Chapter – II

Identifying Farming Systems, Field Problems and Developing Action Plans

The broad mandates of KVKs call for on farm testing of frontier technologies, demonstrating the proven ones and training the farmers, rural youth and extension functionaries on the same. This requires identification and sourcing of latest technologies in response to field problems. Unless KVK scientists identify the grass root level problems existing in the villages of the district, the processes of OFTs, FLDs and training programmes will prove futile. Identifying the farming systems existing in the district is a prerequisite to all the above activities, the indepth analysis of which will guide the KVK scientists in identifying the field problems.

One of the first tasks of KVK is to facilitate the preparation of Strategic Research and Extension Plan (SREP) of the district. The SREP is prepared through participatory methodologies such as Participatory Rural Appraisal (PRA) involving all the stakeholders and farmers. The SREP contains detailed analysis of all the information on existing farming systems in the district and research – extension gaps required to be filled-up. It also prioritizes the research – extension strategies within the district. It becomes the basis for development of work plans at district level. ATMA districts have a well defined SREP which KVK can refer to.

2.1 Farming Systems

A *farming system* is defined as a complex interrelated matrix of soil, plants, animals, power, implements, labour, capital and other inputs controlled in part by farming families and influenced to varying degrees by political, economical, and institutional and social forces that operate at many levels.

It may also be defined as a population of individual farm systems that have broadly similar resource bases, enterprise patterns, household livelihoods and constraints, and for which similar development strategies and interventions would be appropriate. Depending on the scale of the analysis, a farming system can encompass a few dozen or many millions of households.

The classification of the farming systems of developing regions has been based on the following criteria:

- available natural resource base, including water, land, grazing areas and forest; climate, of which altitude is one important determinant; landscape, including slope; farm size, tenure and organization; and
- dominant pattern of farm activities and household livelihoods, including field crops, livestock, trees, aquaculture, hunting and gathering, processing and off-farm activities; and taking into account the main technologies used, which determine the intensity of production and integration of crops, livestock and other activities.

Farming System Analysis (FSA) is an in-depth, quantitative analysis of an existing farming system of the study area. The farming system can be defined as "an unique and reasonably stable arrangement of farming enterprises that the farm household manages according to well defined practices in response to physical, biological and socio-economic environments and in accordance with the households' goals, preferences and resources. These factors combine to influence the output and production methods. More commodities are found within the system than between systems. The farming system is part of larger systems, i.e. the local community and can be divided into subsystems/ cropping systems. Central to the system is the farmer himself (Shaner et al., 1982).

KVKs have to begin with Farming System Analysis which studies the farmers of the district and their problems in a comprehensive manner using an inter-disciplinary approach that complements the existing research and development activities and is interactive, dynamic and responsive to the society (Shaner *et al*, 1982). Some of the essential features of Farming System Analysis are as follows:

a) It is a strongly applied and empirical 'problem solving' approach.

b) All activities of the farmers are analyzed in a holistic framework.

c) Relatively homogenous groups of farmers are identified as the clients of on farm research in specific agro-climatic zones. This approach gives the resource poor farmers for the first time a voice in tailoring the research priorities to his needs.

d) It is an inter-disciplinary approach involving social and biological scientists.

e) It involves farmers participation.

f) It is a dynamic 'Learning by doing' approach.

g) It involves on-farm trials, survey (socio-economic and technical) and field demonstration and workshop.

h) It is mainly concerned with the downstream (applied) research which begins with an understanding of the existing farming systems and the identification of key constraints.

i) It is to be judged by the extent to which it influences the production of socially desirable technologies that diffuse quickly amongst specified groups of farmers.

FSR, in its many forms, has made a major contribution to understanding small farming systems and to improve agricultural research. These include the farm household and its needs, objectives, biological, economical and human dimensions. Different observers have identified different activities and stages in the FSA. Its objectives differ from straight disciplinary and commodity research; it encompasses benefits to farm family through understanding of its farming system; and the location of some of the work differs, being on-farm instead of on-station.

2.2 Activities Involved in FSA

The basic activities involved are:

(a) Target and research area selection: For KVK it happens to be the district.

(b) Problem identification and development of research base through quick reconnaissance surveys by inter-disciplinary team (PC & SMS)

(c) Planning on-farm research emphasizing alternative cropping and livestock patterns, management practices and other activities of household.

(d) Analysis of results of on-farm research in terms of the statistical meaning of biological performance, actual resource requirement, financial feasibilities and socio-cultural acceptability.

(e) Extension of results through multi-locational testing and

(f) Effective collaboration with other agencies closely associated with the needs of resource poor farmers.

Conducting FSA of the district in a proper way allows the KVKs to identify the immediate problems. In India, the agricultural development could not achieve the desired impact, often because the technologies used are not consistent with their circumstances. In the past, the problems of resource poor farmers were often not clear to the development specialists and policy makers. They failed to appreciate the existing farming system, their problems and farmers' needs, which led them to develop and extend development strategies that were inappropriate to resource poor farmers and ecosystem. Since FSA stresses more on the understanding of the farming systems and the farmers' environment, it is more apt to design technologies that are appropriate and acceptable to resource poor farmers. It starts with farmers and learns about their environments, resources, methods of production, problems and opportunities, aspirations, and how they react to change. Then it moves on to the development of technologies through on-farm trials and finally evaluating them for their appropriateness by the farmers themselves. A checklist based on systems approach for the analysis of Farming systems in the KVK district is given under.

1. Identity and Boundary

Area to be developed needs a thorough analysis. Objective of the analysis, name, map, location of the areas in the district need to be marked out.

2. Elements

Things that one could find in the area: number of people, farms, farming population, types of soils, kinds of crops and animals, climate and water resources.

3. Attributes of Elements

How are the area composed, and a short description of

3.1 The people:

The social organization, social structure, leadership, existing conflicts or tensions, different social classes or farm sizes: what is a BF (big farmer), a MF (medium farmer) and a SF (small farmer), system of land ownership; of trade; for inputs, agricultural produce, credit, land use, tenancy and sharecropping, income differences, relations between men and women.

3.2 The soil:

Soil types, soil fertility and water availability (rainwater, irrigation, drainage, quantity, quality, seasonality)

3.3 The farming activities:

Which crops are grown, which animals are kept, how productive is the agriculture; self-sufficient/deficient/surplus production, for which commodities and for which people.

3.4 Natural vegetation and wildlife:

How are these used by the population: collection of firewood, fruits and vegetables, medicines, meat and fish.

3.5 Levels of education, traditional skills and knowledge, traditional crafts and skills.

3.6 Existing institutions for extension, training, research and mass communication both of government and private organizations.

3.7 Existing road, waterways and infrastructure.

3.8 Availability of farm inputs, markets, transport and processing facilities.

4. Processes of Transformation

What do the people do for a living?

For SF (Small Farmers), MF (Medium Farmers) and BF (Big Farmers);

4.1 What kind of inputs do they use? Which quantities and qualities?

4.2 What activities do they carry out in the farm? Which techniques and methods are used?

4.3 What do they produce, quantity and quality?

4.4 What do they do with their product?

Home consumption/ Processing (Brewing, milling etc.)/ Marketing.

4.5 How is income used?

Saving, consumption, investments, religious and communal investments, wastes, drinking/ gambling?

4.6 Which off farm activities are carried out?

5. Structure

How do the different categories of the population live and work together?

5.1 Which formal and informal groups exist, what are the most important social structures?

5.2 Leadership structure, conflicts or tensions.

5.3 How do men and women divide work and wealth?

5.4 How do goods, money, labour, wood, animal, land and information flow to and from SF, MF, BF, landowners, labourers, traders and other categories?

6. Interaction with Environment

Which movements of information, energy, wood, food and other agricultural produce, people (migrants) and money, takes place between the area and the environment in the region?

6.1 Which channels for transport are used?

6.2 Who benefits and who suffers from these flows? Men and women?

6.3 Which limitations/incentives does national price policy/legislation have on the agricultural production in the area?

7. Changes

Which changes take place in the area?

7.1 History and origin of the people. Which people becomes richer, which people becomes poorer and why?

7.2 Is the quality of the soil, the water and the air changing?

7.3 Which innovations in farming methods and techniques have taken place and still take place: Do SF, MF and BF apply different innovations, which and why?

7.4 Do people change in their social relations, forms of cooperations and leadership?

7.5 Are the observed changes induced from outside the area, if so by whom, and/or they the result of internal forces in the area, which and how?

8. Development Patterns

Which patterns can be observed in the current changes?

8.1 Growth or stagnation in average productivity as a result of technological, economic or social changes;

8.2 Change in stability of production levels as a result of change of vulnerability of systems to influence from weather, diseases and economic conditions.

8.3 Change in sustainability of the system as a result of ecological deterioration or improvement.

A detailed questionnaire developed by ZPD, Zone-III, which the KVKs can utilize to identify the farming systems existing in their district is given in Chapter –XII on action tools and associated reviews.

In order to identify the above factors, KVKs have to invest considerable time and efforts. Participatory methods come in handy under such situations which when used properly can yield the best results. These methods also build rapport between the villagers and KVK staff and facilitate better KVK activities in the long run. The most important participatory method for KVK scientists is the Participatory Rural Appraisal commonly referred as PRA. PRA helps in identifying the farming

systems, understanding the village better and ultimately in problem identification thereby unraveling the technology needs of the farmers of the district.

2.3 Participatory Rural Appraisal (PRA)

PRA comprises a set of techniques aimed at shared learning between local people and outsiders. The term itself is misleading because more and more PRA is being used not only in rural settings, and not only for project appraisal, but throughout the project cycle, as well as for research studies. Indeed, the term PRA is one of many labels for similar participatory assessment approaches, the methodologies of which overlap considerably. It is probably more useful to consider the key principles behind PRA and its associated techniques, rather than the name per se, when assessing its appropriateness to a particular situation.

There are **five key principles** that form the basis of any PRA activity no matter what the objectives or setting:

- **Participation**

  PRA relies heavily on participation by the communities, as the method is designed to enable local people to be involved, not only as sources of information, but as partners with the PRA team in gathering and analyzing the information.

- **Flexibility**

  The combination of techniques that is appropriate in a particular development context will be determined by such variables as the size and skill mix of the PRA team, the time and resources available, and the topic and location of the work.

- **Teamwork**

  Generally, a PRA is best conducted by a local team (speaking the local languages) with few outsiders present, a significant representation of women, and a mix of sector specialists and social scientists, according to the topic.

- **Optimal Ignorance**

  To be efficient in terms of both time and money, PRA work intends to gather just enough information to make the necessary recommendations and decisions.

- **Systematic**

  As PRA-generated data is seldom conducive to statistical analysis (given its largely qualitative nature and relatively small sample size), alternative ways have been developed to ensure the validity and reliability of the findings. These include sampling based on approximate stratification of the community by geographic location or relative wealth, and cross-checking, that is using a number of techniques to investigate views on a single topic (including through a final community meeting to discuss the findings and correct inconsistencies).

PRA offers a “basket of techniques” from which those most appropriate for the project context can be selected. The central part of any PRA is semi-structured interviewing. The various methods used are discussed in detail under the heading ‘participatory methods’.

2.4 The advantages of participatory approaches

Participatory approaches are particularly useful in providing feedback to policy-makers.

- **Economies of scale**

  Participatory groups constitute a grassroots "receiving system" that allows development agencies to reduce the unit delivery or transaction costs of their services, thus broadening their impact.

- **Higher productivity**

  Given access to resources and a guarantee that they will share fully in the benefits of their efforts, the poor become more receptive to new technologies and services, and achieve higher levels of production and income. This helps to build net cash surpluses that strengthen the groups' economic base and contribute to rural capital formation.

- **Reduced costs and increased efficiency**

  The poor's contribution to project planning and implementation represent savings that reduce project costs. The poor also contribute their knowledge of local conditions, facilitating the diagnosis of environmental, social and institutional constraints, as well as the search for solutions.

- **Building of democratic organizations**

  The limited size and informality of small groups is suited to the poor's scarce organisational experience and low literacy levels. Moreover, the small group environment is ideal for the diffusion of collective decision-making and leadership skills, which can be used in the subsequent development of inter-group federations.

- **Sustainability**

  Participatory development leads to increased self-reliance among the poor and the establishment of a network of self-sustaining rural organisations. This carries important benefits: the greater efficiency of development services stimulates economic growth in rural areas and broadens domestic markets, thus favouring balanced national development; politically, participatory approaches provide opportunities for the poor to contribute constructively to development.

2.5 Methods in PRA

Participatory methods are highly dynamic and continuously evolving. The objective of this chapter is to give a basic idea in this regard. Accordingly, only the most important PRA methods are presented below[1].

[1] KVK scientists who are interested on the recent developments in participatory techniques can refer to the latest book by Robert Chambers namely 'Revolutions in Development Enquiry' (2008).

2.5.1 Village Transect

Transects are systematic walks with key informants through the area of interest, observing, asking, listening, looking, and seeking problems and solutions. The main objective of the transect walk is to understand and study the major land uses, topography, water resources, natural vegetation and different ecological zones by observing, interacting and discussing with the Key Informants (KIs), while walking in the deciding direction. The findings can be mapped on a transect diagram. Most transect walks result in the outsiders discovering surprising local practices such as indigenous conservation practices, multiple uses of plants, and a great variety of crops. It has been instructive for many professionals to realize how much they do not see or do not think to ask about. The items for discussion include topics such as soil type, water resources, crops, vegetables, fruit plants, trees and shrubs, forages, animals, land use pattern, interventions, problems and opportunities.

2.5.2 Agro Ecosystem Map

Agro-ecological or agro-ecosystem map shows the macro and micro ecological (sub-systems) features in a village. The meteorological parameters like rainfall, temperature, relative humidity and the major flora and fauna of the village and the basic land use pattern such as crops, agro-forestry, forest cover, wasteland, animals and the natural resources like soil type, water resources (wells, river, channel, ponds etc.), common property resources (CPRs), use of locally available resources are depicted in this map. This map helps in the preparation of perspective planning for the village development.

Here the villagers are encouraged to draw the major land marks such as roads, boundaries, household area, low lying land and high lands first. Then based on the land topography they were asked to indicate soil types, crops, trees, animals, water resources etc.

2.5.3 Resource Map

Resource map is drawn after collecting information by the active participation of KIs of different age groups including female. Resource map describes regarding main crops grown in the village, trees, animals, common property resources (CPRs), types of houses, school, farm implements, luxury and communication items, social resources like women groups, self help groups (SHG), local self government etc.

2.5.4 Seasonal Calendar

This is a calendar, which indicates month wise activities related to agriculture and livelihood, specialties, threats, abundance, and shortage with regard to agriculture in a diagrammatic way. The items to be included in seasonal analysis must be of those items, which really affect the agriculture. This explores seasonal constraints and opportunities by diagramming changes, month by month throughout the year.

The main activities, problems and opportunities of the village are identified by using seasonal calendar. It depicts time-to-time crop related operations being carried out in the existing farm situation. Seasonal analysis helps in identifying the period which are critical in respect of labor demand, pest and disease problems, non-availability of fodder during dry months.

2.5.5 Gender Disaggregated Seasonal Calendar

The animal husbandry activities are being done by both men and women. There are certain activities, which are carried out exclusively by men or women. So it is important to know those specific activities with regard to any particular village for which the above method is used.

2.5.6 Seasonal Analysis

To know about the seasonal problems related to livestock a seasonal analysis is to be carried out. In this method, the diseases affecting various animals are documented pertaining to their months of attack. Other information like availability of labor and fodder for animals are also recorded by involving the farmers. The information collected is depicted in the form of a table.

2.5.7 Social Map

This method gives a social profile of the village. This method can throw light on religious and caste preferences in agriculture and animal husbandry.

2.5.8 Time Line

Historical analyses have been found to be a good icebreaker for field exercises and include detailed accounts of the past, of how things have changed, particularly focusing on relationships and trends. These include livestock technology histories and review, livestock breed histories, labor availability, trees and forest histories, education change, and population change. Folklore and songs are also valuable resources for exploring history.

2.5.9 Time Trend

Time trend shows quantitative changes over the period of time and can be used for many variables of agricultural, livestock, poultry production, price, yield and areas under cultivation.

2.5.10 Mobility Map

The mobility map indicates the places to which the villagers go outside of their village for various purposes like purchasing inputs, family needs, agricultural and animal husbandry needs, getting higher education, medical needs, social relations and recreation etc.

Mobility map indicates:

1. Places to which the villagers go for various purposes.
2. Direction of the place situated.
3. Mode of transportations.
4. Distance of the place from the village and
5. Cost of mobility in term of money spent etc.

2.5.11 Venn Diagram

Venn diagram is used for understanding institutional relationship with village and the villagers for a particular enterprise. Each circle represents individual/ institution and the size indicates the magnitude of influence. Venn diagram is drawn to indicate the contributions of outside and inside agencies to animal husbandry development, organizations and individuals in the decision making process of the inhabitants as perceived by the villagers themselves.

2.5.12 Wealth Ranking

Wealth ranking refers to placing the people on different categories according to their own criteria. The purpose is to find out the persons of the village, who belong to the rich, middle, poor and very poor group categories as perceived by the villagers themselves. Wealth ranking is based on the assumption that the community members have a good sense about fellow villagers in their own village and are able to categorize themselves.

Agricultural development must take into account the differences in wealth among farmers in order to determine the priorities for research and to develop the interventions and technical packages that are to be adopted by the majority of the farmers.

Wealth ranking helps the extension workers, developmental staff, researchers and other concerned for rural and agricultural development to find out the inequalities and differences in wealth in every farmer and which in turn lead to overall understanding of socio-economic conditions of entire village community. This will also help in selecting the right type of beneficiaries for the various programmes.

2.5.13 Livelihood Analysis

Livelihood analysis refers to find out the degrees to which the pattern of life differs from one social class to another social class in term of size of family, size of landholding, type of house, implements, annual income, source of income, expenditure pattern, crisis management pattern, indebtedness etc.

2.5.14 Bio-resources flow Diagram

Bio-resource flow diagram reflects the inflow and outflow of farm and animal products and its byproducts from and to the household. It explains the interrelationship between different farm enterprises that enables holistic planning for development of farm household.

2.5.15 Indigenous Technical Knowledge (ITK)

Indigenous technical knowledge (ITK) is the information gained over a period of time and passed on from generation to generation by word of mouth. ITK is the sum total of knowledge and practices which are based on peoples accumulated experiences in dealing with situation and problems in various aspects of life. Such knowledge and practices are special to a particular culture. ITK in agriculture and animal husbandry is a treasured source of local wisdom.

2.5.16 Technology Map

The technology map depicts the technologies related to agriculture, horticulture, animal husbandry and fisheries etc that are found in villages as well as technology adoption behaviour of farmers that indicates the technologies that are adopted, rejected, discontinued and reinvented for different crops, domestic animal and fish. Technology behaviour includes the processes of :

1. **Adoption**

   It refers to use of technology by an individual for more than once. There are two types of adoption, namely active and passive adoption.

2. **Over adoption**

   It refers to continued adoption of a technology by an individual when experts feel that he or she should have rejected it.

3. **Discontinuance**

   It refers to decision to reject a technology after having previously adopted it. There are three types of discontinuance, namely replacement, disenchantment and forced discontinuance.

4. **Reinvention**

   It refers to the degree to which a technology is changed or modified by the user in the process of adoption.

5. **Rejection**

   It is of two types, namely active and passive rejection. Active rejection consists of considering adoption of technology (including even its trial) but then deciding not to adopt it. Passive rejection refers to the decision of not considering the technology at all from the moment of its hearing.

Technology map is one of the most important maps in PRA exercises necessary for preparing any research or extension programme. This gives a clue to the researcher about the type of technologies that should be developed in the technology development projects so that it will have better adoption rate.

2.5.17 Matrix Ranking

Matrix ranking is used for learning about local people's categories, criteria, choices, and priorities. Matrix scoring takes criteria for the rows in a matrix and items for columns, and people complete the boxes row by row. The items may be ordered for each of the criteria (e.g., for six trees, indicate from best to worst for fuel wood, fodder, erosion control, and fruit supply); or participants may put stones, seeds, or berries into piles for relative scoring.

2.5.18 Consequence Diagram

Consequence diagram of technology is a tool to assess the impact caused by any technology in terms of changes that occurs to an individual or society as a result of its adoption or rejection. It

helps to predict the consequence of similar technology so that positive consequences could be promoted and negative consequences could be minimized. It is also useful for developing the strategies how to reduce the negative effects of the technologies being used.

2.5.19 Problem Identification

The problem identification exercise in animal husbandry is done to address the following aspects:

1. to identify the real problems faced by livestock farmers
2. to undertake research projects addressing the identified farmer problems
3. to target the available and new technologies towards the problems
4. to identify the various research, development and extension gaps and
5. to refine, transfer and develop appropriate technologies.

2.5.20 Problem Tree (Causal Diagram) & Solution Tree

After identifying the top most researchable problem in the village, the problem tree consisting the logical reasoning of the causal factors has to be drawn for it, alternatively the solution tree consisting of possible solutions is also drawn.

An article on a detailed PRA exercise conducted in an Indian village leading to problem identification and action plan preparation is given in Chapter-XII for reference.

2.6 Scientific Advisory Committees (SAC)

Once farming systems are identified and problem identification is over, the KVKs can go for action plan preparation. The action plan consists of the proposed interventions of the KVK for addressing the identified farming problems of the district. Action plans to be meaningful has to take into account the needs and aspirations of the stakeholders in the concerned district. KVKs conduct the above exercise through various exercises, the results of which are refined in the Scientific Advisory Committee meetings (SAC) to develop meaningful action plans (Pourouchottamane and Sajeev, 2008). Earlier known as Local Management Committee, it is the forum in which all the activities of the KVKs are discussed, action plan gets reviewed, implementation of the programmes evaluated and guidance provided to the functioning of the Kendra by the stakeholders of the concerned district. Keeping in view of the agricultural situation of the district, priority areas identified by the government for development, developmental programmes implemented by various agencies in the district, Strategic research and extension plan developed by the ATMA in case of ATMA districts etc., a meaningful and achievable action plan has to be arrived at by the KVKs based on the SAC meeting. Thus SAC meeting forms the basis for all KVK activities.

2.7 Functions of the SAC

The SAC shall perform the following main functions:

1. Providing guidance and necessary support to the KVK for fulfilling their objectives.

2. Reviewing the annual and five yearly action plan of the Kendra before the same being presented in the Zonal workshop meeting and
3. Reviewing the progress of the implementation of the programme and evaluating the achievements made by the Kendra and providing necessary suggestions for overall improvement in functioning of the Kendra.

2.8 Composition of the SAC

The head of the host institute will act as chairman of the SAC. In case of SAUs, Vice Chancellor will be the chairman while in case of the ICAR institutes as well as the State Departments, the Director of the concerned institute or State department will be the chairman of the SAC. The heads of the line departments like agriculture, horticulture, animal husbandry, fisheries etc. of the concerned district and all other stakeholders like representatives of regional research station situated in the district, lead bank branch, All India Radio and Doordarshan representatives of the concerned district and farmer representatives form the members of the SAC.

The normal composition of the committee will be as given below :

Chairman: Head of the Host Institution.

In case, the chairman is unable to attend the meeting, he can nominate one of the members to act as chairman. Usually the Director of Extension of concerned university or the Head/ Chief Scientist of the regional research station of the University will be nominated to act as Chairman of the SAC. In case of the state department KVKs, Joint Director of the concerned district can be nominated.

Member of the committee includes :

1. Director of Extension of concerned SAU
2. Zonal Project Director of the concerned Zone
3. Representative of ICAR Institute/ ICAR Regional Research Station in which KVK is located
4. Associate Director Research & Extension of the Zonal Research Station in which KVK is located
5. District officers of the line departments such as
   - ❖ Agriculture
   - ❖ Horticulture
   - ❖ Animal Husbandry
   - ❖ Soil Conservation
   - ❖ Social/ Agroforestry
   - ❖ Sericulture
   - ❖ Fisheries

- ❖ Irrigation
- ❖ Social Welfare
- ❖ Small Scale Industries

6. Representatives of the Lead Bank of the district
7. Farm Radio Officer of the AIR in which KVK is located
8. Farmers representative nominated by the Head of the Institution
    - ❖ Two representatives of the farmers; one among small farmer group and one from big farmer group
    - ❖ Two representatives of Farm Women

Member Secretary: Programme Coordinator of the concerned KVK.

He is responsible for presenting the annual progress reports, action plans, annual accounts and all other relevant matters for approval to the committee as well as implementation of the recommendations of the committee.

2.9 Selection of members and conducting of SAC

Convening of the meeting: With consent from the Chairman of the SAC, Member Secretary i.e. Programme Coordinator of the KVK will convene the meeting. At least 20 days advance notice should be given to the members for convening the meeting along with the agenda to be taken up for discussion.

Quorum of the meeting: There should be a minimum participation by 50 percent members. If the quorum is short only by one member, chairman of the meeting can nominate one of the SMS of the KVK to attend as member. Such substitute member can attend that meeting only & have all the rights and privileges of the member for that meeting and he cease to be member for subsequent meetings.

Duration and cessation of membership: Members like farmers representatives are nominated for the period of three years. In case of vacancies arising within three years, such vacancies shall be filled like original vacancy and those members will serve the committee only for the remaining unexpired period of three years.

When the person becomes a member of the committee due to his holding the position of office, his appointment as member of SAC will continue till he holds the office and terminate automatically when he cease to hold the office.

When a member ceases to attend continuously three meeting of the committee, nominator can be approached to change the member keeping in view of continued absence in attending the meeting.

2.10 When to conduct the SAC

The committee should meet twice in a year. The time should be fixed conveniently before the zonal workshop so that the progress made by the KVK in the preceding year and the action plan for the forthcoming year may be discussed in the SAC meeting before the same is submitted to the ZPD.

The mid term meeting should be held after the end of one season so that the performance of the KVK during the season can be evaluated and any mid term correction in the action plan as well as the programme of the KVK can be carried out.

2.11 Duties of the Programme Coordinator

As the member secretary of the SAC, the Programme Coordinator of the concerned KVK has varied duties all of which has to be performed without fail. These are:

1. to convene and conduct the SAC meeting.
2. to prepare the agenda notes on the matters to be discussed,
3. to present the action plan of the Kendra,
4. to present the progress achieved to the SAC; and
5. to prepare the proceedings of the SAC meeting and send the same to the concerned Zonal Project Director in order to keep the Zonal Project Directorate and Council informed about the recommendations and functioning of the SAC.

The SAC proceedings represent the needs and aspirations of the KVK stakeholders. To achieve this, KVKs have to reorient their Annual Action Plans in line with the SAC recommendations. Properly conceived and executed SACs contribute to meaningful and achievable annual action plans thus helping KVKs to reach success in accomplishment of their mandates.

Each KVK has to prepare its Action Plan (Annual Action Plan) where in all the mandated activities of KVKs are proposed in a systematic way in the prescribed format. It is prepared in order to direct the efforts of the Krishi Vigyan Kendra in a planned manner. 'Planning' has a direct role to play in achievement of targeted goals of any organisation or agency and it is more relevant and important in the context of KVKs functioning. KVK has to work in diversified socio-economic or agro ecological situation with heterogeneous group of clients (Bordoloi, 2008). Moreover, KVK mandates are also very much wide aiming at holistic development of agriculture through concerted efforts. Under such circumstances the success of KVK activities largely depends on its 'Action Plan'. It is better to perform few tasks with proper plan than more tasks with improper plan. A realistic action plan saves time and money and promotes general efficiency. 'Action plan' is a set of 5 "W"s and 1 "H" i.e. it states clearly Who? What? Where? When? Why? and How? It is a definite outline of procedure for solving different problems related with extension programme. Bordoloi (2008) has spelt out the detailed procedure for preparation of KVK action plans which is provided here.

All SMSs/ PCs of KVK should be accustomed with preparation of their Annual Action Plan. It is often seen/felt that there is a wide gap in their achievement as compared to their targeted Action plan while preparing 'Annual Report'. Each KVK should try to reduce those gaps as far as possible.

2.12 Principles to be followed while preparing an Action Plan

1. It must be based on felt needs and interest of the clients – farmers and farm women, youths, rural entrepreneurs, extension personnel and non-government organizations in the district.
2. It must be in line with local as well as state and national needs and available resources.
3. The programme should be balanced and comprehensive in nature to include all round physical and psychological development of target groups.
4. It should be based on adequate and reliable data and a scientific elaboration and interpretation of the same.
5. It must be developed, understood, conducted and judged as an educational instrument for helping people learn how to help themselves.
6. It should be flexible but with 'back-bone' that gives stability and continuity to the plan.
7. It must be developed through joint participation of village leaders, key informants as well as Researchers/ Scientists.
8. There must be well organized mechanisms for coordination with other developmental organizations.
9. There should be provision for continuous checking and evaluation of results.
10. All mandated activities must be focused in the plan.

2.13 Guidelines to be followed in preparing Action Plans

1. Analyse previous years' Survey/ PRA reports which consists of

- Identified thrust areas.
- Prioritized needs/ problems (short/ medium/ long term).
- Major farming system/ situation of villages.

2. Decide operational villages based on Survey reports. Targeted villages need to be identified and named.
3. For "off campus" programme in operational villages, the following criteria needs consideration for organizing extension programmes.

- Accessibility of road etc.
- Existence of Community hall and other physical facilities for any activities to be organized.
- Social conflict (if any)-needs to be handled well ahead of the implementation of the programme.
- Domain of change: Literacy rate, mass media exposure, knowledge base etc.
- Distance from KVK to the location.
- Key communicators: Youth club members, other organizations, farm leaders are key communicators for facilitating actions.

- Seasonality, Venn diagram, Resource map to be thoroughly studied.
- Completed/ "on going" developmental programme (if any) in the area needs to be identified for possible linkages.

4. Analyse Follow-up reports of earlier programmes: (Training, OFT and FLD etc.)
5. Analyse previous SAC (Scientific Advisory Committee) recommendations and incorporate those in Action Plan.
6. Analyse past experiences with the targeted groups to draw lessons on successes.
7. Analyse achievement of last year's Action Plan critically (i.e. Annual report), percentage of success/ failure on different activities and reasons there of with reference to adopted village (if any), FLD/ OFT, Collaborative programme, Model farm etc.
8. Consideration of extension needs emerging at SREP as per extension reforms, new guidelines from ZPD (if any)
9. Intra organizational factor (related to KVK)

- Strength of manpower.
- HRD provision for staff.
- SWOT analysis of SMSs.
- Budget (sanctioned/ released/ official formalities).
- Infrastructural facilities.
- Transport (vehicle).
- Laboratory facilities, Farm land, Demonstration unit.

10. Collaborative programmes

- Requisition from other departments, agencies, NGOs, POs.
- Mode of collaboration sought for.
- Dovetailing with ongoing projects of other agencies.
- Mutuality, willingness, organization identity.

11. Facilitative (supporting agencies): Consider thoroughly the supports required from external agencies and assurance of timely support from input dealers, market agencies etc.
12. Chalk out possibilities of using progressive farmers (Trainee) and their farms.
13. Differentiate technologies in terms of their relevancy in Training, FLD, OFT, Consult with researchers.
14. For OFT, some points to be considered are source of technology, year of release, profitability, risk, relative cost, sustainability, farmer's safety, farming system compatibility etc.
15. Location and duration of training programme should be planned properly based on nature of topic. Do not prepare the plan hurriedly. Title and behavioural objectives of training should be clear.

16. While deciding for FLD, it is better to select the site as well as demonstrator farmers in consultation with State Department officials. Then it will not create problem to cover area as proposed. In the ATMA districts, it is essential to consult with Project Director of ATMA.
17. Technology for FLD should be Frontier one i.e. recently released. Be sure that the technology selected for demonstration is much superior to the technology already in the use.
18. All the SMSs should prepare their own Action Plan first at their level.
19. Extension activities regarding exposure visit, field day, farmers' fair, and publication of Newspaper should be discussed together with KVK functionaries.
20. Some already assigned activities/ tasks reported to a particular agency or a survey report, etc. can be clubbed with your own programme based on its feasibility to save time.
21. Each SMS should maintain their field diary regularly. It helps enormously in preparation of an Action Plan.

While planning for mandated activities like conducting Training, FLD or OFT, the following questions should be clarified before hand.

1. What is the objective? What do we want to achieve through it?
2. What criteria should be made for assessment? Say, productivity, profit, low cost, low labour requirement, etc.
3. What indicators will show whether these criteria have been made? e.g., yield in Kg/ ha. Adoption percentage etc.
4. What do we measure? What are the indicators? What essential information has to be collected? e.g. total production, number of labour used, amount spent etc.
5. How do we measure these? What techniques of observation and measurement are used? e.g. How income is measured? How seed rate is calculated, etc.?
6. How to record data? How do we keep track of what was measured, so that we can refer to it later when we want to compare and analyze results? e.g. recording in note books, using recording forms, etc.

The format of Annual Report should also be duly considered while planning for execution. Otherwise it may create problem during Annual report preparation. A draft action plan is to be prepared after taking into consideration the annual report. A thorough discussion is to be made amongst all staff. Wherever required, modifications should be done with common agreement. Afterwards, it may be finalized at KVK level and Action Plan is to be prepared as per the prescribed format from Zonal Project Directorate. Each and every table should be filled up in such a way that there is no mismatching within. A clearly defined Action Plan forms the base for programme execution. The programme execution should be coordinated with the extension service and other agencies and organizations as set forth in the plan of work.

Action Plan will be meaningful only when it is translated into Action with full commitment by the staff with proper support from concerned personnel/ agencies. This calls for well defined On-farm trials followed by demonstration and training on proven technologies.