1. INTRODUCTION

Public sector extension is a state responsibility that has undergone several transformations since independence. Initially, the focus of extension was on human and community development. But there has been a steady progression toward technology transfer, within the policy framework of food security. The most significant development was the introduction of the Training and Visit (T&V) extension management system, in the mid-seventies. T&V extension was well suited to the rapid dissemination of broad-based crop management practices for the high yielding wheat and rice varieties released since the mid-sixties. Given this focus on disseminating Green Revolution technology for major cereal crops, extension activities have been largely carried out by state Departments of Agriculture (DOA). Other line departments like Animal Husbandry (DAH), Horticulture (DOH) and Fisheries (DOF), have primarily focused on the provision of subsidised inputs and services to farmers, with little attention and few resources being allocated to extension.

By the early 1990's, with the completion of the third National Agricultural Extension Project (NAEP), the important contributions that the T&V extension approach had made to agricultural development were duly recognized. But it was also realised that it needed to be overhauled in meeting the needs of farmers in the 21st century. It was recognised that extension should begin to broad-base its programmes by utilising a farming systems approach. For example, attention should be paid to the needs of farmers in rainfed areas and to diversify extension programmes into livestock, horticulture and other high value commodities that are capable of increasing farm income. A realisation also dawned that issues like financial sustainability, lack of farmer participation in programme planning and the weak links with research are serious constraints facing the current extension system.

During this period the National Agricultural Research System, under the institutional leadership of the ICAR, was strengthened through two parallel National Agricultural Research Projects (NARP).

1.1. Limitations of the present Agricultural Technology System (ATS):

The existing research and extension system is largely top-down in nature. The scientists from the research station decide the agenda, which is often based upon their limited exposure to real problems faced by farmers. The involvement of the extension personnel and farmers in the above process is limited and passive. The present feedback system is very weak.

The technological recommendations emerging from research farms are too general usually covering the entire agro-climatic zone. It has however, been observed that each commodity is grown! managed under a number of farming situations. For a single commodity more than one farming situation may be observed in given village or on a given farmer holding. The production problems often differ strictly from situation-to-situation of a particular commodity. Hence, there is need to refine the generalized technological packages of each commodity as per the farming situation under which it is grown.

Presently a majority of farmers have already adopted a part of the improved package. Hence, it may not be appropriate to conduct demonstrations or training programs in a routine manner on the technology package. There is a need to identify developmental gaps so that it could be used as a basis for technical planning of development programs.

During the last two decades the scenario in rural areas has significantly changed which is having a major bearing on the existing farming systems. A number of new enterprises have been identified by the scientists for each agro-climatic zone. These are being integrated by innovative farmers leading to significant innovations in their overall farming systems. There is a need to

analyze successful examples so that these could be replicated in the similar situations at faster rate.

Until recently much of the research was carried under public sector. It is now well recognized that innovations emerge from multiple sources including public, private and also from informal research carried out by innovative farmers. Likewise extension of new technology is carried out not only by public sector but also by private sector, cooperatives, NGOs, besides natural diffusion by farmers themselves. Hence, there is need to integrate various sources of innovations and extension in such a manner that they provide a proper synergetic effect.

It is well known that farmers have not only technological but also other needs namely, inputs, credit, marketing, social facilitation for group action, conflict resolution, community organization etc. Public sector alone is not able to meet all these needs in an effective manner. Therefore, there is requirement to identify appropriate organizations to meet specific needs of farmers based upon their comparative advantages to farmers.

1.2. Need for Reforms:

Agricultural extension has a crucial role to play in the context of growing demands of agricultural production in a sustainable manner. Reforms in the system envisage an extension service more broad-based and holistic in content and scope, thus beyond agricultural technology transfer. Its normal task of transferring and disseminating appropriate technologies and agronomic practices would not be sufficient. Extension agencies, services and functionaries will need to exercise a more proactive and participatory role, serve as knowledge information agents, initiating and facilitating mutually meaningful and equitable knowledge based transactions among primary producers, agricultural researchers and trainers . All this needs to be done in an effective and cost efficient manner.

The National Agricultural Technology Project (NATP) was launched to consolidate the earlier investments and address specific system constraints, weaknesses and gaps that remained un-addressed by previous research and extension projects. Innovations in Technology Dissemination (ITD) component, in particular, was expected to test new innovations in technology dissemination with restructured institutional and operational arrangements resulting in delineation of future direction of the extension system and, at the same time, bridge serious Research-Extension Farmer (R-E-F) linkage problems that currently constrain the flow of appropriate technology to farmers.

The main goal of ITD component of NATP was to increase farmer input into program planning and resource allocation especially at block level and to increase accountability of stakeholders. Further, it was also to increase the coordination and integration so that thrust areas such as farming system innovations, farmers' organizations, technical gaps, natural resource management could be more effectively and efficiently implemented.

The reforms envisaged have been pilot tested with effect from November, 1998 in seven states viz. Andhra Pradesh, Bihar, Himachal Pradesh, Jharkhand, Maharashtra, Orissa and Punjab covering 4 districts in each State. An autonomous institution — Agricultural Technology Management Agency (ATMA) has been established in these project districts as a registered society representing various stakeholders, including farmers, in project planning and implementation under the guidance of the National Institute of Agricultural Extension Management (MANAGE), Hyderabad.

During the pilot testing NATP was found to be a cost effective and sustainable extension system with the following thrust areas:

- Focus on farms and the farming systems
- Integration of efforts of multiple service providers
- Ownership of the Agricultural Technology System (ATS) by key stakeholders

- Technological interventions in the form of intensification and diversification of the farming systems
- Value addition and marketing intervention
- Empowerment of the farming community
- Multiple communication and information support.

The onus of translating these into action was with the ATMA, created in each project district and supported under NATP. The responsibility of ATMA was to bring together researchers, extensionists, farmers and other stakeholders (including NGOs, and corporate and private sectors) to make, on the basis of joint diagnostic studies, district extension plan and recommendations for expanded adaptive research to introduce innovations in technology dissemination matching to local needs and situations.

In other words, ATMA was mandated to develop a demand driven, situation specific, multi-actor oriented Strategic Research and Extension Plan (SREP) to accelerate agricultural development in the project district. The SREP was the basic document, which not only the development activities that guided need to be carried out, but also the manner in which and by whom it was to be done.

Each ATMA prepared a strategic research and extension plan document i.e. SREP and operationalised it successfully. Monitoring & Evaluation (M&E) reports of ITD component brought out by Indian Institute of Management (IIM), Lucknow revealed that the ATMAs' extension approaches have been proving to be very promising in execution of the reforms envisaged in the Policy Framework for Agricultural Extension (PFAE).

National Academy of Agriculture Research Management (NAARM), Hyderabad conducted an assessment study during 2004 for upscaling and institutionalization of SREP methodology for establishing R-E-F linkages. The findings inferred that

- A majority of the stakeholders perceived SREP as a useful methodology for addressing research and extension issues based on farmers' needs.
- SREP should be commissioned in all the targeted districts simultaneously
- The SREP guidelines should be revised to comprehensively cover planning, operationalisation, implementation, monitoring and evaluation of SREP initiatives.

1.3. Support to State Extension Programs for Extension Reforms: The need for reforms in Agricultural Extension has been explicitly raised in the National Agriculture Policy; the report of Expenditure Reforms Commission as well as the Tenth Plan Approach paper. Keeping the recommendations of these policy initiatives in view, and to provide policy directives for extension reforms, a broad Policy Framework for Agricultural Extension (PFAE) has been developed by the Ministry of Agriculture.

1.4.

The five Major Guiding Elements of the Policy Framework are as follows:

1. Reforming Public Sector Extension.
2. Promoting private sector to effectively complement, supplement and wherever possible to substitute public extension.
3. Augmenting Media and Information Technology Support for Extension.
4. Mainstreaming Gender Concerns in Extension.
5. Capacity Building/ Skill up-gradation of farmers and extension functionaries.

"Support to State Extension Programmes for Extension Reforms" is the main scheme to operationalise agricultural extension reforms across the county. Under the scheme, funding support shall be provided to the States/UTs for undertaking extension reforms within the broad purview of the PFAE,

complying with its key areas/norms, and shall be operated based on Extension Work Plans prepared by them.

1.4. Revisiting the SREP Guidelines:

MANAGE, Hyderabad being the technical arm of the Ministry of Agriculture, provided the initial guidelines on preparation of SREP for ATMA districts under ITD component of NATP way back in 1998. Further, MANAGE facilitated the SREP preparation and its operationalisation in the pilot districts. During the process of implementation many issues relating to Farmers Organizations, Public Private Partnership, Marketing, Value addition Processing etc. were emerged A need was felt to address these issues on a priority basis during the process of up scaling. Hence, MANAGE made a conscious effort of pooling all the experiences of SREP planners and practitioners at the national level by convening a workshop during May 2005. The output of the workshop provided the framework for revision of SREP guidelines under the broad areas namely:- Content, Methodology, Operationalisation of SREP and State Extension Work Plan (SEWP).

2. Strategic Research and Extension Plan(SREP):

During the last decade **a number** of management tools have been developed which are helpful in facilitating farmer involvement in an effective manner. Based upon these tools a participatory methodology has been worked out for preparing SREP at the district level.

The ultimate objective of both research and extension system is to increase agricultural production. Formulating extension and research agenda based on producers' requirement results in technology that will be more acceptable to users. This also helps in allocation of resources to both extension and research activities to be taken up in the district. Therefore, the Strategic Research and Extension Plan (SREP) for each district is the need of the hour to address specific problems of the farming community, especially resource poor and other disadvantaged groups.

2.1. What is strategic planning:

Strategy is defined as a pattern of purposes, policies, programs, action, decisions or resource allocations that define what an organization is, what it does, and why it does it. Strategies can vary by level and by time frame.

Strategic planning is a management task concerned with the growth and future of an organization. Its job is to ensure that the organization keeps moving in the right direction.

The following are some of the characteristics of strategic planning:

- A process in which the stakeholders of an organization (and others they invite to be associated to) join in strategic thinking and acting to create the best fit between the organization and its environment
- It is planning from outside in and from inside out.
- It gives detailed attention to strengths, weaknesses, opportunities and threats in terms of the organization, its mission, its vision and its environment
- It has to agree to the mission of the organization
- It should be in harmony with the organization's vision that is carefully developed and shared by the stakeholders
- Hopefully, it yields a strategic and implementable plan that constitutes the best fit between the external environment and internal capabilities.

In brief strategic planning is

- What is intended to be achieved in future?
- How to get there?

It involves fundamental choices about

- Organization's mission or goal to purpose,
- Programme and services to offer to accomplish the goals

- How to mobilize and utilize the needed resources, people, money, expertise and facilities etc.

2.2. Why strategic planning

Strategic planning

- Serves as a road map for the organization
- Lends a framework for systematic handling of operational decisions
- Lays down growth objectives of the organization and also provides strategies needed for achieving them
- Ensures the organization remains a prepared organization
- Ensures that the organization takes care of needs of the stakeholders
- Ensures best utilization of the organizations resources
- Serves as a coping mechanism against uncertainty arising from environmental change
- Helps the organization to understand trends in advance and provides the benefit of a lead-time for taking crucial decisions and actions.
- Helps avoid haphazard response to environment
- Provides the best possible fit between the organization and the external environment.
- Helps build competitive advantages and core competencies
- Draws from both intuition and logic
- Prepares the organization to not only face the future but even shape the future in its favour

2.3. Scope of strategic planning

- To be strategically alert
- To be future oriented
- To be able to take risks in tapping opportunities
- To be insulated against environmental threats
- To develop the competence for assimilating changes faster
- To respond effectively and more economically
- To bring convergence

- To be able to generate large resources
- To gain expertise in technology, extension and market support systems

2.4. Concerns of strategic planning

- Future — long-term dynamics is its concern; not day-today task
- Growth - direction, extent, pace and timing of growth
- Environment - the fit between the organization and its environment
- Strategy — strategy is its concern; not the operational activities
- Integration — integration is its concern; not a particular function
- Creating core competencies / competitive advantages creating long-term, sustainable organizational capacity is its concern

2.5. Need for strategic planning in agricultural development

The present mechanism of planning and implementation of agriculture and allied development programmes is centralized in nature. This top down approach focuses on individual commodities / enterprises rather than on a holistic / integrated approach. It is ad-hoc in nature and does not involve all actors. The farmers are considered as receivers of benefits rather than as responsible persons who can influence the production process. To address the aforementioned issues, under “Extension Reforms Scheme”, ATMA of each district is required to develop a Strategic Research and Extension Plan (SREP) by involving all stakeholders.

The development and use of SREP would help in the following aspects:

- Get an overview of the prevailing scenario in the district
- Explore and understand the problems and opportunities in different farming systems, preference and priorities of the farming community
- Facilitate long-term visioning and strategic planning for agricultural development in the district in a concerted manner

- Facilitate involvement of all actors at different levels in the development process and, in the long run, share the load on the public extension system
- Facilitate integration of and redesigning the on-going developmental programmes for the benefit of the farmers
- Development of annual action plans for each block in respect of the prevailing Agro-Ecological Situation
- Develop farmer centered market oriented extension research management system

THE CONTENTS OF SREP

The extension and research interventions would differ across the Agro-Ecological Zone (AEZ) as per prevailing Agro-Ecological Situations (AESs) between crops, livestock, and farming systems as affected by roads, markets, input supply outlets, service facilities, and between farm households as a reflection of their resource endowment and socio-economic status.

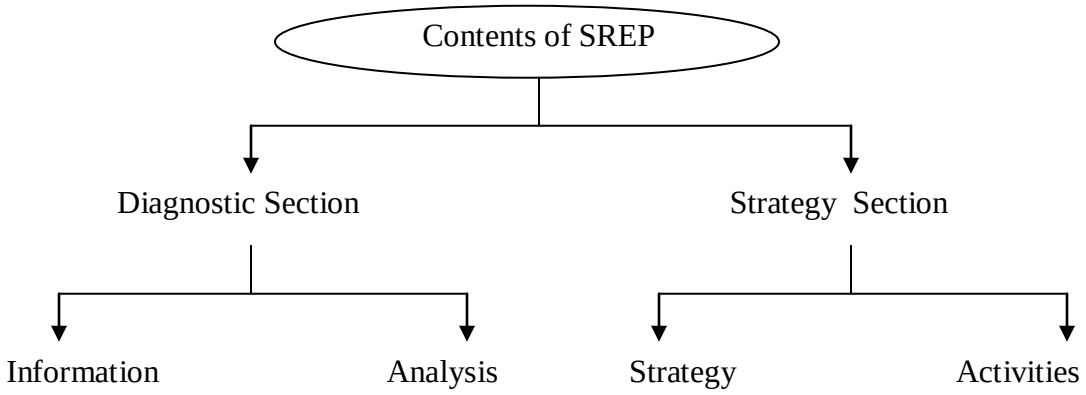
Therefore, in formulating a SREP, the following guiding principles should be kept in view.

- Identify and build on Important farming system innovations or success stories that may intensify or diversify existing farming systems and, thereby, increase farm household income
- Increase farmers access to markets, technologies and, resources through farmers' groups and organizations

- On-farm collaborative technology development, testing and refinement to address serious technological gaps in the existing farming systems

- Promote appropriate natural resource management (NRM) plan for building and maintaining the sustainable production systems within each AES.

The SREP will have two sections; and each section will have two subsections as under:



Diagnostic Section:

Information sub-section

***(*For the District)**

- **General features**: Geographical area, number of sub-divisions, blocks, gram panchayat, villages etc in the district It may be supported with a map showing the boundaries of blocks with major cities, towns, roads, railway lines etc. River streams maps, floods, droughts, Natural calamities, Frequency & periodicity of occurrence (Source- Dist. Statistical Hand Book, Bureau of Econ. & Statistics, RSA)

  Agro-climatic information: Rainfall (quantity and distribution pattern), temperature and relative humidity etc. (Source- Dist. Office)

- **Agro-ecological situations**: Agro-eco Zones, Agro-ecological situations, features, area and percentage with maps, Weather information related to crop production**,** (Source- SAU , NBSS & LUP, Nagpur)

- **Demographic data**: Population of male, female and children, breakup of caste, literacy, age groups, Total No. of households, Farm size based classification into Landless; Marginal; small; Medium; Large, (Source – Dist Statistical Officer, Line Depts., Revenue records, Source- Census)

- **Information on land based systems**: Agricultural, Horticultural, Fisheries, Animal resources etc. in respect of area, production, productivity, seed, farm mechanization, fertilizer consumption trends etc Post-harvest losses, Organic manures used **,** Organic produce, medicinal and Aromatic Minor Forest Produce etc. in the district. (Source- Dist. Offices, SAU's, Other Institutions)

- **Infrastructure Facilities**: Physical resources like offices, farms, factories, nurseries, veterinary hospitals, research stations, training institutes , staffing pattern with qualification and major roles, Soil testing labs, Aqua culture labs, Diagnostic labs, hatcheries, IPM – Service Providers, Agri- clinics & agro-service centers, Soil Health and Water quality, food products and quality control labs etc. (Source- Dist. Offices, SAU's, Other Institutions)

- **Land (Soil / Water / Vegetation):**

A) **Soil:** 1. Extent and severity of soil erosion (Mild / severe / very severe); 2. Problem Soils (Extent & Severity): Saline / Alkaline / Sodic soils; Diara land; Tal land; Affected by meandering rivers; 3. Current Fallows – Time series data & reasons for the area remaining fallow; 4. Permanent Fallows (Source: Revenue Records, or Bureau of Economic Statistics); 5. Soil Types (Texture, structure & depth): Sandy, Sandy loam, Loamy sands, Loams, Clay loam, Clay.

B) **Water:** Exploitation of Ground Water, Time series data (Open well / Bore wells, number of tube-wells and its irrigation potential), Present Status of surface water bodies (Tanks / Ponds) and area under their command , present status of catchments and the water body – conversion of tanks to percolation tanks, if any., Back waters where ever applicable, Assured water supply periods and other sources of irrigations. (Source : Ground water Department and M I Departments).

C) **Vegetation:** Area under private land use – Public land use (CPR)(Time series data), Crops and cropping systems including diversification in private land, Grass lands, multi-purpose trees and

bio-mass production, Area under Forest (Protected or reserved – Open Forest) (Source: Agriculture Department, Horticulture and Forest Department).

- **Rainfed Areas:** Length of growing period, assured moisture availability period (Source : SAU's)

- **Irrigated area**: All Irrigation sources and area and percentage under each category (block wise / AES wise), sources of irrigation with area and percentage in respect of each source (block wise / AES wise). (with separate maps), irrigation projects nearing completion. Quality of Irrigation water (Salt, Nitrate, Magnesium, Fluoride, Arsenic etc.,), Period of assured irrigation through ground water and surface water, Canal water – Potential created and actual irrigated area (Source: Ground Water, M I & Irrigation Departments, Dist. Offices)

- **On-going developmental programmes**: Extension and Research activities of different line departments, ZRSs, KVKs and DRDAs etc with scheme-wise break-up of funds for extension & research development works.

  Funding : Total requirements, Funds allotted, Gap / shortfall; Constraints as perceived by ground level workers (Source-Dist. Offices)

- **Information on markets**: Local, panchayat, block, district, regional and national markets that serve the district in respect of crops, fruits and vegetables, livestock and livestock products sericulture and fisheries etc along with quantity of commodities handled, Position of *Shandys* and quantities and qualities of commodities handled

Contract farming: Present contracts existing in the district and their analysis (Source-Dist. Offices)

- **Agro-Processing facilities :** Packing materials, present status and alternatives, Types of Processing Units (Mini Dal Mills, Mini Flour Mills, Mini Rice Mills, Pulp & Plank Mills, aromatic extraction plants etc., Raw material availability for processing industry (Source: Dist. Industry Office)

  Agro – processing facilities inside and out side the district that caters to the product of the district (number, location, capacity built-in and utilised etc) in respect of each commodity (Source- Dist. Offices)

- **Agri-credit:** Agricultural credit from banks, cooperatives, informal credit sources etc with break up and volume, accessibility to farm households from different resource and socio-economic groups. SHG's: Micro credit, KCC and Gold card Holders, MSTP, on farm water Management, Defaulter Status, Details of Crop Insurance, Number of farmers availing institutional credit and number of farmers not availing institutional credit. Number of farmers not availing any credit (Sources - Dist. Offices, Lead Bank).

- **Marketing infrastructure :** Storage, cold chains, pack houses, grading etc commodity wise, with number, location, capacity, tariff etc (Source- Dist. Offices)

- **Input and service facilities**: Available inside and also out side the district that cater to the needs of the district, in respect of different land based enterprises, Custom hiring, Input service providers (Institutional and individual), services of Kisan Mitra & Gopal & any other para-technical services. (Source- Dist. Offices)

- **Farmers' Groups and Organizations**- Number, purpose, structure, activities undertaken, membership (norms and type), linkages with other organizations, sources of income, Water User Association, SHG's UG's, CIG's labour, RMG groups (Male / Female & Mixed) Shepherds,, CBAs (Cattle Breeders Assoc.) sponsored by BAIF Dairy Co-operatives, PACS, LAMPS Recognized NGO's as service providers. (Source- Dist. Offices)

- **Private sector organizations and NGOs:** Private sector organizations and non-governmental organizations engaged in development, extension and research activities in respect of various land based enterprises, with nature of activity, spread target groups, membership etc. (Source- Dist. Offices)

- **Information and Communication Technology:** Computer, TV and Radio stations, telecommunication and Internet facilities etc Print media, (News Papers, Magazines, Bulletin and Handouts**)**.

Information From Representative villages

- **Geographical Area:** Cultivable area, Land under cultivation, Rainfed area, Area under forest, Pasture, Current fallows, Degraded lands, Saline and problematic lands, Common lands, etc. in hectares.

- **Population:** Male, Female, Children, Literacy, percentage of Male and Female, number of households, number of farm families, number of landless, Shepherds, artisans etc.

- **Rainfed and Irrigated Area:** Area and percentage under each category, sources of irrigation with area and percentage in respect of each source; Well irrigation (ha); Tube wells (ha); Lift Irrigation (ha), Tank Irrigation (ha), Canal Irrigation (ha), River irrigation (ha) and

Jaal lands, irrigation project near completion and potential area covered, etc.

- **Number of Farm Households:** Size – Small, Marginal, Large, landless, Different farming systems, Components (Enterprises) of farming systems, Cropping pattern (Irrigated and Rainfed), Cropping intensity (Irrigated and Rainfed) Crop wise area production, productivity

- **Land and soil**: Land utilization statistics (area and percentage) soils, their problems and their distribution with maps. (Source- PRA to be done)

- **Farming Systems**: Characteristics of the farming community resource situations (operational holdings, farm machinery, draft power, family labor, income, etc. Predominant existing Farming Systems (with combination of enterprises), profit generated from each enterprise (Source- PRA to be done)

- **Agro – Processing Facilities:** Facilities inside and out side the village that caters to the produce of the village (number, location, capacity built-in and utilized etc) in respect of each commodity. (Source-PRA to be done)

- **Information on markets**: local, panchayat, block, district, regional and national markets that serve the village in respect of crops, fruits and vegetables, livestock and livestock products sericulture and fisheries etc along with quantity of commodities handled. (Source-PRA to be done)

- **Storage facilities**: Commodity wise, with number, location, capacity, tariff etc available in the village or near by, that serve the village. (Source-PRA to be done)

- **Agricultural credit:** From banks, cooperatives, informal credit sources etc with break up and volume, accessibility to farm households from different resource and socio-economic groups. (Source-PRA to be done)

- **Input and Service Facilities**: Facilities available inside and also out side the village that cater to the needs of the village, in respect of different land based enterprises. Custom hiring, input providers, services of Kisan Mitra and Gopal, para-technical services. (Source-PRA)

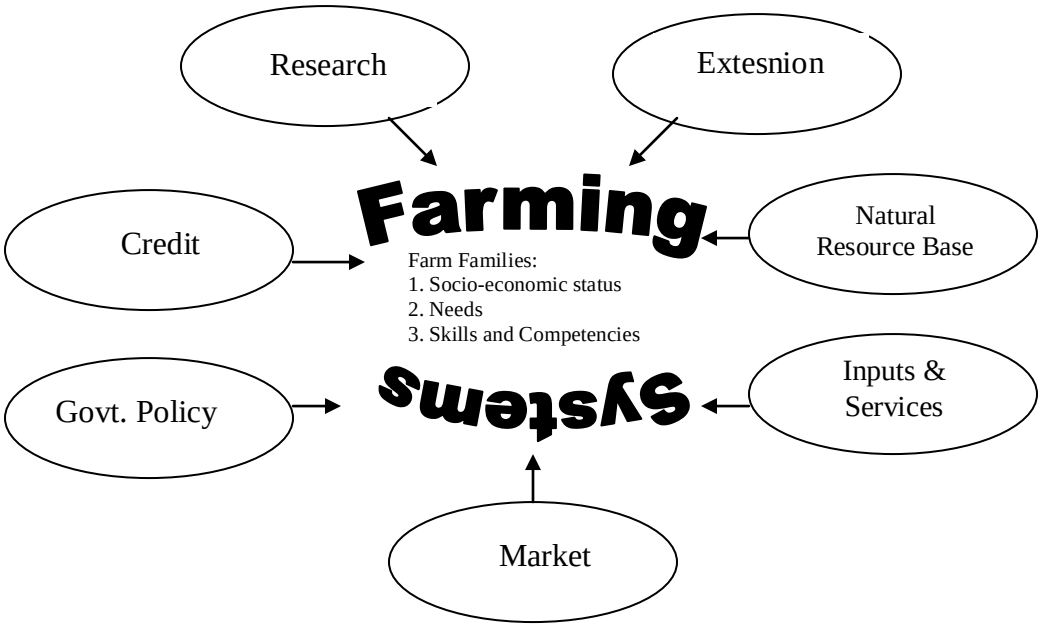
- **Farmers' groups and organizations**: Number, purpose, structure, activities undertaken, membership (norms and type), linkages with other organizations, sources of income etc. (Source-PRA to be done)

- **Private sector organizations and non-governmental organization:** Organizations engaged in development, extension and research activities in respect of various land based enterprises, with nature of activity, spread target groups, membership etc. (Source-PRA to be done)

Analysis of the data:

The data and information (primary and secondary as mentioned above needs to be properly analyzed to understand and develop research and extension strategy.

Each identified existing Farming System needs to be analyzed in terms of its interaction with other options of farming systems. The core entity operating the Farming System is the farmer and his family. Farming Systems have evolved over a period of time through a process of farm level experimentation.



Analysis of existing farming systems and enterprises

This covers pattern of ownership, development, and utilization of land and water resources under different farming systems over a period of time under each AES including INM and IPM practices recommended and adopted. This exercise is carried out by the multi-disciplinary team of officers from line departments, scientists from ZRS and KVK in the district (preferably an economist in the team) supported by a trainer.

The influence of resource situations on the existing farming systems:

Thereafter it is necessary to analyze the major existing farming systems under different AES in terms of its productivity and income. Gaps in adoption of improved production technologies vis-à-vis the recommendation in respect of different farming situations of crop/commodity in each enterprise, inter-dependence of different enterprises under varying farming system and resource availability.

It is also, necessary to analyze the on-going research activities in the project district and the past recommendations from the research stations in the light of needs generated for research and the gaps in adoption identified through earlier analysis. The steps for analyzing are as follows:

Steps for analysis of existing farming system:

a) Identify the predominant Farming Systems existing (for resource poor and resource rich) in each AES and carry out economic analysis of different existing farming systems (cost benefit ratio)

b) Look for an innovative farming system introduced by any individual farmer in the AES (Success Stories)

c) Look for a farming system recommended and introduced by ZRS or SAU's, and other research Institutions in the AES

d) Work out the new opportunities and missing enterprises in each of the existing farming system (System has to be re-looked for its diversification or intensification to increase overall returns by optimum use of available resources. **(SWOT-analysis)

e) Presenting Basket of Options and take the consent and opinion for its implementation. Use matrix ranking to identify the best fit option for AES

f) The Comparison of the existing farming system vis-a–vis the suggested farming system will provide the gaps and the strategies to be planned.

**** SWOT analysis: (Strengths, Weaknesses, Opportunities, Threats)**

SWOT analysis is carried out in respect of different Farming Systems, as observed in each AES. SWOT analysis is very useful tool in developing strategies as it helps in identification of -

- *Current strengths within existing farming systems and success stories,*
- *Weaknesses within the existing farming systems,*
- *Opportunities, which are advantageous for optimal exploitation of the existing farming systems in terms of providing, scope for new market opportunities, new technologies, services etc.*
- *Real potential threats to the natural resource base, existing farming systems and markets etc.*

The identified issues and also the findings of SWOT analysis are to be shared with the farmers to prioritize the issues with commonality of understanding.

Steps for analysis of existing farming situations for each crop / commodity:

- Identify different Farming situations in which a crop or commodity is grown under each enterprise (Based upon factors like *time of sowing, previous crop, source of irrigation, problematic soils etc.).*

- Identify the existing practices (production practices) followed by the farmers

- Collect the recommended practices given by the SAU's or any other research institutions

- Identify the gaps by comparing the existing practices followed by the farmers with recommended practices

- Re-synthesized the technological package with the help of the scientists in the team to refine or modify the recommendations and assess the extent of gap in adoption

- Assess the reasons for Gap in adoptions by probing the farmers and on the basis of reasons for gap in adoption in the production system the strategic issues are identified.

Strategy Formulation:

Strategy sub-section: This section spells out strategies for research and extension for each AES in respect of different program components.

In this sub-section strategies would be developed on the basis of prioritized strategic issues, separately for extension and research. This exercise is to be carried out by the team constituted of line departments, KVK and ZRS scientists in the district along with an economist supported by the trainers. Generally speaking, strategies would be developed on the following categories.

Categories of strategy:

i. *Diversification and intensification of existing farming systems*

ii. *Improvement of productivity / income from different enterprises / commodities in exiting farming systems (Sustainability of natural resources and enabling the farming community (male and female) to command the extension system is to be built into these components)*

iii. *Sustainability of the production system*

iv. *Capacity building of extensionists, researchers, farmers, market players and other partners like NGOs, etc.*

v. *Dovetailing and re-designing of various on going schemes of agriculture and other line departments and research institutions in the public, private and NGO sector*

vi. *Market led extension for enhancement of profits with focus on post harvest technologies and value addition*

vii. *Promotion and use of f ICT in extension*

viii. *Promotion of Public Private Partnership,*

ix. *Mainstreaming Gender concern (Empowerment)*

x. *Any other programme component considered necessary for the project / area*

Activity Sub-section:

The strategies can be helpful in achieving the goal / objectives of the project only when translated into action. Therefore, it is necessary to spell out different activities under each category of the respective program component. While describing the activities it is desirable to describe the unit and unit cost of each activity and also total number of units (with total cost) that may be necessary to achieve desired results. Subsequently, block level annual action plan has to be prepared by the block technical teams for each AES prevailing in any block basing on activity schedule.

Care should be taken to see that the normal on going type of activities are not undertaken as part of the Block Action Plans under NATP. Rather innovative activities in line with objectives of NATP should form the schedule of activities.

HOW TO DEVELOP SREP

5.1 SREP is to be demand driven while it is in consonance with the prevailing Agro-ecological, socio-economic situations and also the developmental goals of various government departments. This is developed with a bottom-up approach. While it gives importance to the main clients i.e. the farming community, it does consider the views of the other stakeholders in the agricultural development scenario. Hence, the methodology for developing SREP for any NATP district is different from the method presently in vogue in different line departments of the government in formulating plans and

strategies for their activities. The steps for developing SREP are outlined hereunder:

STEPS IN DEVELOPING SREP

STEP – I	**Orientation of District Team**
Purpose	• To understand the concepts and principles of Reforms in Extension • To sensitize on operationalisation of SREP in the district
For Whom	• District heads of agriculture and line departments • Heads of ZRS, KVK , NGOs and other research institutions, FOs and Private players working in the District.
Content	• Concepts of Reforms in Extension including proposed institutional arrangements • Roles and responsibilities of district heads of line departments, research institutes and other actors • Organization and Management structure - Existing and expected under Reforms in Extension • Need for SREP • What is SREP – How it is different from regular plan • Contents of SREP • Collection of appropriate Secondary data at the district in the given formats. • Maps: Relevant maps to be collected • How to develop SREP
By Whom	• SAMETI of concerned State
Duration	• 3 days

STEP – II Identification of Agro-eco-situations (AES) within the district

Purpose

- For location specific planning
- Selection of representative villages for primary data collection
- To carry out the survey in representative villages by following participatory approaches

Activities

- Contact / check with ZRS/SAU for AES information
- If AES have not been identified by SAU under NARP earlier, then identify AES in consultation with the scientists of ZRS / SAU
- Appraise District heads about AES, Planning on the basis of AES
- Develop a block wise and AES wise map of the district
- Find the spread (area & percentage) of each AES in each block
- Select representative villages in each AES
- Informing villagers and making arrangements for survey, interaction and field visit

Criteria for selection of villages

- AES having substantial spread, (area in more than one block) representative villages have to be selected from each of these blocks.
- If one block has more than one AES, then representative village has to be selected for the AES having maximum area
- Representative villages should be selected on the basis of - size, accessibility, availability of different farming systems of that AES, diversity in socio-economic resource situations and farmers' cooperation

Constitution of AES Team

- Select at least one member from each major discipline for each AES from the officers working in respective blocks
- Block level officers are responsible for carrying out the

participatory data collection

- Representation of women, research scientists and NGOs in each team
- Notification about constitution of team by the District Collector

By Whom
- SREP Team of the District

Duration
- 3 days

STEP – III **Training of AES team**

Purpose
- To enable AES team members to carry out survey for collection of data and information in a participatory manner for preparation of SREP

Trainees
- AES team members

Content
- Concepts and Principles of Reforms in Extension
- Participatory tools / techniques (PRA, FSA, FSBE etc.)
- Sustainability issues – IPM, INM, SRM, NRM, ITK, etc
- Marketing and processing information
- Identification of success stories
- Checklist / format for collection of data and information (primary and secondary)

Activity
- Designing training frame work
- Finalization of dates and venue and informing the trainees

- Finalization of trainers and informing the dates and venue
- Finalizing the arrangements of logistic (lodging, boarding, training facilities, transport etc)
- Arrangement of training material, aids etc.,

By Whom
- SAMETI Facilitators

Duration
- 1 week (7 days)

STEP-IV **Data collection through participatory approaches**

Purpose
- To assess and document farmers, needs, perceptions, priorities and problems
- To collect primary data using PRA, Semi Structured Interviews, Focused Group Discussions and formats to develop strategic research and extension plan (SREP) based on farming systems approach
- To find out factors influencing sustainability
- To identify and document success stories/ case studies
- To study the socio-economic status of the community so as to organize themselves for empowering them to have command over future extension system
- To study existing support and service facilities

By Whom
- AES team members,

Material required
- Checklist, formats and PRA material

Activity
- Informing the villagers about the field visits in advance
- Planning for field exercises – 1 day
- Visit to village for collection of information by using

participatory methodology – 3 days

- Review and sharing of collected information and planning for second visit by AES Team at a common place – 2 days
- Second visit to the villages (2 days) for
  - Collection of missing data and information
  - Discussion regarding possible options / solutions / mechanism to overcome problems.
- Consolidation, sharing data / information and presentation to district level team – 2 days

Duration

- 10 days

STEP-V **Data analysis, identification and prioritization of research and Extension issues**

Purpose

- To find out the relevance of collected data / information with the scope of SREP
- Compare primary data with secondary data to identify critical issues, problems, needs, opportunities, threats / risks
- Analyze the data for identification and to prioritize issues
- Sharing the outcome with farmers for confirmation, prioritization and further suggestions

By Whom

- AES team and facilitators and an economist

Activities

- Cross checking of collected primary data with secondary data
- Checking the information with objectives and requirements
- SWOT analysis of farming systems under each AES to:

- Identify current strengths within existing farming systems

- Identify weaknesses within existing farming systems
- Identify opportunities for optimal utilization of resources
- Identify possible threats to natural resources, markets and farming system

- Identification of strategic issues on extension and research

- Share the information with the villagers

- Prioritize extension and research issues with reference to the problems, needs etc. with the villagers and then jointly develop an agreed basis for strategy

Facilitation

- SAMETI facilitators

Duration

- 10 days

STEP-VI **Developing strategies for research and extension issues in the district**

Purpose

- To redesign the existing development, extension and research programmes and operational mechanism through innovative ways for increasing income of farming community by bringing in changes in the existing farming systems.

- To make use of farming system innovations and success stories in planning for intensification and or diversification of existing farming systems to increase farm house hold income

- To exploit scope for organizing farmers into interest groups to empower them to have access to technologies, resources and markets

- To address serious technological gaps to increase production and productivity of and income from existing farming systems

- To suggest measures for natural resources management on sustainable basis

- To suggest direction for development

- To involve all actors in the participatory process for development

By Whom

- District team with an agricultural economist, NGOs etc.
- AES teams
- Facilitator

Activities

Develop an outline / frame work for SREP on the basis of project thrust areas such as -

- Intensification and diversification of existing farming systems
- Improvement in production, productivity and income of different commodities within existing farming systems.
- Develop strategies to address these issues

(Strategies for research and extension should be separate and complementary to each other)

- Develop strategy for sustainability of the participatory extension system in the long run
- Strategy for involvement of private sector and NGOs into research, extension and development system
- Strategies for Capacity Building to operationalize the project
- Strategies for promotion and use of ICT.
- Strategies for empowering the community by promoting men and women organizations and their capacity building
- Strategies to promote linkage with marketing and agro processing units.
- Strategies for enhancement of profits with focus on post harvest technologies and value addition.

- Strategies for promotion of public-private partnership.
- Strategies for mainstreaming of gender concerns.

Facilitation • State facilitators

Duration • 6 days

STEP VII – Developing Activity Schedules

Purpose: To spell out activities necessary to translate strategies into action

To specify the size of units, total units required, cost per unit and total cost in respect of each activity.

By Whom - * District team

* AES team

- * Block functionaries

Activities:

- Suggest activities for implementation of each strategy for research and extension separately
- Logical and sequential arrangement of activities
- Decide size of units and unit cost for each activity
- Decide total number of units and total cost for completing the activity during project period
- Find project cost in respect of research and extension strategies
- Compilation and production of SREP document

(NB:- while working the details of cost the provisions in the on going schemes should be considered)

Facilitation: State facilitators

Duration: 6 days

STEP -VIII: Approval of SREP

Purpose:

- To have approval of the Governing Board of ATMA.
- To build common consensus
- To authenticate SREP as a plan document
- To accept SREP as a basis for agricultural development in the district

By Whom–

- Management Committee, ATMA
- Governing Board, ATMA

Activity:

- Consideration of SREP by Management Committee of ATMA
- Recommendation by M.C. to Governing Board for approval
- Approval by G.B. with changes if necessary
- Production of adequate copies
- Submission of District plan to state nodal officers for compilation and preparation of SEWP to be submitted to Govt. of India for approval

Facilitation- State facilitators

CHECK LIST FOR EACH STEP IN DEVELOPING SREP

CHECK LIST for STEP-I – Orientation of District Team

Constitution-

District Head of – Agriculture, Horticulture, Soil conservation, Animal Husbandry, Dairy Development, Fisheries , Sericulture, marketing, forest, irrigation etc.

Scientists of State Agriculture University/ Zonal Research Station and Krishi Vigyan Kendra working in the district.

NGO representatives

Topics-

Concepts of extension reforms, ATMA –its constitution, objectives, functions, Roles and responsibilities of different actors,, Organization and Management patterns – existing and expected under reforms, Strategic Research and Extension Plan (SREP) – What , Why, How to develop and operationalise, content of SREP field visits.

Reading and Training materials –

Manual on SREP guidelines, Reading material on above topics, Rules and Regulations and Memorandum of Association of ATMA

CHECKLIST for STEP II- Identification of AES, Constitution of AES team and logistic arrangement

Factors for Identification of AES

- Altitude
- Soil type
- Rainfall
- Irrigation
- Topography

Criteria for selection of AES team

1. One Team for each AES consisting of representation from different line departments viz., agriculture, horticulture, soil conservation, animal husbandry, fisheries etc. and any other department important in the district
2. Representation from research institutes and KVK for important disciplines
3. Representation from NGOs, one in each team
4. Adequate representation of women in the teams
5. Members should have following abilities / characteristics

- Ability to listen and communicate effectively especially to farmers
- Belief in participatory approach
- Technically competent and sound
- Capable of and willing to work hard and travel extensively
- Amicable and open to suggestions
- Good understanding regarding block and district
- Capable of perspective and strategic thinking
- Good probing skills

Logistic arrangements-

1. Locate residential training facilities in the district having lodging boarding, class rooms etc.
2. Vehicles for mobility of teams and trainers during the training and collection of data during village visits
3. Lodging and boarding arrangements for AES teams in and around the representative villages
4. Inform the villagers well ahead of time
5. Provision of training and teaching materials and stationeries

CHECKLIST for STEP-III- Training of AES Teams

Topics –. Extension Reforms - Concepts, Principles, Operational modalities, Participatory tools and techniques- PRA, FSA, FSBE, Identification and analysis of Success Stories, ITK, Sustainability issues, understanding and use of formats and check lists for collection of information and data , Course framework enclosed

Reading and Training materials –

Reading material on each topic, Manual on SREP-Guidelines and brief on extension reforms, Chart paper, Marker pens, OHP transparencies and markers, OHP, TV, VCP,etc.

CHECKLIST for STEP IV :- Data collection through participatory approaches

1. Collection of data and information – primary and secondary

- Background information of village
- Information on land, soil, irrigation–
- Distribution of farm households under different resource situation (No. & % under each) based on;
    - Land holding
    - Irrigation availability
    - Family income
- Identification of major farming systems
- Identify 3-4 major farming systems through PRA techniques like – social and resource mapping, focused group discussion etc.
- Categorize them on the basis of source of income i.e. primary, secondary, tertiary, etc, with number of families and percentage.
- Collect information on the following for future analysis:
- Find out the strengths and weaknesses in the existing farming systems that support or adversely affect the farming systems

- Find out the scope for intensification of the farming system through overcoming problems in production (gaps in adoption), processing, marketing etc of any commodity under an enterprise in the farming system.
- Also find out scope for intensification by strengthening any enterprise through optimal utilization of available resources
- For diversification and intensification of any farming system study the trends in farming systems – changes made since 1970 in the farming systems with causes thereof.
- Switch over in the enterprises
- Addition / deletion of any enterprise / commodity
- Strengthening of any enterprise / commodity within farming system
- Major shift in the enterprises as a source of income (i.e. from primary to secondary & like wise)
- Due to influence of government policy, opening new market avenues, processing, storage, irrigation, communication, and other infrastructure facilities etc leading to intensification and diversification of any farming system.
- Find out scope for replication of success stories for adoption in the farming systems
- Find out the technological gaps in productivity and income from various commodities and enterprises under farming systems
- Consolidate the data and information, share it with other AES teams
- Share it with farmers for verification, modification, if any, and collect missing data and information
- If required, visit any other village under same AES, preferably in same block, to collect data and information on success stories enterprises and / or systems relevant to the concerned AES.
- Maps to be produced (of the representative village)-

(PRA Maps.)

* Social Map * Resource Map * Transect Map * Matrix Ranking

* Seasonality Map * Timeline * Venn Diagram * Any other

CHECKLIST for STEP-V: Data analysis, identification and prioritization of research and extension issues

A. Rechecking of data:

1. Each departmental representative has to make a detailed presentation about their respective sectors to other officers and scientists of the district.
2. Recheck collected data and information with departmental information (secondary data)
3. Check that all the formats are completely filled
4. List out incomplete data and information and also the data or information which does not agree with secondary data, for further collection and verification in the village.
5. Revisit the village for verification of data/information if required.
6. Finalize information and data base for analysis

B. Analysis of data and information:

Conduct SWOT analysis of major farming systems under each AES on the basis of points mentioned in checklist for Step-IV

Find out the possible strategic issues on the basis of outcome of analysis for sharing with the farmers

Visit the village to share and prioritize with the farmers' needs based on strengths, weaknesses,, opportunities and threats which would form the basis for developing the strategy.

CHECKLIST for STEP VI and VII -Developing SREP and Activity Schedule

1. Categorize SWOT analysis report which will be utilized for developing strategies under - a) Diversification and/or b) Intensification of farming systems and c) Improvement in production, productivity and income under different existing farming systems

2. Note separately the points that influence sustainable NRM practices and farmers' organizations
3. Put the information collected from the farmers under the above categories.
4. Develop strategies on the basis of SWOT analysis findings for each category – for research and extension separately.
5. Prioritize the strategies as per demand of the farmers
6. Develop strategies under following groups-

A. Extension

A.1. Which can be implemented by ATMA

A.2. Which needs policy decision / intervention of Government

B. Research

B.1. On farm research, technology refinement and validation to be funded by ATMA

B.2. Basic and other issues to be addressed by SAU & other research institutions

7. Find out requirements for sustainability of the extension system by considering the following issues-
    a. Cost sharing
    b. Public-private partnership
    c. Role clarity of different actors
    d. Human resource department
    e. Community organization / farmers' organizations
8. Develop activities required to operationalise the strategies
9. Decide the Unit size which is easy for implementation, and can show appreciable results.
10. Fix the Unit cost for each activities to meet the cost of critical items basing on the prevailing prices

CHECKLIST for STEP-VIII - Production and Approval of SREP

The document should have following chapters

1) Introduction
2) Methodology
3) Background information of the district
4) Ongoing extension, development and research activities of departments, organizations, institutions in the district under Public, Private and NGO sectors
5) Identification, description and analysis of existing farming systems under each AES
6) Proposed extension strategies
7) Proposed research strategies
8) Schedule of activities for extension strategies
9) Schedule of activities for research strategies
10) Operational modalities and mechanism