

Extension and Advisory Services (EAS)

The word 'extension' is derived from the Latin roots, 'ex' – meaning 'out' and 'tensio' -meaning 'stretching'.

Stretching out is the meaning of extension.

In other words, the word "extension" signifies an out of school system of education.

The Concept of Extension

The use of the term 'extension' originated in England in 1866 with a system of university extension which was taken up first by Cambridge and Oxford Universities, and later by other educational institutions in England and in other countries.

The term 'extension education' was first used in 1873 by Cambridge University to take the educational advantages of universities to ordinary people. There are many experts and practitioners who have defined and opined extension in various ways encompassing many facets of extension's functions.

- ❑ The **main objective** of all extension work is to teach people living especially in rural areas, how to raise **their standard of living by their own efforts** using their own resources of manpower and materials with the **minimum assistance** from Government – J.P.Leagans (1960)

Meaning and Definitions of Extension

Extension is a programme and a process of helping village people to help themselves, increase their production and to raise their general standard of living. - D. Ensminger 1967

Extension is a two way channel; it brings scientific information to the village people, and also takes the problems of the village people to the scientific institution for solution. It is a continuous educational process, in which both learner and teacher contribute and receive. -B. Rambhai

Extension Education is a science which deals with the creation, transmission and application of knowledge designed to bring about planned changes in the behaviour-complex of people, with a view to help them live better by learning the ways of improving their vocations, enterprises and institutions. - Reddy A Adivi 1993

Extension Education is an applied science consisting of content derived from research, accumulated field experiences and relevant principles drawn from the behavioural sciences synthesized with useful technology into a body of philosophy, principles, content and methods focused on the problems of out-of-school education for adults and youth. - **Leagans (1961)**

Agricultural Extension: It is a professional method of non formal education aimed at inducing behavioural changes in the farmers for increasing their income through increased production and productivity by establishing firm linkages with research for solving farmer's problems ensuring adequate and timely supply of inputs and using proven methods of communication for speeding of the process of diffusion and adoption of innovations. -**Y.C. Sanoria.**

It may be defined as a special branch of Extension Education which deals with the economic and social aspects of people engaged in or associated with agriculture. -**National Commission on Agriculture, 1976**

Basic definitions related to extension

Extension education is an applied social science consisting of relevant content derived from physical, biological and social sciences and in its own process synthesised into a body of knowledge, concepts, principles and procedures oriented to provide non-credit out of school education largely for adults. - Paul Leagans (1971).

Extension service refers to a program for agricultural development and rural welfare which (usually) employees the extension process as a means of program implementation.

Extension process is that of working with rural people through out of school education along those lines of their current interest and need which are closely related to gaining a livelihood improving the physical level of living of rural families and fostering rural community welfare.

Differences between Formal Education and Extension Education

Sl. no	Formal Education	Extension Education
1	Teaching is largely confined to the premises of the institution	It is largely outside the four walls of the institution.
2	Learners are homogeneous with common goals	Learners are heterogeneous and have diverse goals.
3	There is a fixed curriculum, students are examined and degrees are awarded.	No fixed curriculum, it is flexible depending on the needs of the learners. No examinations are conducted and no degrees are awarded.
4	Knowledge flows from teacher to the learners (Vertical)	The extension worker also learns from those who he teaches (Horizontal). He teaches through local leaders.
5	Approach is from principles to problems	Approach is from problem to principles.

Importance of Extension Education

1. Extension uses democratic methods in educating the farmers.
2. Extension helps in adoption of innovations.
3. Extension helps in studying and solving the rural problems.

4. Extension increases farm yields and improve the standard of living of farmers
5. Extension makes good communities better and progressive.
6. Extension contributes to national development programmes.

Scope of Extension Education

Need for creating awareness amongst the people and changing their behaviour by informing and educating them.

Kelsey and Hearne (1967) identified nine areas of programme emphasis, which indicate the scope of agricultural extension.

1. Efficiency in agricultural production.
2. Efficiency in marketing, distribution and utilisation.
3. Conservation, development and use of natural resources.
4. Management on the farm and in the home.
5. Family living.
6. Youth development.
7. Leadership development.
8. Community development and rural area development.
9. Public affairs

The following statements will further amplify the scope of extension:

1. Extension is fundamentally a system of out-of-school education for adults and youths alike. It is a system where people are *motivated* through a proper approach to help themselves by *applying science* in their daily lives, in farming, home making and community living.
2. Extension is education for *all* village people.
3. Extension is bringing about *desirable changes* in the knowledge, attitudes and skills of people.
4. Extension is *helping people to help themselves*.
5. Extension is working *with* men and women, boys and girls, to answer their *felt needs* and wants.
6. Extension is teaching through *learning by doing* and *seeing is believing*.
7. Extension is working in harmony with the *culture* of the people.
8. Extension is a *two-way channel*; it brings scientific information to village people and it also takes the problems of the village people to the scientific institutes for solution.
9. Extension is *working together* (in groups) to expand the welfare and happiness of the people with their own families, their own villages, their own country and the world.

10. Extension is development of *individuals* in their day-to-day living, development of their *leaders*, their *society* and their *world* as a whole.

NEED FOR EXTENSION

1. Need for extension arises out of fact that the condition of the rural people in general and in the farm families in particular has to be improved
2. There is a gap between "*what is and what ought to be*"

(Actual desirable situation)

3. The gap has to be narrow down by the application of science and technology in their livelihood system and bringing appropriate change in their behavior.



4. Supe (1987) explained "the researcher neither have the time nor are they equipped for the job of persuading the villagers to adopt scientific methods and to ascertain from them their problems. Similarly, it is difficult for all the farmers to visit the research station and obtained first-hand information.

5. Thus, there is need for an agency to interpret the findings of research to the farmers and to carry the problems of the farmers to the researchers for solution. This gap is filled by extension agencies.

Father of University Extension	James Stuart
Father of Extension	J P Leagans
Father of Indian Extension	K. N. Singh
Father of Sociology	Auguste Comte

“**Rural advisory services**, also called extension, are all the different activities that provide the information and services needed and demanded by farmers and other actors in rural settings to assist them in developing their own technical, organisational, and management skills and practices so as to improve their livelihoods and wellbeing.” (Christoplos, 2010).

Agricultural Extension was once known as the application of scientific research, knowledge, and technologies to improve agricultural practices through farmer education.

Agricultural Innovation System “is a network of organisations, enterprises, and individuals focused on bringing new products, processes, and new forms of organisations into social or economic use, together with the institutions and policies that affect their behaviour and performance.” (GFRAS 2012).

Important actors within such a system are innovative farmers who successfully determine, through trial and error, which crops/products, as well as the necessary technologies, are most profitable in supplying different and emerging markets.



Advisory Service



Advisory Service is a term commonly used as an alternate for “extension services”.

These systems involve a broad spectrum of market and non-market entities, and agents are expected to provide useful technical information about new technologies that can improve the income and welfare of farmers and other rural people.

Apart from their conventional function of providing knowledge and technology to improve agricultural productivity, agricultural advisory services are also expected to fulfill a variety of new functions, such as linking smallholder farmers to high-value and export markets, promoting environmentally sustainable production techniques, adapting to climate change, and coping with the effects of HIV/AIDS and other health challenges that affect rural people.

Commodity-Based Advisory Services

Commodity-based advisory services are similar to value-chain extension systems in which an economically important crop or product, generally for export (e.g., cotton, coffee, other high value crops or products), requires that producers use specified genetic materials or varieties and follow strict quality-control standards in producing and harvesting the crop or product.

Cooperative Extension Service

This organizational and funding model for extension is unique to the United States of America.

It is a joint effort of national, state, and county governments within each specific state to advance the practical application of knowledge through a wide variety of extension and outreach activities. The main program areas are: youth development (especially through 4-H), agricultural and rural development, natural resource management, family and consumer sciences, and community and economic development (i.e., helping local governments investigate and create viable economic options for community development).

This extension system has traditionally focused on a wide range aspects of rural development at the household and community levels and is not limited to agricultural extension and advisory services.

Decentralized Extension

This concept is based on three major elements:

- (1) transferring specific decision-making functions to local levels, starting with simple managerial functions, then setting priorities and allocating funds and providing other administrative functions, including accountability and financing/co-financing;
- (2) encouraging public participation, reflecting the degree of authority that is formally transferred to rural people, starting in an advisory capacity for program planning and implementation, and eventually assuming control over selected financial planning and accountability functions; and
- (3) expanding local involvement in organizing and delivering extension services, be it through local government actors, private firms or non-governmental organizations.

Demand-Driven Extension

“Demand-driven refers to the economic concepts of supply and demand”. However, most people view technology systems as being “supply-driven” by research institutions; therefore, extension scholars relate

“demand-driven” to the technology system itself and are aware that research and development (R&D) is seldom farmer-led.

Demand-driven extension is a concept in which the farm household is the central focus of a farmer-led or participatory extension system.

“Farmer oriented knowledge services are a prerequisite for innovation”.

Diffusion of Innovation

It is the process by which new ideas and technologies spread through different farming systems, countries, and cultures.

Everett Roger’s innovation theory (2003) states that innovation diffusion is a process that occurs over time through five stages: knowledge, persuasion, decision, implementation, and confirmation.

Accordingly, the innovation–decision process is the process through which an individual or other decision-making unit passes through the stages of

1. having awareness and knowledge of an innovation,
2. forming an attitude toward the innovation,
3. making a decision to adopt (or reject) the innovation,
4. implementing the new innovation, and
5. confirming the decision.

Farmer Field School

Farmer Field School is a group-based experiential learning approach which seeks to empower farmers to learn, understand and make informed decisions.

In a farmer field school, groups of farmers meet regularly in the field with a facilitator to observe, talk, ask questions and learn together.

Farmer field schools, were first conceived by FAO in the late 1980s as a way of training farmers on integrated pest management (IPM).

Farmer-to-farmer extension

Farmer-to-farmer extension is the provision of training by farmers to farmers, often through the creation of a structure of farmer-trainers.

Different organizations use different terms for the farmers they engage to be trainers, (e.g., lead farmer, farmer-promoter, community knowledge worker) and the different names often imply different roles.

There is also much variation in the way farmer trainers are selected, how they are trained and supervised and how, if at all, they are compensated for their time and expenses.

Gender equality means ensuring that both women and men have equal access to the opportunities, rights, resources and voice that allow people to pursue a life of their own choosing and to avoid extreme deprivations in outcomes. (World Bank, 2009).

4-H Clubs are youth organizations with the mission of “engaging youth to reach their fullest potential while advancing the field of youth development.”

The 4 H’s stand for “head, heart, hands, and health”.

These clubs serve over 6.5 million members in the United States, and 4-H clubs or similar organizations now exist in many other countries.

The goal of 4-H is to develop citizenship, leadership, and life skills of youth, primarily through experiential learning programs.

Though typically thought of as an agriculturally focused organization, 4-H today encourages both rural and urban members to learn about many topics, such as youth leadership, youth– adult partnership, working together to achieve common objectives, practice parliamentary procedures, public speaking, and entrepreneurship.

Fee-for-Service Extension

Under fee-for-service extension programs (FSE), the provider may be a public entity, a non-governmental organization, a private-sector firm, or even a consultant.

Input Supply Advisory Services

Input Supply Advisory Services are one-on-one advisory services provided by private-sector input supply firms (and input-supply cooperatives) to farmers who purchase production inputs from these firms.

This is the dominant model in most industrially developed countries because it has become a “win– win” arrangement. Farmers get sound technical advice from certified crop advisors, and the input supply firms are able to recover the cost of advisory services through profits generated from the sale of inputs, especially to commercial farmers.

Market-Driven Extension

Focus of formerly technology transfer driven agricultural extension shifts from production to profitability and market orientation, and this focus tends to be more prevalent for high-value crops, livestock, fisheries, or value added products.

Pluralistic Extension systems

Pluralistic Extension systems encompass a range of service providers, approaches, funding streams, and sources of information available to farmers and clients.

This model can allow farmers the opportunity to choose the most appropriate extension services and providers for their needs.

Collaborating extension service providers could include governments/public systems, private companies, international or domestic non-governmental organizations, non-affiliated community extension workers, or other actors (World Bank, 2012).

Governments or public extension systems often serve as facilitators and help coordinate extension actors to deliver services that utilize the relative strengths of each entity.

When pluralistic systems work well, they are well equipped to deal with the diversity of conditions, needs, audiences, and farming systems that make up the agricultural landscape by providing an equally diverse array of services and service providers (Feder, Willett and Zijp, 1999).

Private Advisory Services:

Under a system of private advisory services (PAS), a private for-profit sector advisor or advisory firm (or non-governmental organization) is contracted by a government entity, donor, or a farmer organization to provide specified types of advisory services to farmers.

Private advisors often use the same basic tools and methods as public extension staff, but the management of a private firm has more flexibility in hiring or laying off employees and to provide incentives based on performance, as well as to more adequately allocate program and operating funds.

Therefore, the short-term performance of PASs can be efficient and effective. However, this approach appears less sustainable over the long-term, because policy changes (e.g., when a different political party takes over government leadership) may directly affect the availability of government funding for these PAS.

Strategic Research and Extension Plan

Formulating a strategic research and extension plan (SREP) involves identifying the farming systems and the resource base of farmers within a target area, as well as identifying the successes and failures of innovative farmers. It also involves the identification of problems and needs of farmers by using PRA techniques and then analyzing all of this information using a SWOT (strengths, weaknesses, opportunities and threats) analysis. In addition to farmer information, the SWOT analysis examines other important types of agricultural information, including (1) the different agro-ecological zones within a region (e.g., soil type/conditions; rainfall patterns; irrigation water, including availability and cost), (2) transportation infrastructure, and (3) available markets for all types of staple and high-value food crops/products. The analysis must consider all of this information in determining the most feasible economic opportunities for different categories of farm households within each agro-ecological zone of a region. The output of the SWOT analysis will be a preliminary SREP that is reviewed, modified, and eventually approved by a cross-section of agricultural community representatives, consisting of all types of farmers (including women farmers), rural banks, input supply firms, and agricultural product buyers

Technology Transfer: Technology transfer is the process of disseminating new technologies and practices that largely result from research and development efforts in different fields of agriculture. In general, these technologies include

- (1) genetic improvement in the form of improved crop varieties/hybrids and livestock breeds;
- (2) improved production practices, including soil fertility and animal nutrition;
- (3) improved plant protection and animal health practices;
- (4) mechanical technologies that will improve labor efficiency and other management practices; and
- (5) sustainable natural resource management practices, such as drip irrigation, water harvesting, integrated pest management, and

In other words, technologies that all types of agricultural producers will need in order to increase agricultural productivity and farm incomes. In recent years, the term has fallen out of favor among some

development practitioners because the word “transfer” implies a one-way, linear path from research to extension to farmers, and because it appears to preclude feedback mechanisms and the modification of technology by users.

Training and Visit Extension is based on the principles that

- (1) extension agents should have primary responsibility for carrying out extension functions,
- (2) extension should be closely linked with research,
- (3) training should be carried out on a regular and continuous timetable,
- (4) work should be time-bound, and
- (5) a field and farmer orientation should be maintained.

This technology-driven approach was initially successful during the late 1970s and 1980s in disseminating the production management practices associated with growing Green Revolution wheat and rice varieties. However, in rain-fed and other production areas where these new technologies were not a good fit, the training and visit approach had limited success because here the extension agents did not have economically useful messages to disseminate to these farmers. The agents had not been trained nor equipped to assess the needs of farmers and then identify alternative technologies or production systems that might better address the needs of farmers in these areas.

Potential Roles of Extension and Advisory Services in Specific Areas

Seed and input provision are often a part of humanitarian responses in postdisaster and postconflict situations. If they have acquired such knowledge through prior presence on the ground, extension/advisory agents can play a role in informing providers of what inputs are appropriate in the affected areas and which ones could be locally sourced. Extensionists can also help farmers learn how to use new varieties.

2. Regarding *climate change*, a core challenge for extension and advisory services in the future is shifting from providing “packages” of technological and management advice to supporting farmers with the skills and information they need to make informed decisions.

3. *Information-sharing tools* such as information and communication technologies (ICTs) are another area at the nexus of these services and resilience. Farmers’ exposure to risk and uncertainty is often aggravated by lack of information about weather, inputs, farm management practices, or market prices; this lack of information can have an adverse impact on crop production and income.

TENTATIVE POLICY DIRECTIONS TO STRENGTHEN EXTENSION AND ADVISORY SERVICES FOR IMPROVED RESILIENCE

1. *Build individual, organizational, and system capacity to deal with risk and change.*
2. *Consider long-term sustainability.*
3. *Use ICTs to communicate information to reduce and prevent risk.*
4. *Use intervention plans and programs such as weather insurance, once it is proven viable, to compensate for shocks that have occurred.*

5. *Develop policies* that define the role of extension and advisory services in assisting smallholders to become more resilient.

Extension & Advisory Services

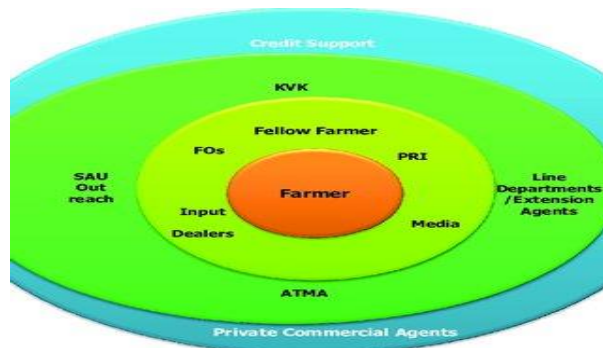
“Extension advisory services, are all the different activities that provide the information and services needed and demanded by farmers and other factors in rural people to assist them in developing their own technical, organizational and management skills and practices so as to improve their livelihoods and wellbeing.” (Christoplos, 2010).

Meaning: These systems involve a broad spectrum of market and non-market entities and agents are expected to provide useful technical information about new technologies that can improve the income and welfare of farmers and other rural people.

Pluralism in Extension

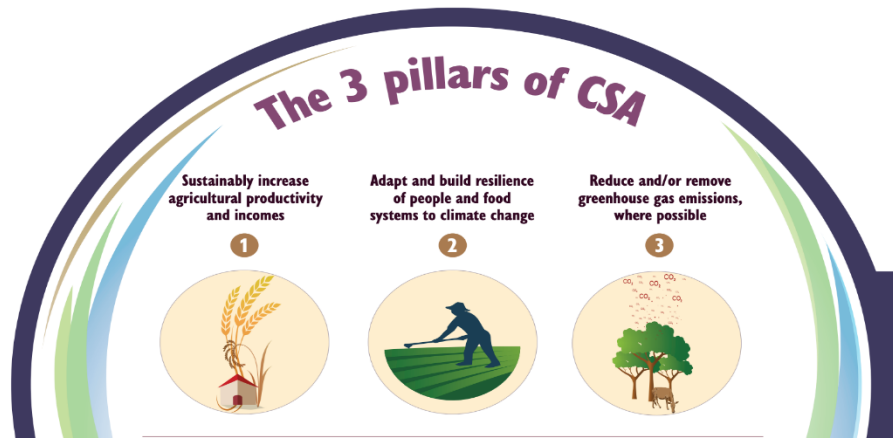
Many organizations are brought together at one platform in the efforts of delivering extension services to promote production and productivity.

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Components of EAS

Climate smart agriculture is an approach developed by FAO in 2010 to developing the technical, policy and investment conditions to achieve sustainable agricultural development for food security under climate change.



Objectives:

- ✓ Sustainably increasing agricultural productivity and incomes.
- ✓ Adapting and building resilience to climate change.
- ✓ Reducing or removing greenhouse gases emissions, where possible.

Commodity-Based Advisory Services

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Information Communication Technology:

The ICT is comprised of information technology, telephony, electronic media, and all types of process and transfer of audio and video signals and all control and managing functions based on network technologies.

Integrated Rural Development

Integrated Rural Development is “an ongoing process involving outside intervention and local aspirations; aiming to attain the betterment of groups of people living in rural areas and to sustain and improve rural values; through the redistribution of central resources, reducing comparative disadvantages for competition and finding new ways to reinforce and utilize rural resources”.

Challenges Faced by Indian Farmers

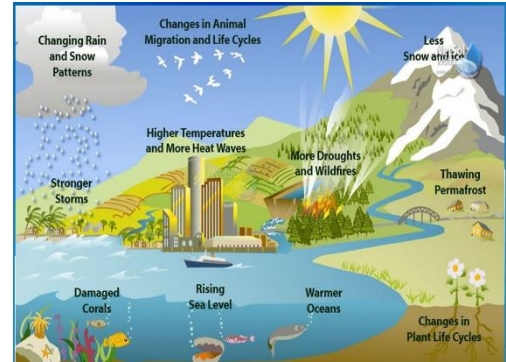
1. **Insufficient Water Supply:** Water availability in India is insufficient to irrigate all cultivation areas; the problem is that we still have to find cheap and suitable solutions to utilize such enormous water supplies. Due to several reasons, farmers either don't receive the appropriate amount of water or don't get the supply on time; many farmers rely on rainwater for irrigation.
2. **Less Use of Modern Farming Equipment:** In most areas, to date, farmers follow primitive cultivation methods; traditionally-used plough and relevant native accessories continue to be farmers' preference. Despite no shortage of efficient equipment and machinery, there's very little use of modern equipment, majorly because most farmers don't have lands huge enough to use advanced instruments, heavy machinery.
3. **Over Dependence on Traditional Crops:** Indian farmers are growing rice and wheat for centuries now in several regions. The excessive production of the two grains, many times lead to the storage, sale problems and shortage of other farm products. Many farmers depending upon only these traditional crops indicates a lack of an effective, nation-wide agriculture plan.
4. **Poor Storage Facilities:** In rural areas, storage facilities are either insufficient or completely absent. In such a situation, farmers usually have no other option than selling their produce immediately once it's ready, at market prices that are often very low. They are far away from a legitimate income.
5. **Agricultural Marketing:** Agricultural marketing still continues to be in a bad shape in rural India. In the absence of sound marketing facilities, the farmers have to depend upon local traders and middlemen for the disposal of their farm produce which is sold at throw-away price.
6. **Scarcity of capital:** Agriculture is an important industry and like all other industries it also requires capital. The role of capital input is becoming more and more important with the advancement of farm technology. Since the agriculturists' capital is locked up in his lands and stocks, he is obliged to borrow money for stimulating the tempo of agricultural production.

Natural Resource Management

Natural Resource Management (NRM) refers to the sustainable utilization of major natural resources, such as land, water, air, minerals, forests, fisheries, and wild flora and fauna.

The main objectives of Natural Resource Management are as follows:

- Sustainable management of land resources.
- Maintaining and enhancing water assets.
- Protecting and enhancing the marine and coastal environment.
- Conserving and recovering biodiversity.
- Enhancing skills, capacity, and engagement.



Management of declining/deteriorating water and soil for farming

Agroforestry: It involves growing crops around trees and other plants such as hedges. Trees create their own microclimate, which is favorable for crops. They also act as a form of protection against wind and water damage and encourage biodiversity, which keeps ecosystems strong and healthy.

Contour farming: Contour farming is one of the most commonly used agronomic measures for soil and water conservation in hilly agro-ecosystems and sloppy lands.

Crop rotation: Crop rotation is the practice of growing different types of crops in succession on the same field to get maximum profit from the least investment without impairing the soil fertility.

Intercropping: Cultivation of two or more crops simultaneously in the same field with definite or alternate row pattern is known as intercropping. It may be classified as row, strip, and relay intercropping as per the crops, soil type, topography, and climatic conditions.

Mulching: Mulch is any organic or non-organic material that is used to cover the soil surface to protect the soil from being eroded away, reduce evaporation, increase infiltration, regulate soil temperature, improve soil structure, and thereby conserve soil moisture.

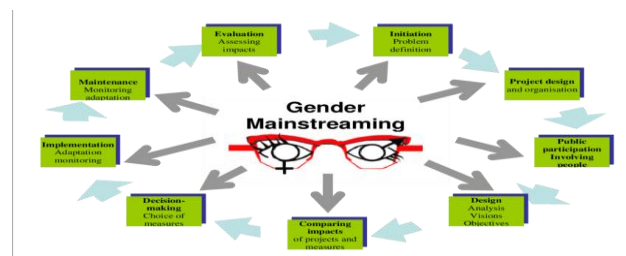
Organic farming: Organic farming is an agricultural production system that devoid the use of synthetic fertilizers or pesticides and includes organic sources for plant nutrient supply viz. FYM, compost, vermicompost, green manure, residue mulching to maintain a healthy and diverse ecosystem for improving soil properties and ensuring a sustained crop production.

- Installing special tanks that store rainwater for irrigation.
- Using drip irrigation for more efficient watering.
- Establishing schools for farmers where they learn how to adapt to climate change with drought-resistant crops, crop rotation, and sustainable ways to raise livestock.
- Starting seed banks to distribute local seeds more tolerant to extreme droughts and rainfall.

WHAT IS Gender mainstreaming

Gender mainstreaming is a strategy for developing policies, legislation, programs, projects, society and community's development plans from gender equality perspective in order to benefit both women and men.

- It Is a strategy for achieving gender equality.
- Strategy to end gender blindness in development process.
- Ensures women & men, girls & boys have equal access to control over resources, opportunities & benefits at all levels.
- **Women’s empowerment:** Women's empowerment can be defined to promoting women's sense of self-worth, their ability to determine their own choices, and their right to influence social change for themselves and others.
- **Gender Mainstreaming:** Looking at all programmes/actions through a “gender lens” - i.e., considering the differential impact of our actions, systems, processes on men and women (boys/girls). Taking a gender perspective on everything from employment law to budgeting processes to infrastructure design.



PRINCIPLES OF GENDER MAINSTREAMING

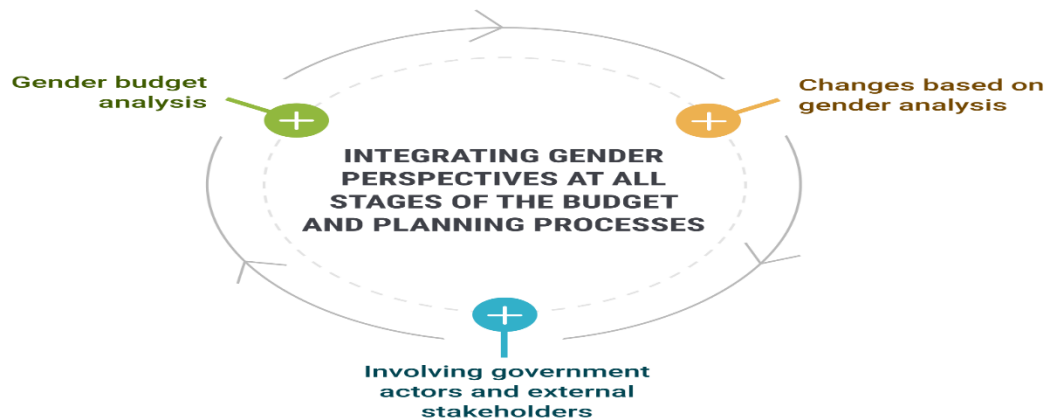
1. Gender-sensitive language.
2. Gender-specific data collection and analysis.
3. Gender-specific analysis of the initial situation must provide the basis for all decisions.
4. Women and men are equally involved in decision making.
5. Equal treatment is integrated into steering processes.

KEY WORDS OF GENDER MAINSTREAMING

GENDER BUDGETING: Gender budgeting is a powerful tool for achieving gender mainstreaming so as to ensure that benefits of development reach women as much as men.

GENDER DISCRIMINATION: Prejudicial treatment of an individual based on a gender stereotype often referred to as sexual discrimination

GENDER EQUILITY: Gender equality is the result of the absence of discrimination on the basis of a person's sex in opportunities and the allocation of resources or benefits or in access to be propagated.



Extension Support for Women Farmers

Agricultural extension programmes ensure that information on new technologies, plant varieties and cultural practices reaches farmers. However, in the developing world it is common practice to direct extension and training services primarily towards men.



Constraints to Women Access to Resources

Many of the constraints that rural women confront are similar to those all-resource poor farmers confront such as lack of access to land, credit, training, extension and marketing facilities. But, for social and economic reasons, women constraints are even more pronounced and, in general, development interventions that seek to remove constraints for poor farmers do not reach women.

Woman role in agriculture

women role as farmers and producers of crops and livestock, as users of technology, as active agents in marketing, processing and storage of food and as agricultural labourers. The policy stated that high priority should be accorded to recognition and mainstreaming of women role in agriculture. Appropriate structural, functional and institutional measures would be initiated in the 10th Plan to

empower women and build their capacities and improve their access to inputs such as land, credit and agricultural technology.

Economic SHGs and empowerment causal pathways

Social Empowerment:

✓ Self-help Groups improve the equality of status of women as participants, decision-makers and beneficiaries in the social, democratic, economic and cultural spheres of life.

✓ SHGs ensure the equality of status of women as participants, decision-makers and beneficiaries in the democratic, economic, social and cultural spheres of life

Political Empowerment:

✓ SHGs enable women to develop their communication skills to speak at the Gram Sabha, public meetings, etc.

✓ An SHG functions through its regular meetings, where members perform transactional activities and discuss over different related issues.

Factors responsible for women entrepreneurship

PUSH FACTOR

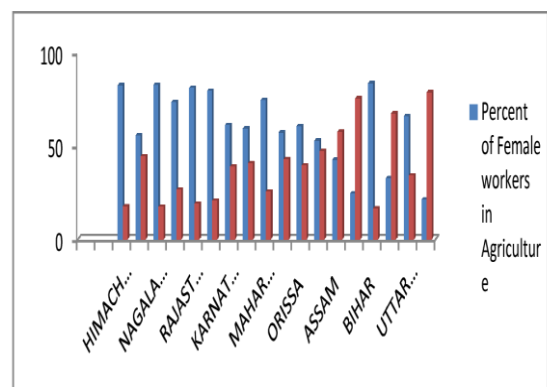
- a. Death of bread winner
- b. Permanent inadequacy in income of the family
- c. Sudden fall in family income inadequacy in income of the family

PULL FACTOR

- a. Need and perception of Women's Liberation, Equity etc.
- b. To gain recognition, importance and social status.
- c. To get economic independence
- d. To utilize their free time or education
- e. Women's desire to evaluate their talent

Economic contribution of woman IN AGRICULTURE

- ✓ Capital formation
- ✓ Improvement in Per capita Income
- ✓ Generation of employment
- ✓ Social Contribution
- ✓ Balanced Regional Development



✓ Improvement in living standards

✓ Innovation

Challenges faced by Women Entrepreneurship

1. Conflicts between domestic and entrepreneurial commitments
2. Gender gaps in education
3. Not Being Taken Seriously
4. Fear of taking risks
5. Wanting to please everyone

Women in fisheries and aquaculture

Women have rarely engaged in commercial offshore and long-distance capture fisheries because of the vigorous work involved but also because of women's domestic responsibilities and/or social norms. Women are more commonly occupied in subsistence and commercial fishing from small boats and canoes in coastal or inland waters. Women also contribute as entrepreneurs and provide labour before, during and after the catch in both artisanal and commercial fisheries.



Roles of extension in supporting communities with growing nutritious crop and eating healthy food:

There is heightened awareness globally, within development institutions and governments, for the potential of the agriculture sector to influence the production and consumption of nutritious foods necessary for healthy and active lives. Nutrition-sensitive agriculture aims to maximize the impact of nutrition outcomes for a population through sustainable farming systems .

Integration of Nutrition within EAS

The rationale for the integration of nutrition within EAS lies in the opportunity to leverage key strengths of agriculture EAS systems and agents, including:

- (a) an established infrastructure

- (b) reach
- (c) community trust,
- (d) cultural aware-ness,
- (e) an understanding of how to mitigate the constraints faced by farmers.

How EAS works to produce nutritious crops:

Home economics extension agent: who are responsible for addressing the nutritional needs of vulnerable family members, care and feeding practices, food preparation, and intra-household distribution of food.

Lead farmer / Community volunteer: The approach aims to move away from a dependence model towards one where community members are learning the skills and the methods to share them

Farmer field school (FFS) facilitator: The focus is primarily on agricultural production, the participatory nature of FFS provides an entry point to the discussion of other priority issues such as HIV, gender, and nutrition.

ACCESSs and UTILIZATION of EAS

ACCESS:

- Enhanced marketing strategies for nutrient-rich vegetables.
- Improved linkages to markets.
- Increasing the availability of missing sources of nutrition through engaging communities to track the seasonality of local food.

Utilization:

- Increased dietary diversity.
- Use of weaning with foods rich in vitamins and minerals, and recommended infant and young child feeding (IYCF) practices.
- Awareness of the basic benefits of a nutritious diet, including the quality and quantity of food required, and the role of each food group.
- Recipes and food preparation techniques that maximize the nutritional benefit of locally available foods

LINKING FARMERS TO MARKETS

FARMERS: A farmer is a person engaged in agriculture, raising living organisms for food or raw materials.

MARKETS: A regular gathering of people for the purchase and sale of provisions, livestock, and other commodities.

- The linkages may simply involve working to bulk up supplies so that traders' costs can be reduced.
- Extension worker/NGOs can play important role as **Traders.**

TRADERS: A trader is an individual who engages in the buying and selling.

- They allowed buyers to buy goods from a wider range of sellers, and they allowed sellers to sell goods over a wider area.
- Now- a- days farmers are producing to the requirements of the market rather than relying on the markets to absorb whatever they produce.
- These linkages help improve household level welfare through income growth when commodity prices are realized in the market.
- However, the ability of smallholders to access markets that are characterized by changing demand for higher value and quality goods is problematic due to farm and market level challenges.

Why is it important to link farmers and markets?

- Bring awareness about the opportunities and challenges in food safety and requirements for getting linked with profitable value chains.
- To bring understanding of pathways of linking farmers to alternative markets like contract farming, e-markets, direct marketing etc.
- Provide exposure to best marketing practices in ensuring food safety, managing supply chains and value addition.
- The goal in linking farmers to market is to invest in ways that enable farmers or group of farmers to access market.

How to link farmer to markets?

STEP-01: Create a list of potential opportunities.

STEP-02: Identify farmers' strengths and limitations.

STEP-03: Compare market opportunities with farmers' strengths and limitations.

STEP-04: Investigate the short list in detail Survey

STEP-05: Farmers to decide on the opportunities that best suit.

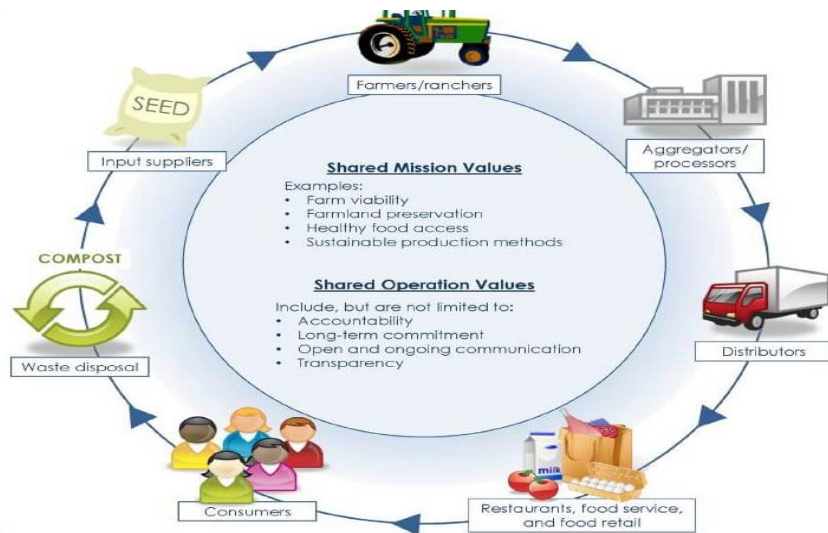
STEP-06: Value Chain Meetings Members need to agree on: how/when to provide feedback to solve any problems; and improvements.

STEP-07: Finalize action plan with farmers.

VALUE CHAIN EXTENSION

The Agriculture Value Chain Extension curriculum is designed to help farmers succeed in increasing their yield and income by building technical agriculture skills and an Agro-business mindset.

- The curriculum develops skills and knowledge related to in-season, harvest, and post-harvesting farming practices.



EXTENSION: Extension Education is the process of teaching rural people how to live better by learning ways to improve their farm, home and community institutions.

FEATURES

- Provides key technical extension outreach to farmers for their interaction and engagement in the learning process through an applied learning approach
- Outlines effective farmer field days that show case best practices and encourage linkages and relationship building with other value chain actors
- Currently offered for the following value chains: rice, maize, sorghum, soy, cassava, aqua culture, cocoa, millet, cowpea and groundnut.

VALUE CHAIN

- A set of connected activities that work together to add value to a product, while linking producers to processors and markets.

AGRICULTURAL VALUE CHAIN: The goods, services and processes involved in an agricultural product moving from the farm to the final customer.

An agricultural value chain usually includes a wide range of activities, including

- Input supply.
- Farm production.
- Post-harvest handling and processing.
- Production and handling technologies.
- Grading criteria and facilities.
- Cooling and packing technologies.

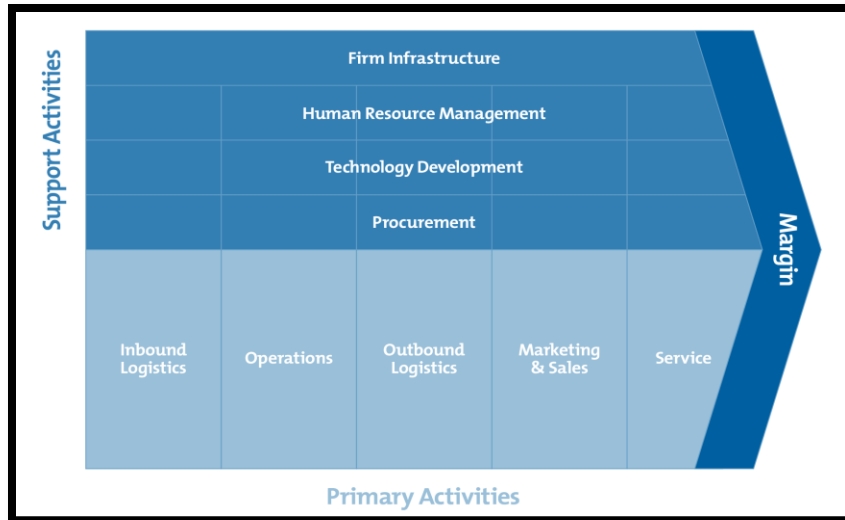
In his concept of a value chain, Porter splits a business's activities into two categories, "**primary**" and "**support**".

Primary Activities :

1. Inbound logistics
2. Operations
3. Outbound logistics
4. Marketing and sales
5. Service

Support Activities: The role of support activities is to help make the primary activities more efficient.

1. Procurement
2. Technological development
3. Human resources (HR) management
4. Infrastructure



Types of value chain

Firm level

Industry level

Global level

Strengthening value chain:

It fosters productive diversification and expands participation in the segment of the production structure with the greatest knowledge intensity or highest demand growth, and in this way contributes to structural change.

HOW DOES VALUE CHAIN WORK?

- The value chain framework helps organizations identify and group their own business functions into primary and secondary activities.
- Analyzing these value chain activities, sub activities and the relationships between them helps organizations understand them as a system of interrelated functions.
- Then, organizations can individually analyze each to assess whether the output of each activity or sub activity can be improved -- relative to the cost, time and effort they require.

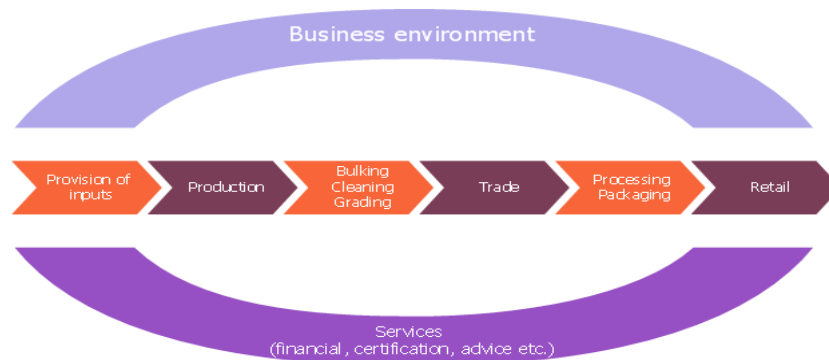
When an organization applies the value chain concept to its own activities, it is called a **value chain analysis**.

HOW DOES VALUE CHAIN SUPPORT FARMERS?

High value chains can contribute to food security in the dimensions of access, availability, and quality of food primarily by the increase of production volumes, farm diversification, generating higher incomes, reducing postharvest losses, and upgrading technologies to use more efficiently natural resources.

Three main steps can be distinguished in value chain analysis:

1. Identify the main functions and types of firms in the value chain;
2. Analyze structural connections; and
3. Analyze dynamics.



AGRI FOOD SYSTEM:

- Agrifood systems encompass the primary production of food and non-food agricultural products, as well as in food storage, aggregation, post-harvest handling, transportation, processing, distribution, marketing, disposal, and consumption.
- Examples of local food systems include community-supported agriculture, farmers markets and farm to school programs.

Agrifood systems have three main components:

1. Primary production
2. Food distribution
3. Household consumption



Importance of agri-food system:

- Food systems can help combat environmental degradation or climate change.
- Sustainable agri-food systems can deliver food security and nutrition for all.

ADAPTATION TO CLIMATE CHANGE

ADOPTION:

- Adoption is a decision to make full use of an innovation as the best course of action available. Rejection is a decision not to adopt an innovation.

MITIGATION:

- The action of reducing the severity, seriousness, or painfulness of something.

ADAPTATION AND ITS TYPES

Adaptation is the act of changing something or changing your behavior to make it suitable for a new purpose or situation.

Most living creatures are capable of adaptation when compelled to do so.

Types of adaptations:

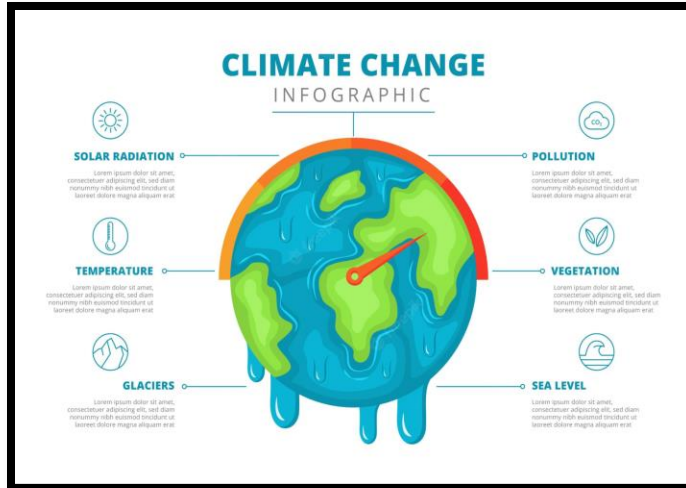
- Structural Adaptations
- Behavioral Adaptations
- Physiological Adaptations

CLIMATE CHANGE:

Climate change refers to significant changes in global temperature, precipitation, wind patterns and other measures of climate that occur over several decades or longer.

These include warming temperatures and changes in precipitation, as well as the effects of Earth's warming, such as:

- Rising sea levels
- Shrinking mountain glaciers
- Ice melting at a faster rate than usual in Greenland, Antarctica and the Arctic
- Changes in flower and plant blooming times.



ADAPTATION TO CLIMATE CHANGE:

Climate change adaptation refers to actions that reduce the negative impact of climate change, while taking advantage of potential new opportunities.

It involves adjusting policies and actions because of observed or expected changes in climate.

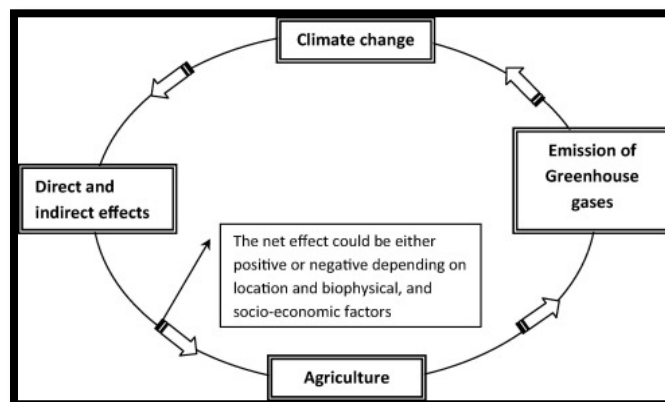
Adaptation can be reactive, occurring in response to climate impacts, or anticipatory, occurring before impacts of climate change are observed.

In most circumstances, anticipatory adaptations will result in lower long-term costs and be more effective than reactive adaptations.

Adaptation is not a new concept. Canadians have developed many approaches to effectively deal with the extremely variable climate. For example, communities in the Prairie provinces have been designed to withstand extreme differences in seasonal temperatures.

Adaptation and mitigation are necessary complements in addressing climate change.

The Earth's climate is changing.



Some of this change is due to natural variations that have been taking place for millions of years.

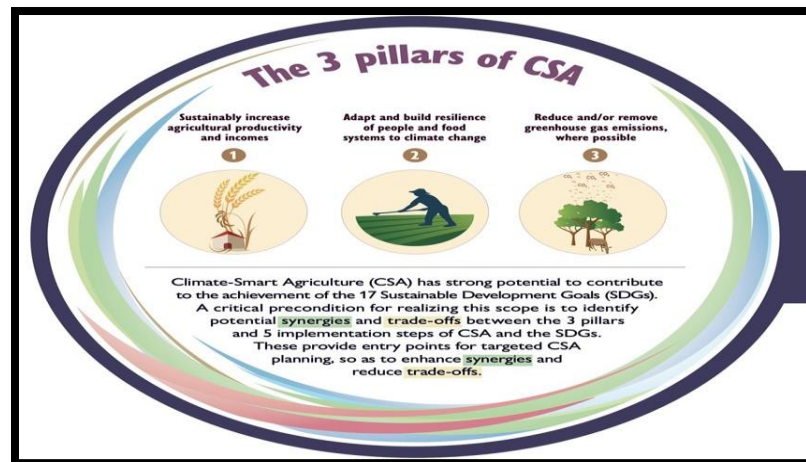
Human activities that release heat-trapping gases into the atmosphere are warming the planet by contributing to the “greenhouse effect.”

THREE PILLARS OF CLIMATE CHANGE:

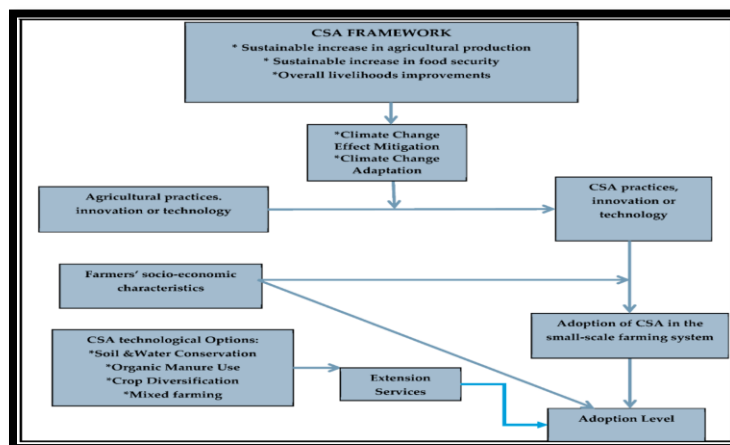
1. Mitigation.
2. Adaptation.
3. Means of implementation.

THREE PILLARS OF CLIMATE SMART AGRICULTURE(CSA):

1. Mitigation of GHG emissions from agriculture.
2. Adaptation of agricultural practices to climate change.
3. Sustainable maintenance or increase of agricultural productivity.



CSA frame work:



HOW EXTENSION CAN CONTRIBUTE TO UP SCALING CLIMATE SMART AGRICULTURE

Up scaling Climate Smart Agriculture (CSA) entails changing the behavior, strategies and agricultural practices of millions of agricultural producers.

Extension and Advisory Services (EAS) can play a very important role in up scaling CSA, but they need to be better organized to do so. Extension can play a crucial role in helping the farmers to deal with the various impacts of global climate change by using the appropriate approach to make awareness and make them aware of the various adaptation and mitigation strategies. Several organizations are generating new agricultural knowledge, but a wide gap persists between the knowledge generated and the knowledge used. Extension and Advisory Services (EAS) were established primarily to address this gap. Although the EAS approach has contributed much to agricultural development by disseminating technologies, it has been less successful at up scaling new knowledge. New knowledge is often adopted by a limited number of farmers only, and even successful pilots tend not to have a far-reaching impact. Moreover, “projects, programmers and policies are often limited in scale, short-lived and without lasting impact”

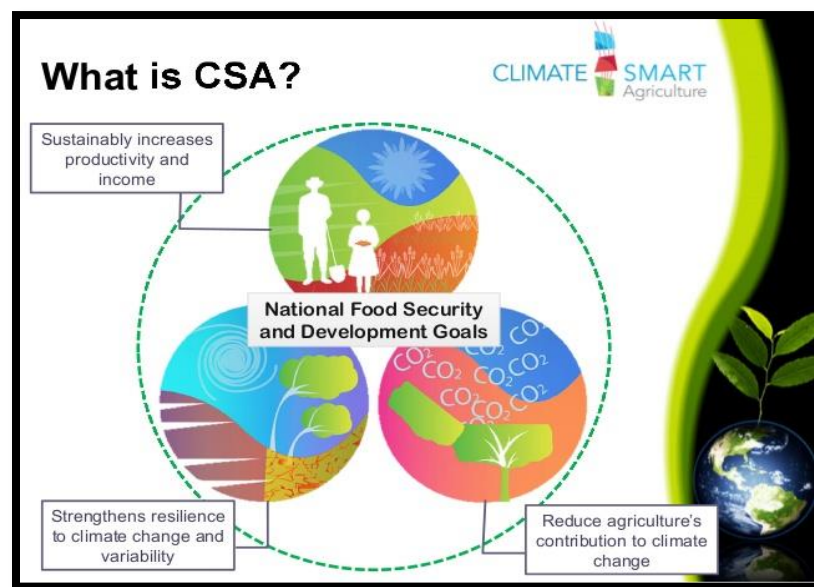
FAMILY FARMS:

“Family Farming (which includes all family-based agricultural activities) is a means of organizing agricultural, forestry, fisheries, pastoral and aquaculture production which is managed and operated by a family and predominantly reliant on family labor, including both women's and men's.

A family farm is generally understood to be a farm owned and/or operated by a family; it is sometimes considered to be an estate passed down by inheritance.

FAO works through a multi-dimensional approach to address the challenges that poor family farmers face in their daily lives and increase their income generating capacity with a view to reducing rural poverty.

CSA:



SEVEN PRIORITY ACTIONS TO SUPPORT FAMILY FARMING:

- 1) Looking beyond a strict vision of farms
- 2) Improving and securing access to productive resources
- 3) Valuing local knowledge
- 4) Guaranteeing jobs for young people
- 5) Promoting and valuing quality production
- 6) Strengthening organizations representing and defending family farming
- 7) Investing massively in family farming

Migration- advising farmers to better respond to opportunities that emerge from increasing mobility and also supporting migrants in enhancing their skill & knowledge

Migration

Migration can be defined as the movement of people from one region to another region of a state or a country by settling temporarily or permanently, for better living conditions.

Most of the migrations are due to economic conditions, business opportunities, education, and employment.

Types of Migration

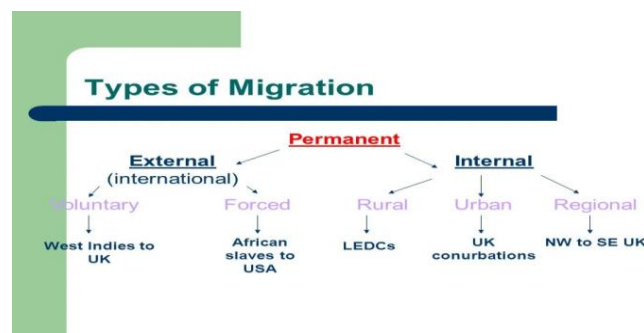
Based on the movement of people from rural to rural, rural to urban, urban to urban, and urban to rural areas, there are several more types of migration:

➤ **Internal Migration**

When a large number of people migrate from one region or state in a country to another region or state in the same country, then it is called internal migration. The migration of a person from a village to an urban area is an example of internal migration.

➤ **External Migration**

When people move from one country to another country, then it is called external migration or international migration.



External Migration is further divided into two types of migration:

a) Intracontinental migration

b) Intercontinental migration.

When Indians migrate to China (within Asia), it is called intracontinental migration but when Indians migrate to the USA (outside Asia), then it is called intercontinental migration.

When people move to another country, they are called emigrants by the people of their own country but in the country to which they migrate, they are known as immigrants.

Causes of migration:

- In search of better economic conditions, employment, business opportunities, and education.
- Migration to the towns in order to secure better living conditions, especially better schooling for their children.
- To escape poor climate conditions such as drought, and natural disasters.
- As punishment for crimes committed, the criminals and banned from a country due to their work against government laws.
- To escape war, invasion, military takeover, etc.
- Migration to reunite with family, friends, marriages, etc. who have previously settled there.
- To find personal freedom, to live a certain lifestyle, to hold certain beliefs.

Impacts of Migration

Migration is becoming a very important subject for the life of cities. Many opportunities and attraction of big cities pull large numbers of people to big cities. Migration can have positive as well as negative effects on the life of the migrants.

Positive Impact:

- Unemployment is reduced and people get better job opportunities.
- Migration helps in improving the quality of life of people.
- It helps to improve social life of people as they learn about new culture, customs, and languages which helps to improve brotherhood among people.
- Migration of skilled workers leads to a greater economic growth of the region.
- Children get better opportunities for higher education.
- The population density is reduced and the birth rate decreases.

Negative Impact:

- The loss of a person from rural areas, impact on the level of output and development of rural areas.
- The influx of workers in urban areas increases competition for the job, houses, school facilities etc.

- Having large population puts too much pressure on natural resources, amenities and services.
- It is difficult for a villager to survive in urban areas because in urban areas there is no natural environment and pure air. They have to pay for each and everything.
- Migration changes the population of a place; therefore, the distribution of the population is uneven in India.
- Many migrants are completely illiterate and uneducated; therefore, they are not only unfit for most jobs, but also lack basic knowledge and life skills.
- Poverty makes them unable to live a normal and healthy life.
- Children growing up in poverty have no access to proper nutrition, education or health.

Challenges & Opportunities of migration for rural areas

- Migration brings both opportunities and challenges to rural areas in the countries of origin, transit and destination.
- For rural areas in the countries of origin, migration will affect the supply of labour and the related skills mix and demographic composition of the remaining population.
- Public policies targeting smallholder family farmers and promoting the adoption of sustainable agricultural practices.

Role of Agriculture & rural development for migration

- Diversification to off-farm activities.
- Rural education and vocational training.
- Sustainable agricultural practices.
- Financial inclusion.
- Access to land, credit and markets.
- Integration of migration concerns into disaster risk reduction strategies.

Supporting migrants in enhancing their skill and knowledge

- Adult learning and integration.
- Language development through empowerment.
- Holistic approach to supporting the social, educational and economic integration.
- New technologies to support learning and integration.
- Using a 'Conversation Club' to assist integration through language.

FAO and migration

- Migration is intimately linked to the work of FAO. With its mission of ending food insecurity and malnutrition, eliminating poverty and promoting the sustainable management of natural resources.
- Working with governments, UN agencies, academia, the private sector, civil society, migrants and diaspora associations, and local communities.

- FAO is expanding on its work to strengthen the positive contribution that migrants are making to rural development and ensure safe, orderly and regular migration.

FAO’s work on migration can be divided into four key areas:

- 1. Addressing the adverse drivers of migration and providing rural people with the possibility to remain in their communities of origin (if it is safe for them to do so) by creating alternatives in rural areas.
- 2. Facilitating rural mobility and ensuring people can move regularly and safely between rural and urban areas as well as across international borders.
- 3. Reinforcing the positive contribution of migrants and displaced people to agriculture and rural communities.
- 4. Promoting resilient, agricultural livelihoods for migrants, displaced people, returnees and host communities, including migration as an adaptation strategy to climate change.

ATTRACTING AND RETAINING YOUTH IN AGRICULTURE INCLUDING PROMOTION OF AGR-PRENEURSHIP AND AGRI-TOURISM

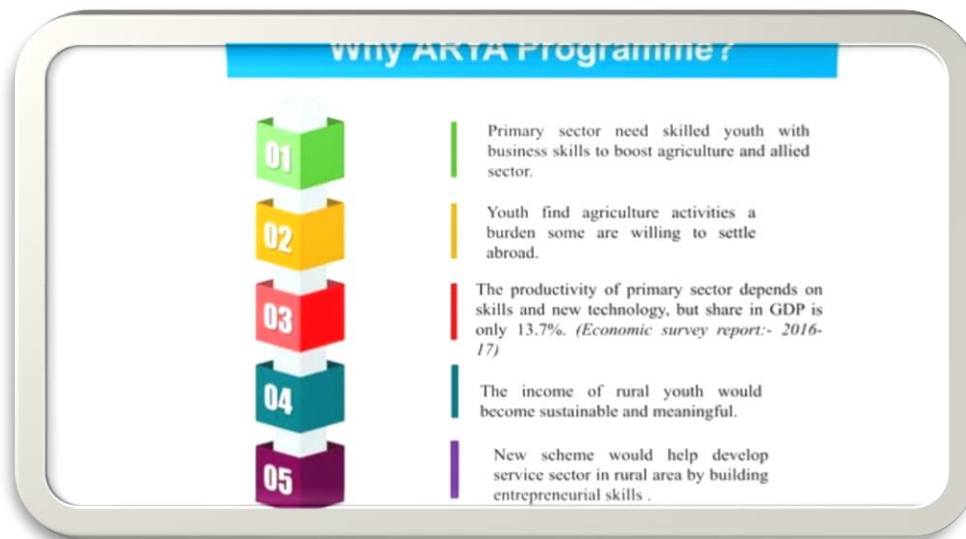
The aim of the project is to attract and empower the rural youth to take up various agricultural, and allied sector enterprises for sustainable income and gainful employment

Youth play vital role in meaningfully transforming agriculture in India.

What is ARYA?

Realizing the importance of rural youth in agriculture development of the country, ICAR has initiated a programme on “Attracting and Retaining Youth in Agriculture” on 16 July 2015.

Under this scheme, special efforts will be taken to attract rural youth under the age of 35 years in agriculture so that we can control the migration of rural youth into cities.



Objectives of ARYA

To enable the farm youth to establish network groups to take up resources and capital-intensive activities like processing, value addition and marketing.

To demonstrate functional linkage with different institutions and stakeholders for convergence of opportunities available under various schemes/programs for sustainable development of youth.



Need of ARYA

It is a matter of worry that in a farming economy like India, rural youth are looking down at agriculture and moving to towns, cities and urban centers in search of better jobs

What is really worrying is the fact even the educated rural youth, including agricultural graduates, are almost totally not interested in taking up farming as a profession

Even the majority of farmers do not want their next generation to do this job, their traditional profession.

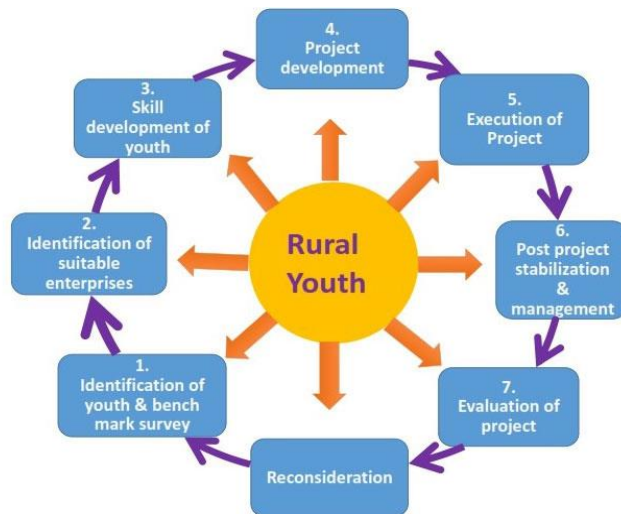
Views to ATTRACT YOUTH TOWARDS AGRICULTURE

The need for a strategy to keep youth grounded in agriculture was first voiced by the national commission on farmers, headed by scientist and father of India green revolution, M. S. Swaminathan, in 2006. “The youth can be attracted to and retaining in farming only if it becomes economically rewarding and intellectually satisfying”.

Radha Mohan Singh also stated that, agriculture has become unprofitable enterprise for small and marginal farmers. This sector not only needs integrated approach but certain structural reforms to deal with farm crises.

It has also stressed the need for providing essential facilities such as power, roads, education and health care among others in rural areas.

Our country so heavily depends on agriculture cannot develop without making agriculture profitable.



Achievements of ARYA project

In Karbi Anglong (Assam) total 111 rural youth benefited from different enterprises like poultry, piggery, pineapple and mushroom .

In senapati (Manipur) 120 rural youth got training about mushroom cultivation, piggery, poultry, fisheries.

In Lunglei (Mizoram) 145 rural youth benefited with various enterprises such as piggery, poultry, mushroom and bee keeping.

In workha (Nagaland) 90 rural youth succeed in attaining several enterprises like mushroom, poultry, piggery and cut flowers .

In north Sikkim 90 rural youth gained diverse enterprises like cardamom cultivation in protected cultivation, piglet cultivation, off season vegetable production under walk in tunnel.

SWOT analysis of rural youth

STRENGTHS

- They possess good energy
- They have capacity & ability to produce more.
- Due to their exposure to media, they are capable of accepting new ideas in farming.

WEAKNESS

- Elderly farmers in the family takes the decisions in farming
- They lack training in improved methods & skills
- Non- remunerative prices to agricultural produce.

Opportunities

- Increased market for agricultural produce & secondary agricultural commodities, which ensure good income to young farmers.
- Training opportunities through KVKs & other training institutions.

- Farmer friendly policies, incentives & schemes of the Government in the field of agriculture.

Threats

- Increased migration to urban areas.
- Less respect for agriculture profession.
- Poverty and unemployment in rural areas.
- Lack of education

Role of Extension person to attract youth in Agriculture

1. Motivation
2. Training
3. Involvement
4. Opportunities

Advantages

- Improves Agro- productivity in the country
- Controls rural migration of youth
- Income of rural youth become sustainable and meaningful
- Develops services sector in the rural area
- Business and entrepreneurial skill of youth get developed
- Disadvantages
- Youth would remain confined to rural areas.

Agri- preneurship

- Agriprenneurship refers to entrepreneurship in agriculture.
- Agriprenneurship defined as entrepreneur whose main business is agriculture or agriculture related.
- Agriculture + Entrepreneur = Agriprenneur



BENEFITS OF AGRI-PRENEURSHIP

- It helps in reducing food costs , supply uncertainties and improving the diets of the rural and urban poor in the country
- It also generates growth , increasing income ,and providing entrepreneurial opportunities in both rural and urban areas.
- Agri- preneurship for women empowerment
- Land ownership
- Agricultural cooperatives
- Self help groups: SHG
- MSME in agriculture
- ICT tools
- Policy implications

PROMOTING AGRI-PRENEURSHIP IN INDIA.

- Creating products or services for which s/he must find a market and customers.
- Adapting to changing consumer requirements and technological possibilities.
- Advertising in TV, Newspapers, Pamplates and wall posters about Agri- Preneurship

Agri - Tourism :-

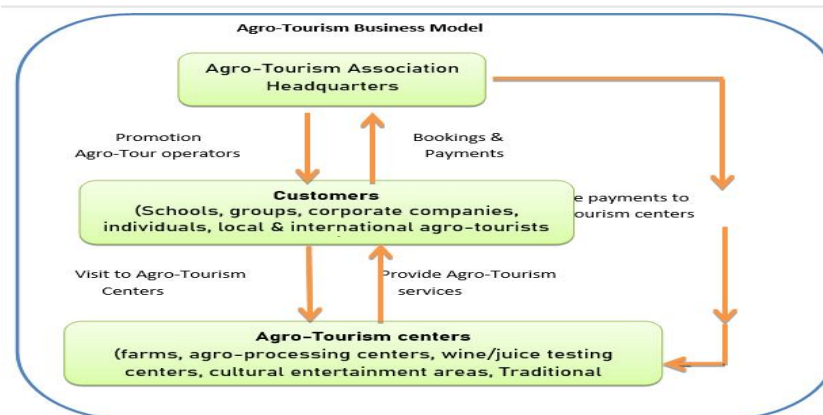
- It refers to people visiting working farms or other agriculture operations for the purpose of enjoyment, education or other active involvement .

Father of Agro – Tourism in India

- Pandurang taware

Agri- tourism is a sustainable form of tourism business.

It provides an additional source of income for the farmers. It gives prestige to rural life and creates new jobs at local levels



PROMOTION OF AGRI-TOURISM

Give a wide publicity of their tourism centre by newspapers, television etc. and develop contacts with the schools, colleges, NGOs, clubs, unions, organizations etc.

Train their staff or family members for reception and hospitality of the Agri-tourists.

Understand the customers' demands and their expectations and serve them accordingly.

Charge optimum rent and charges for the facilities/services on the commercial base.

Develop a website and update from time to time to attract foreign tourists and take their feedback and comments about the service and suggestions for more development and modification.

Develop different Agri-tour packages for different types of tourist and their expectations.

Small farmers can develop their Agri-tourism centers on the basis of cooperative society.

URBAN AND PERI URBAN FARMING ,farmers distress,suicides.

DEFINITION : Producing or growing food in a city or other heavily populated areas is known as urban farming.

BENEFITS OF URBAN FARMING

Business Growth: Urban farming helps stimulate the local economy through job creation, income generation, and the growth of small businesses.

Job Creation: Urban farms can offer them valuable skills and education in addition to a steady source of income to many unemployed, even if it is seasonal work.

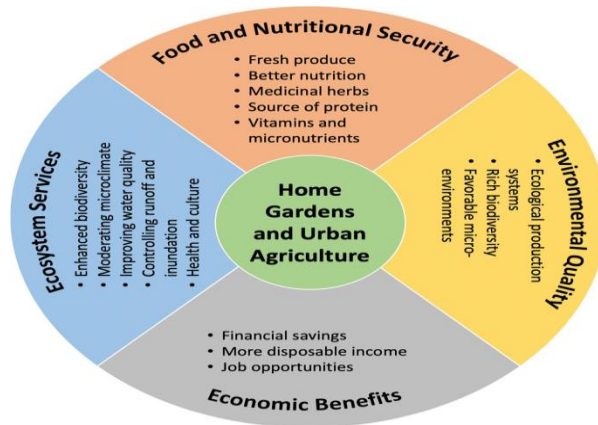
Urban Redevelopment: Unused lands and wastelands can be used for cultivation purposes. It creates more green space and reduces pollution. Areas with community gardens and urban farms also increase property value.

Health and Wellness: Urban farming creates fresh produce closer to where it's ultimately consumed. Food from urban farms is far more likely to be perfectly ripe, more nutritious, and produced in season.

Less Food Waste: People produce only what they need. This reduces food wastage to a large extent.

Low Investment: Urban farming requires less space, and initial infrastructure and setup costs. The installation cost is very low when compared to traditional farming.

Soil Conservation: The usage of methods like hydroponics, aquaponics etc. allow them to use less land.



PERI URBAN FARMING

Peri urban agriculture is located on the fringes of the city or town

Close to market , reduce fuel employment to local people , less food spoilage , organic waste readily available in urban areas , agro-tourism , increases greens to city surroundings .

DISADVANTAGES

URBAN FARMING:

- **Contamination is one of the concerning[water]**
- **Space related problems**
- **Maintanance costs**
- **Lack of experienced skilled labour**
- **Initailly its discouraging**
- **Pollution.**

PERI URBAN FARMING

- **Contaminated soils**
- **Competition for resources with other urban sectors**
- **Local land use pressures**
- **Pollution**
- **Some are unplesant to urban residents[smell ,diseases, noises,pollution]**



HOW TO SUPPORT URBAN AND PERI URBAN FARMING

- How to Sustainably Feed 10 Billion People by 2050.
- In 2050 -50 percent of indian population expected to live in cities
- There is a big shortfall between the amount of food we produce today and the amount needed to feed everyone in 2050.

Urban and peri urban farming: a solution helping to feed cities

Urban growth could become problematic in terms of feeding the population. In response to the need for food and the growing demand for local food to reduce the impact on the environment, current farming practices needed to be redesigned. Urban and peri-urban farming was the result. It consists of producing vegetables, fruit and other food or raising animals in and around cities.

Countries where urban agriculture is popular

- Argentina
- Australia
- Canada
- China
- Colombia
- Ghana
- India
- Netherlands

Cost estimation in a rooftop farming model

Initial cost of rooftop farming is high. But it will be compensated by the benefit. In general, the cost of cultivation will be around Rs. 10,000 to 15,000 per roof area of 500 sq ft.

WHY ARE FARMERS DISTRESS?

- Farming has become increasingly unviable with the average size of land holdings getting smaller over time due to the pressure of population growth.
- The last two years has been filled with the images of farmers protects by the way of dumping vegetables by roadside and resorting to distress sales of grains and pulses.
- Farmers are protesting against laws that deregulate the sale of crops, allowing private buyers more free rein in a marketplace that has long been dominated by government subsidies.

FARMERS DISTRESS

REASONS BEHIND FARMERS DISTRESS.

- 1] 2YEARS OF DROUGHT [2014- 15] Maharashtra , Gujarat , Karnataka .
- 2] Collapsing farm prices
- 3] Insurance fails to serve
- 4] Irrigation

- 5] Marketing is ignored
- 6] Modern technology is missing
- 7] Moneylenders
- 8] Lack of storage facility.

INITIATIVES TAKEN REDUCE FARMERS DISTRESS.

- Rashtriyakrishikasyojana[RKVY]
- National agriculture market[e-NAM]
- National food security mission[NFSM]
- National mission for sustainable agriculture[NMSA].

FARMERS SUICIDES

- Farmer suicides in India refers to the national catastrophe of farmers committing suicides since the 1970s, due to their inability to repay loans mostly taken from private money lenders and banks.
- Farmers' income rose by 30% while their debt surged about 58% between 2013-19.

STATES AFFECTED MOSTLY

According to a report by the National Crime Records Bureau, the states with the highest incidence of farmer suicide in 2015 were Maharashtra (3,030), Telangana (1,358), Karnataka (1,197), Madhya Pradesh (581), Andhra Pradesh (516), and Chhattisgarh (854).

What are the reasons behind farmers' suicides in India?

- The surge in input costs.
- The cost of chemicals and fertilizers.
- The cost of agricultural equipment.
- The labour cost.
- Distressed due to loans.
- Lack of direct integration with market.
- Water crisis.
- Climate change.

RESPONSES TO FARMERS SUICIDES

- 2006 relief package scheme
- Agricultural debt waiver and debt relief scheme 2008
- 2013 diversity income sources package
- Lower fertilizers scheme
- Precision farming techniques

BEYOND THE TRANSFER OF TECHNOLOGY

What is technology transfer in extension education?

Technology transfer is a **one-way process where technologies developed by scientists are passed on to extension services to be transferred to users.**

Technology transfer (TT), or transfer of technology (TOT), is an integral part of the extension process involving the transfer and spread of technical innovation and know-how to the farming population.

- The TOT model of the research-extension-farmer linkage is based on the tenets of DOI theory, in particular on a description of the diffusion process as a normal bell-shaped curve with farmers being placed in one of five categories according to their appearance on the curve.
- This linear model has limitations and has been severely criticized on a number of grounds, especially its assumptions about the dissemination process which raise the “issue of equality” and contribute to the “agricultural treadmill.”



ADVANTAGES OF TECHNOLOGY TRANSFER –

- Develops a platform to share ideas.
- Protects intellectual property.
- Promotes economic development through commercializing innovative technology.
- Enhances collaboration between the federal and non-federal science.

Disadvantages of using modern farming methods are:-

- Modern farming methods have overused the natural resource base.
- Increased use of fertilizers has led to the loss of soil fertility.
- The use of groundwater for tube well irrigation has led to water depletion.
- Modern farming methods require a great deal of capital.

CHALLENGES TO TECHNOLOGY TRANSFER-

There are three principles to be considered-

1. Asymmetric information.
2. Market power.
3. Externalities.

New technologies frequently challenge existing legal systems in new ways and foster the evolution of the law

1- ASYMMETRIC INFORMATION-

- Asymmetric information is a term that refers to **when one party in a transaction is in possession of more information than the other.**

What is meant by asymmetric information

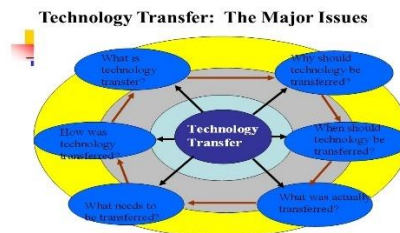
- In certain transactions, sellers can take advantage of buyers because asymmetric information exists whereby the seller has more knowledge of the good being sold than the buyer.

2- MARKET POWER-

- Market power refers to **the ability of a firm (or group of firms) to raise and maintain price above the level that would prevail under competition** is referred to as market or monopoly power.

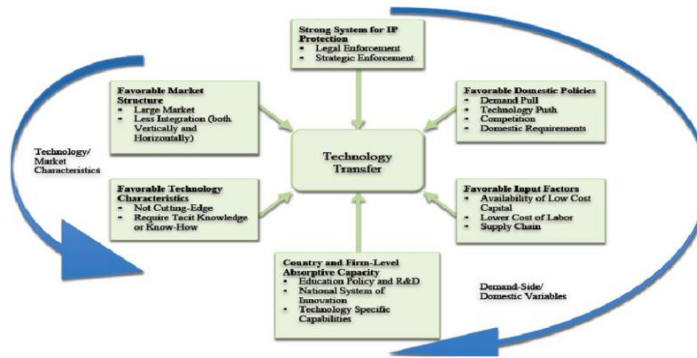
3- EXTERNALITIES-

- Externalities refers to situations when the effect of production or consumption of goods and services imposes costs or benefits on others which are not reflected in the prices charged for the goods and services being provided.



Different types of technology transfer organizations:

- Technology Transfer Offices (TTOs).
- Technology and Innovation Support Centers (TISCs).
- science and technology parks, technology incubators.
- IP marketplaces.



ORGANIZING-

- An extension agency is **an organisation that practices extension, in the context of community development**. An example is the Cooperative Extension Service, which aims to assist individuals or groups in defining and achieving their goals in rural communities in the USA.

PRODUCERS-

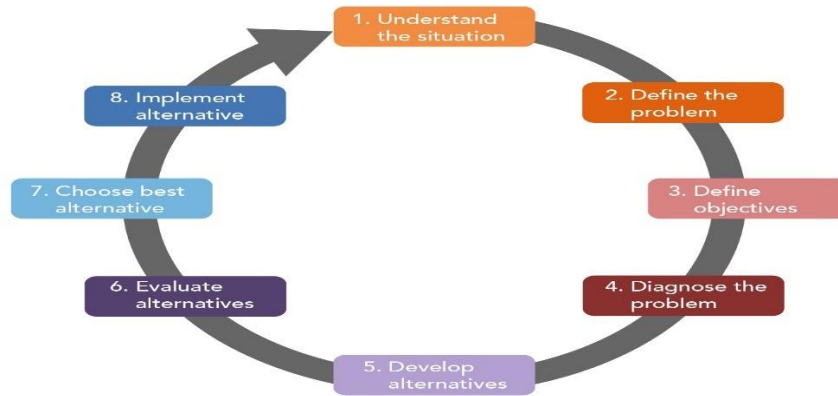
- A producer is **someone who creates and supplies goods or services**. Producers combine labor and capital—called factor inputs—to create—that is, to output—something else.

NATURAL RESOURCE MANAGEMENT-

- Natural Resource Management (NRM) refers to **the sustainable utilization of major natural resources, such as land, water, air, minerals, forests, fisheries, and wild flora and fauna**. Together, these resources provide the ecosystem services that provide better quality to human life.

STRATEGIES FOR BETTER GROUP DECISION – MAKING-

- Appoint a strategic dissenter (or even two).
- Collect opinions independently.
- Provide a safe space to speak up.
- Don't over-rely on experts.
- Share collective responsibility.
- Keep the group small when you need to make an important decision.
- Choose a heterogenous group over a homogenous one (most of the time).



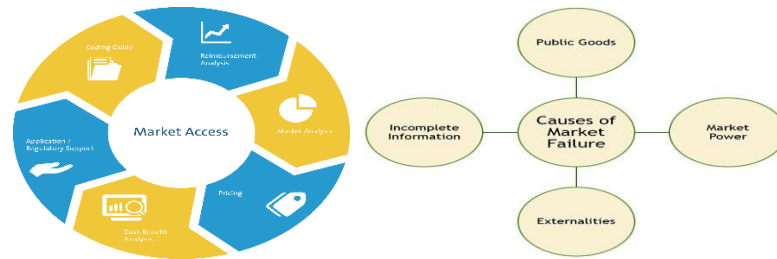
ACCESS TO MARKETS-

Barriers in markets-

- Lagging legal and regulatory provisions (e.g., digital payments, cross-border commerce, etc.).
- Inadequate input markets (land, labor, capital).
- Cost barriers (compliance, formalization, informal payments).
- Limited access to finance, inputs, tools, assets, and collateral.
- Inadequate access to and limited use of technology enablers
- Market-related information constraints (e.g., input costs, prices, demand, etc.).
- Limited access to networks, (in-)formal information sharing, and role models.
- Limited access to networks, (in-)formal information sharing, and role models.
- Gender-based harassment in business transactions (e.g., buyers, sellers, suppliers, customs officials, etc.)
- Limited access to new customers.

MARKET FAILURES IN NATURAL RESOURCE MANAGEMENT-

- Natural resource and environment are particularly prone to market failure.
- Market in other words, often fail to allocate natural in environmental resources efficiently.
- Implications from the conditions of competitive market.
- Prices do not affect relative scarcity and consumer preferences for goods.
- Over exploited.(efficient sustainable ad equitable NR use).



There are several ways to promote the adoption of new knowledge and influence policies at a large scale through networking. Here are a few ideas:

Collaborate with policy makers and other stakeholders: Building partnerships and collaborations with policy makers and other stakeholders can help you get your ideas and recommendations on the radar of decision makers and increase the chances of them being considered and implemented.

Use social media and other online platforms: Social media and other online platforms can be powerful tools for spreading information and getting your message out to a large audience. Use these platforms to share research, data, and insights on the importance of adopting new knowledge, and engage with others in discussions and debates on the topic.

Participate in industry events and conferences: Attending and presenting at industry events and conferences can give you a platform to share your ideas and insights with a large and diverse audience.

Engage with the media: Working with the media to publicize your ideas and research can help to raise awareness and influence policy decisions.

Network with other organizations and individuals: Building a strong network of like-minded organizations and individuals can help you amplify your voice and increase your impact.

1. **Engage with policy makers:** It is important to establish relationships with policy makers and engage with them regularly to discuss the importance of new knowledge and networking.
2. **Leverage data and research:** Use data and research to demonstrate the benefits of new knowledge and networking, and how they can drive innovation and economic growth.
3. **Partner with organizations:** Partner with organizations that have a similar mission to promote new knowledge and networking. This can help increase the reach and impact of your efforts.
4. **Advocate for change:** Advocate for policy changes that support new knowledge and networking, such as investments in research and development or funding for networking programs.
5. **Educate the public:** Educate the public about the importance of new knowledge and networking, and encourage them to advocate for policies that support these efforts

Partnership development, including convincing multi stakeholder platforms and innovation platforms, the following strategies can be used:

1. **Build a strong case:** Develop a strong case for the importance of new knowledge and partnership development, including the benefits it can bring to different stakeholders.

2. Engage with policy makers: Establish relationships with policy makers and engage with them regularly to discuss the importance of new knowledge and partnership development.
3. Partner with organizations: Partner with organizations that have a similar mission to promote new knowledge and partnership development. This can help increase the reach and impact of your efforts.
4. Leverage data and research: Use data and research to demonstrate the benefits of new knowledge and partnership development, and how they can drive innovation and economic growth.
5. Advocate for change: Advocate for policy changes that support new knowledge and partnership development, such as investments in research and development or funding for networking programs
6. Educate the public: Educate the public about the importance of new knowledge and partnership development, and encourage them to advocate for policies that support these efforts.

To convince innovation platforms, it is important to:

- Clearly articulate the benefits of new knowledge, networking, and partnership development for innovation and economic growth.
- Involve innovation platforms in the policy development process to ensure that their concerns are addressed.
- Build a coalition of supportive organizations and innovation platforms to increase the influence of your efforts.
- Use compelling examples and data to support your arguments.
- Be persistent and continue to engage with innovation platforms to build support for your efforts.

Extension and Advisory Services

- ❖ Rural advisory services also called extension.
- ❖ Advisory Service(s) is a term commonly used as an alternate for “extension services”.he information and services needed and demanded by farmers.
- ❖ These systems involve a broad spectrum of market and non-market entities, and agents are expected to provide useful technical information about new technologies that can improve the income and welfare of farmers and other rural people.

OBJECTIVES:-

- ❖ Providing knowledge and technology to improve agricultural productivity.
- ❖ Agricultural advisory services are also expected to fulfill a variety of new functions, such as linking smallholder farmers to high-value and export markets .

- ❖ To provide support services to internal clients to enable them to provide improved services to farmers.
- ❖ Application of fertilizer, irrigation, cultural practices, spraying of pesticides, fungicides, harvesting of crops and storage or other farm related works are advised according to the weather forecasted.

Capacity Needs of Extension and Advisory Services (EAS)

- ❖ Agricultural advisory services are expected to fulfill a variety of new functions, such as linking smallholder farmers to high-value and export markets.
- ❖ Promoting environmentally sustainable production techniques, and coping with the effects of HIV/AIDS and other health challenges that affect agriculture .
- ❖ Extension and Advisory Services (EAS) need new capacities at different levels to deal effectively with the evolving challenges faced by rural communities .

Capacity Needs at Different Levels

NO.	Levels	Capacities
1	Field Level	<ul style="list-style-type: none"> • Technical knowledge and skills • Communication skills • Market linkage establishment
2	Middle Level	<ul style="list-style-type: none"> • Team building, leadership, management and liaising • Conceptualizing and Planning programmes, and undertaking Monitoring and Evaluation (M&E) • Convergence, networking, co-ordination and partnership development
3	Senior Level	<ul style="list-style-type: none"> • Visioning, goal setting, decision making skills, team building, leadership and mentoring • Monitoring and Evaluation • Policy development and engaging in policy advocacy
4	Organizational Level	<ul style="list-style-type: none"> • Human Resource Management • Adequate infrastructure, logistics, and resources to support EAS • Leadership and mentorship, team spirit and team building

Field-Level

1. Technical advisory

Have latest knowledge on life cycle of crops grown, animals/birds domesticated, and other livelihoods pursued by farmers in the specific block/district .

support development of women and men master farmers in specific crops and enterprises in order to enhance farmer-to-farmer extension activities.

2. Communicator:

Communicating with farmers' is critically important for agriculture and society as Farmers need information to be aware of new seeds and other improved technologies.

3. Market linkage establishment:

EAS providers should help farmers to enhance farm productivity by using sustainable and climate-smart production methods, and support farmers in organizing themselves to identify and engage with appropriate markets so as to improve their levels and consistency of income.

Middle-Level

- Team building, leadership, management -They should possess soft skills for effective communication, facilitation, collaboration, and conflict management.
- Conceptualizing and Planning programmes and undertaking M&E (Monitoring and Evaluation).
- Convergence, networking, co-ordination and partnership development.
- Middle-level functionaries require networking, coordination and partnering skills and they need support in identifying the different actors working in their area.
- They also need support in identifying areas/interests for collaboration, developing Memorandums of Understanding (MoUs), access to guidelines on fund sharing and fund flows, and documents that showcase good practices on partnership management.

Senior-Level

- Visioning (the action of developing a plan, goal, or vision for the future) and should be able to plan according to the varied scenarios/situations that are likely to emerge give direction and make decisions.
- Formulate policies and plans and monitor/supervise the implementation of the policies and plans.
- Policy development and engaging in policy advocacy

Organizational Level

- Every EAS should have a clear vision, mission and goals.
- System for managing its human resources and an organizational culture that supports collaboration, networking and learning.
- It should have a system of good governance, a system for knowledge management, resources to achieve its goals and a result based management system in place.

Advisory Function

Meaning:-

- ❖ Advisory function means furnishing advice, gathering information, and making recommendations.

1. FURNISHING ADVICE

- ❖ The Vertical aims for a transformation of Indian agriculture, led by innovation, for improved nutrition and income of farmers, through sustainable as well as inclusive growth.

2. GATHERING INFORMATION

- ❖ Data collected by the farmer's needs of information in a pre-tested semi structured questionnaire.
- ❖ Gathering information in order to full fill their insistency towards agricultural purposes, however what are the problems have faced that also include here.

3. MAKING RECOMMENDATION

- ❖ Recommend to farmer what technology is good and which type process is good for crop.
- ❖ They also recommend pre and post fertilizer application. Which month is good for crops.

How to strengthen/enhance capacities?

Strengthening education and training curricula: -

- ❖ Review existing curricula (both education and training) for capacity development at regular intervals.
- ❖ Develop cases and good practices that can be used for training and develop technical manuals, fact sheets and posters.

Organize mentoring programme: -

- ❖ Mentoring is an important mechanism for capacity development where an experienced person uses his greater knowledge and expertise to support the personal development of another.
- ❖ Link staff to work closely with mentors identified for different themes.

Develop a directory of EAS providers: -

- ❖ Develop a directory of EAS providers working at different levels with contact details, thematic and geographical focus and specialization to help everyone know the different initiatives happening in their region and enhance possibilities for collaboration.

Digitize work environment and promote ICTs: -

- ❖ Provide modern ICT tools (e.g.: tablets with relevant pre-loaded content, smart phones) to EAS staff with sufficient/ adequate resources to use data cards/data plans.

Human Resource Development

- ❖ Develop systems and procedures for Human Resource Management and organize sessions on manpower planning.

Engagement/Influencing policy:

- ❖ Strengthen capacities to develop and use evidence to influence policies that impact EAS and also develop a national extension policy

Core competencies at the individual level

A Core Competency is a **knowledge, skill, or ability that contributes to the successful completion of a task on the job.**

core competencies are developed when an individual engages in particular skills that support educational curriculums.

Every employee uses multiple core competencies every day to perform their daily tasks at their job.

For example, if you are an administrative assistant, you use core competencies like verbal communication, organization skills, client service and decision making.

Top management core competencies

Self-confidence

- Self-confidence in the workplace involves believing in your own abilities and successes.
- As a leader, show others your confidence with a positive attitude and willingness to address any opposition.

Personal development

- Personal development means you continue to learn new things and build new skills.

Empowering others

- This core competency refers to encouraging employees to believe in their own abilities and providing them with autonomy to make decisions.

Building effective teams

- Building effective teams is a core competency made of several parts.
- As a leader, choose employees who work well together, share a common goal and can rely on one another for success.

Patience

- You must have and show patience as a manager.
- Each person is on their own path to success, and some people require more time and space than others.

Interpersonal communication

Interpersonal communication is the ability to communicate effectively with others regarding various tasks, concerns and ideas.

problem-solving

- A good leader has the ability to find solutions to problems.
- Managers need excellent problem-solving skills for internal workplace conflicts, daily challenges and potential business obstacles.

Honesty and integrity

- Employees respond well to leaders who are honest and act with integrity.
- Showing trustworthiness and integrity improves your employees' impression of you, and it often encourages them to become more engaged at work.

Varied mechanisms for capacity development (beyond training)

Capacity development

It refers to a process of change in which people, organizations and institutions improve their performance and refine, strengthen and adapt their capacity over time in response to changing circumstances.

1. Individual Level

- At this level, capacity building requires development and improvement of individuals to build existing knowledge and skills.

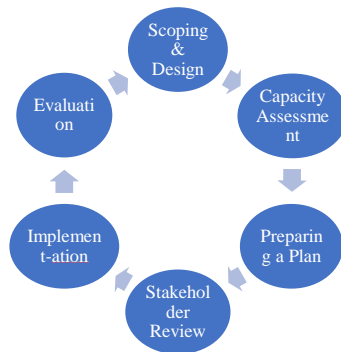
2. Institutional/Organizational Level:

- It is the middle layer of capacity building.
- It consists of procedures; policies; rules and regulations; systems and culture.

3. Societal Level:

- The last layer of capacity building is society.
- Mostly this level is neglected since many years. Traditionally, capacity building on individual and institutional level and this is common concept that after improvement of individuals, society will automatically improve.

VARIED MECHANISM:



Scoping and Design

- Successful and sustainable capacity development can only occur when there is commitment from individuals who invest in the process from the design stage onwards.

Capacity assessment

- Capacity assessment should be participatory in order to agree capacity strengths and weaknesses so as to implement effective health programmes.

Preparing a Plan

- The capacity assessment report provides the basis for defining the draft plan.
- The plan should set out the capacity objectives, activities, and indicators; and the resources required to implement change and to measure progress.

Stakeholders Review

- Stakeholders should review, prioritize and add more detail to the suggested interventions, which will enable relevant timelines, and the final budget to be agreed.

Implementation

- The implementation of a capacity development plan includes managing interventions to achieve results and monitoring progress against the agreed indicators.

Evaluation

- Evaluation of capacity development interventions can inform the direction for the next phase of capacity development activities.

Pluralism in Extension Delivery

64% of India's population lives in villages and nearly 58% of it depends on farming for livelihood. The extension is one of the important support systems to mainstream this chunk of the Indian population in the process of socio-economic development of the nation. Considering the diversities

and hardships under which these farmers and rural people live and work, it is obvious that the extension system has to be pluralistic in nature.

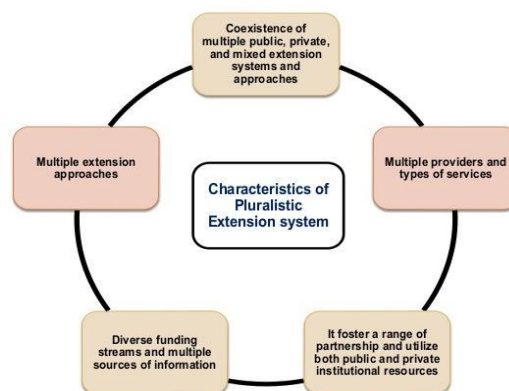
The concern for pluralism in extension is justified as extension alone cannot solve all the problems of rural people and the conventional state-sponsored and public-funded extension cannot solve all the problems either.

Pluralistic Extension

A pluralistic extension system is provision of extension services for a community which is conducted by more than one source of extension services. Pluralistic extension system may hold complex providers like non-governmental organizations, private companies, farmers' organizations, commercial individuals, extension specialists' associations, and public extension services at municipal, state, and national. It is clear that pluralistic extension system do not eliminate the public extension workers from the system, but the system adds other potential extension agencies along with the existing public extension agency. Modal of using both public and private institutions for delivering extension services to the farming community.

Why We Need a Pluralistic Extension System?

- Fiscal crisis.
- Lack of emphasis on farmers' training.
- Lack of farmers' involvement in extension program planning.
- Lack of transparency and accountability.
- Inadequate technical capacity.
- The public extension system is mostly supply-driven and top-down system.
- Weak public sector linkages with private sector firms.
- Inadequate communication capacity.
- Lack of human resources.
- Weak infrastructural facilities.



SWOT Analysis of Pluralistic Extension System

STRENGTHS

- Diversity in approaches by multiple agencies can complement and supplement the efforts of each other.

- Help to address the varying needs of the farming community.
- Increase in outreach where the public system is weak.
- Provision of new technologies and skills to farmers.

WEAKNESSES

- Provision of the contradictory information and resultant confusion gaps among farmers.
- Problem with the quality of messages from non-public agencies.
- The motives and objectives of all agencies may not be aligned with farmers.
- Making the extension system more complex.
- Possibility of duplication of effort.

OPPORTUNITIES

- Enable farmers to choose among different agencies as per requirement which in turn makes extension demand driven.
- Greater scope for farmers' participation in extension programs.
- The public extension can reorient its role in leading the pluralistic system.
- Potential to create a linkage of farmers with other actors across the value chain.

THREATS

- Lack of effective coordination among agencies.
- A mismatch between organizational agendas and problems due to hidden agendas.
- Lack of leadership and conflict resolution mechanism may hamper effective collaboration.
- Political and economic aspects prevent effective collaboration.

Concept of Private Extension

Private extension refers to the innovative ways that a private agency adopts in delivering the information and other input services as desired/demanded by the farmers.

Privatization is the act of reducing the role of government or increasing the role of the private sector in an activity or in the ownership of assets.

Chile was the first country to test a privatized extension service.

Services provided by private extension system

- Information, Input supply
- Infrastructure, Technical services
- Marketing services

- Consultancy

Elements of Private Extension System

1. Objectives
2. Target Group: Only those who can pay Highly careful More committed Actively participating
3. Mandates: Technologies: Location-specific, demand-driven Input Supply: Quality, timely, adequate
4. Extension Personnel: Highly motivated Highly professional Accountable to farmers
5. Extension Method: Advisory in nature

Types of Private Extension system

1. **Entirely Private Type:** Directly involved in farming activities through consulting, agri-business firms etc.
2. **Semi-Government Type:** Consists of farmers organizations like NGOs.

Approaches of private extension

1. Contract farming
2. Voucher scheme
3. Share-cropping system

Stakeholders in Private Extension

1. Agriculture consultants
2. ICT-based extension service providers
3. Agri-business companies,
4. Input traders
5. Farmers' co-operatives

Agro-Based Companies

- Agro-based industries provide all the necessary information to farmers and its involvement is inseparable from Indian agriculture. They play a crucial role in building the innovativeness in farmers and also they are taking R&D work.
- Examples
- Farmers One Stop Shop
- Mahindra and Mahindra, the tractor giant has started a concept of “Farmer’s One Stop Shop” where farmers can purchase all their inputs including information, and machinery in one place.
- He can also sell his product there.
- They provide crop loans in collaboration with ICICI bank.
- Rallis India
- A subsidiary of Tata Chemicals Ltd. (TCL) has initiated the “Samrudh Krishi” program to impart agricultural knowledge to farmers.

ITC's e-Choupal

- Links rural farmers via the internet for procurement of agriculture and aquaculture products viz., soybean, wheat, coffee, and prawns.
- Provides computers with internet access in rural areas to offer farmers up-to-date marketing and agricultural information.
- Makes the input supply chain more efficient and delivers value to its customers.
- Provides modern infrastructure, technologies, and distribution practices to cater to the agriculture sector.

Input traders

- Give valuable suggestions to solve the different problems of cultivation. Provide an idea about plant protection measures.
 - Supply valuable and up-to-date information to farmers about plant measures from magazines booklets etc.
 - Anticipate the demand for a product and supply it to the customers at the right time & place.
 - Try to supply the right information at right time.
 - Provide a guarantee for the goods sold by him to the customers and assumes the risk for bad quality etc.
- Sell various products in the right price.

Research Studies

1. Dhanuka Agritech

It signed a Memorandum of Understanding with the Government of Madhya Pradesh to work in a partnership mode.

They charged some nominal fee from the farmer for getting their soil tested.

Farmers did not mind paying the minimum fees as they got their soil samples tested well in time.

They even came to the rescue of the State Agricultural Department by providing those seeds of crops like soybean, when the state government fell short of the same during the peak sowing season.

2. This study was designed in the Coimbatore district to study the role and performance of input dealers in extension services and the relationship between farmers and dealers from a farmer perspective.

https://www.researchgate.net/publication/353486184_Role_and_performance_of_Agri-input_dealers_in_extension_services_in_Coimbatore_district_of_Tamil_Nadu_India

Objectives:

To study the role of Agri-input dealers in extension services.

To study the relationship between farmers and Agri-input dealers from farmers' perspective.

Regarding the level of satisfaction of the farmers, Product choice (93.33%), Credit facility and availability of the product (90.00%) were the primary satisfaction criteria of the farmers with input dealers.

Agrochemical companies have field assistants at the block and village levels to assess the farmers' problems.

In addition, the company has a strong research unit to develop a need-based product for farmers. They had proper follow-up activities in the farmer's field.

Consultant Firms & individual consultants

Consultants advise farmers for a fee.

They visit their customers more frequently to provide services that an educational agency could not provide.

They have more specialized knowledge of specific farming systems.

Helps them to make decisions regarding investments and other issues for which farmers have limited experience.

At present big farmers, farmers growing commercial crops/enterprises like coffee, tea, spices, flower, and grape, having big poultry, dairy farm, and landscaping availing the consultancy service.

Kisaan Mitrr

Provides unique, innovative, sustainable, and well-researched solutions to farmers to accelerate their growth.

- Focused on developing and executing green field projects through its organic agricultural inputs.
- Providing solutions regarding Agriculture, Horticulture, Agro forestry, Organic farming related problems.
- Offers design and consulting services to Landscape Architects, Commercial and Private Developers in both Landscape and Farm Irrigation System.

Role of Private Extension System

- Farm advisory services for profit maximization of clients.
- Timely inputs supply for better production.
- Providing market information and market intelligence.
- To evolve technology according to the need and interest of farmers.
- To guide the farmer in adopting farming according to the market need.
- To reduce the losses that occurred during marketing.

- Providing credit, insurance, and infrastructure facilities for farmers.
- Opening out of public research and educational institutes to part with the technologies.

Drawbacks of Private Extension System

- Sometimes small and marginal farmers can not take advantage of such services.
- There are chances of exploitation of farmers and an increase in the cost of production.
- Contradictory messages can flow from different organizations.
- Private organizations may sideline educational roles and concentrate more on business.
- High cost of technologies.

PRIVATE EXTENSION

- ❖ Private extension is the act of reducing role of government or increase the role of private sector in an activity or ownership of assets.
- ❖ Bloom(1993) indicated that , private extension involves personnel in the private sector that delivers advisory services in the area of agriculture and is seen as an alternative to public extension
- ❖ Whereas Van den Ban and Hawkins(1996) stated that “farmers are expected to share the responsibility for this service and pay all or part of the cost”.

Need of Private Extension

- To evolve technology according to the need and interest of farmers
- To meet the challenges of World Trade Organization(WTO) agreements
- To reduce the losses occurred during marketing
- To guide the farmer for adopting the farming according to the market need

Role of Private Extension Service Providers

- ❖ Timely inputs supply for better production
- ❖ Providing market information and market intelligence
- ❖ Processing and marketing the client’s produce
- ❖ Providing credit , insurance and infrastructure facilities for farmers.

Private Extension and Advisory Services in National Countries

- ❖ Worldwide more and more production technologies become “private goods” and an increasing percentage of farmers become commercialized producers. European nation , Asia, African, Latin American nation etc are pursuing different private extension models/approaches. In North

America , most technology transfer activities are now carried out by private input supply companies and farmer cooperatives.

Extension Advisory services

- ❖ “Extension advisory services are all the different activities that provide the information and services needed and demanded by farmers and other factors in rural people to assist them in developing their own technical, organizational and management skills and practices so as to improve their livelihoods and wellbeing.”(Christopols,2010)

Voucher Systems Of Chile and Colombia

- ❖ Chile has replaced public extension delivery system with vouchers distributed by govt, services, for farmers to use in hiring private extension consultant. Coupons attached to agricultural bank loans, committing a certain percentage of the loan for extension services have been used in Colombia. Also voucher system practiced in Germany.

France

- ❖ In France the chambers of agriculture and private sector companies provide extension services.
- ❖ The chambers of agriculture are considered private institutions operating on farmer fees for membership and services but the government of France contributes sizeable funding for operational and programme costs.

New Zealand

- ❖ New Zealand’s Ministry of Agriculture and Fisheries(MAF) agricultural advisory services now operates under user-pay, commercial criteria.
- ❖ Extension services to the dairy industry for many years have been delivered by the Dairy Board consulting service financed by the dairy industry.

New Trends in the Development of Private Extension

- ❖ Extension has been, and still is, under attack from a wide spectrum of politician and economists over its cost and financing.
- ❖ As a result, Extension Systems have had to make changes, by restating the system’s mission, developing a new vision for sthe future and formulating plans for the necessary transition to achieve the desired change.

1.Privatization of Agricultural Extension Service

2.Cyber Extension or e-extension

3.Market-Led-Extension

4.Farmer-Led-Extension

5.Expert System

Privatization of Agricultural Extension Service

- ❖ Process of funding and delivering the extension services by private individual or organization is called Private Extension.
- ❖ Privatization of extension refers to services rendered in rural area and allied aspects of extension personnel working in private agencies for which farmers are expected to pay a fee and it can be viewed as supplementary or alternative to public extension services.

Approaches:-

- ❖ Share cropping system
- ❖ Village extension contract system
- ❖ Public extension through private delivery
- ❖ Service for vouchers

Advantages:-

- ❖ Changing economic and social conditions.
- ❖ More prominent effectiveness.
- ❖ Lower charges for inhabitants.
- ❖ Decreased freedoms for political impact to drive administrations.

Cyber Extension or e-extension

- ❖ Cyber extension means using the power of online networks, computer communications and digital interactive multimedia to facilitate dissemination of agriculture technology.
- ❖ It can be defined as the extension over cyber space. Important tools of cyber extension are; e-mail , telnet, file transfer protocol, world wide web.

Market-Led-Extension(MLE):-

Market – led - extension means agriculture & economics coupled with extension is the perfect blend for reaching at the door steps of common man with the help of technology.

Government Initiatives:-

- ❖ Central warehousing corporation-1965
- ❖ MSP by Commission for Agricultural Cost and Price (CACP)
- ❖ Food Corporation of India
- ❖ Then some others as: Cotton Corporation of India(CCI),Jute Corporation of India (JCI)
- ❖ National Dairy Development Board (NDDB),Agriculture and processed food expert development authority (APEDA)

Farmer-Led-Extension(FLE)

- ❖ FLE is defined as the provision of training by farmers to farmers, often through the creation of a structure of farmer promoters and farmer trainers’.

Advantages:-

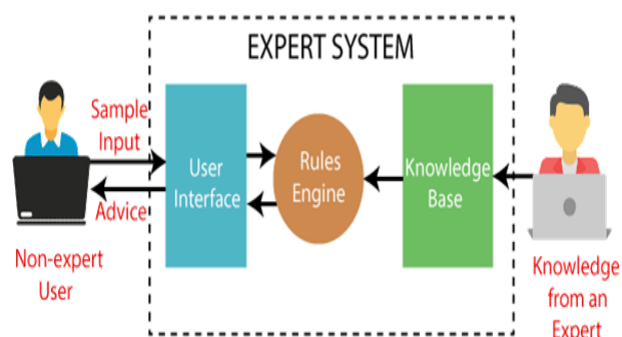
- ❖ All learning is field based & it is primary venue for learning.
- ❖ Farmer conduct their own field studies with comparisons or treatment.
- ❖ It is an effective platform for sharing of experiences and collectively solving agriculture related problems.

Disadvantages:-

- ❖ Uses a lot of time and budget per participating farmer.
- ❖ Transfer of knowledge to other farmers in the village is not so good.
- ❖ Village representative are mostly selected by the village committees.

Expert System

- ❖ Expert system is an intelligent computer programme that uses knowledge and inferences procedures to solve problems.



Advantages:-

- ❖ Solves critical problems by making logical deductions without taking much time.
- ❖ It combines experimental and conventional knowledge with the reasoning skills of specialists.
- ❖ To enhance the performance of average worker to the level of an expert.

Disadvantages:-

- ❖ Expensive computer programme.
- ❖ Mostly developed not in regional language.
- ❖ Complex software requires computer skilled personnel.

CHALLENGES FACED BY PRIVATE EXTENSION PROVIDERS

- ❖ Stressful environment
- ❖ Fear of job cuts
- ❖ Problem related to finance and credit
- ❖ Low consumer purchasing power
- ❖ Inadequate infrastructure support

NON GOVERNMENTAL ORGANIZATIONS

“ NGO refers to nonprofit citizen’s voluntary entity that organized nationally or internationally.”

For examples, professional associations, foundations, trade unions, religious organizations, women’s and youth groups, cooperative associations etc. are considered NGOs.

History

- Non – governmental organizations started emerging during 18th century.
- The Anti – Slavery society, formed in 1839, is the 1st international NGO.
- It was 1st coined in 1945 and created in UN country and there were 1083 nos. of NGOs.
- Based on Societies Registration Act (SRA), NGOs are approved in 1860.
- India’s first NGO was founded by Sri Gajendranath Tagore in the year of 1917 to help weavers and artists of the Kolkata handloom.
- The Bengal Home Industries Association was founded and resided under the Indian Companies Act vii (section 26) in 1917.
- India is estimated to had around 2 million NGOs in 2014.

Characteristics of ngos

- Voluntary
- Legal status
- Non profit oriented
- Independent
- Flexible
- Quicker in decision making
- High motivation
- Freedom in work
- Catalytic
- People centered

OBJECTIVES

- To promote environmental sustainability through education and community participation.
- To build the capacity of member organizations and secretariat.
- To conduct research on environmental issues.
- To facilitate interaction and cooperation with national and international agencies.

- To promote community development and sustainable use of natural resources.
- To ensure adherence to environmental treaties and conventions through policy advocacy.

Features

- Support democratic system
- Function on no profit basis
- Non political in character
- Clearly defined objectives
- Limited external control
- Voluntary characters
- Wide operational areas
- Positive contributions
- Need financial support
- Interest in long-term projects

Types of NGOs

BY THE LEVEL OF ORIENTATION

- CHARITABLE ORIENTATION
- PARTICIPATORY ORIENTATION
- EMPOWERING ORIENTATION
- SERVICE ORIENTATION

BY THE LEVEL OF OPERATION

- COMMUNITY BASED ORGANIZATION
- CITY WIDE ORGANIZATION
- NATIONAL NGOS
- INTERNATIONAL NGOS

Ngo registration

NGO registration can be done in 3 ways.

Society registration under “ SOCIETIES REGISTRATION ACT, 1860.”

Non Profit Company under “ Section 8 of Indian Companies Act 2013” .

Trust registration under “ The Indian Trust Act, 1882.”

- NGO registration is a initial stage to work and move towards Social Service Sector.
- After registration of NGO how to keep its status in active condition and how to achieve the targets to complete the objectives of the NGOs.

Activities of ngos

- Create awareness

- Protection of human rights
- Public relations
- Campaignings
- Gainful employment
- Protect environment
- Combat environment

Advantages of NGOs

The most specific claimed advantages of NGOs over govts including some of the following :

- Ability to experiment freely
- Enjoy good rapport with people
- Ability to communicate at all levels
- Ability to recruit experts and highly motivated staff
- Less restrictions from the government
- Innovative approaches and, if necessary to take risks
- Recruit both experts and highly motivated staff

Disadvantages of NGOs

- Lack of funds
- Lack of dedicated leaderships
- Inadequate trained personnel
- Misuse of funds
- Monopolization of leaderships
- Can be ineffective due to lack of coordination
- Restricted/constrained ways of approach to a problem or area

Roles of NGOs in providing extension

- Build solely on farmers' indigenous knowledge
- Give action oriented methods to aware farmer's perspectives
- Very specific efforts will have to be made to convey both feedback on existing technologies and NGOs' requirements for new technologies to researchers
- Have supported local groups to produce seeds

Some important NGOs in india

1. GOONJ NGO

Goonj is a non-governmental organization based in Delhi, India.

It performs disaster relief, humanitarian aid and community development work in parts of 23 states of India.

Echo focuses on clothes as a basic but unheard-of need.

It was founded in 1999 by Anshu Gupta.

Goonj started with 67 garments and now deals with over 3500 tonnes of material every year. It is registered under the Societies Act and Section 80G, 12A and FCRA to exempt foreign contributions.

2. CARE INDIA

Care India has been working in India for 68 years and is a non-profit organization focusing on reducing poverty and social injustice.

Their overall goal is to empower women and girls from poor and marginalized communities and improve their lives and livelihoods.

They do this through well-planned and comprehensive health, education, livelihood, disaster relief, and response projects.

Care India reached 31.5 million people directly through 43 projects in 14 states, covering more than 90 districts.

3. NANHI KALI

Nanhi Kali is an Indian non-governmental organization that supports education for underprivileged girls in India.

Founded by Anand Mahindra in 1996, it is jointly managed by Naandi Foundation and KC Mahindra Education Trust, part of the Mahindra Group's corporate social responsibilities.

Project Nanhi Kali educated girls and women positively to influence India in the long run. In an interview, the chairman of the non-profit organisation, Sheetal Mehta, told the Daily News and Analysis that "we wanted to create global awareness about the plight of young girls in the country who are denied their basic rights."

4. MYRADA

Myrada was started in 1968.

Myrada at present is directly managing 18 projects in 20 backward and drought prone Districts of Karnataka, Tamil Nadu and Andhra Pradesh.

There are other States where it has collaborated with Government, Bilateral and Multilateral Programs, by contributing to program design and supporting implementation through regular training, exposure and deputation of staff.

Examples of such long-term support are in the States of Haryana, Assam, Meghalaya, Manipur, Jharkhand, Orissa and Chattisgarh.

This approach arises from Myrada's decision not to fly its flag all over, but to promote, in collaboration with other institutions, a proven development strategy in which the rights of the poor, women and marginalised to build and manage their own institutions, to develop their own livelihood strategies, to associate in order to lobby effectively to change oppressive relations, to access resources and build linkages are recognized.

5. MERCY CORPS

Mercy Corps is an international humanitarian nonprofit working in more than 40 countries around the world with a mission to alleviate suffering and poverty and assist those in need to build secure, productive, and just communities.

The organization currently employs over 5,300 team members and shows an operating yearly income of US\$500 million. Mercy Corps was established in 1979 in Portland in the United States.

6. ASHOKA

Ashoka is an international nonprofit entity that focuses on empowering social leadership, entrepreneurship, and innovation.

Ashoka is currently running projects in more than 90 countries, employs a little over 500 people, and had an operating income in 2019 close to US\$65 million.

This NGO was founded in 1980 in the United States.

7. ACTION AFRICA HELP INTERNATIONAL

established in 1996 in Nairobi, Kenya

supports vulnerable African communities, especially women, children, and youth, in order to improve their living standards.

8. Agency for Peace and Development

formed in 2006

Place : Somaliland

The organization was formed through joint indigenous intellectual efforts with the help of the local appealing force on the ground.

CIVIL SOCIETY ORGANIZATION

According to the world health organization, a civil society is different from a commercial profit making business.

It helps in participation of communities and the provision of services.

It helps representation of groups which are marginalized and groups/individuals who are not heard.



Social economy

Civil society constitutes the third sector, existing alongside and interacting with the state and market/private sector.

Difference between ngos and csos

Civil society organization	Non govt. organization
It is refers to all organizations and associations that operate outside of the govt. and the market.	It refers to non profit citizen’s voluntary entity that organized nationally or internationally.
Sometimes they have political affiliations.	No political affiliations.
Share interest in public domain.	Share interest for a common cost.
No funding problem.	They face funding issues.
They perform as advocacy role.	They perform advocacy as well as a service role.
It is an older concept.	It is a new concept.

Benefits of cso

- Civil Society is a private contract by two or more persons agree where collaboration and joint performance of an activity for profit.
- This can consist of industrial members, provide labor and capital members, provide assets or money.
- No commercial character nor legal personality.
- New entrepreneurs often choose this way to start a business, because it has lower cost when it is and is simpler in tax and accounting management.

Some examples of civil society organization IN INDIA

Grassroots innovations augmentation network (gian)

Formed in 1997.

Aim : The organization is to scale up and spawn grassroot innovations and help developments of successful enterprises.

Danish Refugee Council

It is a private Danish humanitarian Non profit organization.

It was founded in 1956

It serve as an umbrella organization for 33 member organizations

STRENGTHING EXTENSION POLICY INTERFACE; GENERATING EVIDENCE ON IMPACT OF EXTENSION AND POLICY RELEVANT COMMUNICATION

- Public research and extension played a major role in bringing about the green revolution.
- In the post Green revolution era , however , extension faces important challenges in the area of relevance , accountability and sustainability.
- The changing economic scenario in India and the need for appropriate agricultural technology and Agro management.
- It is becoming increasingly evident that public extension by itself can no longer respond to the multifarious demands of farming community.
- Public funding for sustaining the vast extension infrastructure is also under considerable strain.

Evolution of Extension Reforms in India

- Extension reforms in India span more than 6 decades and their Selection aim to provide a historical background on the evolution of reforms growing areas over this time period.
- Extension system in traditionally only conducted village-level crop demonstration.
- The advent of the Green revolution , information, demand of farmers increased because of the introduction of new technology and inputs for rice production.
- Extension services were largely provisioned by the public sector during the phase and were fairly standardized were disbursed through various agricultural development program.

Timeline of Rice Extension in India

- Sustainability the large rice extension system without contributing the increase in rice productivity was big challenge for the government.
- A new training and visit System was piloted in the state of Rajasthan in 1974.
- The program involved extension workers regularly visiting selected farms to conduct training was also accompanied by technical training sessions for extension workers to keep them updated.
- The program was scaled up introduction in other states by 1977.

- The T&V system continued until the early 1990's when the world Bank funded ended ,after which the government slopped the recruitment of new staff.
- During this phase extension services for crop were provided primarily by the state Department of Agriculture through its state, district, and block-level arms , as other ministries.
- In 2007 the ATMA program was implemented throughout the country and in 2010 revised guidelines were issued to incorporate lessons learned so far. However, the ATMA still faces several capacity and institutional constraints. Even after 5 years of scaling up, with limited evaluation, it is not able to encourage innovation by researchers in the public sector and has not been able to establish strong links between farmers and researchers. This is part of the reason for the low productivity and capacity of rice producers in India, particularly smallholder rice farmers who rely on government channels of extension provision.

Broad categories of extension	Traditional extension	Green Revolution extension	T&V system	Pilot ATMA + agriliclinics	ATMA rollout and private extension	Pluralistic extension system
Specific description	Crop demonstrations in villages, limited linkage between research and extension	Demonstrations of HYV seeds, irrigation, price support, and timely delivery of subsidized inputs; established the role of adaptive trials	Frequent training and visits of extension workers to selected farmers; technical training and updating sessions for extension workers	Customized extension services, encouraging private-sector participation	Integrate various extension services, link research with extension provision, decentralize decision-making	Provision of extension services by public, private, and NGO sector
Broad timeframe	1947-65	1965-80	1980-2000	2000-05	2005-11	2011-present
Phases of reforms	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6

HYV, High-yielding variety; T&V, training and visit.

Support to state Extension programmes for extension Reforms

- Extension Reforms in India pilot tested in 28 districts of 7 states during November 1998 April ,2005 Innovations in Technology Dissemination (ITD) Component of the world Bank funded National Agricultural Technology project (NATP)
- This successful experiment served as basis Launch the support to state experiment programmes for Extension Reforms” by the ministry of Agriculture, Govt of India.
- The scheme focuses on operationalizing agricultural reform across the country through new institutional arrangement with restructured autonomous bodies at District/Block level ,are flexible , bottom up , farmer driven and promote public private partnership.
- The earlier institutional mechanism for extension under the scheme was SAMETI at the state level Catering to Training and HRD needs of extension functionaries.
- Agriculture Technology Agency (ATMA) .
- Block Technology Team (BTT)
- Famers Advisory Committees (FAC's)

The Scheme was subsequently modified and strengthens as indicated here

- Strengthens as indicated here

- Provision of specialists and functionary support at different level namely state co ordination, faculty and supporting staff for SAMETI as state level , project Director , Deputy project Directors and supporting staff at District level and Block Technology manager and subject matter specialists at the Block level.
- Innovative support through a “Farmer Friend ” to every two villages.
- Revision in ATMA Cafeteria to include additional activities and to provide for enhanced unit costs for some of the activities.
- Farmers Advisory Committee's (FAC) at state District and Block levels to advise and provide inputs to administrative bodies at respective level.
- Support to SAMETI for creating essential infrastructure.
- Delegation of powers to state level sanctioning committee set up under to approve the state extension work plan prepared under the scheme

Limited focus of objectives on

- Agriculture as Enterprise
- Working along the value chain.
- Promoting Good Agriculture practices.
- Preparing farmers to participate in Global Trade System.
- Promoting Innovations in Agriculture Extension.

CHANGING ROLE OF AGRICULTURAL EXTENSION

1. Community Development Approach to Extension :

- Public sector extension has undergone several changes since the early 1950 's .
- Beginning with the community Development programme in 1952.
- District programme started in 1961-1962 ,followed by the Intensive Agriculture Area programme in 1964 -65.
- High yielding varieties programme 1966-67.
- Farmer's Training and Education programme 1966-67.
- Small and marginal Farmers Development programme in 1969-70.

2. Transfer of Technology Approach through T&V

- The T&V System profoundly influenced extension practices and registered impressive gains in irrigated areas.
- Extension management system, starting in the mid 1970's T&V extension was well Suited to the rapid dissemination of broad-based crop management practices for the high yielding wheat and rice varieties that was released since the mid 1960s.

3. Post Green Revolution period :

- Wheat and rice varieties, failed to respond to the more location specific ,risk prone agriculture of the unirrigated tracts.
- The transfer of (T&V) extension approach to fainted farming areas where fundamentally different production system predominate and more importantly, local conditions vary widely ,resulted in serious limitations and failure.

4. Towards a Farming system Approach :

- The extension approaches of the 1950's and 1960's centred around 'Farmers ' ignorance as an explanation of non – adoption of agricultural technology .
- In the decade of the 1970's and 1980's farm well constraints were considered to be explanation of non-adoption.
- The basic philosophy of these extension approaches centred on “technology transfer”.
- By the early 1990's and the completion of the third National Agricultural Extension project (NAEP).There was growing recognition that the T&V extension approach needed to be overhauled in meeting the technology needs of farmers during the 21st century.
- Farmer participation in programme planning,and research extension linkages, marketing and value addition would have to be concurrently addressed.

PROPOSED EXTENSION POLICY FRAMEWORK

- Reforms in the system envisage an extension services more broad based and holistic in content and scope, this beyond Agricultural technology transfer.
- Extension agencies, services and workers will need to exercise a more proactive and participatory role.
- Serve as knowledge/information agents, imitating and facilitating mutually meaningful and equitable knowledge based transactions among agriculture researches, trainers and primary producers.

Reforms in Agricultural extension already initiated and proposed to be undertaken on wider scale are discussed under the following sub heads

1. Policy Reforms.
2. Institutional Restructuring.
3. Management Reforms.
4. Strengthening Research – Extension linkages.
5. Capacity building &skill upgradation.
6. Mainstreaming of women in Agriculture.
7. Empowerment of Farmers.
8. Mainstreaming of women in Agriculture.
9. Use of Media & Information Technology.
10. Financial Sustainability.
11. Changing role of Government.

POLICY REFORMS

Farming system Approach :

The Farming system Approach consider the farm , the farm household and off-farm activities in a holistic way to take care not only of framing but also accepts of nutrition, food security, Sustainability, risk minimisation, income and employment which make up the multiple objectives of farm households.

Farming system considers interdependences of the components under the control of members of the household as well as those components interact physical, biological and socio economic factors not under like household control.

Multi Agency Extension :

The new extension regime recognizes the role of a multi-agency dispensation comprising different strengths.

Policy environment will promote private extension to operate in roles that complement, supplement, work in partnership and even substitute for public extension.

The three arms of the agricultural extension network are:

Public extension services:

State government line departments operated extension (Departments of Agriculture, Horticulture & Livestock development)

State agriculture universities based extension (Directorates of Extension, Krishi Vigyan Kendras (KVKs) and Krishi Gyan Kendras (KGKs)

ICAR extension (Zonal Research Stations/ Krishi Vigyan Kendras,

Agriculture Technology Information Centres (ATICs)

Institute Village Linkage Programme (IVLP) etc.)

Private extension services

- Community Based Organization (Farmers' Organizations, Farmers' Cooperatives, Self Help Groups etc.)
- Para Extension Workers (contact farmers, link farmers, gopals, mitra kisans, mahila mitra kisans, etc.)
- Agro-Clinics & Agribusinesses Input Suppliers/ Dealers (Pesticides, Seeds, Nutrients, Farm Implements, etc.)
- Corporate Sector (Commercial Crops – tobacco, tea, coffee, oilseeds (sunflower), vegetables, Seeds, Farm Implements – tractors, threshers, sprinklers, drip irrigation, etc.)
- Implements – Tractors ,threshers , sprinkler s ,crop irrigation etc)

Mass Media & Information Technology

- Radio, Television, Private Cable Channels, etc.
- Electronic Connectivity through Computers, NICNET, Internet, V-SAT, etc.
- Farm Information and Advisory Centre's (FIACs)
- Private Portals Public & Private Information Shops
- Print Media – Vernacular Press

Promotion of demand-driven and farmer Thrust on Marketing Extension.

The T&V system the technology dissemination regime was more supply-driven .

A key factor in improving these feedback system is it organize farmer's into functional System such as self –help Groups (SHGs) ,Farmers Interest Group(FIGs),Commodity Association (CAs), and /Or Other types of farmer organisation (Fos).

Farmers have increasingly begun to perceive Marketing rather than production as the major constraint to enhancing farm income. With major thrust of extension agencies on production techniques, marketing extension so far has not received the attention it deserves.

Public funds for private extension services Charging for extension services

Promotion of private extension needs to be matched by Corresponding shifts in the allocation of public resources.

Public funds would be made available to NGOs ,Farmer Associations, Para-professionals or private foundation for extension work.

The emergency of a market for private extension or consultancy services will be encouraged.

Processors with contracted producers, also commercial suppliers of seed, agro chemicals, machinery, vaccines, artificial insemination and the like should recover the costs of providing advice to their clients out of profit margins.

Different Agricultural Schemes launched by Government of India after 2010

What is a central government scheme?

The central government aims to maximize farm output and generate employment in the agriculture sector.

To achieve this aim it intends to introduce various schemes and plans for the benefit of the farmers.

The goal of the central government is to develop innovative services that tends to increase the employment rate and better agriculture output.

Why Government Schemes are Necessary?

The government schemes are necessary to provide better and sustainable livelihood to its citizens. Like other sectors, the agriculture sector also needs the attention of the government. The majority of the population in India is dependent on agriculture and allied activities for their livelihood.

The government is quite aware that the agriculture sector contributes a major chunk of the GDP of the economy.

During the days of complete lockdown, the Indian economy suffered a drawback by recording almost 24% negative development during the primary quarter of FY 2020-21. Agriculture was the only sector that recorded a positive growth of 3.4 per cent.

1. NATIONAL MISSION FOR SUSTAINABLE AGRICULTURE (NMSA)-2014-15

To make agriculture more productivity, sustainable, remunerative and climate resilient.

Goals are the mission promotes location specific sustainable and best farming practices, soil conservation & moisture protection measures, soil nutrient management, efficient and sustainable water management practices with mainstreaming rainfed methods.

Major component is 'On Farm Water Management' is being implemented to increasing water use efficiency by promoting modern technologies such as micro irrigation & sustainable water management practices, efficient water consumption, better distribution channels along with secondary storage facilities.

2. Pradhan Mantri Fasal Bima Yojana (PMFBY)- 2016

It is a crop insurance scheme where multiple stakeholders are integrated on a single platform.

Vision

To provide the farmers a **stable source of income**.

Farmers need not worry about income during natural calamities.

Mission

Farmers to be given financial support by way of insurance.

Farmers continue to do farming even when faced with crop loss.

Make the farmers **self-reliant**

Credit flow is ensured in case of crop loss due to pests and natural calamities.

3. Pradhan Mantri Krishi Sinchai Yojana (PMKSY)

The cabinet committee on economic affairs had approved the irrigation scheme on July 1st 2015

Har Khet ko Pani "Prime Minister Krishi Sinchayee Yojana"

Vision

commitment toward conservation and management of water.

Improve the water-use efficiency.

Mission

More crop per drop

Solution on source creation and management of water.

Solution about field application and activities.

4. Paramparagat Krishi Vikas Yojana (PKVY)

An initiative launched by the NDA government in 2015

Vision

To promote organic farming

Use of traditional resources.

Mission

Farmers are encouraged to form clusters or groups.

The aim is to form 10,000 clusters over the coming years.

To bring five lakh acres of agricultural land under organic farming.

Certification costs are to be borne by the government.

Each cluster or group has 50 farmers willing to take up organic farming.

Each farmer who enrolls in the scheme is to be provided Rs 20000 per acre.

5. Pradhan Mantri Kisan Maan-Dhan Yojana (PM-KMY)m12 sept 2019

This scheme is especially for farmers between the age of 18-40 years. To avail of the benefit of this scheme, the farmer has to register under the pension fund.

Vision

The Welfare of small and marginal farmers

Provide monthly income to farmers above 60 years of age

Mission

To provide a minimum monthly income of Rupees 3000 for farmers after the age of 60.

The Scheme is administered through the farmers' cooperation and welfare department of agriculture.

6. PM Kisan Samman Nidhi Yojana 24 February 2019

The main objective of the scheme is to transfer an amount of Rupees 6000 to the account of farmers annually. This scheme is very helpful to all those small and marginal farmers who need to buy various farm implements and meet other agricultural expenses.

Vision:

The scheme is intended to make the small and marginal farmers strong.

The small and marginal farmer is in a position to sustain his activities.

To make the farmer attentive and active.

Mission:

Income support to all land-holding farmers.

Ensure the sustainable growth of small and marginal farmers.

Small farmers can buy various farm implements.

It makes transferring of Rs 6,000 per annum directly to the farmers' bank accounts through Direct Benefit Transfer (DBT) in three instalments of Rs 2,000 each.

Objective

To provide income support to all eligible land-holding farmers and their families.

PM-KISAN scheme also aims to supplement the financial needs of the farmers in procuring various inputs to ensure proper crop health and appropriate yields, commensurate with the anticipated farm income.

7. Micro Irrigation Fund scheme 1st January 2015

The scheme is aimed to remove the hurdles of irrigation. Most farmers are depended on rain for their crops. Through this scheme, the government aims to provide irrigation facilities to the farmers.

Vision:

Farmers can take up new and upcoming irrigation projects.

To make the farmer self-reliant for his irrigation needs.

Farmers are no longer dependent on rain only.

Mission:

Expand the coverage of irrigation facilities.

Micro-irrigation projects are undertaken by the farmers.

Micro-irrigation systems are installed throughout the country.

8. Mission Organic Value Chain Development for North Eastern Region (MOVCDNER)

It aims to develop the certified organic production in a value chain mode to link farmers with consumers and to support the **development of entire value chain starting from organic inputs, seeds, certification and creation of facilities for collection, aggregation, processing, marketing and brand building initiatives.**

Scheme is being implemented in north eastern states Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura

9. National Agriculture Market (e-NAM) 14th April, 2016

E-NAM is an **electronic National Agriculture Marketing portal** that pans India and connects the existing mandis. The purpose is to create a pan India market for agricultural produce.

Vision:

- Promote uniformity among agriculture markets.
- Eliminate the role of the middle man in agriculture markets.
- Offer competitive prices to farmers for their produce.

Mission:

- Integrate all APMCs across the country.
- Provide an online marketing platform for agriculture.
- Facilities are available pan India.

10. Soil Health Card 19.02.2015

The Soil Health Card Scheme was launched in India by the Ministry of Agriculture and Farmers' Welfare on February 19, 2015 at Suratgarh, Rajasthan. The project was rolled out with an initial budgetary allocation of ₹568.54 crore to be utilized over a period of 3 years.

The Scheme is a part of the National Mission for Sustainable Agriculture (NMSA). For the fiscal year of 2021-22, ₹315 crore has been allocated for the National Project on Soil Health and Fertility.

Objectives

The program also aims to identify the different types of soils in different parts of the country and to educate farmers on the proper usage of fertilizers, particularly organic fertilizers, for optimal agricultural produce. Additionally, the scheme will also generate employment.

11. PM-Kusum Launched in February 19, 2019.

Objectives

The primary objective of PM KUSUM Yojana is to make the latest technology available to every farmer in India.

To make the farmers familiar with the de-dieselized irrigation system in the agricultural sector.

The solar pumps will enable the farmers to work more effectively and use an eco-friendly irrigation system, as solar pumps will produce safe energy.

The pump sets comprise an energy grid that will generate more energy than diesel-driven pumps.

The Farmers will be able to generate extra power and sell it to the Government directly and enhance their income.

The scheme aims to add solar and other renewable capacity of 25,750 MW by 2022 with total central financial support of Rs. 34,422 Crore including service charges to the implementing agencies.

12. Interest Subvention Scheme (ISS)

The Government provides interest subvention of 3% on short-term crop loans up to Rs.3.00 lakh.

Presently, loan is available to farmers at an interest rate of 7% per annum, which gets reduced to 4% on prompt repayment.

Further, under Interest Subvention Scheme 2016-17, in order to provide relief to the farmers on occurrence of natural calamities, the interest subvention of 2% shall continue to be available to banks for the first year on the restructured amount.

ROLE OF MEDIA & ict advisory service providers; global experiences with use of media and ictS in advisory services provision

- Media describes any channel of communication.
- Information and Communication Technology (ICT) concept involves transfer and use of all kinds of information.
- The phrase ICT was coined by Stevenson in his 1997 report to the government and promoted the new National Curriculum document.
- Information communication technologies is a term which is currently used to denote a wide range of services, applications and technologies, using various types of equipment and software, often running over telecommunication network.
- The importance of ICTs is not the technology as such, but it's enabling function in access to knowledge, information and communications, increasingly important elements in today's economic and social interactions.

BENEFITS OF ICT

- 1.** Understanding **modern technology** used in agriculture.
- 2.** **Empowering smallholder** Agriculture.
- 3.** Agricultural **extension and advisory** services.
- 4.** Enhanced **market access**.
- 5.** **Early warning system** for disaster management.
- 6.** **Capacity building and empowerment**.

ROLE OF MEDIA & ICT ADVISORY SERVICE PROVIDERS BY ICAR AND SAUS

Vision: To serve a wide range of stakeholders and help in better planning to realize higher productivity & production of rice through improved knowledge and skill from the portal.

- The extension and farmers domains provide production know how, package of practices, FAQs etc., In English and local languages.
- Caters to information needs of exporters and farmers through the trade information system.
- Indexing of mandi prices from regulated markets (from AGMARKNET).

KRISHI- Knowledge Based Resources Information Systems Hub For Innovations In Agriculture

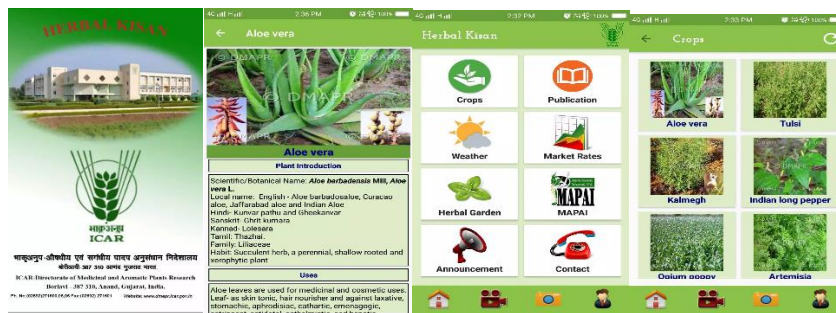
Centralized data repository system of ICAR consisting of technology, data generated through experiments/ surveys/ observational studies, geo-spatial data, publications, learning resources etc.

Objectives

- To develop knowledge repositories related to proven technologies, and publications
- To create agricultural geo-portal for strengthening, visualization and analysis of spatial data
- To develop agricultural knowledge portal to provide access and manage knowledge repositories.

Mobile Apps:

Herbal app: Detailed information for farmers, students, drug manufacturers regarding medicinal and aromatic plants cultivation techniques.



E-krisi Pathsala KAU Agri-Infotech Portal

- An ICT enabled platform for demand driven **Technology Information and advisory service for farmers, extensionists, researchers, students and all other stakeholders.**
- **Training workshop** for farmers and extensionists.



TNAU Agritech Portal

- Provides **information related to agriculture and allied sectors**
- Supported by **Rastriya Krishi Vikash Yojna**
- Developed experts systems for
 - ✓ Paddy
 - ✓ Sugarcane
 - ✓ Ragi

- ✓ Sheep and goat
- ✓ Coconut
- ✓ Buffalo
- ✓ Poultry
- ✓ Banana



Pau Kisan App:

App provides information about crops, weather, seed, training, kheti sandesh and advisory etc.



Indira Gandhi Krishi Vishwavidyalaya



Raipur:

Krishi Gyan Portal

Provide information on cultivation aspects of all crops grown in the state.

- Weekly alerts on weather, disease forecast and market information.

- Alerts on **important trainings** and **other programmes** to the **farmers and SHG** network under the KVK.
- KVK also hosts **capacity building exercise** and **workshops to discuss modern farming techniques** with groups of farmers.
- Radio is the **oldest media to sharing information** among communities.
- Radio broadcasting started in India in **1972** with two privately owned transmitters at Mumbai and Kolkata.
- A radio is always **of the people by the people for the people**.
- It is concerned with right to **relevant information**, the **right to answer back**, the right to use means of communication for **interaction in small scale** settings of community.
- A **community resource and a storehouse for traditional knowledge and culture**.
- **Low cost medium** of public communication.



Television

Amongst all the media today, television attracts the largest number of viewers. Its **audience is greater in size** than any of the other media audiences. This is because television is **able to attract the audiences of all age groups, literate and illiterate and of all the status of the society**.

There is no doubt about the fact that the technology has given us a major tool in television. It is a **very powerful persuasive communication medium**.

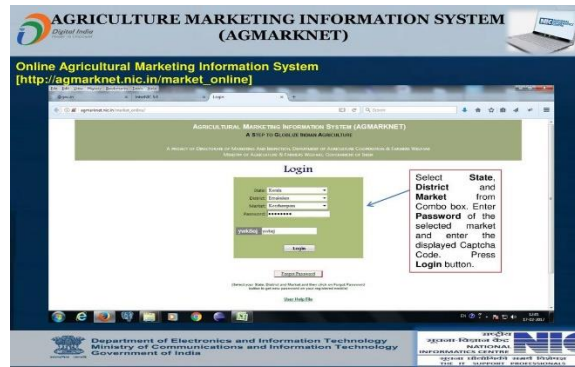
AGMARKNET

Agricultural Marketing Network Information
(agmarknet.nic.in)

Scheme commended in March 2000.

More than **3200 markets** are covered under the scheme and more than **2700 markets** are reporting data at Agmarknet portal.

More than **350 commodities and 2000 varieties** are covered under the scheme.



Implementation

The scheme is being implemented by the **Directorate of Marketing & Inspection (DMI)** with technical assistance from the **National Informatics Centre (NIC)** and in association with the State Agricultural Marketing Boards/Directorates and APMCs.

Objectives

To establish a nationwide information network for speedy collection and transfer of market information. This would cover

- Market-related information
- Price related information
- Infrastructure related information.

Initiatives In Private Sector For ICT



ITC e-Choupal

To link rural farmers via internet for development of agriculture and aquaculture products like, soybean, wheat, coffee and prawns.

Make input supply chain more efficient and deliver value to its customers.

Provide modern infrastructure, technologies to the agriculture sector.

Skymet Weather

Private initiative for weather forecasting.

Offering accurate weather predictions, and releasing related data frequently and faster.

Skymet also provides Agri-advisory for crop production.

IFFCO Kisan

Free voice messages

Dedicated helpline for query resolutions by experts

Call back facility to listen to voice messages again and again

Focused services for groups with common interest

Initiatives In Allied Sector



e-Pasuhaat

e-Trading portal for livestock germplasm and related services.

Connect the farmers with breeders- central, state, co-operative and private agencies.

Give authentic certified information on availability of germplasm.

Marine Fish Sales App And Website

App is developed under the **NICRA project of ICAR-CMFRI** as a multivendor e-commerce tool.

To facilitate **direct sales between the fisherman and the customers.**

Fisherman groups can register as vendors and add their products as per the stock availability, while customers could order these products through the app.

Resham Bandhu

App developed by Central Silk Research and Training Institute, Silk Board, Berhampore, WB.

App designed and developed to provide useful information about moriculture, sericulture, rearing, raw silk output and cocoon price and Extension activities.

Experiences With Use Of Media & Ict

The global and economic experiences of Media and ICT in agriculture are widespread and far reaching. Farmers who have better access to ICT have better lives due to the following reasons: (Zelenika, I and Pearce J. M., 2013)

1. Access to price information: Farmers will be informed of the accurate current prices and the demands of the products. Hence, they will be able to competitively negotiate in the agricultural economy and their incomes will be improved.

2. Access to agriculture information: ICT can help in dissemination of new agricultural information, sometimes most basic, related to seeds, farming practices, climate, diseases and pests, harvesting mechanisms, application of farm machinery, post-harvest strategies and finally proper marketing.

3. Access to national and international markets: Increasing the level of access of farmers is very well, simplify contact between the sellers and the buyers, to publicize agricultural exports, facilitate online trading, and increase the awareness of producers on potential market opportunities including consumer and price trends.

4. Increasing production efficiency: Due to several environmental threats such as climate change, drought, poor soil, erosion and pests, the livelihood of farmers are unstable. Thus, the flow of information regarding new techniques in production would open up new opportunities to farmers by documenting and sharing their experiences.

5. Creating a conducive policy environment: Through the flow of information from the farmers to policy makers, a favorable policy on development and sustainable growth of the agriculture sector will be achieved.

Limitations of ICT

1. Many times the information provides through the various media is not locations specifics, therefore, farmers feel trouble to accept it.
2. Majority of our farmers are illiterate therefore they are unaware about the latest information and communication systems.
3. Many times messages are complex and untimely therefore farmers could not accept it.
4. Poor updating of information & communication technologies.
5. The economic Purchasing Power Parity(PPP) of rural people is low as compared among the urban people.

Diffusion of Innovations paradigm-

Diffusion: Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system.

Elements in the diffusion of innovations:

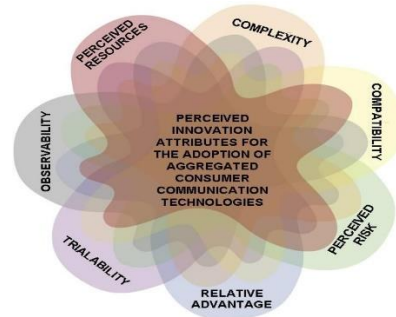
- innovation
- communication channels
- Time
- social system

WHAT IS INNOVATION?

Innovation: An innovation is an idea, practice or object that is perceived as new by an individual or other unit of adoption.

Innovation has two components:

- object component
- Idea component



Relative advantage: It is the degree to which an innovation is perceived as better than the idea it supersedes.

Compatibility: It is the degree to which an innovation is perceived as being consistent with the existing values, past experiences and needs of potential adopters.

It has two dimension :**Situational** and **Cultural**

Complexity: It is the degree to which an innovation is perceived as difficult to understand and use.

Trialability: It is the degree to which an innovation may be experimented with on a limited basis.

Observability: It is the degree to which the results of an innovation are visible to others.

A communication channel is the means by which messages get from one individual to another.

i) Interpersonal channels - It refers to those which are used for face to face communication between two or more individuals.

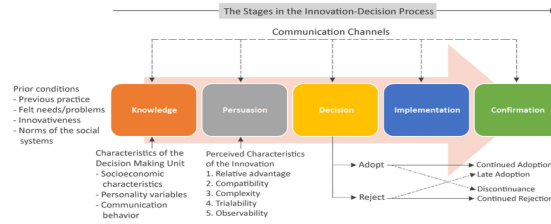
ii) Mass media channels - These enable the messages to reach a larger, diverse audience simultaneously in a relatively shorter time. e.g.: Radio and T.V.

The time dimension is involved in diffusion

In the innovation - decision process.

In the innovativeness of an individual or other unit of adoption.

Innovation's rate of adoption in a system.



Innovativeness of an individual or other unit of adoption:

Degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a system is innovativeness.

Innovation's rate of adoptions: This rate can be represented by the number of members of a society who start using a new technology or innovation during a specific period of time. The rate of adoption is useful for making comparisons.

SOCIAL SYSTEM

SOCIAL SYSTEM: It is defined as a set of interrelated units that are engaged in joint problem solving to accomplish a common goal.

Functions:

The members or units of a social system may be individuals, informal groups, organizations and / or subsystems.

The social system constitutes a boundary within which an innovation diffuses.

FARMER INNOVATION

India is home to 1.3 billion people, and globally ranks second in terms of the agricultural output. Both demand and supply side factors play a crucial role for the adoption and diffusion of improved agricultural technologies. Demand side factors include awareness and knowledge about technology, access to credit and relevant inputs, risk implications and marginal returns.

The private sector is gradually contributing to developing and marketing of improved technologies. Delivery of improved technologies through agricultural extension mechanisms play a key role in their up-scaling and out-scaling. In fact, agricultural extension system addresses demand side factors such as - awareness creation, risk reduction and proficiency improvement.

Agricultural Technologies in India: Adoption and their Impact

- Genetic Enhancement
- Natural Resource Management
- Farm Mechanisation
- Climate Smart Agriculture
- Biotechnology and Genetic Modification
- Digital Technologies.

ADOPTION AND THEIR IMPACT

Genetic Enhancement

Develop **resistance** against various **biotic** and **abiotic** stresses.

Reduce length of growing season and crop duration.

Improve quality traits for better **tastes** and **prices**.

Natural Resource Management

Improving water use efficiency.

Increasing input use.

Conserving soil and water resource.

Farm Mechanisation

The adoption of labor-saving technologies has the potential to increase agricultural productivity.

It takes less time .

Climate Smart Agriculture

The KVKs and the National Bank for Agriculture and Rural Development (NABARD) are making efforts to promote climate smart or climate resilient villages in different agro-ecologies to expose their benefits to the farmers.

There are multiple opportunities emanating from CSA technologies for minimizing the impact of climate change

Biotechnology And Genetic Modification

Application of modern science such as biotechnology and nano-technology in crops provides an opportunity to enhance their genetic potential including agricultural productivity, input requirements and sustainability of agriculture.

Agricultural biotechnology is being used as a scientific tool and technique to enhance genetic potential and/or reduce risks due to biotic and abiotic stress.

Digital Technologies

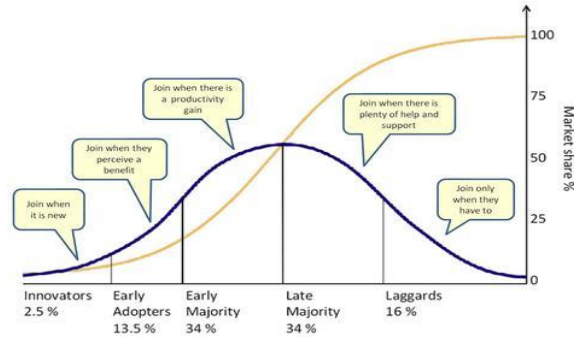
Adoption and diffusion of digital technologies in agriculture can help in transforming agricultural systems towards sustainability.

The adoption of technologies such as artificial intelligence, robotics, remote sensing image analysis, optical sensors and equipment design for monitoring have huge potential for sustainable development of agriculture.

INSTITUTIONAL INNOVATION

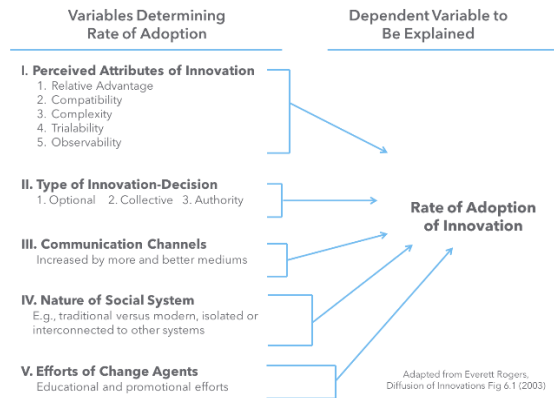
- Institutionalization of contract farming

- Farmer producer organizations
- Private markets
- Direct purchase centers
- Farmer’s market
- ICTs for market intelligence



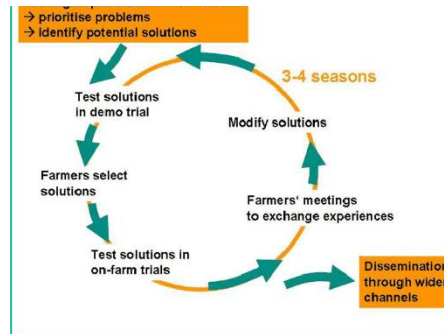
LIMITATIONS OF INNOVATION

- Mismatch between micro-irrigation system and existing cropping patterns.
- High opportunity costs of pumping ground water.
- Poor knowledge due to weak extension services.
- Fragmented and small size of land holdings.
- Farmer and extension worker ratio in India is 1100:1
- In many of remote areas marginal farmers can’t afford ICT gadgets.



PARTICIPATORY TECHNOLOGY DEVELOPMENT

Participatory technology development (PTD) is an approach to learning and innovation that is used in [international development](#) as part of projects and programmes relating to [sustainable agriculture](#). The approach involves collaboration between researchers and farmers in the analysis of agricultural problems and testing of alternative farming practices.



DIFFERENT PARTICIPATORY APPROACHES

- Rapid rural appraisal
- Participatory rural appraisal
- Participatory action and learning methods
- Argo ecosystem analysis
- Participatory action research
- Farming system research
- Participatory rural appraisal and planning
- Indigenous technical knowledge

KEY FEATURES OF PTD

- Decentralized research/technology development.
- Devolution of more responsibility to farmers for adaptive testing Accountability sharing.
- Focuses on farmer-led experimentation.
- Tests the relevance of farmers' problem-solving measures.
- Takes in to account the local resources.
- Is often based on indigenous technical knowledge and native wisdom of farmers.
- Emphasizes use of low cost and locally available resources.

GOALS OF PARTICIPATORY APPROACH IN AGRICULTURAL RESEARCH

- One goal of encouraging stakeholder participation in research and technology development and transfer is to improve the functional efficiency of formal research.
- Another objective is to empower the stakeholders, especially the marginalized ones, on their own decision making so that their research capacity to make effective demands on research and extension organizations is strengthened.
- cost effectiveness is a key indicator for functional participation while indicators of capacity are central for empowering participation.

ADVANTAGES TO FARMERS FROM PTD

- Farmers produce their own technologies - Appropriate to farm situations - Based on problems experienced by farmers
- Encourage community participation.
- Use local materials and local expertise.

- Technologies are cheap and flexible.
- These are culturally supportive.
- Reduce time lag in large scale adoption.
- More sustainable and productive.
- Within the resources and capability of farmers.
- These have options rather than fixed packages for production.

OBSTACLES IN PTD

Scientists are afraid of exposing farmers to too many uncertainties, in terms of economic, health and environmental damages.

Lack of participatory theory in the practice of analytical research

Lack of skills and experience in PTD.

Scientists may lack time, motivation, and the communication skills to approach farmers.

They are concerned that results could be spoiled by mismanagement of factors outside the researchers' control.

AKIS AND AIS

AKIS : Agriculture Knowledge and Information System

- ❑ **DEFINITION:** AKIS links people and institutions to promote mutual learning and generate share and utilize agriculture- related technology, knowledge and information.
- These are designed to collect, process, and disseminate information related to agriculture and rural development
- These systems typically involve a variety of stakeholders, including farmers, extension workers, researchers, policymakers, and other members of the agriculture community.
- It respond to technology, knowledge and information needs of farmers helping them in decision making and management of their problems.

CONCEPT OF AKIS

- AKIS **addresses** a wide range of **issues**, including **food security, rural poverty, environment sustainability**, sustainable management of natural resources.
- It can take many forms like extension services, research institutions, farmer organizations where the flow of knowledge and innovation can facilitate.
- It can be **supported by different ICT tools** like radio, television, mobile phone etc.
- AKIS respond to technology, knowledge and information needs of farmers helping them in decision making and manage their farms.

STRENGTH OF AKIS

1. Improved access to information
2. Enhanced collaboration and networking
3. Improved decision making
4. Increased efficiency
5. Enhanced sustainability

LIMITATIONS OF AKIS

1. Limited access
2. Inequality of access
3. Limited uptake
4. Limited capacity
5. Lack of co-ordination
6. Dependence on external funding

INNOVATION SYSTEM

- The term “Innovation system” was first coined by economist **Christopher Freeman** in the 1980s.
- Innovation systems are often characterized by actors, linkages, institutions, resources and output.
- It highlights the **importance of fostering collaboration and interaction between different actors and institutions in order to promote innovation** and drive economic and social development.

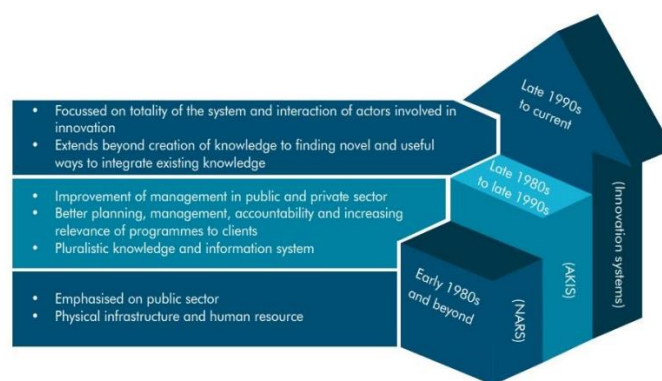


Fig. 1. Evolution of the Innovation Systems concept

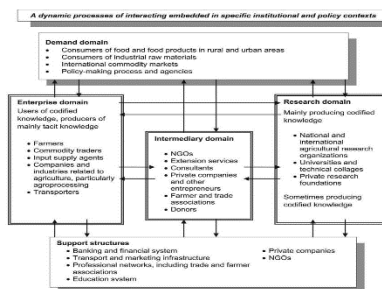
WHAT IS AIS?

AIS: Agricultural Innovation System

DEFINITION: An agricultural innovation system is a set of institutions, policies, and networks that support the development and adoption of new ideas, technologies, and practices in the agricultural sector.

Elements of an AIS can include research and development institutions, extension services, education and training programs, private sector companies, farmers and other stakeholders, and policy and regulatory frameworks.

Elements of AIS:



ADVANTAGES OF AIS Improved productivity

1. Adaptation to climate change
2. Increased efficiency
3. Enhanced sustainability
4. Improved food security
5. Economic growth

DISADVANTAGES OF AIS

1. High costs
2. Limited access
3. Dependency on external resources
4. Complexity
5. Resistance to change
6. Negative impact
7. Limited scope
8. Lack of co-ordination

CONCEPT OF REDEFINING INNOVATION

- Redefining innovation is the idea of reassessing or revising the way of that innovation is understood or approached.
- Redefining innovation can involve a variety of actions, such as:

- Changing the focus or priorities of innovation efforts
- Expanding the scope or diversity of innovation activities
- Adopting new tools, techniques, or approaches to innovation
- Encouraging a culture of continuous learning and experimentation
- Collaborating with external partners or stakeholders to bring in new perspectives or resources.

EXTENSION ADVISORY SERVICES

- Extension advisory services refer to a range of **professional services** provided by **extension agents** or specialists to assist individuals, organizations, and communities in **solving problems**, making decisions, and **improving their knowledge and skills**
- Extension agents and specialists work closely with clients to identify their needs and goals.
- Extension services are often **delivered** through a **variety of channels**, including in-person meetings, workshops, webinars, and other forms of outreach.

ROLE OF EAS IN AIS

- Extension advisory services play a crucial role in the agricultural innovation system by providing **information, guidance, and support to farmers**, agribusinesses, and other stakeholders in the agricultural sector.
- EAS can also help farmer to **overcome any barriers to adoption**.
- **Some common activities of EAS :**
 1. **Providing information and guidance** on best practices that can impact productivity and profitability.
 2. **Facilitating the adoption of new technologies**, by providing **training and support** to farmers and other stakeholders.
 3. **Supporting** the development of **new agricultural products** and value chains.
 4. Working with farmers and other stakeholders to **identify** and address **local challenges and opportunities**.

ROLE OF EAS IN AIS- Information delivery

- The **role EAS in AIS**- multifaceted and can involve **providing information** and technical assistance, and building capacity and empowering stakeholders
- EAS helps in **facilitate flow of information and knowledge with in AIS**.
- In terms of information delivery- EAS use various ways:

1. Field days demonstration
2. Information material
3. One-on-one support
4. Group meeting
5. Online platforms

Rethinking Communication in the innovation process- network building, supporting social learning, dealing with dynamics power and conflict

‘Communication’ is derived from the Latin word communis which means common sense.

Communication means sharing the same ideas. In other words, the transmission and interaction of facts, ideas, opinions, feelings or attitudes.

It is a two-way process which involves transferring of information or messages from one person or group to another.

Goal of communication

The goal of effective communication is to send a message with the intention of informing, inspiring or questioning, with the message fully understood by the recipient.



Rethinking Communication

Rethinking communication is an important aspect of any industry, including agriculture.

In the agricultural sector it is essential for a variety of reasons, including coordinating the production and distribution of food, managing resources such as land and water, and ensuring the safety and quality of products.

There are several ways that the agricultural industry can improve communication:

- Use technology to facilitate communication.
- Foster collaboration.
- Promote transparency.

- Invest in education and training.
- Use clear and concise language.

Rethinking Communication in the innovation process

It is an important aspect of the innovation process in agriculture. It is essential for ensuring that all stakeholders, including farmers, industry experts, researchers, and policymakers, are able to share their ideas, knowledge, and concerns.

There are a number of strategies that can be used to facilitate effective communication in the innovation process in agriculture, including:

- Collaboration
- Communication channels
- Transparency

Changes in thinking about innovation

Aspect of innovation	Linear model of innovation (dominant 1950-1980)	Later modes of thinking (dominant from 1990 onwards)
Origin	science and research	building blocks come from science, practice and intermediaries
Nature	new technical device	new successful combination of technological devices, modes of thinking and social organization
Social condition for application	are 'outside' the innovation	are an integral component of the innovation
Key processes	R&D, adoption	interactive design, co-evolution, learning
Role of science	designing innovations	delivering inventions that may be turned into innovations; responding to questions that emerge in the innovation process

Three conceptual models of communication

Aspect of communication	Objective model	Subjective model	Construction model
Parties involved in communication	individual senders and receivers	senders and receivers which are part of a community	socially situated actors, in a relational and historical setting
Meaning of message	is fixed, determined by sender	sender and receiver have different interpretations	actors strategically mobilise meanings to achieve social ends
Main cause of differences in interpretation	interference / noise in communication Channel	different past experiences and life worlds	different values, interests and struggle for power/influence

Aspect of communication	Objective model	Subjective model	Construction model
Relevant time horizon	present	past and present	past, present and future
Consequences of communication	more or less effective transfer of information	adapted meanings	adapted meanings, relations, and influence with various impacts
Key conditions for Rethinking communication	precision and quality of the channel	anticipation and empathy	strategy of combining communicative and other resources
Carriers of communication	symbolic signals transferred through channels and media	symbolic signals exchanged through channels and media	all forms of action that actors engage in that can be accessed through channels and media.

Theoretical and practical literature on learning, negotiation, participation and communication provide numerous insights and suggestions on how the three basic processes be facilitated and enhanced through communicative strategies –

- 1) Network building
- 2) Supporting social learning
- 3) Dealing with dynamics of power and conflict.

Network building

Building a network in agriculture can refer to a number of different things, depending on the context and the specific goals of the network. Some examples of network building in agriculture include:

- Collaboration between farmers.
- Partnerships with research institutions.
- Linking with agribusinesses.
- Connecting with government agencies

There are several strategies you can use to build your network:

- Attend industry events and conferences.
- Join professional organizations and groups.
- Engage with others on social media.
- Participate in online communities and forums.
- Foster relationships with colleagues.

Supporting social learning

Social learning in agriculture refers to the process of sharing knowledge, experiences, and resources among farmers and other stakeholders in the agriculture industry.

There are several ways to support social learning in agriculture:

- Encourage and facilitate the exchange of information and resources among farmers and other stakeholders.
- Promote the use of technology to facilitate communication and information sharing.
- Support the development of farmer-led organizations and initiatives.
- Invest in education and training programs that focus on sustainable agriculture and promote social learning.

Dealing with dynamics of power and conflict

Conflict in agriculture can occur for a variety of reasons, including competition for resources, differences in values or beliefs, and differing goals or objectives. Some strategies for dealing with the dynamics and power of conflict in agriculture include:

- Communication
- Collaboration
- Conflict resolution
- Power dynamics
- Prevention

AGRICULTURE EXTENSION APPROACHES

WHAT IS EXTENSION APPROACH?

Agriculture extension approaches are methods or strategies used to deliver information, training, and support to farmers and other members of the agriculture industry. The goal of these approaches is to improve farming practices, increase crop yields, and enhance the sustainability of agriculture.

EVOLUTION-The gradual process of change and development of something is called evolution.

EXTENSION-Extension is the process of working with rural people in order to improve their livelihood.

EVOLUTION OF AGRICULTURAL EXTENSION APPROACH

The evolution of agriculture extension approach has seen significant changes over the years as new technologies and methodologies have become available and as the needs and demands of farmers have changed.

HISTORY-One of the key milestones in the evolution of agriculture extension in India was the establishment of the Indian Council of Agricultural Research [ICAR] in 1929, which played a crucial role in promoting agricultural research and extension in the country.

- In the 1960s and 1970s the govt introduced several extension programs, including the Agriculture Extension Project [AEP] and the Training and visit [T&V] System which aimed to provide technical assistance and training to farmers.



TEACHING METHODS IN EXTENSION APPROACH

According to Wilson and Gallup classified various methods according to use and forms.

TYPES ARE-

- Individual approach
- Group approach
- Mass approach
- Mass media approach.

A. INDIVIDUAL APPROACH

Direct contact of the extension workers with an individual person or farmer or farm women or youth for specific purpose.

❖ ADVANTAGES

- Individual farmers problem can be

Solved

- Extension worker will get first hand information

about rural problem.

- Best method to reach the farmers

❖ DISADVANTAGES

- Limited contact with farmers.

B. GROUP APPROACH

Extension workers can reach more people at a time , aimed at a particular reference group, involve face to face contact.

❖ ADVANTAGES

- More people can be served at a time

- Cost effective than individual approach

❖ DISADVANTAGES

- Less effective than individual approach.

C. MASS APPROACH

- Same message given to many people, large audience can be served at a time, no personal contact.

❖ ADVANTAGES

- Message reaches to public quickly, cost effective, no individual contact.

❖ DISADVANTAGE

- Individual need and interest is not important in mass approach.

D. MASS MEDIA EXTENSION

This approach involves using media such as radio, television, or print materials to reach large numbers of farmers with extension messages.

❖ ADVANTAGES

- Reach, cost effectiveness, timelines, accessibility, repeatability

DISADVANTAGES

- They may not be effective at addressing the specific needs or challenges of individual farmers, and they may not be as effective at building relationships and trust between extension workers and farmers.
- Additionally, not all farmers may have access to the necessary technology (e.g., a radio or television) to take advantage of mass media extension programs.

EXTENSION APPROACHES

1. Transfer of technology approach
2. Educational approach
3. Farmer participatory extension approach
4. Demand –driven extension
5. Market led extension[value chain extension]
6. Extension for climate smart agriculture
7. Gender sensitive extension
8. Extension for entrepreneurship.

TRANSFER OF TECHNOLOGY APPROACH

DEFINITION-Transfer of technology is defined as the movement of relevant agriculture information from a researcher or an innovation system through extension system to the client.

MEANING-The traditional approach of agricultural research and extension follows a linear approach where experts produce new knowledge and technology and transfer it to the end.



TYPES OF TRANSFER OF TECHNOLOGY APPROACH

1. TOP-DOWN APPROACH

- This involves TOT from centralized source, such as govt agency or research institute , to the community or organisation.

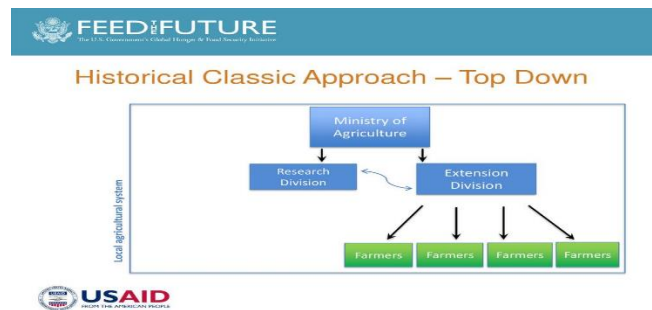
❑ ADVANTAGES OF TOT

Increased productivity, enhanced sustainability , greater access to information , improved quality ,

❑ DISADVANTAGES OF TOT

Costs associated with acquiring and implementing new technologies, and the potential difficulty in convincing farmers to adopt new technologies.

Additionally, not all technologies may be suitable for all farming operations or regions.



2. BOTTOM-UP APPROACH

- This involves TOT from community or org to a centralized source such a govt agency or research institute.



3. **EDUCATIONAL INSTITUTION APPROACH**

MEANING-This approach uses educational institutions which have technical knowledge and some research ability to provide extension services for rural people.

This may involve extension specialists and educators working directly with farmers and ranchers to provide practical training and technical assistance.

Purpose :

Helps farmers to learn scientific agriculture

Provide opportunity for students and faculty interact with farmer and experience actual agriculture

Implementation:

It conducted by a college or university with agricultural extension personal of another agency as the main audience.

ADVANTAGES

Personalized learning , Collaborative learning , Real world application of knowledge , skills development.

DISADVANTAGES

Limited student interest, Limited access to expert instructions.

FARMER PARTICIPATORY EXTENSION APPROACH

MEANING

- Is a approach to extension that involves actively engaging farmers in the extension process and empowering them to take an active role in their own learning and development.
- This approach seeks to build the capacity of farmers to identify and solve their own problems, rather than simply providing them with ready-made solutions.
- **Implementation :**

Group meetings , demonstrations , and local sharing of appropriate technologies.

ADVANTAGES-

Empowerment, greater sustainability , knowledge sharing ,build trust improved adaptability .

DISADVANTAGES-

Limited expertise: Depending on the subject matter, farmers may not have the necessary expertise or knowledge to fully participate in the research process. This can lead to incomplete or inaccurate findings.

DEMAND DRIVEN EXTENSION

- ❑ This approach recognizes that farmers are the ultimate decision-makers when it comes to what they choose to grow and how they manage their farms, and it seeks to empower them by providing them with relevant and timely information and resources that they can use to make informed decisions.
- ❑ This approach ensures relevant and appropriate extension services based on what farmers want and need rather than imposing information or technologies on them.

Advantages

Customized services, responsiveness, sustainability

Disadvantages

Time consuming, communication challenges , resistance to change .

MARKET LED-EXTENSION

Basically market led extension - consider farmers as an agripreneur and enables farmers to get high returns (money to money) out of entire farming enterprise

What to produce? When to produce? How much to produce? When & where to sell? At what price?
And what form to sell his produce?

CONCEPTS OF MARKET-LED EXTENSION

Educating the farmers to bring about desirable changes in their knowledge, Skills, Attitudes in relation to Marketing activities (Market Intelligence, Value Addition, Grading, Standardization, Processing] is called “Agricultural Market –Led Extension”.

Ayakudi Guava Growers Association

- 250 marginal Farmers with 150 acres Established during 2009
- Export to Gulf thru Pollachi exporter
- Own whole sale and retail to markets
- Supply to Kannan Department stores Price hike from Rs.10 to Rs30

WHY e-MARKETING

- To eliminate middlemen fee.–More profit for farmers.
- Low price for consumers.
- Trust building between farmers and consumers
- Farmer’s more responsibility on the quality of his products.
- Fresh and safe food for consumers .



Objectives of market led extension

- To identify and communicate innovation for value addition practices and post harvest technologies
- To build up and use effective extension methodologies for providing need based support to farming community in marketing of their produce.

ADVANTAGES OF MARKET LED EXTENSION

- Market led extension establishes its position by helping the farmers realize high returns for the produce, minimize the production costs , and improve the product value and marketability.

Climate smart agriculture (CSA)

Climate smart agriculture is an integrated approach to managing landscapes – cropland , livestock , forests and fisheries – that address the interlinked challenges of food security and climate change .

Gender sensitive agricultural extension

- Providing education and training to both men and women on equal terms.
- Ensuring that extension resources and materials are tailored to the needs and interests of both men and women.
- Providing support and resources to help women overcome any barriers or challenges they may face in accessing extension services, such as transportation or childcare.
- Encouraging the participation of both men and women in extension programs and activities.

A SUCCESSFUL WOMEN IN FARMING- A global icon for women farming- KAMALA PUJHARI

- This agricultural activist helped preserve over 100 traditional varieties of paddy and other endangered breeds of black cumin, sesame, turmeric by promoting the use of bio- fertilizers and other sustainable farming techniques.
- She first received global renown for

- attending an organic farming workshop in
- johannsburg in 2002.

Advantages

- Increased participation, improved outcomes, enhanced sustainability, greater equality

Disadvantages

- Additional time and resources may be required to properly implement a gender-sensitive approach
- Some people may resist a gender-sensitive approach, as it may challenge traditional gender roles and power dynamics.

EXTENSION FOR ENTREPRENURSHIP

Agriculture extension for entrepreneurship refers to the use of extension services to support small-scale farmers and other rural entrepreneurs.

This can include providing information and resources on topics such as business planning, marketing, financial management, and product development.

ADVANTAGES

Extension services can help farmers and entrepreneurs identify and pursue new business opportunities, such as new markets or products.

Improve their financial management and profitability

DISADVANTAGES

Accessibility: Extension services may not be readily available or accessible to all small-scale farmers and rural entrepreneurs, particularly those in remote or hard-to-reach areas.

Cost: Extension services for entrepreneurship may require financial resources to participate, which can be a barrier for some small-scale farmers and rural entrepreneurs.

Extension Reforms In Different Countries, Extension And Sustainable Development Goals

History Of USA

About 170 yr. ago nearly 75% of the population of the USA dependent on agriculture , as in the situation at present in India.

In the USA between 1910 to 1955 the number of tractors increased from 1000to 4.4 million and horse-power decreased from 24.2 million to 5 million during the same period.

In 1970, every farmer had electricity in their farm household, piped running water, mechanical refrigerators and also television and telephones.

The universities provide solutions to the problem of the farmers and the integrated approach of local, state and Federal Govt. with the staff of AU has helped to minimize the gap between the best-known technology and the technology actually used by the farmers.

Purpose of Extension service

- To obtain the information needed
- Develop the skills
- Solve their problems in farming, home making and community development
- Transfer of technology (TOT) in agriculture from research institutions to farmers.

1. Land Grant College System(1862)

- Its came into with the passage of Morrill act by the U.S. Congress in 1862
- It provided grants of public land to states
- The teaching of branches of learning related to agriculture and the mechanic arts.

2. Farm Demonstration (1903)

Farm demonstration work began in 1903 when Dr . seaman appointed 22 men in southern states to demonstrate the best methods of growing cotton under boll-weevil conditions.

3. Smith Lever Act (1914)

- In the 1914, the congress passed the smith- lever act
- Creating a nation wide “co-operative extension service”
- It is a partnership agency.
- The Smith-Lever Act established a national Cooperative Extension Service that extended outreach programs through land-grant universities to educate rural Americans about advances in agricultural practices and technology
- Help to carry out programmes for the financial, educational and social benefit of the community and its individual member.

4. H Clubs

- The National 4-H Headquarters is located within the families, 4-H and nutrition unit of CSREES.
- This is an organization of boys and girls from 10 to 20 years of age with a definite program of farm and home development and personal and social development.
- It is a part of the national agricultural extension system.
- It has been given the name 4-H club because the club members are expected to have four Hs;
- HEAD, HEART, HAND, HEALTH.

Policies:

The cooperative extension service or organization operates at three levels:

➤ The National, the state and the country.

1. At the National level, the federal extension service carries out three important functions, the relationship function, and the leadership and assistance function.
2. The national association of state universities and land grant colleges helps member institutions to cooperate with each other and the U.S department of agriculture in formulating national extension programs and policies.
3. Matters of organization and policy, known as ECOP (Extension Committee on Organization and Policy). It is made up of twelve members elected by the directors of four regions.

Development Of American Agriculture & The Cooperative Extension Service:

“LEARNING BY DOING”.

There were no pre-trained personnel.

The individuals who found ways to get the job done became leaders, but there was a great area of trial & error & experimentation.

Important Events Can Be Given As Follows

1785 – A Society for promoting agriculture was organized in Philadelphia to disseminate agricultural information through publications, newspapers, articles etc.

1796- George Washington, suggested to congress the establishment of a National Board of Agriculture.

1811- The Berkshire agricultural society (Massachusetts) organized agricultural fairs, the sale of farm products, and exhibits.

1852- The U.S. agricultural society was founded with representatives from 23 different states.

1854- Farmers' institutes start.

1867- The grange organization was formed.

1884- Bureau of animal husbandry was organized.

1887- The hatch act established experiment stations.

1900-13 – Clubs to work with rural boys & girls were developed in many states.

1902- A national farmer union was organized.

1903- Teaching by demonstration started by seaman Knapp.

1914- Smith lever act coordinated extension work nationally.

Extension service of the US is still the only system in which the main extension function remains within the university, some developing countries, India, have integrated educational institutions into practical extension work.

Extension Reform

- Top-Down to Bottom- Up (T & V to ATMA)
- Supply driven to Demand driven (Public to Private Extension)
- Public to Public-Private Partnership (PPP)
- Production to Market led Extension
- Development and application of ICT tools

Top-Down to Bottom-Up (T & V to ATMA)

- This system was introduced in 1974 with the World Bank's assistance.
- It was presumed that transfer of technology through the 'contact farmers' shall benefit all farmers.
- This system was introduced in the Rajasthan Canal area in Rajasthan and Chambal Command area in Madhya Pradesh. The system has since been extended to 13 states and 4 more are in pipeline.
- This system will be further extended in the remaining states of the country by 1985.
- They have scheduled programme of the visits to the contact farmers for advising and directing to follow appropriate technology and solving the various problems faced by the farmer on his field.

Agricultural Technology Management Agency (ATMA)

- This Scheme was approved on 29th March, 2005.
- Total 237 Agricultural Technology Management Agency (ATMA) at district level have been set up to operationalize the extension reforms with active participation of farmers / farmer groups, NGOs, Krishi Vigyan Kendras, Panchayati Raj
- It would have linkage with all the line departments, research organizations, non-governmental organizations and agencies associated with agricultural development in the district.
- Goal is to increase farmer input into programme planning.
- The scheme is supported by the Central Government. The funding pattern is 90% by the central Government and 10% by the state government.

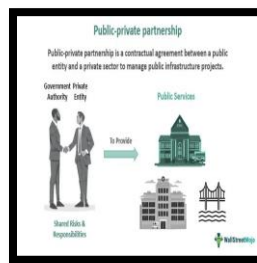
Agriculture Technology Information Center (ATIC)

- It was started during the year 1999 under the National Agriculture Technology Project (NATP) in the Directorate of Extension Education.
- The Centre provides information on agriculture technologies in addition to providing other inputs like seeds, plant materials, etc. including advisory services through single window system.

- To find out the farmers problems in field conditions and provide appropriate solution.

Public to Public-Private Partnership (PPP)

- A public-private partnership is a contractual agreement between a public agency (federal , state or local) and a private sector entity.
- public and private are shared in delivering a service or a facility for the use of the general public.
- The public partners in a PPP are government entities, including Ministries, departments, municipalities, or state-owned enterprises.
- PPPs may also include non-government organizations (NGOs) and/or community-based organizations (CBOs) who represent stakeholders directly affected by the project.
- Specially targeted towards financing, designing, implementing that were traditionally provided by the public sector.



Production to Market Led Extension

- Farmers need to transform themselves from mere producers-sellers in the domestic market to producers cum sellers in a wider market sense to best realize the returns on their investments.
- MANAGE started working on the concept of Market-Led Extension‘ and a beginning was made through a three day national workshop on Market Led Extension at MANAGE during 18th-20th December, 2001.
- Market led Extension Agriculture & economics coupled with extension is the perfect blend for reaching at the door steps of common man with extension persons & market agencies..

New dimensions for marketing extension

- Marketing of education programme
- Consumer preference
- Storage and preservation of produce
- Post-Harvest losses
- Promoting processing
- Grading and packing

Objectives

- Grow a healthy crop

- Conserve natural enemies of crop pests
- Make farmers competent in their own field
- Reduce production costs

Development and application of information technology (IT) tools

- About 103 million farm families, cultivated 165 million holdings, spread over in more than 600,000 villages in the country and 1:1000 extension agent-farmer ratio; these are the characteristics of India.
- man power and shortage of funds have adversely affected the performance of public sector and agricultural extension services.
- The requirement of field level extension worker is estimated to be about 13-15 lakhs. So, ICT gaining ground and help to disseminate information.

Programmes & Schemes

- The schemes of Extension Division are encompassed under the broad umbrella of NMAET.
- The Modified Extension Reforms Scheme was introduced in 2010
- It aims to restructure and strengthen agricultural extension to enable delivery of appropriate technology and improved agronomic practices to farmers.
- National Mission on Agricultural Extension and Technology (NMAET) was launched by UPA government in 2014 with an objective to spread farm extension services and mechanization.

This scheme has four sub-missions as under:

- Sub Mission on Agricultural Extension (SMAE)
- Sub-Mission on Seed and Planting Material (SMSP)
- Sub Mission on Agricultural Mechanization (SMAM)
- Sub- Mission on plant protection and plant Quarantine (SMPP)

The Sub Mission on Agricultural Extension (SMAE)

It focuses on awareness creation and enhanced use of appropriate technologies in agriculture & allied sectors. It has four main components, namely are:-

1. Support to State Extension Programmes for Extension Reforms (ATMA)
2. Mass Media Support to Agricultural Extension
3. Establishment of Agri-Clinic and Agri-Business Centers by Agriculture Graduates (ACABC)
4. Extension Support to Central Institutions

Agri-clinics & Agri-business centres (AC & ABC)

❖ AGRI-CLINICS:

Setting up of Agri-Clinics to provide expert advice to farmers on

Various aspects like soil health, cropping practices, plant protection, crop insurance, post harvest technology, feed and fodder management etc.

❖ **AGRI-BUSINESS CENTRES:**

Commercial agri-ventures for income generation &

Entrepreneurship development ex. farm equipment, sale of agro-inputs, value-addition activities, livestock enterprises etc.

Extension Support to Central Institution

1. Programs for Capacity Building

- Extension Education Institutes (EEIs) & Model Training Courses (MTCs)
- Ministry of Agriculture & Farmers Welfare has established four Extension Education Institutes at Nilokheri (Haryana); Hyderabad (Telangana); Anand (Gujarat) and Jorhat (Assam).
- the training needs of middle-level field extension functionaries working under agriculture and allied departments of States/UTs of respective regions.
- It include organization of on-campus/off-campus trainings, workshops, conferences etc. in the areas of communication technology, extension methodology, training management, Agriculture Knowledge Information System (AKIS) and Information Technology

2. Kisan Call Center (KCC)

- The project aims to answer farmers' queries on a telephone call
- Toll-Free Number 1800-180-1551
- Available from 6:00 am to 10:00 pm on all seven days of the week.
- Kisan Call Center agents are known as Farm Tele Advisors (FTAs),
- Queries which cannot be answered by FTAs are transferred to higher-level experts in call conferencing mode.
- These experts are subject matter specialists of the State Agricultural
- Departments, ICAR & State Agricultural Universities.

Programmes for Skill Development

1. Skill Training of Rural Youth (STRY)

It's aims to provide training rural youths.

The scheme are executed as per the standards mentioned by the National Policy on [Skill Development and Entrepreneurship](#) 2015.

Both Public and Private/Non-Governmental Institutions including Vocational Training organizations, Youth Organizations (like Nehru Yuva Kendra) are actively involved in the implementation of this programme.

2. Farmers Capacity Assessment & Certification (FCAC)

It is aimed at providing recognition to traditionally skilled farmers including farm women .

The farmers/ farm-women, after obtaining the certificate, may be recognized for getting employment in the concerned skill sector by the prospective employers in the job market.

Farmers above the age of 18 years with minimum qualification preferably up to 5th Standard (not mandatory) shall be considered for assessment and certification.

The Certification process through the Vocational Training Institutions (VTIs)/Krishi Vigyan Kendras (KVKs)/Nehru Yuva Kendras (NYKs)

3. Diploma in Agricultural Extension Services for Input Dealers (DAESI)

Agricultural Extension Services for Input Dealers (DAESI) Program has been launched during the year 2003

Course fee of Rs.20000/-

Agri-Input Dealers in the country are a prime source of farm information to the farming community, besides the supply of inputs and credit.

National Institute of Agricultural Extension Management (MANAGE) is the nodal agency to run this program .

4. Krishi Vigyan Kendras

Krishi Vigyan Kendras: 1974

At Puducherry (Pondicherry) under the administrative control of the Tamil Nadu Agricultural University, Coimbatore. At present there are 669 KVKs,

❖ Mandate of KVK

- On-farm testing
- Capacity development of farmers and extension personnel
- Provide farm advisories using ICT etc.

Sub-Mission on Seeds & Planting Materials

To produce and supply quality seeds to farmers to enhance production and productivity in the country.

Encouraging Farmers to take up Seed production of Pulses, Oilseeds, Fodder and Green Manure crops locally and make available required Certified Seeds at Village Level

Sub Mission on Plant Protection and Plant Quarantine (SMPPQ)

The Department of Agriculture and Farmers Welfare performs regulatory, monitoring, surveillance and Human Resource Development functions through a scheme “Sub Mission on Plant Protection and Plant Quarantine (SMPPQ)

The aim of minimizing loss to quality and yield of agricultural crops.

To promote Integrated Pest Management and judicious use of Pesticides, 14 crop specific and pest specific Package of Practices have been issued to the States during the lockdown period.

Sub Mission on Agricultural Mechanization

To empower the farmers, Government of India has released funds for various activities of Farm Mechanization like Establishment of Custom Hiring Centres , Farm Machinery Bank, High-tech Hubs and distribution of various agricultural machinery etc to different states.

Reduction in public funding: public withdrawal from extension provision (partial/ full): examples

- Reductions in public funding and public withdrawal from extension provision can occur in partial or full forms, depending on the specific circumstances and policies implemented.
- Research and innovation setbacks: Funding reductions in scientific research and innovation can hinder progress in various fields.
- Reduced funding for research institutions and universities can limit their ability to conduct critical studies, make scientific advancements, and develop innovative technologies.
- This can have long-term consequences for societal progress and competitiveness on a global scale. Inequality and social impact:
- Reduced public funding can disproportionately affect vulnerable populations who rely heavily on public services and support. This can exacerbate existing social inequalities and create additional barriers for disadvantaged individuals or communities, limiting their access to essential resources and opportunities.

Partial Reduction in Public Funding/Public Withdrawal

- **Scaling back extension services:** In this scenario, the government may reduce the funding allocated to extension services, leading to a decrease in the number of extension agents, limited availability of training programs, and reduced outreach efforts. Extension services may still exist but operate with fewer resources and a narrower scope of activities.
- **Targeted program cuts:** Public funding cuts may target specific programs within the extension system. For instance, funding for specialized training workshops, research projects, or support for certain industries or regions could be reduced. This can result in a more limited range of services and decreased support for specific sectors or groups.
- **Restructuring or merging of extension agencies:** Rather than a complete withdrawal, a partial reduction may involve restructuring or merging existing extension agencies. This can lead to streamlining of operations, consolidation of resources, and potential changes in the focus or geographical coverage of the extension services.

Full Withdrawal of Public Funding/Public Withdrawal:

- **Closure of extension offices:** In extreme cases, a government may decide to completely close extension offices, resulting in the complete withdrawal of public support for extension services.

This means the termination of extension programs, discontinuation of staff positions, and the absence of any formalized public extension services.

- **Privatization of extension services:** Instead of completely withdrawing, a government may opt to privatize extension services, transferring the responsibility and funding to private entities. This can result in a shift towards fee-based or subscription-based extension services, potentially limiting access for small-scale farmers or economically disadvantaged individuals.
- **Transition to volunteer-based or community-driven extension:** In some cases, a government may withdraw direct funding and instead encourage the establishment of volunteer-based or community-driven extension systems. While this can help maintain some level of extension provision, it relies heavily on the capacity and willingness of volunteers or community members to take on extension roles.

Cases

1. **United States Cooperative Extension Service:** In the United States, the Cooperative Extension System (CES) provides agricultural, horticultural, and educational services to rural communities. Over the years, various states have experienced reductions in public funding for CES, leading to the closure of extension offices, layoffs of extension agents, and reduced availability of extension programs. For example, in 2017, the state of Oklahoma announced a 40% budget cut to its Cooperative Extension Service, resulting in office closures and staff reductions.
2. **India Agricultural Extension:** In some states of India, reductions in public funding have affected the agricultural extension system. For example, budget constraints have led to delayed payment of extension workers' salaries, limited availability of training programs, and reduced outreach efforts. These funding cuts have impacted the quality and effectiveness of extension services, making it challenging to address the evolving needs of farmers.
3. **United Kingdom Agricultural Extension:** In the United Kingdom, funding reductions have affected agricultural extension provision. For instance, in 2010, the government implemented significant budget cuts, leading to the closure of many agricultural advisory offices and reduced availability of extension services. This withdrawal of public funding had repercussions on the support provided to farmers, such as reduced access to training, technical advice, and information.
4. **Greece Agricultural Extension:** During the financial crisis in Greece, the country faced severe economic challenges, leading to significant reductions in public funding for various sectors, including agricultural extension services. These cuts resulted in the closure of agricultural extension offices, reduced extension staff, and limited access to advisory services for farmers. The withdrawal of public funding significantly impacted farmers' ability to access critical information and support, hindering their productivity and competitiveness.

Conclusion

These examples illustrate the real-world implications of reductions in public funding and public withdrawal from extension provision. They demonstrate how such actions can hinder the delivery

of extension services, limit support for farmers, and negatively impact agricultural productivity, rural development, and the overall well-being of communities.

Pluralism: Managing Pluralism and Co-ordination of Pluralistic Extension Provision

- **Meaning of Pluralism-** The act of holding two or more offices or posts (such as benefices) at the same time is referred to as pluralism.
- Two or more states, groups, principles, sources of power, etc. coexisting in a situation or system

Pluralism In Agriculture

- ❖ **Pluralistic Extension** - An appropriate mix of public and private funding and delivery mechanism.
- ❖ Modal of using both public and non-public institutions for delivering extension services to the farming communities.
- ❖ Many organizations are brought together at one platform in the effort of delivering extension services to promote production and productivity.

Skills Required For Effective Management And Collaboration

1. Communication

- Use clear communication in both individual and group settings.
- Listen actively.
- Use appropriate interpersonal style to steer team members toward goals.
- Delegate decision-making and other responsibilities to appropriate individuals.

2. Interpersonal skills

- Build appropriate relationships and help the team network with peers and associates.
- Create a culture of cooperation by facilitating interaction, open communication and participatory decision-making.

3. Recognition

- Praise contributions from participants.
- Establish fair and inclusive norms for authorship in scientific publications.

4. Project management

- Set a course, monitor, and adapt it (using team decisions), and deal effectively with external forces that influence the team's goals
- Establish conventions for productive meetings and record-keeping, e.g., meeting goals, and agendas and documenting meetings through notes and action steps

- Be financially responsible and resourceful, and ensure that funds are distributed fairly.

Major drawbacks of single agriculture extension services

Public extension System	Private extension system
Lack of human resources	Concentration of elite farmers needed because of payment
Low finance and budget	Focus to get profit and skill rather than decrease in cost of production
Corruption and political disturbances	So interesting area in which they got profit
Unable to reach majority of potential clients	Neglecting of small and marginal farmers as they are economically weak
Not able to concentrate on low volume crop	Exploitation of farmers with their monopoly and profit technique

- So, the new extension regime recognizes the need for multi-agency collaboration to combine strengths.
- Thereby promoting both public and non-public (private sector NGO's/ FIG/CIG/PPP model) actors in extension work to enhance the delivery system in agricultural extension to all types of farmers.

Structure of Pluralistic Extension:

- Public sectors
- FIGs/CIGs/FPOs
- Private sectors
- NGOs/PPP/Co-operatives

Pluralistic Agricultural Extension systems in India

- 1. Central Level-**
 - a. Department of Agriculture & Cooperation
 - b. Private Sector, NGOs
- 2. State Level-**
 - a. State Agricultural Universities
 - b. Farmers Org, Associations & Societies

3. District Level-

- a. Krishi Vigyan Kendras
- b. Agricultural Technology Management Agency

Mass Media in Pluralistic Agricultural Extension systems

- Print media
- Radio TV and private cable channels
- NICNET, Internet and V_SAT
- farm information and advisory centers (FIACs)
- Private portals
- Public and private information shops

Principles of pluralistic extension

- Deconcentrating
- A system for providing multiple services
- Decentralization
- Farmer empowerment
- Outsourcing services
- Partnerships
- Extension approaches

Managing Pluralistic Extension Provision-

1. Promote diversity

- Encourage the inclusion(group of people) of multiple perspectives and approaches in extension programs and activities.
- Educate Managers on the Benefits of Diversity in the Workplace.
- Create Mentorship Programs.

2. Foster dialogue

- Encourage open and respectful dialogue between different stakeholders, including farmers, extension workers, and researchers.

3. Collaborate

- Collaborate with a variety of organizations and individuals to exchange knowledge and expertise.

4. Facilitate learning

- Provide opportunities for extension workers and farmers to learn from one another and from a variety of sources.

5. Emphasize local knowledge

- Recognize the value of local knowledge and experience and incorporate it into extension programs.

6. Evaluate and adapt

- Regularly evaluate and adapt extension programs to ensure that they are effective and responsive to the needs of farmers.

Stages in the Formation of a Collaborative Team

- It was proposed by Tuckman(1965) and modified from Clark(1997)
- **Forming:** The group comes together for a purpose.
- **Storming:** The group struggles to establish a productive working relationship and to agree on priorities.
- **Norming:** The group establishes standards for accomplishing its goals.
- **Performing:** The group begins to function well as a whole.

Methods of Co-ordination

1. Collaborative planning

- This involves bringing together different stakeholders, such as extension agents, farmers, researchers, and policy makers, to jointly identify problems and develop solutions.
- This can help to ensure that extension efforts are relevant and responsive to the needs of the community.

2. Networks and partnerships

- Extension efforts can be coordinated through networks and partnerships between different organizations and individuals.
- For example, extension agents may work with local NGOs, universities, or other institutions to share knowledge and resources.

3. Information and communication technologies (ICTs)

- ICTs, such as mobile phones, social media, and the internet, can be used to facilitate communication and collaboration between extension agents and farmers, as well as to disseminate information and resources.

4. Training and capacity building

- Extension agents and other extension workers can be trained in coordination skills, such as how to build partnerships and networks, and how to use ICTs to facilitate communication and collaboration.
- This can help to improve the effectiveness of extension efforts.

5. Monitoring and evaluation

- Regular monitoring and evaluation can help to track progress and identify areas where coordination can be improved. This can be done through the use of surveys, focus group discussions, and other methods.
- **6. Establish and strengthen**
- Establish new or strengthened existing mechanisms and platforms for coordination with a clear mandate (e.g. joint planning, information sharing).
- Replicate coordination mechanisms at various levels: national, regional, district and local.

PUBLIC-PRIVATE PARTNERSHIPS IN EXTENSION (ROLE OF LOCAL GOVERNMENTS/PANCHAYATS AND PRODUCER ORGANIZATIONS), CHALLENGES IN CO-ORDINATION

Production, processing, and marketing in agriculture are dynamic in nature due to continuous changes in consumer demand and expectation. An innovative approach is essential to meet the current challenges of agriculture. Currently, Public Private Partnership (PPP) is one of the best-experimented strategies to achieve the specified goals within the time frame and modernize public services and infrastructure in agriculture, health, science and technology, education, infrastructure development, and extension. The main reason for the evolution of PPP in various fields is the lack of facilities, human resources, and time. Through the PPP approach, impossibilities are made possible with the contribution of both public and private partners resulting in better economic conditions and livelihood of the target population.

What is Public-Private Partnership?

A public-private partnership is a cooperative and collaborative arrangement between two or more public and private sectors.

The PPP approach supplements scarce public resources creates a more competitive environment and help to improve efficiencies and reduce costs

Public partners in PPP: Govt. entities including Ministers, departments, municipalities, state-owned enterprises

Private partners in PPP: Local/international investors with technical or financial expertise

History of Public-Private Partnerships in Agriculture

- India attracted PPP in the late 20th century and early 21st century.
- Hundreds of different types of long-term contracts with a wide range of risk allocations, funding arrangements, and transparency requirements were covered under public-private partnerships.
- One 3P cell was set up in 2006 in the Department of Economic Affairs (DEA), Ministry of Finance by the Government of India.
- India is considered one of the leading countries in terms of readiness for PPPs in the world.
- As per reports, India ranks first in the world in operation maturity for 3P projects.

- Maharashtra is the pioneering state in adopting the public-private partnership model in case of major infrastructure development projects.

Elements of Public-Private Partnership

- A contract or an arrangement
- Both the sectors share risks
- A focus on service delivery
- Reward system based on performance or output
- Provision of public infrastructure or services

Objectives of Public-Private Partnership

- Increasing the financing available for infrastructure by making use of private sector resources
- Food security for increasing population
- Improving sustainability of infrastructure and infrastructure service
- Improving accountability in public expenditure
- Encouraging innovation

Kinds of Partnerships in PPP

- Permanent
- Temporary
- Long term
- Need-based
- Bilateral
- Multilateral

Models of PPP

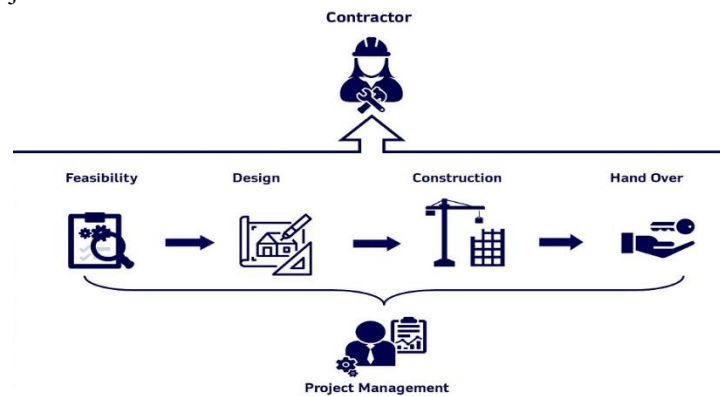
1. BOT (Build Operate Transfer) Model

- A private entity is responsible for designing, financing, constructing, and operating a project for a specified period of time.
- Then the ownership of the project is transferred back to the government or another public entity.
- Examples - to develop and manage agricultural infrastructure projects, such as irrigation systems, storage facilities, or processing plants.



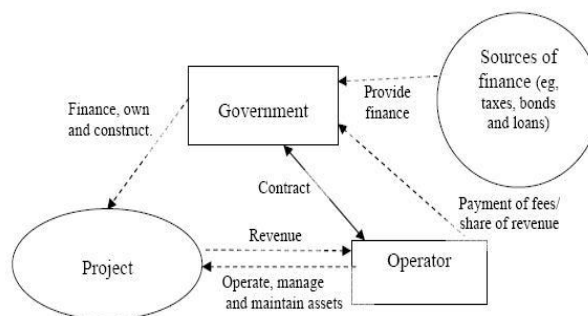
2. Modified Design Build (Turnkey) Contract Model

- A company or individual entity agrees to design, build, and manage a farming operation or agricultural project on behalf of a client.
- The client will provide the land and any necessary financing, and the turnkey provider is responsible for all aspects of the project, including planning, construction, and operation.
- Examples - development of large-scale commercial farms, greenhouse operations, aquaculture projects.



3. Lease Model

- A private company or individual leases land from a government agency or other public entity, with the goal of using the land for agricultural production, and the private partner is typically responsible for managing and operating the farm, while the public partner retains ownership of the land.
- Features of this model: long-term leases, shared risk and reward, improved efficiency



4. Performance-Based Maintenance Contract Model

- A performance-based maintenance contract in agriculture is an agreement between a farmer or agricultural organization and a maintenance or repair service provider in which the service provider is responsible for maintaining and repairing certain agricultural equipment or machinery.
- The service provider is paid based on the performance of the equipment or machinery, rather than on a fixed schedule or rate

Examples of PPP in Agriculture

- **Project Golden Ray-** PPP between Govt. of Rajasthan and Monsanto India Limited to improve socio-economic status of tribal community by enhancing maize yields and income.
- **Hoshangabad Model of PPP-** Partnership between District Agriculture Department and Dhanuka Group for delivery of agri inputs and services.
- **E-Choupal-** Mutual co-operation between Indian Tobacco Company, rural entrepreneurs, state agricultural universities to boost farmers knowledge.
- **PPP for Integrated agriculture Development-** Maharashtra Govt. initiated Public-Private Partnership for Integrated Agriculture Development (PPP-IAD) project under world Economic Forum to promote value chain in agriculture.
- **PPP for marketing infrastructure-** The Government of India is looking to promote terminal markets, a public-private partnership model that links production centre to the consumption centre in cities of Mumbai, Nashik, Nagpur, Chandigarh, Rai Patna, Bhopal and Kolkata as well as Ahmedabad and Surat.
- **PPP for agricultural extension-** In Madhya Pradesh (MP), there was a PPP in agricultural extension involving the national institute of agricultural extension management (MANAGE) based in Hyderabad, the Department of Agriculture (DoA), the Government of MP and the Dhanuka Agritech Group.
- **PPP for crop diversification and contract farming-** Punjab Govt. wanted to promote Punjab Agro Food grains Corporation (PAFC) to facilitate contract farming to achieve crop diversification.
- **Creating producer bodies through PPP-** PPP between Maharashtra State Agricultural Marketing Board (MSAMB), the Department of Cooperation, Government of Maharashtra, the National Horticulture Board (NHB), the National Cooperative Development Corporation (NCDC), the Agricultural Products Export Development Authority (APEDA) and the grape growers to promote the marketing of grapes globally.
- **PPP for organic production-** PPP between Kohinoor Food Ltd. and Uttarakhand Organic Commodity Board (UOCB) to promote good quality organic basmati rice.

Advantages of PPP

On-time delivery

Maximizes the use of each sector's strength

Helps in modernizing agriculture and rural economies

Increases efficiency

Creation of added value

Leads to innovation

Helps in providing better public services

A way of providing local private sector capabilities

Integration of resources

Shared risks and responsibilities

Role of Local Government/Panchayats in PPP

PRI was constitutionalized through the 73rd Constitutional Amendment Act, 1992 to build democracy at the grassroots level and was entrusted with the task of rural development in the country.

Need of Local Government/Panchayat

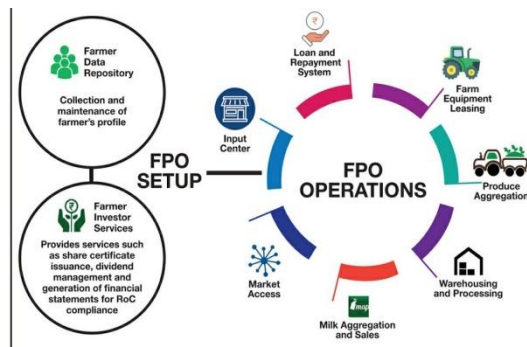
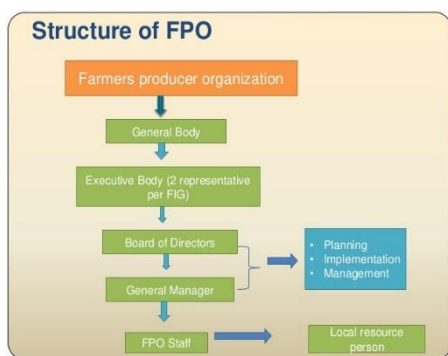
- To recognize the need of the development sector.
- Better implementation of Government Policies.
- Management of local resources.
- Cultural and religious Importance.
- Maximum participation of beneficiaries through Gram Sabha.
- Efficient Development Administration at grass root level.
- Bottom up Approach in Policy making and implementation

Role in PPP

- Facilitating the identification of suitable projects and helping to bring together public and private sector partners.
- Providing support in the form of land acquisition, infrastructure development, and other resources that may be necessary for the success of a PPP project.
- Monitoring and evaluating the performance of these projects to ensure that they are meeting the needs of local communities.
- Panchayats can work with local stakeholders, including farmers to ensure that PPP projects are aligned with their needs and priorities.

Role of Farmers Producers Organizations in PPP

FPO is an organization, where the members are farmers itself and it provides end-to-end support and services to the small farmers, and cover technical services, marketing, processing, and other aspects of agriculture inputs.



Role in PPP

1. FPOs can serve as a bridge between small and marginal farmers and private sector partners. They can facilitate the participation of small farmers in PPP projects and ensure that their interests are taken into account.
2. . FPOs can help to create economies of scale by aggregating the produce of small farmers and making it more attractive for private sector partners to work with them.
3. FPOs can provide a platform for small farmers to access credit, extension services, and other support from private sector partners.
4. FPOs can also help to improve the bargaining power of small farmers in negotiations with private sector partners and ensure that they receive a fair share of the benefits from PPP projects.

Paradigm Shift for Public-Private Partnership

Parameters	Present Status	Future Strategies
Focus	Production oriented technologies	Production + Market oriented technologies
Technology	Exogenous developed by scientists and researchers	Participatory technology where scientists, farmers will jointly work together
Mode	Delivery of messages	Empowering farmers through Fos/FIGs
Services and supplies	Public sectors and co-operatives	Moving towards public-private partnership
Extension cadres	Limited mostly to public extension	Moving towards para-extension professionals, agripreneurs
Coverage of markets	Mostly domestic	Both domestic and international market

Challenges of Co-ordination in PPP

- Different goals and incentives
- Lack of trust
- Limited resources
- Legal and regulatory issues
- Different organizational cultures
- Limited communication and coordination
- Lack of political vision, strategy, and leadership

Partnership Success Factors

- Need and demand-based partnership with common interest and objective.
- Team spirit, trust, and credibility will help to sustain the partnership for a longer period of time.
- Both sectors should have clarity in terms of their roles.
- Activities/projects should be cost-effective and must meet the requirements of both national and global policies.
- Partners should be constantly dynamic and innovative to face obstacles.

ACHIEVING CONVERGENCE IN EXTENSION PLANNING AND DELIVERY. FINANCING EXTENSION MOBILISING RESOURCES FOR EXTENSION: PUBLIC INVESTMENTS, DONOR SUPPORT(GRANTS/LOANS)

Extension agencies globally face the twin challenges of limited finances and manpower. However, some extension agencies manage these challenges and achieve larger impacts by converging their efforts with others.

CONVERGENCE WITH RESEARCH INSTITUTION:

- Problem Based Researches
- Capacity Development
- Production of Technological Inputs- seed, planting materials, bio-fertilizers, fingerling etc.
- Joint Strategy Development Plans
- Development of Referral Labs
- Development of Technology Parks
- Solar Energy Based Farm Operation System
- Biomass based Bio-fuels
- Crop and system stress Diagnostics and Drone Applications
- Smart Packaging
- Market Intelligence
- High Value Crops, Hydroponics
- Organic and Conservation Agriculture

Convergence with krishi vigyan kendra mandate

Technology Assessment and Demonstration for its application and Capacity Development

FRONTLINE EXTENSION	FIELD EXTENSION
Performed by NARES	Performed by the state Development Departments
To conduct extension research, demonstrate latest technologies, provide feedback to scientists and provide training support to state department of agriculture	To accelerate transfer of technology
MANPOWER	MANPOWER
NARE & KVK- about 5000 Extension Scientist	Agriculture/Allied Departments & ATMA – about 1,45,000

ICAR PARTNERING DoAC&FW

- Massive campaign by 35 KVKs
- 45000 farmers motivated
- Special Vad-Samvad programmes organized on DD Kisan Channel
- 1200 live demonstrations conducted in 4708 ha area on happy seeder, zero til machine, baler cum knotter and other residue management practices

NICRA-NMSA Interface workshop

- Maharashtra 5000 villages of Rs. 4500 with the support of World Bank
- Odisha has also signed MoU with ICAR

Farmer FIRST

- 52 locations; ~1000 farmers in each location
- Enhancing farmers- Scientist interface
- Technology Assemblage
- Application and feedback
- Partnership and Institutional Building
- Content Mobilization

ARYA

- ARYA stands for Attracting and Retaining Youth in Agriculture
- 25 KVKs; 4400 youth
- Farm youth to establish net work groups
- Marketing network
- Take up activities like processing, value addition and marketing
- Entrepreneurship and value chain management

KSHAMTA

- Knowledge Systems for Home-stead Agriculture Management in Tribal Area
- Rs.100 Crore annually as Pool Grant under TSP to work in 125 tribal dominated districts

NARI

- Nutri-sensitive Agricultural Resources and Innovation
- Its objective is to promote family farming linking agriculture to nutrition, nutri-smart villages for enhancing nutritional security

VATICA

- Value Addition and Technology Incubation Centre in Agriculture
- 100 KVKs to establish 100 VATICA Centres

EXISTING CONVERGENCE INITIATIVES

INITIATIVE	NO.OF KVK ASSOCIATED
Automatic Weather Stations with India Meteorology Department(IMD)	530
Ministry of Skill Development and Entrepreneurship with KVKs	100
Pulses Seed Hub and Technology Demonstration on Pulses and Oilseeds with DAC&FW	534 & 460
Integrated Farming System Model with DAC&FW	100
Sensitization about Pradhan Mantri Fasal Bima Yojana, Soil Health Card, Sankalp Se Sidhi with DAC&FW	All
For registration of germplasm with protection of plant varieties and Farmers Right Authority of DAC&FW	135
Awareness creation on Petroleum Conservation with Petroleum Conservation Research Association (PCRA)	20000 farmers

FOCUS

KVK to act as a single window knowledge and resource centre for providing technological solutions to farmers and other stake holders for faster technology dissemination in the district

Establishing convergence at district level for effective functioning of KVKs which will includes

- a) Committee meets twice a year
- b) Meeting at the KVK campus to strengthen on-campus activities
- c) The committee facilitates support from different schemes/programmes to KVK

MONITORING AND EVALUATION OF EXTENSION: GENERATING APPROPRIATE DATA FOR ASSESSMENT AND EVALUATION OF PLURALISTIC EXTENSION

MONITORING

- Monitoring is a routine process of data collection and measurement of progress towards problem objectives.
- The word 'monitor' is derived from the Latin word meaning warn.
- It is a process through which problem can be identified and solved as well as programme can be assessed.

STEPS OF MONITORING

- Collecting data (facts, observation and measurement) and documenting them.
- Analyzing and drawing conclusions (interpretation)
- Making recommendations (judgement) and taking correcting action

APPROCHES OF MONITORING

- Traditional (Administrative) Approach: based on routine administrative reporting, this approach is concerned with physical and financial achievement in a programme.
- Zones-of-Concentration Approach:
 1. visits: as the final outcome of extension effort
 2. recommendation; as the content of visit and means towards the end yield
 3. yield: as the eventual consequence of the development effort
- Methodological approach: Suggest a monitoring survey early in each cropping season, a monitoring- com- evaluation survey in each cropping season at the time of harvest, specific indicator and reporting
- Expanded Monitoring Approach; not only cover physical and financial information but also beneficiary contact information and project diagnostic studies.
- Adoption Rates Approach; concentrate on adoption rate as key indicator.
- Marketing Approach: under this the need and demand for new technology are first assessed and then the target market segments are predicted,

PRINCIPLES OF MONITORING

- Monitoring must be simple; simply the field level complexity
- Monitoring must be timely: management requires some inputs from monitoring, so that timely action may be taken.
- Monitoring must be relevant; concern with relevant programme objectives

- Monitoring should be action oriented; it should follow programmatic approaches
- Monitoring must be cost effective: it is more cost effective by reducing staff hour in data processing with the help of computerization
- Monitoring efforts should be participatory: it should be made to ensure participation of all stakeholders
- Monitoring units represents specialized undertaking: not concern with collection and analysis of data but with diagnosing problems and suggesting alternative solution

TYPES OF MONITORING

- Monitoring of activities
- Monitoring of results
- Monitoring of impacts

EVALUATION

- It is the process of judging something or something or someone based on a set standards.
- It means assessing the worth of certain things, objects, persons, process, achievements and the like .
- It provides necessary feedback information about performance of an extension programme.

OBJECTIVES OF EVALUATION

- To study the factors contributing to success or failure of extension programme
- To increase confidence in programme, both in the extension worker and people
- To compare the value of achievement of the programme with costs
- To facilitate the presentation of results for public support, there by serves the purpose of public relations
- To provide a means for testing methods, approaches and techniques used in programmes

TYPES OF EVALUATION

- Based on the timing:
 1. Formative evaluation
 2. Summative evaluation
- Based on the agency involved:
 1. Internal evaluation
 2. External evaluation

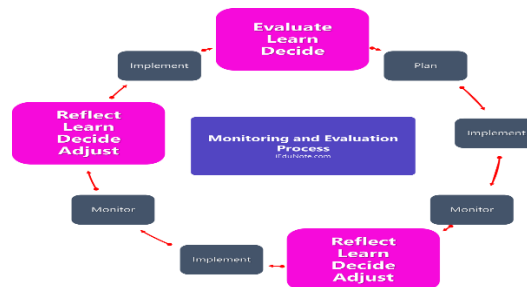
- ❑ Based on the stage:
 1. Ongoing
 2. Terminal
 3. ex- post- facto

STEPS OF EVALUATION

- ❑ formulate evaluation objectives
- ❑ classify programme objectives
- ❑ identify indicators
- ❑ decide the kind if information needed
- ❑ sampling
- ❑ decide the design of evaluation
- ❑ collection and analysis of evaluation evidence
- ❑ interpretation of results in a proper way

MONITORING – EVALUATION PROCESS

- ❑ Provide constant feedback on the extent to which the projects are achieving their goals;
- ❑ Identify potential problems and their causes at an early stage and suggest possible solutions to problems;
- ❑ Monitor the efficiency with which the different components of the project are being implemented and suggest improvement;
- ❑ Evaluate the extent to which the project can achieve its general objectives;
- ❑ Provide guidelines for the planning of future projects;
- ❑ Improve project design and show the need for mid-course corrections;
- ❑ Incorporate the views of the stakeholders;
- ❑ Show need for mid-course corrections.



MONITORING AND EVALUATION

Monitoring	Evaluation
Clarifies program objectives	Analyzes why intended results were or were not achieved
Links activities and their resources to objectives	Assesses specific causal contributions of activities to results
Translates objectives into performance indicators and set targets	Examines implementation process
Routinely collects data on these indicators, compares actual results with targets	Explores unintended results
Reports progress to managers and alerts them to problems	Provides lessons, highlights significant accomplishment or program potential, and offers recommendations for improvement

DIFFERENCE BETWEEN ASSESSMENT AND EVALUATION

- While assessment and evaluation are highly interrelated and are often used interchangeably as terms, they are not synonymous.
- The process of assessment is to gather summarized interpret and use data to decide a direction for action
- The process of evaluation is to gather summarized interpret and use data to determine the extent to which an action was successful
- The primary difference between these 2 terms are those of timing and purpose.

STRENGTHENING EXTENSION POLICY INTERFACE; GENERATING EVIDENCE ON IMPACT OF EXTENSION AND POLICY RELEVANT COMMUNICATION.

Public research and extension played a major role in bringing about the green revolution.

In the post Green revolution era, however, extension faces important challenges in the area of relevance, accountability and sustainability.

The changing economic scenario in India and the need for appropriate agricultural technology and Agro management.

It is becoming increasingly evident that public extension by itself can no longer respond to the multifarious demands of farming community.

Public funding for sustaining the vast extension infrastructure is also under considerable strain.

Evolution of Extension Reforms in India

Extension reforms in India span more than 6 decades and their Selection aim to provide a historical background on the evolution of reforms growing areas over this time period.

Extension system in traditionally only conducted village-level crop demonstration.

The advent of the Green revolution information, demand of farmers increased because of the introduction of new technology and inputs for rice production.

Extension services were largely provisioned by the public sector during the phase and were fairly standardized were disbursed through various agricultural development program.

Timeline of Rice Extension in India

Sustainability the large rice extension system without contributing the increase in rice productivity was big challenge for the government.

A new training and visit System was piloted in the state of Rajasthan in 1974.

The program involved extension workers regularly visiting selected farms to conduct training was also accompanied by technical training sessions for extension workers to keep them updated.

The program was scaled up introduction in other states by 1977.

The T&V system continued until the early 1990's when the world Bank funded ended ,after which the government slopped the recruitment of new staff.

During this phase extension services for crop were provided primarily by the state Department of Agriculture through its state, district, and block-level arms , as other ministries.

In 2007 the ATMA program was implemented throughout the country and in 2010 revised guidelines were issued to incorporate lessons learned so far. However, the ATMA still faces several capacity and institutional constraints. Even after 5 years of scaling up, with limited evaluation, it is not able to encourage innovation by researchers in the public sector and has not been able to establish strong links between farmers and researchers. This is part of the reason for the low productivity and capacity of rice producers in India, particularly smallholder rice farmers who rely on government channels of extension provision.

Support to state Extension programmes for extension Reforms

- Extension Reforms in India pilot tested in 28 districts of 7 states during November 1998 April ,2005 Innovations in Technology Dissemination (ITD) Component of the world Bank funded National Agricultural Technology project (NATP)
- This successful experiment served as basis Launch the support to state experiment programmes for Extension Reforms” by the ministry of Agriculture, Govt of India.
- The scheme focuses on operationalizing agricultural reform across the country through new institutional arrangement with restructured autonomous bodies at District/Block level ,are flexible , bottom up , farmer driven and promote public private partnership.
- The earlier institutional mechanism for extension under the scheme was SAMETI at the state level Catering to Training and HRD needs of extension functionaries.
- Agriculture Technology Agency (ATMA) .
- Block Technology Team (BTT)
- Famers Advisory Committees (FAC's)

Strengthens as indicated here

- Provision of specialists and functionary support at different level namely state co ordination, faculty and supporting staff for SAMETI as state level , project Director , Deputy project

Directors and supporting staff at District level and Block Technology manager and subject matter specialists at the Block level.

- Innovative support through a “Farmer Friend ” to every two villages.
- Revision in ATMA Cafeteria to include additional activities and to provide for enhanced unit costs for some of the activities.
- Farmers Advisory Committee's (FAC) at state District and Block levels to advise and provide inputs to administrative bodies at respective level.
- Support to SAMETI for creating essential infrastructure.
- Delegation of powers to state level sanctioning committee set up under to approve the state extension work plan prepared under the scheme

Limited focus of objectives on

- Agriculture as Enterprise
- Working along the value chain.
- Promoting Good Agriculture practices.
- Preparing farmers to participate in Global Trade System.
- Promoting Innovations in Agriculture Extension.

CHANGING ROLE OF AGRICULTURAL EXTENSION

Community Development Approach to Extension :

- Public sector extension has undergone several changes since the early 1950 's .
- Beginning with the community Development programme in 1952.
- District programme started in 1961-1962 ,followed by the Intensive Agriculture Area programme in 1964 -65.
- High yielding varieties programme 1966-67.
- Farmer's Training and Education programme 1966-67.
- Small and marginal Farmers Development programme in 1969-70.

Transfer of Technology Approach through T&V

- Extension management system, starting in the mid 1970's T&V extension was well
- Suited to the rapid dissemination of broad-based crop management practices for the high yielding wheat and rice varieties that was released since the mid 1960s.
- The T&V System profoundly influenced extension practices and registered impressive gains in irrigated areas.

Post Green Revolution period :

The transfer of (T&V) extension approach to fainter farming areas where fundamentally different production system predominate and more importantly, local conditions vary widely ,resulted in serious limitations and failure.

Wheat and rice varieties, failed to respond to the more location specific ,risk prone agriculture of the unirrigated tracts.

Towards a Farming system Approach ;

The extension approaches of the 1950's and 1960's centred around 'Farmers ' ignorance as an explanation of non – adoption of agricultural technology .

In the decade of the 1970's and 1980's farm well constraints were considered to be explanation of non-adoption.

The basic philosophy of these extension approaches centred on “technology transfer”.

By the early 1990's and the completion of the third National Agricultural Extension project (NAEP).There was growing recognition that the T&V extension approach needed to be overhauled in meeting the technology needs of farmers during the 21st century.

Farmer participation in programme planning,and research extension linkages, marketing and value addition would have to be concurrently addressed.

PROPOSED EXTENSION POLICY FRAMEWORK

Reforms in the system envisage an extension services more broad based and holistic in content and scope, this beyond Agricultural technology transfer.

Extension agencies, services and workers will need to exercise a more proactive and participatory role.

Serve as knowledge/information agents, imitating and facilitating mutually meaningful and equitable knowledge based transactions among agriculture researches, trainers and primary producers.

Reforms in Agricultural extension already initiated and proposed to be undertaken on wider scale are discussed under the following sub heads

1. Policy Reforms.
2. Institutional Restructuring.
3. Management Reforms.
4. Strengthening Research – Extension linkages.
5. Capacity building &skill upgradation.
6. Mainstreaming of women in Agriculture.
7. Empowerment of Farmers.
8. Mainstreaming of women in Agriculture.
9. Use of Media & Information Technology.
10. Financial Sustainability.
11. Changing role of Government.

POLICY REFORMS

Farming system Approach ;

The Farming system Approach consider the farm , the farm household and off-farm activities in a holistic way to take care not only of framing but also accepts of nutrition, food security, Sustainability, risk minimisation, income and employment which make up the multiple objectives of farm households.

Farming system considers interdependences of the components under the control of members of the household as well as those components interact physical, biological and socio economic factors not under like household control.

Multi Agency Extension ;

- The new extension regime recognizes the role of a multi-agency dispensation comprising different strengths.
- Policy environment will promote private extension to operate in roles that complement, supplement, work in partnership and even substitute for public extension.
- The three arms of the agricultural extension network are:
- Public extension services:
 - State government line departments operated extension (Departments of Agriculture, Horticulture & Livestock development)
- State agriculture universities based extension (Directorates of Extension, Krishi Vigyan Kendras (KVKs) and Krishi Gyan Kendras (KGKs)
- ICAR extension (Zonal Research Stations/ Krishi Vigyan Kendras,
- Agriculture Technology Information Centres (ATICs)
- Institute Village Linkage Programme (IVLP) etc.)

Private extension services

- Community Based Organization (Farmers' Organizations, Farmers' Cooperatives, Self Help Groups etc.)
- Para Extension Workers (contact farmers, link farmers, gopals, mitra kisans, mahila mitra kisans, etc.)
- Agro-Clinics & Agribusinesses Input Suppliers/ Dealers (Pesticides, Seeds, Nutrients, Farm Implements, etc.)
- Corporate Sector (Commercial Crops – tobacco, tea, coffee, oilseeds (sunflower), vegetables, Seeds, Farm Implements – tractors, threshers, sprinklers, drip irrigation, etc.)
- Implements – Tractors, threshers, sprinklers, crop irrigation etc)

Mass Media & Information Technology

- Print Media – Vernacular Press
- Radio, Television, Private Cable Channels, etc.
- Electronic Connectivity through Computers, NICNET, Internet, V-SAT, etc.
- Farm Information and Advisory Centre's (FIACs)
- Private Portals Public & Private Information Shops

Promotion of demand-driven and farmer

Thrust on Marketing Extension.

The T&V system the technology dissemination regime was more supply-driven .

A key factor in improving these feedback system is it organize farmer's into functional System such as self-help Groups (SHGs) ,Farmers Interest Group(FIGs),Commodity Association (CAs), and /Or Other types of farmer organisation (Fos).

Farmers have increasingly begun to perceive Marketing rather than production as the major constraint to enhancing farm income. With major thrust of extension agencies on production techniques, marketing extension so far has not received the attention it deserves.

Public funds for private extension services Charging for extension services

Promotion of private extension needs to be matched by Corresponding shifts in the allocation of public resources.

Public funds would be made available to NGOs ,Farmer Associations, Para-professionals or private foundation for extension work.

The emergency of a market for private extension or consultancy services will be encouraged.

Processors with contracted producers,also commerical suppliers of seed,agro chemicals, machinery, vaccines, artificial insemination and the like should recover the costs of providing advice to their clients out of profit margins.

Different Agricultural Schemes launched by Government of India after 2010

The central government aims to maximize farm output and generate employment in the agriculture sector.

To achieve this aim it intends to introduce various schemes and plans for the benefit of the farmers.

The goal of the central government is to develop innovative services that tends to increase the employment rate and better agriculture output.

The government schemes are necessary to provide better and sustainable livelihood to its citizens. Like other sectors, the agriculture sector also needs the attention of the government. The majority of the population in India is dependent on agriculture and allied activities for their livelihood.

The government is quite aware that the agriculture sector contributes a major chunk of the GDP of the economy.

During the days of complete lockdown, the Indian economy suffered a drawback by recording almost 24% negative development during the primary quarter of FY 2020-21. Agriculture was the only sector that recorded a positive growth of 3.4 per cent.

1. NATIONAL MISSION FOR SUSTAINABLE AGRICULTURE (NMSA)-2014-15

- To make agriculture more productivity, sustainable, remunerative and climate resilient.

- Goals are the mission promotes location specific sustainable and best farming practices, soil conservation & moisture protection measures, soil nutrient management, efficient and sustainable water management practices with mainstreaming rainfed methods.
- Major component is 'On Farm Water Management' is being implemented to increasing water use efficiency by promoting modern technologies such as micro irrigation & sustainable water management practices, efficient water consumption, better distribution channels along with secondary storage facilities.

2. Pradhan Mantri Fasal Bima Yojana (PMFBY)- 2016

- It is a crop insurance scheme where multiple stakeholders are integrated on a single platform.
- Vision
- To provide the farmers a stable source of income.
- Farmers need not worry about income during natural calamities.
- Mission
- Farmers to be given financial support by way of insurance.
- Farmers continue to do farming even when faced with crop loss.
- Make the farmers self-reliant
- Credit flow is ensured in case of crop loss due to pests and natural calamities.

3. Pradhan Mantri Krishi Sinchai Yojana (PMKSY)

- The cabinet committee on economic affairs had approved the irrigation scheme on July 1st 2015
- Har Khet ko Pani "Prime Minister Krishi Sinchayee Yojana"
- **Vision**
- commitment toward **conservation and management** of water.
- Improve the water-use efficiency.
- **Mission**
- More crop per drop
- Solution on source creation and management of water.
- Solution about field application and activities.

4. Paramparagat Krishi Vikas Yojana (PKVY)

- An initiative launched by the NDA government in 2015

Vision

To promote organic farming

- Use of traditional resources.

Mission

- Farmers are encouraged to form clusters or groups.
- The aim is to form **10,000 clusters** over the coming years.
- To bring **five lakh acres** of agricultural land under organic farming.

- Certification costs are to be borne by the government.
- Each cluster or group has **50 farmers** willing to take up organic farming.
- Each farmer who enrolls in the scheme is to be provided **Rs 20000 per acre**.

5. Pradhan Mantri Kisan Maan-Dhan Yojana (PM-KMY)

12 sept 2019

- This scheme is especially for farmers between the age of 18-40 years. To avail of the benefit of this scheme, the farmer has to register under the pension fund.

Vision

- The Welfare of small and marginal farmers
- Provide monthly income to farmers above 60 years of age

Mission

- To provide a minimum monthly income of Rupees **3000** for farmers after the age of 60.
- The Scheme is administered through the farmers' cooperation and welfare department of agriculture.

6. PM Kisan Samman Nidhi Yojana

24 February 2019

- The main objective of the scheme is to transfer an amount of Rupees 6000 to the account of farmers annually. This scheme is very helpful to all those small and marginal farmers who need to buy various farm implements and meet other agricultural expenses.

Vision:

- The scheme is intended to make the small and marginal farmers strong.
- The small and marginal farmer is in a position to sustain his activities.
- To make the farmer attentive and active.

Mission:

- Income support to all land-holding farmers.
- Ensure the sustainable growth of small and marginal farmers.
- Small farmers can buy various farm implements.
- It makes transferring of Rs 6,000 per annum directly to the farmers' bank accounts through Direct Benefit Transfer (DBT) in three instalments of Rs 2,000 each.

Objective

- To provide income support to all eligible land-holding farmers and their families.

- PM-KISAN scheme also aims to supplement the financial needs of the farmers in procuring various inputs to ensure proper crop health and appropriate yields, commensurate with the anticipated farm income.

7. Micro Irrigation Fund scheme

1st January 2015

- The scheme is aimed to remove the hurdles of irrigation. Most farmers are depended on rain for their crops. Through this scheme, the government aims to provide irrigation facilities to the farmers.

Vision:

- Farmers can take up new and upcoming irrigation projects.
- To make the farmer self-reliant for his irrigation needs.
- Farmers are no longer dependent on rain only.

Mission:

- Expand the coverage of irrigation facilities.
- Micro-irrigation projects are undertaken by the farmers.
- Micro-irrigation systems are installed throughout the country.

8. Mission Organic Value Chain Development for North Eastern Region (MOVCDNER)

It aims to develop the certified organic production in a value chain mode to link farmers with consumers and to support the **development of entire value chain starting from organic inputs, seeds, certification and creation of facilities for collection, aggregation, processing, marketing and brand building initiatives.**

Scheme is being implemented in north eastern states Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura.

9. National Agriculture Market (e-NAM)

14th April, 2016

E-NAM is an **electronic National Agriculture Marketing portal** that pans India and connects the existing mandis. The purpose is to create a pan India market for agricultural produce.

Vision:

- Promote uniformity among agriculture markets.
- Eliminate the role of the middle man in agriculture markets.
- Offer competitive prices to farmers for their produce.

Mission:

- Integrate all APMCs across the country.

- Provide an online marketing platform for agriculture.
- Facilities are available pan India.

10. Soil Health Card 19.02.2015

The Soil Health Card Scheme was launched in India by the Ministry of Agriculture and Farmers' Welfare on February 19, 2015 at Suratgarh, Rajasthan. The project was rolled out with an initial budgetary allocation of ₹568.54 crore to be utilized over a period of 3 years.

The Scheme is a part of the National Mission for Sustainable Agriculture (NMSA). For the fiscal year of 2021-22, ₹315 crore has been allocated for the National Project on Soil Health and Fertility.

Objectives

The program also aims to identify the different types of soils in different parts of the country and to educate farmers on the proper usage of fertilizers, particularly organic fertilizers, for optimal agricultural produce. Additionally, the scheme will also generate employment.

11. PM-Kusum

Launched in February 19, 2019.

Objectives

The primary objective of PM KUSUM Yojana is to make the latest technology available to every farmer in India.

To make the farmers familiar with the **de-dieselized** irrigation system in the agricultural sector.

The solar pumps will enable the farmers to work more effectively and use an eco-friendly irrigation system, as solar pumps will produce safe energy.

The pump sets comprise an energy grid that will generate more energy than diesel-driven pumps.

The Farmers will be able to generate extra power and sell it to the Government directly and enhance their income.

The scheme aims to add solar and other renewable capacity of **25,750 MW** by 2022 with total central financial support of Rs. **34,422 Crore** including service charges to the implementing agencies.

12. Interest Subvention Scheme (ISS)

The Government provides interest subvention of 3% on short-term crop loans up to Rs.3.00 lakh.

Presently, loan is available to farmers at an interest rate of 7% per annum, which gets reduced to 4% on prompt repayment.

Further, under Interest Subvention Scheme 2016-17, in order to provide relief to the farmers on occurrence of natural calamities, the interest subvention of 2% shall continue to be available to banks for the first year on the restructured amount