fish Processing and Product Development, Further, they should be supported to implement concepts like, Participatory Planning, Mentoring, Monitoring and Evaluation Process; and also public, private and community participation in fisheries development. The sector needs a convergent extension framework to deal with the existing challenges (Table 1).

Table 1: Convergent Fisheries and Aquacultural Extension Framework

Level	Capture Fisheries	Aquaculture
Field Level	• Fishing methods, navigation and safety • Fishing gear design and construction • Gas and diesel maintenance • Vessel repairs and maintenance • Fish handling and Processing • Coastal zone planning and management • Biodiversity and habitat management • Value added product skills • Alternative Livelihood, etc. • Marketing and exports • Project management • Environmental impact assessment, etc.	• Site selection • Pond construction • Testing of water parameters • Testing of seed • Acclimatization of seed • Feeding and use of feed probiotics • Seed packing for transportation, etc.
Change Agent Level	• Project formulation on sustainable fisheries and aquaculture incorporating fishers' friends and fishers –field –school methods. • Community Management of Water Resources • Alternative Livelihood Options like, Aqua tourism, Ornamental Fishery, Fish Processing and Product Development, etc.	
Planning Level	• Participatory Planning, Mentoring, Monitoring and Evaluation Process • Public, Private and Community Participation	

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92

IS HORTICULTURAL EXTENSION GETTING THE PRIORITY IT DESERVES?

Though public extension has played a key role in transferring technologies in agricultural crops, its role in promotion of horticultural technologies in India has been limited. While horticultural development got comprehensive policy and budgetary support during the XIth Plan, it hasn't made any difference to horticultural extension provision which continues to remain weak. The need for strengthening extension provision in horticulture is much greater now than ever before, argues, Saju George and MR Hegde.

The diverse agro-climatic conditions prevalent in India enable the production of a wide variety of horticultural crops. It also facilitates crop diversification, productive use of marginal lands and employment generation through cultivation and value addition.

Horticulture sector also contributes to achieving nutritional security and earning export revenue. It contributes around 30 % of the agricultural GDP (from about 13.08 % of the total cropped/net area) and 37 % of the total exports of agricultural commodities (GOI, 2011).

Box 1: Horticulture in India

In India, the Horticulture sector refers to fruits and vegetables including tubers, ornamental, medicinal and aromatic crops, spices and plantation crops. India is the second largest producer of fruits and vegetables in the world with annual production of 77 MT and 150 MT respectively. India occupies the first place in the production of mango, banana, litchi, papaya, pomegranate, sapota and aonla and 2nd place in lime and lemons. It also occupies first position in the production of cauliflower, second in onion and third in cabbage (NHB, 2011).

Small and marginal farmers dominate the sector. The sector is labor intensive and on an average it employs 84.33 man days per acre per year (GOI, 2005). Only 2 % of the horticultural produce is commercially processed in India as compared to 30% in Thailand, 70 % in Brazil, 78 % in Philippines and 80 % in Malaysia (GOI, 2005).

Horticulture has been recognized as a potential sector since the IVth Five year plan (1969-74). Comprehensive support (policy and budgetary) has been extended for the development of horticulture sector in the country during XIth five-year plan period (2007-2012). During this period three flagship schemes having impact on horticulture development namely, National Horticulture Mission (NHM), Horticulture Mission for NE and Hilly Area and Rashtriya Krishi Vikas Yojana (RKVY) were also implemented. The effort made for horticulture development through the said flagship schemes have been reinforced by other ongoing schemes of National Mission on Micro Irrigation, schemes of Coconut Development Board and National Horticulture Board.

Though the horticulture sector was pegged to grow at 6 % in the eleventh five year plan, the latest estimates indicate that it will achieve only about 5 % growth during this period (GOI, 2011). India aims to double its horticultural production by 2030. But achieving this growth depends to a large extent on the availability, access and application of new knowledge by

different stakeholders in the horticultural sector. An efficient and effective extension provision that facilitate knowledge exchange and application is therefore critical for enhancing productivity and competitiveness of the horticultural sector.

Public sector extension has been generally weak in the horticulture sector. Several positions remain vacant in the state Departments of Horticulture (DoH). The working group on horticulture and plantation crops for the XIIth Five Year Plan (GOI, 2011) noted that that horticulture extension is not only dependent on strength and high academic qualification of manpower appointed as extension workers but it also depends on quality and relevance of extension messages, capacity of extension workers in understanding of technology needs of the stakeholders and selecting most appropriate technology solutions to the problems and finally in conveying the same to horticultural farmers and producers. Extension also has to deal with the increasing demand for advice on high-tech horticulture and managing post harvest infrastructure. Considering the special features of the sector, horticultural extension has to be organized differently.

Organizing Horticultural Extension

Table 1 illustrates the nature of challenges in horticulture and its implications for organizing extension for horticulture.

Status of Horticultural Extension in India

There are different types of extension providers in the horticultural sector. These are as follows:

a) State Directorates/Departments of Horticulture: At least half the number of states in India has a separate Directorate/Department for Horticulture. However their, scope, resource and commitments vary widely. In the state agencies, senior officers oversee the administrative functions and extension work is left to the lower level functionaries. Many of these lower level functionaries lack knowledge of advances in the field of mechanization, post harvest management, processing and marketing. As a result, they lack confidence in addressing to field level problems faced by farmers.

Some of the states such as Karnataka, Maharashtra & Kerala have robust horticultural programmes. In Karnataka, the Horticultural Producers Co-operative Marketing and Processing Society (HOPCOMS) help farmers in obtaining remunerative prices for their produce. It also supports farmers in scientific production of fruits and vegetables through supply of quality inputs and technical advice. The horticultural farmers can obtain prices of horticultural produce through SMS service of HOPCOMS. In Kerala, the Vegetable and Fruit Promotion Council, Keralam (VFPCK) supports horticulture extension through organizing farmers into self help groups and facilitates their access to technology, credit and markets. In Maharashtra, the Government has been actively supporting formation of farmer groups and marketing co-operatives. Establishment of Floriculture Park (Pune) and Wine Parks (Nashik and Sangli) and Food Parks (Pune and Nagpur) are all expected to strengthen the value chain in horticulture in the state.

b) Central agencies & Mission Directorates: There are many central agencies involved inhorticultural development. National Horticulture Board (NHB), Coconut Development Board (CDB), Directorate of Cashewnut and Cocoa Development, Directorate of Arecanut and Spices Development; Spices Board, Tea Board, Coffee Board and Rubber Board have their own field offices for implementation of their schemes. Apart from this some of the recent missions such as Horticulture Mission of North East and Himalayan States (HMNEH); National Horticulture Mission (NHM); National Mission in Micro Irrigation (NMMI), and d) National Bamboo Mission (NBM) etc provide grants to states for horticultural development. Each of the Mission Directorate has an ad hoc Technology Support Group (TSG) which consists of outsourced experts most of whom are retired senior functionaries from ICAR/SAUs.

c) ICAR SAU, KVKs and ATMA: ICAR institutes and SAUs basically concentrate on research andextension education and they have limited funding and manpower for carrying out extension work in the field. So their services are mostly utilized for capacity building of line department extension staff. KVKs are organizing a number of trainings on horticulture but again lack of sufficient operational funds constrains their effective reach. Agricultural Technology Management Agencies (ATMA) at the district level do focus on field extension programmes, but again their activities are also limited due to funding constraints and capacity gaps related to horticulture.

d) Agribusiness Firms: Several agribusiness companies are engaged in procurement and processingof horticultural produce. Many of them have introduced new varieties and brought better production and processing technologies. The examples include: Pepsi in West Bengal and Punjab, ITC in Madhya Pradesh, TATA Khet se in

Table 1: Issues in Horticulture and its implications for organizing extension

S. no.	Issues in Horticulture	Implications for organizing horticultural extension
1	**Technology intensive:** Horticultural sector is technology intensive. With demand for fresh fruits and vegetables increasing even during lean season, poly house cultivation of horticultural crops is gaining importance. Urban and peri-urban horticulture has been expanding over the past one decade .New poly houses are coming up to meet the increasing demand for horticultural produce round the year.	Specialist extension functionaries who can advise farmers on hi-tech horticulture are needed
2	**Availability of quality seed and planting materials:** Seed and planting material are the basic foundation on which agriculture and horticultural growth can be achieved. Good quality seed and planting materials especially of fruit crops are often not available in sufficient quantities to meet the demand.	There is a need to train more farmers/ farmer - entrepreneurs for production of quality seed and planting material.
3	**Poor extension coverage:** The ratio of farmer to extension agents is very poor in horticultural sector. This ratio needs to be narrowed down by strengthening the state level horticultural departments with more human resources. Several positions remain vacant in the Department of Horticulture (GOI, 2011). For instance, in Karnataka, out of the 5390 positions in the Department of Horticulture (DoH), only 3678 positions are filled. The vacant positions in the DoH in other states are as follows: Andhra Pradesh (49 %), Gujarat (53%), Madhya Pradesh (35%), Tamilnadu (16%), West Bengal (75 %), Haryana (31 %), Bihar (44 %), Uttar Pradesh (35 %) and Kerala (6%).	Number of extension officials in horticultural sector needs to be increased by way of recruitment, contractual employment or deputation.
4	**Increasing concerns around food safety:** With the growing awareness on health issues, the demand for pesticide residue free safe produce is growing. Adoption of IPM (Integrated Pest Management) and INM (Integrated Nutrient Management) practices can considerably improve food safety standards but promoting these types of technologies would require requires intensive extension efforts including approaches such as farmer field schools.	Promotion of IPM and INM technologies through farmer field schools should be an important priority in horticulture.
5	**Predominance of small and marginal farmers:** Most of the vegetable farmers fall under small and marginal farmer category and they require regular advisory support. Input dealers and neighboring farmers are their main source of information and these arrangements are largely unsatisfactory.	Extension should reach out to service the needs of small and marginal horticultural producers
6	**Marketing:** Being perishable, fruits and vegetables need to be marketed or processed quickly. Rural roads, collection centres, cold storage facilities, well functioning markets are all required if farmers have to gain adequate income from horticulture.	Extension should focus on organizing producers and strengthening their links to various actors across the value chain
7	**Post Harvest Management:** Value addition will help to overcome the problem of seasonal variations in production and demand and realize better incomes. Post harvest technologies are a must for the development of horticultural sector.	Specialists dealing with post harvest management should be part of the horticultural extension team.
8	**Mechanization in Horticulture:** With increasing rural wages, farmers especially those who are growing vegetables are looking for mechanizations of farm operations to save on labor costs. But with shrinking landholding size, it is difficult for the small and marginal farmers to have individual ownership of agricultural/ horticultural machinery.	Custom hiring centres and hi-tech machinery banks, from where small and marginal farmers can hire required agricultural machinery may be established. Setting up of demonstration units at the district level to help farmers experience different types of farm machinery might also help.
9	Entrepreneurship development: For horticulture to develop, entrepreneurship needs to be nurtured among rural youth. Production of seed and planting materials, bio agents, bio-pesticides, biofertilizers, foliar nutrient products; installation of drip irrigation systems, promotion of protected cultivation are some potential areas for entrepreneurship development.	More support has to be given for entrepreneurship development in horticulture.

Punjab, McAins in Gujarath and Adani in Himachal Pradesh. Organised retailers such as Reliance fresh, Heritage, Spencers, More, Food world, Nilgiris have entered into vegetable procurement and they do provide limited technical advisory support (Ravikumar, 2013). Farmers selling their produce to organised retailers are found to benefit by way of higher prices and some of these organised retailers have set up demonstration farms, nurseries and formed technical support teams to offer extension services (Sulaiman et al, 2010). Buyers who enter into contract production programme of horticulture crops for exports, processing or domestic marketing do supply seed and planting material, farm inputs and relevant technologies. This group is a very effective in transfer of technology in respect of certain specific horticultural crops like cut flowers, export quality grapes, wine variety of grapes, green peas, exportable mangoes, gherkins etc.

e) Growers Associations: A number of growers associations have been successfully providingextension support in horticultural crops like pomegranate, grapes and mango especially in states such as Maharashtra and Karnataka. However many of the growers associations started with public funding have not been successful. For instance, during the last one decade, the National Horticultural Board has promoted some 19 Growers Associations and provided seed money and grants for meeting initial administrative expenses. But these associations are not engaged in field extension work, and they also failed to expand the membership base, (GOI, 2011).

f) Consultants: There are a number of hi-tech operations in respect of commercial horticultureprojects which require certain amount of expertise/skill like pruning, grafting, poly-house operations, maintenance of fertigation system etc. Consultants are generally engaged in rendering this kind of extension services by farmers especially those growing high value commercial horticultural crops like roses, gerbera, colour capsicums and exotic vegetables.

g) Input Suppliers: Seed, pesticide and fertilizer companies are engaged in limited extension services.Most of them organize events to promote their inputs among farmers.

h) ICTs: Most Radio and Television stations air programmes on horticulture. Mobile service providerssuch as IKSL, RML etc are offering weather, crop and price advisory services through SMS or Voice mail to the subscribers for their farm service. Some of the KVKs have also stated providing SMS advisories to the farmers who are registered with them for this service.

Way Forward

Over the years, horticulture has emerged as one of the potential agricultural enterprise in accelerating the growth of the Indian economy. Apart from this, it contributes to achieving nutritional security, poverty alleviation and employment generation. The horticulture sector is currently going through a period of significant changes. The current emphasis on urban and peri-urban horticulture, precision farming, hi-tech horticulture, organic farming, horticultural processing & export and expansion of organized retail in fruits and vegetables all indicate the new momentum in this sector. Considering the high perishability of the produce and volatility in prices, an efficient supply chain that links the different actors in the horticultural value chain is critical for horticultural development.

Extension services are generally weak in the horticultural sector. Lack of co-ordination among the different service providers is very common in this sector. Increasing the number of extension staff as well as enhancing their capacities to deal with the evolving demands of farmers

need priority attention. Horticultural extension should embrace a value chain approach where the capacities of different actors in the value chain (from provision of quality planting material, quality inputs, advisory services, production, processing to marketing) should be continuously enhanced. Apart from strengthening the capacity of extension staff in the public sector, there should be a provision for enhancing capacities of commodity groups, grower associations, input suppliers, contract buyers, agribusiness firms all need new capacities. ATMA, SAMETIs, KVKs, SAUs, NHB, NHM and ICAR institutes can play a major role in this endeavor. Convergence of different schemes and programmes in horticulture also need emphasis.

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93

BEYOND THE FIRST STEP: EXPLORING THE COMMITTEE REPORT ON EXTENSION AND DOUBLING OF FARMERS' INCOME

The Eleventh Volume of the Report of the Committee on Doubling Farmers' Income (DFI) examines the status and reforms needed in the agricultural extension system in India. Though a first step in the right direction, this report warrants more discussion and debate in order to address omissions and to develop an implementable plan of action, argues RM Prasad.

The Government of India in April 2016 constituted a committee on 'Doubling Farmers Income' under the Chairmanship of Ashok Dalwai. Six out of the 14 volumes prepared by the Committee are currently available online (http://www.agricoop.nic.in/doubling-farmers). The committee submitted its report "Empowering the farmers through extension and knowledge dissemination" (Vol. XI) in November 2017. The committee is seeking comments and suggestions on these draft reports including the one on extension.

What the Report says

The report is organised in eight chapters. The first chapter covers the role, importance, and status of Extension. The DFI Committee defines 'Extension' as "an empowering system of sharing information, knowledge, technology, skills, risk and farm management practices, across agricultural sub sectors, all along the agricultural value chain, so as to enable the farmers to realise higher net income from their enterprise on a sustainable basis". The definition covers two outcomes of the extension process at the farm level: getting higher income from farming; and realising the income gains on a sustainable basis. The report draws specific attention to some important facts –even though currently agricultural extension services are available on a pluralistic platform, the quality of extension tends to suffer given its tendency to repeat a limited set of extension activities, as well as from procedural bottlenecks.

The second chapter deals with the changed role of Agricultural Extension. The DFI Committee is guided by the fact that more than 85 per cent of farm holdings in the country are small and marginal and are economically challenged, and there is need for deploying scales of operation. Psychological counselling is intended to be an integral part of extension advisory. The report indicates that a team of researchers are presently working on creation of a 'Stress Index' (SI) for farmers and preparing a training module for village level volunteers. The Committee argues that for meeting the new challenges, broadening the extension perspective is crucial for efficient and cost effective extension, real time extension, location specific extension, and extension for sustainability. The report recognizes *intensification* and *diversification* of agriculture as strategies that can significantly contribute to doubling of farmers' income. Both the strategies are based on existing resources available with farmers, wherein efficient utilization is the key need. It also mentions the reduced focus of extension on horticulture, dairy, livestock, poultry and fishery sub sectors as shortcomings of the current agricultural extension system. These warrant greater attention from

the extension service systems so as to meet the objective of doubling farmers' income.

Another observation of the Committee is that University Extension has an important function to perform as 'concept nursery and think tank', while organically integrating with mainstream extension when covering their service area. The report also touches on PPP in extension service delivery and recommends that a progressive National Level Ranking Framework (NLRFW) for extension service providers, both public and private, needs to be put in place.

Chapter 3 describes the roles, responsibilities and models of the extension system. The report proposes the establishment of an 'e-national bank for Agricultural Technologies (e-NBAT) as a national level repository of knowledge, converging all standard practices and technologies on a common extension platform to be owned and managed by MANAGE. The report also suggests that the role of Directorate of Extension (DoE) of the Ministry of Agriculture, which is currently serving as a subordinate office, needs to be changed and more autonomy granted to it. DoE and MANAGE will need to work in tandem to help enhance the delivery capacity of the agricultural extension system across the country. The linkages among MANAGE, EEIs and SAMETIs are also discussed in this chapter. The extension model for doubling farmers' income is provided in page 44 of the report. But it is debatable whether this can be considered as a model. The technology flow proposed in page 59 of the report also needs to be further debated and discussed for further refinement.

The human resource use efficiency in Extension is covered in Chapter 4. The extension manpower density in the different states of India is presented in the report. In view of the changed scenario, the DFI Committee is of the opinion that minimum ratio of extension service providers to farming families can be revisited and recommends the ratio as: a) Hilly areas - 1:400; b) Irrigated areas - 1:750; and c) Rainfed areas - 1:1000. The report highlights the need for incentivizing for effective extension delivery. The need for performance-linked incentives for field functionaries and the concept of 'one village-one farmer friend' is also projected.

The Committee observes that ATMA remains a platform of relevance to meet DFI challenges, and that it is necessary to refresh the institutional mechanism and implementation procedures so as to harvest the advantages of a platform that aims concurrently at both public-public partnership and public-private partnership. Essentially, both models of PPPs need to function with a spirit of synergy. The report also indicates that the outcomes realised from ATMA have not been up to its potential, due to some dilutions which are discussed in the chapter. The Committee observes that commercial agriculture requires additional extension services for which reorientation of the existing extension system is necessary, including incorporation of banking and financial institutions, co-operatives, etc., as extension platforms.

The fifth chapter deals with ICT in Extension. The report indicates that digital technology has the potential for creating a virtual extension platform that is available to farmers 24x7 – anytime, anywhere – for fastest and cheapest transfer of technologies. It is clearly mentioned that both farmers and extension workers are to transform as e-farmers and e-extension workers in the days to come by appropriately utilizing ICT tools. "Access to information" and "information to access" of

appropriate location-specific content and advisory system in languages understandable by farmers, is highlighted in the report.

Though there are many ICT interventions in agriculture in both public and private domains, only major ICT interventions of the DoA& FW are listed in the report. Suggestions for promoting ICT in Agricultural Extension are also given in the report. Areas requiring immediate ICT interventions are also indicated.

Chapter 6 covers issues and concerns relating to the empowerment of women for income enhancement. NSS data indicate that there has been steady decline of men in agriculture over the last three decades, with the percentage of men coming down from 81 per cent to 63 per cent as compared to women, in whose case, it has come down from 88 per cent to 71 per cent. This trend is referred to as "feminization of Indian agriculture". According to reports by FAO, if women farmers in developing countries have equal access to production resources as men, their productivity can be enhanced by 20-30% and agricultural production could be raised by 2.5 to 4%. Hence there is a need to create an alternative system for empowering women.

The report indicates that it is important to significantly increase overall allocation for women in agriculture by making it to at least 50 per cent (from the current 30 per cent) or more across all schemes of the Ministry. The need to formulate new schemes specifically to suit the needs of women farmers in different agro-ecological contexts is also specified.

The seventh chapter focuses on strengthening technology backstop institutions. The report indicates that an institutional mechanism for promoting partnership between, and among, related labs on common farmer-related problems would be highly useful, if put in place. (An element of doubt about establishment is reflected here.) The report also points out that there is need for developing operational guidelines for implementing individual social responsibility initiatives in public and private institutions. (But the report is silent on institutional social responsibility.) Technological backstopping can be strengthened by establishing a four-way mode of communication: between labs, from lab to land, and land to lab, and between farms. The scope of AC and ABC scheme of MANAGE for technological backstopping is also provided in the report.

Chapter 8 presents the recommendations of the report under three heads – Redefining Agriculture Extension, Key Recommendations, and Other Recommendations. Some of the major recommendations are given in Box 1 (below).

Box 1: Major Recommendations

- Agricultural Extension has to be redefined with focus on income security of farmers. Income security is both a challenge and an opportunity.
- Focus areas that demand strengthening of the extension system are listed out, which have to be addressed.
- Extension should follow a 'project approach' through projects of suitable sizes to provide full support and facilitation to farmers, including backward linkages (production) and forward linkages (marketing), along with an integrated farming systems approach through convergence.
- ATMA has to be retained with reforms and a strong monitoring mechanism to ensure adequate compliance with implementation procedures.
- Capacity building of extension functionaries should concentrate on the principles of agri-business extension.
- A one-time catch up grant may be provided for upgrading the performance of training institutions in the country, after identifying gaps.
- A Central Board of Studies has to be constituted at the national level to review and regulate changes in curriculum across all the 74 Agricultural Universities of the country so that the standards and content of education in agriculture address the field level problems of farmers.
- A national and state e-Agricultural policy has to be formulated to explore and outline the possibilities of leveraging ICT for agricultural extension.
- Setting up of an integrated portal on Agricultural marketing by integrating websites of e-NAM, AGMARKNET, APEDA, APMCs, MPEDA, etc.
- The public and private extension system should be synergised through win-win PPP models, aligned with state and district plans, and promoted through outcome linked incentives.
- Situation-specific protocols are to be developed for building more transparency and trust into the partnerships with private extension services known for their aggressive marketing strategies vis-a-vis the public extension system, to avoid conflicts of interest.
- The extension system should promote and support the agricultural value system by guiding the farmers appropriately, for which extension functionaries also need to be suitably oriented.

What the report doesn't say

The report is silent on the need for developing an appropriate field extension system in line with the T&V system. This is all the more relevant in the context of doubling farmers' income.

The role of extension in the wider agricultural innovation system (AIS) is not addressed in the report. Extension services have to widen the agenda and emerge as a "bridging organisation" linking several actors, rather than just being an intermediary between researcher and farmer. This is not reflected in the report.

Information, knowledge, and skill are identified as the three faces of Extension in the report. Wisdom is another important concept which is not included in the report. The traditional wisdom of farmers must be effectively used by the extension system.

Though the pluralism of the extension system is highlighted and the need for convergence is mentioned in the report, the dynamics and mechanism of convergence are not properly addressed. A separate chapter on Convergence would have been ideal.

The most important skill to be learned today is "Learn to self-learn and fast-learn". This will not be easy for farmers who do not have the requisite mind set and attitude to accept digital technologies. This is not seriously taken into account in the report.

The need for attracting and retaining youth in agriculture is a greatly felt need. However, the report has not given due importance to this. Extension services for skill development, entrepreneurship development, incubation centres, and agri ventures could have been presented in detail as a separate chapter in the report.

Governance of the extension system covering appropriate monitoring and evaluation tools, issues related to implementation of programmes, capacity development efforts for professionalism, etc., has to be discussed in greater detail in the report.

Extension for sustainability is an important issue that needs to be properly addressed. The report only makes passing mention of this critical issue.

There is no mention about extension research in the report, which is a serious limitation. The need for promoting extension research for strong extension service delivery is critical, which is not addressed in the report.

A protocol for scaling up of successful pilots titled "From pilots to projects" is very much needed in the report. There is a critical need to move from project (pilots) to systemic interventions (scales). It is observed from the field that many of the successful pilots are not upscaled, the reasons of which have to be probed into and addressed.

The report makes several sweeping generalisations without proposing any action plan. For instance, the report talks about emphasising targets that focus on outcomes that result in profitability enhancement at the farmer end. It also mentions that there is scope for on-farm, off-farm and non-farm activities, which can generate additional job opportunities, which is very important from the point of doubling farmers' income. It talks about the need for the Directorate of Extension and MANAGE to work in tandem to enhance the delivery capacity of the agricultural extension system across the country, without exploring the reasons for why they are not working / or should work in tandem.

Way Forward

I appreciate the efforts of the Committee in preparing a report on extension and doubling farmer income. The report clearly indicates that the current extension service system has so far been largely co-ordinated for input marketing and associated services, besides farm management. The report discusses a suitable architecture for the extension network needed in the country.

However, based on my reading of this report, I feel that it is a half-baked attempt to reform the extension service delivery in India. Many useful documents that should have been consulted for a report like this are missing. For instance, Report of the 12th Plan Working Group on Agricultural Extension (Planning Commission, 2012) which presents detailed analysis on extension and has made several relevant recommendations seems to have not been consulted while drafting this report (as this is not listed in the References section on page 123). Otherwise also, only very few documents are included in the references which has affected the completeness and totality of a report like this.

While the DFI Committee Report "Empowering the farmers through extension and knowledge dissemination" is a first step in the right direction, it warrants more discussion and debate among the extension fraternity in the country. This is important for addressing the lapses in this report and for reorienting the current extension system to make it more vibrant, realistic and field-oriented.

94

ISN'T IT TIME TO SET UP AN INDIAN INSTITUTE OF ORGANIC AGRICULTURE?

Demand for organic food is increasing at 20-22% per annum in India. Its time India invests in organic research and education to develop specialized human resources trained to further the organic movement in the country, argues Sabyasachi Roy.

More and more farmers across the world are turning to organic agriculture. There is a growing consciousness about benefits of organic agriculture as a means to ensuring sustainability and true food security in long run. The World of Organic Agriculture 2013 survey by Research Institute of Organic Agriculture (FiBL) and International Federation of Organic Agriculture Movements (IFOAM) reported that in total 69.7 million hectares (agricultural and non-agricultural areas) were organic and there were 1.8 million organic producers worldwide in 2011. The global market for organic food sales was US $ 63 billion in 2011 and it has expanded 170% since 2002.

Box 1: Organic agriculture in India

In India, the area under organic farming has been increasing exponentially from 0.04 million hectares in 2003-04 to 5.55 million hectares of cultivated land under certification in 2011-12, and produced 3.9 million MT of certified organic products in 2010-11 that included Basmati rice, other cereals, pulses, honey, tea, spices, coffee, oil seeds, fruits, herbal medicines, processed food and value added products and also organic cotton, etc. with involvement of around 10 million farmers.

As per the Agricultural and Processed Food Products Export Development Authority (APEDA), India exported 300 organic items with a total volume of 115,417 MT and realization of INR Rs. 8.39 billion in 2011-12 and the export market for Indian organic products is expected to grow at 60-70% per annum in the coming years. Further, with growing consumer consciousness in India the demand for organic food is increasing at 20-22% per annum (Yes Bank, 2013)

Need for a New Paradigm

United Nations Development Programme (UNDP) in 1992 noted that practicing organic agriculture involves managing the agro-ecosystem as an autonomous system, based on the primary production capacity of the soil under local climatic conditions. Agro-ecosystem management implies treating the system, on any scale, as a living organism supporting its own vital potential for biomass and animal production, along with biological mechanisms for mineral balancing, soil improvement and pest control. Farmers, their families and rural communities, are an integral part of this agro-ecosystem. In other words, shifting to organic agriculture involves a change in the current paradigm of agricultural development.

Research in sustainable and organic agriculture is inherently different from conventional agricultural research. The traits, attributes and benefits of

Box 2: Paradigm shift?

FAO (2011) in its guide book "Save and Grow points out that the present paradigm of intensive crop production cannot meet the challenges of the new millennium. The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) in 2008 reported that the way the world grows its food will have to change radically to better serve the poor and the hungry if the world is to cope with a growing population and climate change while avoiding social breakdown and environmental collapse. The same report also pointed out that while the agricultural research enterprise has fulfilled its promise to improve productivity, significantly improving the livelihoods of millions of people, it has been less attentive to the unintended social and environmental consequences of research achievements.

organic agriculture research and education are measured in a different way than in conventional methods. It needs more perseverance, involvement of the farmers themselves, social innovation and understanding of their ecosystems. The Planning Commission Working Group on Agricultural Research and Education for the 12th Five Year Plan (2012-17) of the Planning Commission has recommended organic farming as a major research priority area under horticulture sector.

The Working Group on Horticulture, Plantation Crops and Organic Farming for the 11th Five Year Plan (2007-12) recommended introduction of formal education in organic farming practices, through Agricultural Universities/specialized institutions and developing human resources in the fields of organic production, quality assurance, extension, value addition, trade and marketing. National Commission on Farmers in 2006 recommended organic farming as one of the potential options to help solve the agrarian crisis.

Key Initiatives in Organic Agriculture in India

The organic sector in India has been mainly driven by NGOs, farmer organizations (supported by NGOs), agripreneurs and private business groups. Government too has been playing an important role in promoting organic agriculture.

Government support to organic research, education & extension in India:

Recognizing the fact that requirements for organic production systems differ from those for conventional chemical-based production systems, Natural Resource Management (NRM) Division of Indian Council of Agricultural Research (ICAR) during 10th Five Year Plan period (2004-05) initiated the multi-partner inter-disciplinary research project – the Network Project on Organic Farming at Modipuram with Project Directorate for Farming Systems Research as Lead Institute and 13 cooperating centers. A major intervention to promote organic farming by the Central Government was the launch of the Central Sector Scheme "National Project on Organic Farming" (NPOF) in April 2004. The National Centre of Organic Farming (NCOF), Ghaziabad and its six Regional Centres at Bangalore, Bhubaneshwar, Hissar, Imphal, Jabalpur and Nagpur implements the NPOF and works towards promotion of organic farming in the country.

The Indira Gandhi National Open University (IGNOU), New Delhi in collaboration with the APEDA has developed a 6-month certificate course on organic farming under the open and distance learning mode for persons with secondary school qualification (i.e. 10+2 pass). The National Centre of Organic Farming has started a month-long certificate course on organic farming for the rural youth having degree or diploma in agriculture at its centre in Ghaziabad. Three such courses would be conducted in 2013-14 and each course is for 30 participants. The Indian Agricultural Research Institute (IARI) and some of the state agricultural universities like Tamil Nadu Agricultural University, G.B. Pant University of Agriculture and Technology, etc. have introduced post graduate courses and farmer training programmes on organic farming – principles & practices, organic vegetable production technology, etc.

Non Governmental Initiatives

Many NGOs/Trusts promoting organic farming, like Morarka Foundation (Jaipur), CIKS (Chennai), etc. provides training of various durations to farmers/rural agripreneurs in organic agriculture. The Amity University, a private sector university, established the Amity Institute of Organic Agriculture (AIOA) in Noida and provides M.Sc. and PhD degrees in organic agriculture. The institute website claims that it is carrying out basic and applied research in organic production management systems, knowledge management, training and advisory services.

Apart from these, the International Federation of Organic Agriculture Movements (IFOAM), Germany, starting 2012, offers an eight months organic leadership course every year for South Asian participants assuming present or future responsibilities in the organic world.

Need for more concerted action

India needs to tap/develop young talent and empower them with knowledge, skill, attitude and energy to work for the organic sector and a sustainable agricultural future. Though there are a few institutes in the public, private and NGO sector conducting training programmes for farmers and agripreneurs and few centres offering few post graduate level organic farming courses, no full- fledged educational programme is available in the area of organic farming in the country. Moreover, without a national level and specialized institute on organic farming, the impact of the organic farming movement will always remain limited.

Indian Institute of Organic Agriculture?

The challenges for development in the new millennium calls for setting up an innovation driven dedicated centre of excellence for research, learning and extension focused solely on sustainable and organic agriculture systems. The mandate and reach of the NCOF is limited with the focus mainly on promotion, production, research and statutory quality control of organic inputs, capacity building of farmers/extension professionals and organic certification through Participatory Guarantee System. The need is for a national institute with broader mission for conducting hands-on research and education producing empowered – educated and inspired young people to strengthen the organic movement. This institute which could be called as the Indian Institute of Organic Agriculture, needs to be established by the Government of India ideally under the aegis of the Indian Council of Agricultural Research (ICAR) in partnership and collaboration with other key agricultural centers in India including NCOF and international initiatives such as International Federation of Organic Agriculture Movements (IFOAM).

Its objectives might include the following:

- **Research & Innovation:** Undertake research on technology development, creative solutions,social innovation and policies for organic farming in agricultural systems comprising crop production, horticulture, livestock and dairying, fisheries.
- **Education:** Develop practical oriented highly skilled professionals as well as leaders, entrepreneurs and change agents on organic agriculture and livelihoods promotion by offering education and research at the post graduate (M.SC and PhD) level and certificate courses (may be in collaboration with other institutes/universities).
- **Capacity Building:** Develop farmer leaders, innovators and entrepreneurs by undertaking capacitybuilding on organic agriculture practices for rural youth, farmers including urban and peri-urban farm households.
- **Extension & Knowledge Management:** Employ participatory extension methods; document goodpractices & standard operating procedures; conduct awareness generation programmes; publish newsletters and journals and create web based portals.
- **Advocacy & Consultancy:** Undertake advocacy for pro-poor and pro-organic agricultural policiesand consultancy projects for & with other research & educational institutes and business houses.
- **Rewards & Recognition:** Encourage and promote farmers, scientists and professionals withoutstanding contribution to organic agricultural development.

Finally, the success of the institute would largely depend of strategic collaboration/partnership with national and international institutes, universities and centers of excellence.

Way Forward

It is important to note that the EU nations have heavily invested in organic research, education and extension. USDA's National Agricultural Library has reported that a literature search in 2006 showed that 68% of world's organic research so far had been conducted in Europe. India needs to catch up fast to corner a share of the increasing demand for organic products world-wide and also to meet the growing domestic demand for organic products. It is time that India invests in organic research and education to develop specialized human resources trained to further the organic movement in the country.