Extension Education and Communication Management

College of Community Science, ANDUAT

Course Name : Extension and Rural Development 2 (2+0)

Course Code: HECM 111

Name of Course Instructors : Dr. Raksha

History of Extension Programmes

A widely accepted and well recognized view regarding extension is education and its aim is to bring the desirable change in human behaviour. With this intention extension programmes and activities are in existence as early as pre independence era. The extension in pre-independence era explained here.

Before British entry into our country, the villages were self-contained, self-sufficient and self-governed units due to existence of planned social systems hence need for welfare was not felt before British period. With the invasion of foreigners and Moghul rule, people felt the need for rural reconstruction. Later with the entry of British, the concept was further strengthened.

Extension activities initially started in the last quarter of 19th century. As a remedial measure to overcome the disaster due to 18 famines that occurred during last quarter of 19th century, the British has appointed a commission which recommended rural development activities. Consequently, the following developments occurred.

- Land Improvement Loans Act and Agricultural Loans Act 1888
- Cooperative Act of 1904 and the amendment in the Cooperative ACT in 1912
- Establishment of developmental departments like Agriculture, Veterinary , Animal husbandry and Irrigation.
- Irrigation projects to control famine.
- Establishment of Rural Construction Departments or Village Uplift Boards in 1935 with the financial assistance from Central Government.

These departments lacked people's participation, cooperation and involvement and remained as supply agencies. The extension agents exercised boss approach than as guides or teachers. From this point onwards, extension activities were initiated by different agencies as developmental programmes. They can be divided into four parts:

1. Pre-Independence Programmes -1866-1947
2. Post-Independence Programmes -1947-1953
3. Community Development and National Extension Scheme -1953-1960
4. Intensive Agricultural Era -1960 on wards

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Pre-Independence Programmes -1866-1947

- Gurgaon Experiment
- Gandhian Constructive
- Rural Reconstruction Work
- Marthandam Project
- Reconstruction Movement in Baroda

Post-Independence Programmes -1947-1953

- Nilokheri Experiment
- Grow More Food Campaign
- Etawah Pilot Project
- Indian Village Service

Community Development and National Extension Scheme -1953-1960

- Community Development
- National Extension Scheme
- Panchayat Raj System
- Agricultural Universities

Intensive Agricultural programmes - 1960 on wards

- Green revolution
- Intensive Agricultural Area Programme
- High Yielding Varieties Programme
- Small and Marginal Farmers Development Programme
- Drought Prone Area Programme
- Training and Visits System

Pre-Independence Programmes -1866-1947

During the pre-Independence era, various scattered and short-lived efforts were made towards rural development in various parts of the country by individuals or some organizations.

Notable among these were Mahatma Gandhi's work at Sevagram, Tagore's work at Shantiniketan, Spencer Hatch's efforts at Marthandam, F.L.Brayne's work at Gurgaon, Firka Development Scheme in Tamil Nadu, India Village Service, etc.

Royal Commission on Agriculture's recommendation (1928) established a firm foundation to co-ordinate research and effective agricultural administration.

Imperial Council of Agricultural Research (now Indian Council of Agricultural Research) was established in 1929.

The main recommendations of this Commission were:

- Interchange should be freely permitted between the administrative and research and teaching branches in the years of service.
- There should be a body for agricultural research at the national level for promotion, guidance, and co-ordination of agricultural research work in India
- The director of agriculture should have in him the combination of an administrative capacity and high scientific qualifications.
- The field recruitment to the superior provincial agricultural services in any province should not be restricted to the province itself.

Rural development efforts of Pre- Independence

1. **The Famine Commission of 1901:** Some far reaching recommendations were made as a result of the publication of report of the famine commission of 1901. The following were the main highlights of the report.

    i. Imperial Agricultural Research Institute was established at Pusa (Bihar) which was the beginning of the organized agricultural research in India.
    ii. An Agricultural college with a well-equipped experimental farm was also started at Pus a (Bihar) and other agricultural colleges; major states were established from 1905 onwards.
    iii. The link between Agricultural colleges and the districts was provided through experimental farms in each district.
    iv. Scientific and expert staffs in the capacity of Horticulturists and Agronomists were appointed.
    v. The Indian Agriculture service was instituted at the center as a result of the recommendations of the commission.
    vi. The Agricultural Research Institutes were started from 1920 onwards

2. **Daniel Scheme (1903) or Model Village in Sundarban:** In 1903 Sir. Daniel Hamilton made a scheme of creating model villages in Bengal on cooperative principles. He organized a cooperative credit society and a central cooperative bank, in 1915, and started the work of rural upliftment in Madras Mr. Daniel also

established a Rural Reconstruction Institute in 1934, which provided training facilities in cottage and subsidiary industries.

3. **Sri Niketan Project (1908):** It was founded by Ravindranath Tagore for village development. Sriniketan was one mile away from Shanti Niketan. Sri Niketan is situated 90 miles away in Western side from Calcutta in Bolpur district. It was started with the assistance of sociologist, Mr. L. Rit. The main aim of this project was the all round development of rural people.

Objectives

1. Study of rural people.
2. To help the rural people for the development of cottage industry.
3. To develop their resources so that they may know new scientific methods of Farming.
4. Development of cattle.
5. To give the impetus to cooperation in every walk of life and work.
6. Importance of sanitation.
7. Development of multipurpose primary level education.
8. To help self-help initiative and rural leadership.

Activities

1. Sanitation in villages.
2. Adult education.
3. To arrange campaign for the eradication of Malaria, T.B. and other infectious diseases.
4. To manage the pure drinking water.
5. Foundation of the cooperative societies.
6. To manage savings for famine and flood.
7. Development of cottage industry.
8. Scout organization.

Areas of work

Sri Tagore started work in his Zamindari villages of Kaligram Perganna for example Atari, Raghupur, Rani Nagar, Tilakpur, Latara, etc.

Method of work

1. Survey of selected villages.
2. Foundation of social welfare centre in each village. Worker used to bring the rural problems up to this centre and solutions were provided to farmers. It was two way process.
3. To manage the Medicines which may be available to rural people at proper time.

4. To train Scouts. The training of right type of leadership was imparted to the Scouts and thus, they were helping in various programmes like sanitation, education, etc.
5. Demonstration of improved practices.
6. Night school for male and female.
7. Weavers' cooperatives were organized.
8. Community centers.
9. Mobile library for rural people.

Gurgaon Experiment (1920)

The rural upliftment programme on a mass scale was firstly started by Mr. F. L. Brayne, Deputy Commissioner in Gurgaon District of Punjab in 1920. According to him the main principle of this experiment was development on practical basis. He stated "Upto that moment success is not hoped unless the village people will not take interest in each programme. Duty of Government workers is to cooperate, help and guide the people".

1. Objectives
   - To jerk villagers out of old groves and convince them that improvement is possible and also to kill their fatalism by demonstrating disease and insect control.
   - To deal with whole life of the village.
   - The work should be started in whole district at a time.
   - Development work should be taken at campaign level.

2. Area of work
   - Agricultural development and increasing food production.
   - Health improvement.
   - Village sanitation.
   - Social improvement (Reforms).
   - Reforms in rural institutions.
   - Emphasis on women education.
   - Organization of cooperative societies.
   - Coordination and publicity.

There should be publicity to check the more expenses on festivals and jewellery.

3. Method of work
   - Propaganda was done by drama and music, to mould the human thoughts.
   - Guides were appointed to express the programme at village level and to help the rural people.

- The teacher of village schools used to teach the village people the importance of programme and dignity of labour.

Gandhian Constructive Programme (1920)

Mr. M. K. Gandhi (Mahatma Gandhi) started this programme in 1920 at Sewagram. Later it was extended to Wardha in 1938 after 2nd non-cooperation movement. This programme was totally based on psychological principles i.e. "Helping the people to help themselves".

1. Objectives

- To serve the under privileged villagers.
- To make the villagers self sufficient and self reliant.
- To develop the power and courage in rural people, so that they stand up in opposition of oppression and injustice.

2. Activities

1. Economic equality:
    a) Decentralized production and equal distribution of wealth.
    b) Wanted to eliminate middle men and exploiters so that cultivators may get full price.
    c) Self sufficiency in villages.

2. Education:
    a) Basic education based on the learning by doing.
    b) Education should be based on everyday experiences of life.

3. Social equality:
    a) Removal of untouchability.
    b) Equal opportunity for women.
    c) Community unity.

3. Method of work

- Self help
- Dignity of labour e.g. Shramdan, etc.
- Self respect
- Truth and non-violence.

Rural Reconstruction Work by Christian Mission (1920)

The educational and constructive activities of these missions can be accounted under these heads:

1. Education: The aim of their educational system has in view of character building, sharpening of general intelligence, spread of literacy, recreation, cultural activities and instruction in subsidiary and constructive employment.
2. Medical: Throughout India, they established mission hospitals which are still serving as centers of heeling, imparting education in medicine, nursing, compounding and midwifery. This service has benefited the rural masses to a great extent.
3. Rural reconstruction centers: Several agricultural extension centers were set up, namely at Marthandam, Ramaanthpuram and Patanachery and Y.M.C.A. institutions have been doing useful work in rural areas.

Marthandum Project (1928)

This programme was started in 1928 by Dr. Spencer Hetch under the auspices of Y.M.C.A. and Christian Church. The Y.M.C.A. was interested in development of social aspects while Church was responsible for development of children and Juveniles. It was having a 3 field programme-development of spirit, mind and body. But later it evolved a fivefold programme-development of the mental faculty, physic, spirit, mind, economic and social aspects of life. Area covered was 100 villages, 40 villages in radius of 3 miles and rest in radius of 5-6 miles.

Objectives:

1. Self help and cooperation.
2. Helping people to help in their own work.
3. There should be a voluntary association.
4. Opening the demonstration centers.

Activities:

1. Poultry
2. Cultivation by improved methods
3. Bee keeping
4. Reforms in cattle industry
5. To bring out the serving habit in people
6. The members of voluntary association were staying in villages for few days to work with them in the same condition.
7. Rural dramas for recreation
8. Short courses of 6 weeks training to villagers and school teachers were organized during summer vacation.
9. Poultry and Bee keeping programmes were launched.
10. Tours, Camps, Exhibitions and Melas were organized.

Rural Reconstruction Movement in Baroda State (1932)

This movement was started by V.T. Krishnachari in 1932 in the Baroda state where he was Dewan at that time. In the first instant its objective was to bring about a rapid increase in standards of living, industrialization and rapid expansion of the educational system. The second objective was to increase agricultural production through the provision of basic necessities for the development of the same. At first, some extension workers were taken on deputation from Dr. Spencer Hatch of Marthandam.

The first rural reconstruction centre commenced work in April, 1932 in a group of villages around Kosambain, Navsari district.

After the centre had been at work for a year, the number of villages under it was increased and Baroda state issued an order explaining the aims of the movement as follows:

1. The centre should aim at effecting an improvement in all aspects of rural life changing in fact the outlook of the agriculturist, the target being creating desire for a higher standard of living.
2. Work intended to realize this aim should be intensive. It should be confined to a group of villages in which it will be possible for the superintendent and his trained co-workers to establish personal contact with all the agriculturalists.
3. Village leadership of the best type should be developed.
4. The centre should apply itself to the following programmes:

Economic programme:

1. Subsidiary occupations, kitchen gardening, weaving, poultry farming, silk worm rearing, bee keeping or any other trade may be found suitable.
2. In each village, Panchayat should be a live-body discharging its function of providing drinking water, improving sanitation, building village roads in other words adding to the opportunities of village life.
   the opportunities of village life.

Educational and moral programme: This included adult education, development of community sense and of a feeling of solidarity in the village, propaganda against evils like early marriage and unreasonable customs connected with social observances, the proper use of village libraries, the scout movement and other educative work through magic lantern. Village school should be the centre of such activities.

Method of work:

1. Self help
2. Dignity of labour, e.g., Shramdan etc.
3. Self respect
4. Truth and non violence

State Rural Development Programme (1935-36)

This programme was started by Indian Government in 1935-36; with the budget provision of Rupees One Crore for the whole country"

Objectives:

1. Economic development.
2. Development of village communication.
3. Rural sanitation and recreation.
4. Provision for medical aids.
5. Improvement of agriculture.

Activities:

1. Encouragement of village industry.
2. Construction of roads, post offices, etc. means of communication and transportations.
3. Sanitation and village recreation.
4. Opening dispensaries and mobile facilities for dispersing medical aids.
5. Agricultural development.

Method of work:

1. Rural reconstruction centers were organized for extension work in rural areas.
2. Non official organization and educational institutions participated in the work.
3. Rural upliftment Board consisting of official and non official was set up.

Firka Development Programme (1946)

This programme was started by Government in the last quarter of 1946 in Firkas throughout Madras state. It was extended to another 50 additional Firkas at the rate of two Firkas per district.

Selection of Firkas

1. On the basis of their backwardness.
2. Possibilities for increasing the production of handloom clothes and other cottage industries.

Objectives

1. To tackle the rural problem as a whole.
2. Preparation of short term plans for the development of rural communication, water supply.
3. Formation of panchayats and organization of cooperatives.
4. Long term plan to make the area self sufficient through agricultural, irrigational and livestock improvements.
5. Development of Khadi and Cottage Industries.

Method of work

1. Collector was primarily responsible for the good working.

2. For assistance, one rural welfare officer of the rank of Naib Tehsildar was put in charge of 2-3 selected Firkas.
3. Every Firka was divided in to 5-6 groups of villages.
4. Each group was under the charge of Gram Sewak, who was of the rank of revenue inspector.
5. Each Firka or group of Firkas was provided with special staff like Agricultural field man, P.W.D. supervisor and minor irrigation overseers.
6. Development committees consisting of officials and non officials were formed.
7. At state level, State Rural Welfare Board was formed.
8. Five non official agencies were selected and given grants for doing Firka development in:

- Rural communication.
- Drinking water facility.
- Sanitation.
- Agriculture.
- Khadi and other village industries.

Nilokheri Experiment

It was started to settle the 7000 displaced persons (from Pakistan) and later integrated with 100 villages surrounding Nilokheri. It was built around the vocational training centre that was transferred from Kurukshetra in July 1948 to the 100 acres of Swampy land on Delhi Ambala highway. This scheme was called "Mazdoor Manzil".

Objectives:

1. Self sufficiency for rural cum urban township in all essential requirements of life.
2. Making provision of work and training for the people according to their native background.
3. To check middle men.
4. To enable transactions between the consumer and the producer, to approach a vertical order.

Activities:

1. Polytechnic training for B.D.O. and S.E.O. and V.L.W.
2. Housing and marketing facilities.
3. Management of schools, hospitals and recreation centre.
4. To make the cultivable land of all 700 acres of Swampy land.
5. Cooperative credit facility.
6. Small scale industries were run on cooperative basis.

Grow More Food Campaign

This campaign was launched in 1948 as a programme of crop production; field demonstration and contact with the farmers to introduce the improved techniques and initiation of a dialogue with the villagers were the main lines of approach.

But the campaign failed to achieve its targets. Soon after Independence (1947), the Central Government re-defined the objectives of the Grow-More-Food Campaign as the attainment of self-sufficiency in food grains by 1952, and simultaneously increased the targets of production of other crops to meet the shortfall as a result of the partition of the country. At the same time, arrangements were made for integration and co-ordination of the entire campaign for increasing agricultural production. Some state governments associated the public with working of the campaign by setting up non-official committees at the village, taluka, district and state levels. The plans were revised from time to time to make the campaign more effective.

Grow-More-Food Enquiry Committee Report

Though efforts were made to revitalize the Grow-More-Food Campaign, it was observed that the system was not functioning properly and the cultivator's response to the programme was very poor. As a result, the Government of India in 1952 appointed a committee known as the GMF Enquiry Committee to examine the working of the Grow-More-Food. The Committee came to the conclusion that it was only by bringing about an appreciable improvement in the standards of rural life to make it fuller and richer that the rural masses could be awakened to take interest in not only increasing agricultural production but also improving their own conditions and creating a will to live better.

The committee also pointed out that

- all aspects of village life were interrelated
- improvement could be brought about by a number of detached programmes operating independently
- there was lack of unity of efforts,
- the available finances was not adequate,
- the rural community as a whole did not participate effectively in the campaign. In short, "the movement did not arouse nation-wide enthusiasm and did not become a mass movement for raising the level of village life"

Recommendations

- In its recommendations, the Committee proposed
- Formation of development block, each consisting of 100 to 120 villages.
- Appointment of revenue officers as development officers or extension officers, assisted by technical officers for agriculture, animal husbandry, co-ordination and engineering.

- One village level worker for every five or ten villages should be appointed. He will be the joint agent for all development activities and will convey to the farmer, the lessons of research, and to experts the problems of the farmers, and arrange supplies and services needed by the farmers
- Training of the required staff.
- Based on these recommendations highest priority was given to the development of agriculture and irrigation in the First Five-Year Plan.
- The Commission prescribed "Community Development" as the method for initiating the process of transformation of the social and economic life of villages and "Rural Extension" as its agency.

Etawah Pilot Project

The second name of this project is "Average district project". By name it seems that this is a representative district on the basis of resources criteria; so that successful programme should be adopted in all places easily.

It was conceived in 1947. But it was started in September 1948. This project was initiated in the guidance of Lt. Colonel Albert Mayor who had come to India with American armed forces in 1944, and had background of this type of work in USA.

Mr. Harace Holenes was the person at the spot who translated the scheme into practice. It received the Assistance from the U.S. point 4 programme. Project was started with 64 villages but it was increased by 97.

Indian Village Service (I.V.S.)

It was founded by Mr. Arther T. Mosher of New York and B. N. Gupta in 1947. Residents of 15 villages near Allahabad were beneficiaries of this programme.

Objectives:

1. To assist the villagers to realize their best in their own villages.
2. Developing individuals and local agencies.
3. To enable them to be effective in helping themselves and others.
4. Assisting government in developing villages.

Method of work:

1. Personal contact.
2. Informal discussion group.
3. Use of volunteers for demonstrations.
4. Use and production of visual aids
5. Exhibition.
6. Tours and dramas.
7. Books and periodicals.

Activities:

1. V.L.W.s. worked with the villagers. Mr. Mosher thought worker who does not work with the public, cannot understand the villager's problems.
2. Programme should be based on felt needs and should be clear to people.
3. There should be non-institutional procedure to contact with villagers.
4. Programme should be made clear to people by demonstration and exhibition.
5. Programme should not be conducted before bench mark study.
6. There should be arrangement of training for village people.

Community Development project

History

Review of the pre and post independence era extension programmes recommended a much bolder and dynamic effort for creation of an urge among the rural population to live a better life and to achieve development. It depends upon whole hearted co-operation of the beneficiaries, government officials and non-officials at every stage.

Consequently, the Government of India entered into an operational agreement with the Government of the U.S.A under the Technical Co-operation Programme Agreement. Under this Agreement, 55 Community Development Projects were started in different parts of the country on 2 October, 1952 for three years.

The main aims of these projects were

- to increase agricultural production by all possible means,
- to tackle the problems of unemployment,
- to improve village communications,
- to foster primary education, public health and recreation,
- to improve housing,
- to promote indigenous handicrafts and small-scale industries,
- to improve the villager's lot through their own primary effort.

In short, the programme aimed at achieving all-round socio-economic transformation of the rural people.

Meaning

Community is a group of people live in a geographical area and have an interest in each other for the purpose of making a living. Development indicates gradual growth of maturation which is sequential phase. It can also be expressed as increasing differentiation in upward direction.

It can be concluded that community development is bringing forth the potential elements, abilities and qualities of group of people who live in a common territory and who have an interdependent relationship with each other.

Fields of coverage

The community development programme was started for overall development of rural people. It consisted of agriculture, animal husbandry, irrigation, cooperation, public health, education, social education, communication, village industries etc. There are officials for each activity from district to village level to plan, execute and evaluate the programme.

Organizational concept

Initially this project was launched in 55 Community Development Blocks with an operational area of 400 to 500 square miles comprising of 300 villages and 2 lakh population in each block. The project area was divided into three development blocks with 100 each villages and 60 to 70 thousand population, groups with 5-10 villages. The project was headed by a Project Officers and Subject Matter Extension Officers in the disciplines of Agriculture, animal husbandry, industries, rural engineering, social education etc, and 60 multipurpose Village Level Workers (VLWs) one for each group villages.

Due to positive impact of community development programme, a need for rapid expansion was urgently felt. In 1953 the NES programme was launched with the idea of having wider coverage at a lower cost and more of people's participation. NES block was headed by Block Development Officer (BDO) with Extension officers (Eos) and VLWs limited to 10 in 100 villages and 65,000 population and funds were drastically reduced compared to CDBs.

NES was thought of as the agency and CD as the method to bring about socio-economic transformation of people. This was the major development in the sphere of rural reconstruction in India.

Integration & Conversion

Since the basic idea behind the programmes was similar, the two were integrated under one agency at the Central as well as State level. The programmes were complementary, interwoven and implemented parallel. NES was viewed as the permanent set up for extension in the country and was intended to cover the entire with an organization for agriculture and rural development within a period of 10 years.

Conversion

In 1954 some NES block which produced good results and where participation of people was in abundance were selected and converted to Community Development blocks. Funds as well as staff were increased in these blocks.

BDO as the head and EO Agriculture, EO Animal Husbandry, Eo Cooperatives, EO Industries. EO Rural engineering, sanitary inspector, social Education Organizer (SEO) male & female and 10 VLWs were the staff of the project.

Community Development project

Objectives

The Planning Commission in the first three five year plans outlined the Community Development Programmes as essential. In 1962, the Ministry of Community Development and Cooperation, Govt of India stated the following specific objectives.

1. To assist each village in having effective specific objectives.
2. Through these institutions plan and carry out integrated, multiphase family, village and block and district plans for
3. Increasing agricultural production.
4. Improving existing village crafts and industries and also organizing new ones.
5. Providing minimum health services and improving health practices.
6. Providing required educational facilities for children and adult education centers for adult illiterates.
7. Providing recreational facilities and programmes.
8. Improving housing and family living conditions
9. Providing programmes for women and youth.

Essentials of Community development

1. The projects should be initiated based on the expressed needs of people.
2. There should be intensive action with multipurpose programmes.
3. Equal to material achievement, change in the attitudes of people is important.
4. There should be participation of people at every stage and activity of the programme.
5. Development of local leadership is essential.
6. Participation of women and youth should be there.
7. Self help projects should receive both internal and external resources.
8. Adequate administrative and policy support
9. Involvement of Non-Governmental organizations.

Types of Community Development programmes

They are classified into three types

Integrated type:

1. It has country wide scope and emphasizes on development and the coordination of technical services.
2. Based on the need of people the objectives are set. To achieve these objectives the existing relevant departments and programmes are incorporated into the programmes and implemented through a readily available department. This department coordinates at every level the efforts of both Governmental and non-Governmental organizations.
3. In some cases new administrative areas are created into the traditional ones to coordinate technical services closer to people.

Adaptive type:

1. It was designed to be country wide, with emphasis on community organization, self-help and involves change in administrative organizations of Government.
2. They can be attached to any department and adjusted to the prevailing administrative organization of government.

Project type:

1. These are of geographical scope with emphasis on development.
2. They cannot be implemented with out the interference of local Government Organizations.

Community Development and National Extension Era

Community Development and National Extension Service Era (1953-60)

National Extension Service was inaugurated on 2nd October 1953. It was designed to provide the essential basic staff and a small fund for the people to start the development work essentially on the basis of self-help. The operational unit of this service was a N.E.S. Block comprising about 100 villages and 60,000 to 70,000 people.

The N.E.S. Blocks were later converted into Community Development Blocks which had higher budget provisions in order to take up more intensive development programmes.
The Pattern of Community Development Programme was further revised (modified with effect from 1 April 1958). According to this pattern, there were four stages:

Stages in Community development programme

The Pattern of Community Development Programme was further revised (modified with effect from 1 April 1958). According to this pattern, there were four stages:

1. Pre-Extension Stage: At this stage, there was a budget provision of Rs.18, 800 for one year. The staff consisted of a block development officer, one agricultural extension officer and five village-level workers whose main duties were to survey the whole block area, to prepare the ground work for the intensive stage and conduct agricultural demonstrations.
2. Stage I Blocks: After one year of the Pre-Extension stage, the block stepped into Stage I, with a budget provision of Rs.12 lakhs for five years for intensive development. During this period, provision was made to have one block development officer, eight extension officers, ten village level workers(VLWs), two gram sevikas, three stockmen (veterinary), one physician and 3-4 midwives, one compounder, a sanitary inspector and the necessary office staff.
3. Stage II Blocks: In this stage, the staffing pattern was more or less the same, but there was a difference in the budget provision. The budget in this stage was five lakhs of rupees for a period of five years, i.e., one lakh per year.
4. Post-stage II Blocks: This was the permanent stage. It was meant for the follow up work. The budget was one lakh of rupees per year. At this stage, all the

developmental activities as in Stage II, under the various heads, such as agriculture, animal husbandry and co-operation, were to continue.

5. Needs are successfully satisfied only when,
1. needs are identified, but not imagined.
2. programme is planned for the need but not for the institution.
3. institution is relevant enough to implement the programme.

Review of community development programmes reveled some failures which are listed below.

Failures

1. More responsibility on the part of the officials.
2. No people's participation.
3. Failure in self-help
4. Training only in Agriculture.
5. More of documentation work.
6. Social education ignored.
7. No concreteness in cooperation.
8. Inadequate staff & training input.
9. Weak administration.
10. Lack of field orientation.

National Extension Service (N.E.s.)

A year later the community development programme was supported and extended as National Extension Service (NES) from October 2, 1953. It was stated that the NES was introduced as an agency and CD as the method to bring about this transformation with distinctively two broad divisions

1. Extension education and
2. Community organization

Initially, it was started in 7 districts of 7 provinces where all the facilities were available.

The agricultural production team of the Ford Foundation (1959) in the report gave more important pointers and urged the selection of certain crops for certain responsive areas for more intensive efforts and top priority were given to food production. The team further recommended that agricultural extension porgramme should be based on local conditions, village production plans and village potentials and additional staff may also be provided for intensive educational efforts.

Objectives

1. To prepare farm plan of farmers.
2. To supply the chemical fertilizers, improved seeds, insecticides and pesticides.
3. To bring the cultivated area under package programme.

Characteristics

This programme was characterized by four major innovations:

1. It emphasized measures for immediate increase in agricultural production;
2. Only districts with adequate production potential in terms of assured water and infrastructure facilities were selected;
3. Emphasis was directed towards profitability at the farm level; and
4. Stress was laid on adoption of package of improved practices evolved for individual crops which includes use of improved seed, fertilizers and manures, pesticides, improved implements and proper soil and water management practices.

Panchayati Raj System

After the initiation of the Community Development and National Extension service in India and its working for sometime, it was realized that the people's participation was not coming forth to the desired extent. So that local leadership might develop and enable the local people to take up the planning and implementation of development programme themselves. In order to achieve this objective, it was decided in 1958 to introduce the Panchayati Raj, as recommended by the Balwant Rai Mehta Committee.

This system envisages a three-tier system at the district, block and village levels, as indicated below:

District level - Zilla Parishad
Block Level - Panchayat Samiti
Village Level - Village Panchayat

According to this system a Panchayat will be established in each village. These village Panchayats would be responsible for the planning and implementation of the Community Development and Extension Programmes at the village level.

At the block level the Panchayat Samities consisting of all the presidents of the village Panchayats in the block and some co-opted members are constituted. The Panchayat Samiti is in complete charge of the planning and implementation of the Community Development Programmes. The B.D.O. is the chief executive officer of the Samiti and all the extension officers are subordinate to him. The financial resources of the Samiti consist of money derived from land revenue, taxes, funds allotted for Community development, funds received from All-India Boards, etc., contributions from Panchayats and the people.

The third tier of the Panchayati Raj is the Zila Parishad consisting of all the presidents of the Panchayat Samitis in the district, the people's representatives such as the Members of

Legislative Assemblies, Members of Parliament, and the District Collector and some co-opted members. The Zila Parishad consolidates plans prepared in respect of all the blocks in the district and co-ordinates activities of the Samities.

Agricultural Universities

The first university established in 1960 was the Govind Ballabh Pant University of Agricultural Science and Technology at Pantnagar (Uttar Pradesh).

In each state one (in some states more than one) agricultural university was established and at present there are twenty-two such Universities in India. In these Universities, teaching, research and extension education are integrated.

For extension education programmes and activities, each of these Universities has a directorate of extension education, headed by a director who is supported by a team of subject matter specialists from all the major disciplines, such as genetics, agronomy, animal husbandry, soil science, entomology, plant pathology, horticulture, agricultural economics, agricultural engineering and extension education.

Intensive Agricultural Era

Green Revolution

Green Revolution is a process of technological development of agricultural techniques. It was started in Mexico in 1944 and has since spread throughout the world.

The goal of the Green Revolution was to increase the efficiency of agricultural processes so that, the productivity of the crops was increased, and to help developing countries face their growing populations' needs.

Noted agronomist, Dr. M S Swaminathan from India led the Green Revolution. Dr. Norman Borlaug from the US supported the Green Revolution through the introduction of high yielding variety of wheat seeds.

India was in the grip of a food crisis in the mid-'60s. It was a situation of a terrible food economy. With domestic production of wheat hovering around 12 million tonnes, another 10 million tonnes were imported annually from the US. The US administration often used this leverage of a life-saving handout to squeeze India.

The introduction of dwarf high-yielding varieties of wheat like Lerma Rojo and Sonora 64, on Indian soils during the mid-'60s coupled with farm technology, use of other inputs like chemical fertilisers and pesticides and backed by a strong governmental support allowed cereal production to increase manifolds to feed hungry mouths, thus bring about the green revolution. While this led to rapid increase of cereal production and transformed India from a food hungry to self sufficient country, it also had the associated negative effects of indiscriminate use of chemicals and synthetics which we are now realising.

Intensive Agricultural Area Programme (IAAP)

Intensive Agricultural Era - 1960 on wards

To meet the demand of food for the vast population of the country, it was decided that at least 20 to 25 per cent of cultivated area of the country should be earmarked and selected for intensive agricultural development. Accordingly in 1964, IAAP came into operation in 114 districts of the country.

The main objective of IAAP was to bring about the progressive increase in production of major crops in selected areas by intensive and coordinated use of various aids to production.

The IAAP partially achieved its prime objectives by increasing food production in the selected area and on the selected crops.

High Yielding Varieties Programme

The intensive area approach acquired new potency with the emergence of exotic high yielding varieties of cereal crops and technological improvements. These were incorporated in the high yielding varieties programme which became the kingpin of the new strategy of agricultural development launched in 1966-67.

The sole objective of HYV programme was to increase the total food production by utilizing high yielding seeds of selected crops. The selected crops were paddy, wheat, bajra, jowar and maize.

The salient features of HYVP were

- Supply of inputs like seeds, fertilizer and plant protection chemicals
- Supply of credit.
- Cooperative marketing
- National Demonstration
- Training.

Expansion of area under location specific high yielding varieties continued to be one of the main planks of the strategy for increasing food grain production in the country.

The high-yielding varieties programme was supported by central sector scheme of
(i) Minikit Demonstration Programme for popularization of newly identified/newly released varieties suitable for different agro-climatic situation;
(ii) Maize Demonstrations in Tribal/ backward areas of S.C. and S.T.

This programme achieved some significant results in increasing production and in creating the awareness to the cultivators about available means of increasing production like high yielding seeds, fertilizers and plant protection chemicals. However, there were also failures in

this programme like unfavourable seasonal conditions, susceptibility of some crops towards pests and diseases and incomplete adoption of package of practices by many cultivators.

Small and Marginal Farmers Development Programme

To correct disparity and ensure social justice along with growth in the agricultural economy of the country, the national Government initiated new programmes like Small Farmers Development Agency (SFDA) and the Marginal Farmers and Agricultural Lobourers Scheme (MFAL) during the fourth plan.

The small and marginal farmers have been broadly defined as the group of farmers having less than two hectares of un-irrigated land. This group also falls substantially within the 48 percent of the rural population estimated to be living below the poverty line (in the year 1970).

The aims of the SFDA are to identify the problems of the small farmers, to prepare appropriate programmes to overcome them and ensure the availability of inputs and credit.
Initially SFDA scheme was introduced in 46 selected districts throughout the Country and 50,000 potentially viable small farmers are assisted in each project area with subsidized irrigation support, land –shaping, soil conservation, improved agricultural implements, customs, service facilities, storage and marketing to make them economically self-sufficient and viable. The scheme is primarily one of supervised credit and supply of inputs. Resources are made available to farmer participants in the shape of 25% subsidy from the Agency and the balance as loans.

The main functions of SFDA were

1. Identify the target group beneficiaries that are eligible small farmers.
2. Study and identify their problems.
3. Formulate suitable economic programmes for making them viable.
4. Promote rural industries.
5. Provision of institutional credit.
6. Arrangement of extension services and supply.

Marginal farmers and agricultural labourers (MFAL) scheme

The principle objective of this scheme is to assist the marginal cultivators in making the maximum productive use of their small holdings by undertaking horticulture, animal husbandry and dairying. Efforts are also to be directed towards bringing in larger incomes by channeling credits, improved inputs and improved practices.

MFAL scheme taken up in 40 selected districts, 20,000 marginal farmers (with holdings upto 2.5 acres) and agricultural labourers are assisted in each project area with subsidized dairy, poultry, fishery, piggery, sheep rearing and horticultural operations. Provision has also been made in this scheme for giving direct wage employment in the off-season to agricultural labourers in rural works of a productive nature. The scheme is

primarily market oriented and will also provide employment to landless agricultural labourers and rural artisans. Resources are made available to the farmer- participants in the shape of 33.3% subsidy from the Agency and the balance as loans.

The main functions of MFAL were

1. Identification of eligible marginal farmers.
2. Investigation of their problems.
3. Formulation of economic programmes.
4. Provision of institutional, financial and administrative support.
5. Creation and promotion of common facilities.
6. Evaluation of the programme.

Drought Prone Area Programme (DPAP)

DPAP (earlier known as rural works programme) was set up in 1970-71 in the non-plan central sector. Subsequently the programme was reoriented on the basis of an area development approach and included in the central plan.

The basic objective of the programme is to minimize the adverse effects of drought on crop production, livestock and productivity of land, water and human resources thereby ultimately leading to the drought proofing of the affected areas. It covered 74 districts in 13 states. These areas had been selected on the basis of high periodicity of drought, low and erratic distribution of rainfall and low extent of assured irrigation. During the fourth plan period Rs. 92.27 crores were spent on the programme including irrigation, soil conservation, forestation, rural communications and other miscellaneous schemes.

The programme aims at promoting overall economic development and improving the socio-economic condition of the resource poor and disadvantaged sections inhabiting the programme areas through creation, widening and equitable distribution of the resource base and increased employment opportunities.

Objectives

1. Development and management of water resources.
2. Soil and moisture conservation measures.
3. Afforestation with special emphasis on social and farm forestry.
4. Development of pasture and fodder resources.
5. Livestock development and dairy development.
6. Restructuring of cropping pattern and change in agronomic practices.
7. Development of other diversified activities eg: horticulture, fishery etc.

Weaknesses

Farmers having large landholding were found to cluster in the low adoption category due to

1. Lack of resources

2. High risks
3. Labour shortage
4. Lack of low cost improved technologies.
5. Unfavourable attitude towards credit institutions.
6. Unfavourable attitude towards credit institutions.
7. Lack of availability of inputs in interior rural areas.

Training and Visits System (T&V)

The 'Training, and Visit System' of new agricultural extension was initially developed by Daniel Benor. This programme was first used extensively by the World Bank in India in early 1970s, following a field trail in a project in Turkey. Its results were so encouraging that it was adopted in Bangladesh, Indonesia, Nepal, Pakistan, and Sri Lanka.

The main aim of this programme was to impart technical knowledge to farmers with special attention to contact farmers and guide them in the field operation to adopt more improved practices. The methodology provided for a management system which could ensure delivery of expert know-how to almost every field on a state wide basis every week or fortnight. Transfer of know-how from Subject Matter Specialist (SMS) to the farmer was ensured in two stages through-

1. Training: For transfer of know-how from subject matter specialists to extension worker
2. Visits: For transfer of know-how obtained at the training from extension worker to the farmer.

Objectives

1. Coordinate research, training and extension activities effectively.
2. To make research more effective by catering to the local needs and situation.
3. To evolve an intensive training programme on a systematic basis for extension workers and farmers to ensure effective supervision and technical support to VEWs.

Organization structure of the T&V system

The entire organization was based on total number of farm families which a village extension worker (VEO or VLW) could reasonably cover.

It was organized in such a manner that an agriculture extension officer (AEO) guide, train and supervise about six to eight village extension workers. Six to eight AEOS in turn will be guided and supervised by Sub Divisional Extension Officer (SDEO). The SDEOs will be supported by a team of SMSs. Four to eight SDEOs are supervised by a District Extension Officer (DEO) who is also supported by SMSs. Depending on the number of districts, the DEO is supervised either directly by Extension Staff from headquarter or by intermediate supervisor.

Coverage of various extension personnel

Level	Extension personnel	Coverage
Field	Village Extension Worker (VEW)	800-1200 farm families
Block	Agricultural Extension Officer (AEO)	8 VEWs
Sub-Divisional	Sub-Divisional Extension Officer(SDEO)	5-8 AEOs
District	District Extension Officer (DEO)	4-8 SDEO in district

Key features

1. **Professionalism**: Each extension agent is fully and continuously trained to handle one's particular responsibilities in a professional manner.
2. **Single line of command**: The extension service must be under a single line of technical and administrative command within the Ministry/Department of Agriculture.
3. **Concentration of effort**: All extension staff works only on agricultural extension. In training sessions, attention is concentrated on important major points.
4. **Time –bound work**: Messaged and skills to be taught to farmers in a regular and timely fashion. The village extension worker (VEW) must visit the farmers regularly on a fixed day i.e. once in each fortnight.
5. **Filed and farmer orientation**: The contact with the farmers must be on a regular basis, on a schedule known to farmers, and with a large number of farmers representing all major farming and socio-economic types.
6. **Regular and continuous training**: Fortnightly training and monthly workshops are the key means of bringing actual farmer's problems to the attention of research, of identifying research findings of immediate relevance to farmers and of developing production recommendations that fit specific local conditions.
7. **Linkages with research**: Seasonal and monthly workshops, joint field visits, training of extension staff and formulation of production recommendations are some of the means by which linkages with research are maintained.

Limitations

The major short comings of T&V system observed in Indian setting are

1. **Factionalism**: The selections of contact framers had been mostly biased leading to factionalism among the villages. Since extension workers often met the contact farmers and extended the facilities, therefore, this group had assumed elite status

whereby distance between contact farmers and other farmers had increased. The majority felt left out and thus had developed negative attitude which reflected in carrying out developmental activities.

2. **Excessive reliance on word of mouth**: The system relied on inter personal communication only. The success of transfer of technology depends on a multimedia approach. As this dimension had been neglected by the system, it suffered from distortion/loss of the messages.
3. **Repetitive information creates disinterest**: The change agents did not take interest in the training programmes. Training programmes had become a ritual.
4. **Male orientation**: The system reached the male family head only. It neglected the other family members like farm women, youth and grown up children, whose role in agricultural production is substantial and widely recognized.
5. **Lack of competency**: The system emphasized on technical competency only. Unfortunately that too had suffered the serious causality due to non-seriousness on the part of trainers as well as trainees throughout the system. These change agents lacked economic, social, communication and scientific competencies significantly, hence their efforts of transferring technology had been imperfect.

National Demonstration Project (NDP)

The National Demonstration Project was the oldest and first transfer of technology project in the country implemented through ICAR in the year 1965, on a modest scale with the introduction of high yielding production potentiality of new technologies and influencing the farmers as well as the extension agencies.

The main objectives of the project were as follows:

- To demonstrate convincingly to farmers and extension workers, the genetic production potentialities of major crops for the area per unit acre of land per unit time and encourage them to adopt/popularize these technologies for accelerating the production.
- To fully exploit these demonstrations for the purpose of training farmers and field extension workers in improved cultivation practices.
- To provide the research workers a firsthand knowledge of the problems being faced by farmers in adopting high yielding varieties and practicing recommended package of practices.
- To determine the income and employment generation potentialities of the crop under demonstrations and to educate the farmers and extension workers about them; and,
- To influence extension system (state departments of agriculture, voluntary organizations etc.) in the country by demonstrating the yield gaps and pointing out the operational constraints.
- This project was taken up into 100 districts of the country and annually over 5000 demonstrations were conducted in the farmer's field by the scientists. In 1975, when ORP was introduced the operational districts were reduced to 50 only. At present, NDP is not functioning.

Salient features of NDP

1. It was a first time demonstration of the results of the application of research technology on the cultivator's field.
2. It was carried out primarily under the direction and supervision of research workers.
3. Target oriented demonstration. Demonstration with targeted yield of 9 tones for 2 crops and 11 tones for 3 crops.
4. There was no control plot.
5. Large scale demonstration - the area of demonstration plot was one acre.
6. Active cultivators with small holdings were the farmers on whose plots demonstrations were laid so that the high yields obtained were not attributed to the effects of affluence.

Operational Research Project (ORP)

The ORP was launched in 1975 by the ICAR. The basic aim of ORP was to demonstrate the technologies to the farmers and the extension workers on a watershed basis to evoke community action and participation.

The main objectives of ORPs were:

1. To test, adopt and demonstrate the new agricultural technologies in farmer's field in a cluster of three to four villages or in a watershed area.
2. To calculate profitability of the new technology meant for increasing production and economic returns substantially,
3. To identify socio-economic constraints affecting transfer of new technologies
4. To assess the credit worthiness of the new agricultural practices.

The overall aim of the project was the socio-economic development of farmers with an integrated approach comprising of modern technologies of crops, horticulture, animal production, homestead, vocations and improving health hygiene and nutrition etc. by utilizing local available resources.

ORP for Tribal Areas

The ICAR operated the tribal area operational research projects through 26 centers covering 9 states to help tribal farmers to increase their income through agricultural and allied technologies; special attention was paid to examine the relevance of the modern technologies in the socio-economic conditions of the tribal farmers and popularize those which were appropriate and productive in their conditions.

The main thrust of the project was:

1. Improvement in crop production.
2. Improvement in horticultural potential.
3. Improvement in animal production.
4. Improvement in health, hygiene and nutritional aspects of rural tribal people
5. Homestead vocations (rope-making, bee-keeping, etc.).

ORP on socio-economic upliftment of S.C. and backward communities

For the benefit of small and marginal farmers belonging to the S.C. and backward communities, an operational research project was also launched.

Lab to Land Programme

The Lab to Land Programme (LLP) was launched by the ICAR in 1979 as a part of its Golden Jubilee celebration. The overall objective of the programme was to improve the economic condition of the small and marginal farmers and landless agricultural labourers, particularly scheduled castes and scheduled tribes, by transfer of improved technology

developed by the agricultural universities, research institutes etc. The specific objectives of the Lab to Land programme, according to Prasad, Choudhary and Nayar (1987) were-

1. Study and understand the background and resources of the selected farmers and landless agricultural labourers. To introduce low-cost relevant agricultural and allied technologies on their farms and homes for increasing their employment, production and income.
2. Assist the farmers to develop feasible farm plans keeping in view the availability of technologies, needs and resources of the farmers and the resources which could be made available from external sources and agencies.
3. Guide and help the farmers in adopting improved technologies as per their farm plans and demonstrate to them the economic viability of those technologies as well as methods of cultivation and farm management.
4. Organize training programmes and other extension activities, in relation to their adopted practices and prepare them for active participation in agricultural development programmes of the state.
5. Make the farmers aware of the various opportunities and agencies which they could utilize to their economic advantage.
6. Develop functional relations and linkages with the scientists and institutions for future guidance, advisory services and help.
7. Utilize this project as a feedback mechanism for the agricultural scientists and extension functionaries.

National Agricultural Research Project(NARP)

The National Agricultural Research Project (NARP) was formulated by the Indian Council of Agricultural Research (ICAR) for strengthening the regional research capabilities of the State Agricultural Universities (SAUs). Assistance for the project was provided by the International Development Association (IDA), an affiliate of the International Bank for Reconstruction and Development (IBRD). An agreement in this respect was signed in December 1978. The project was administered by the ICAR through a Project Funding Committee (PFC).

Objectives and approach of NARP

The main objective of NARP was to strengthen the regional research capabilities of the State Agricultural Universities (SAUs) as an important means of finding solutions to the location specific problems in different agro-climatic zones in their respective service areas.

For this purpose, intensification of research efforts was envisaged in respect of

1. Cereals, millets, pulses and oilseeds, particularly those that are grown under rainfed conditions,
2. Farming systems involving crop-livestock and crop-fish production systems

3. Agronomic practices
4. Soil and water conservation techniques
5. Land use patterns for more efficient use of natural resources and ecological potential.

The objectives were sought to be achieved through

1. Rationalization of university research programmes and research organizations
2. Strengthening the infrastructural facilities of the State Agricultural Universities (SAUs) to undertake research on location specific problems.

The main approaches for this comprise:

1. Development/strengthening of at least one main station in each specific agro-climatic zone in the service area of the University, supported wherever necessary, by sub-stations by providing resource of staff, equipment and infrastructure needed to strengthen on-going research and to pursue new applied research.
2. Provision of resources, including infrastructure for verification of research results both at the main station and substations.
3. Provision of resources to initiate, strengthen and accelerate basic research on topics which are crucial for long term agricultural development of the state.

National Agricultural Technology Project (NATP)

National Agriculture Technology programme was conceived as a pilot project. It was launched in November, 1998. It was an initiation of government of India with World Bank Assistance. Under this project, Innovations in Technology Dissemination (ITD) component has been planned, which aims at developing a transfer of Technology (TOT) system that is demand driven, well integrated with research and financially sustainable and accountable to stake holders of agricultural development.

The innovation in technology dissemination (ITD) component of the project aimed at addressing key constraints in technology generation, validation and dissemination by introducing new institutional models and operational reform process in selected states. The states were namely Bihar, Andhra Pradesh, Himachal Pradesh, Jharkhand, Maharashtra, Orissa and Punjab. The project was pilot tested in four districts of above mentioned each states.

Objectives

The overall objective of NATP was to revitalize the agriculture technology generation assessment, refinement and dissemination systems.

1. Increase the quality and type of technologies disseminated through
    - Location specific technology development.
    - Diversification and intensification of farming systems.
    - Use of sustainability enhancing technologies.

2. Enable research and extension systems to become demand driven and responsible for solving problems of farmers.
3. Strengthen research-extension-farmers (R-E-F-) linkages.
4. Increase financial sustainability of the system.
5. Shared ownership of agricultural Technology System (ATS) by key stakeholders i.e. farmers especially poor, women and disadvantaged, public sector research and extension agencies like ICAR, SAUs, DOA etc.

Under NATP

Under NATP, Some institutional innovations were made in each project district. These were as follows:

1. Establishment of decentralized district level autonomous institution named ATMA (Agricultural technology management agency)
2. Establishing FAIC (Farm Information and Advisory Centre at block level).
3. Establishment of state level agricultural extension management training institutions named SAMETI (State Agricultural Extension management and training institutes).
4. Evolutions of state levels coordination and policy making body named IDWG (Inter Department Working Group).

With an objective to address the expanding role of extension certain operational reforms processes were initiated in the project districts like strategic planning, bottom up planning, promotion of farmers' interest group and farmers. Organization, farming system approach, decentralized decision making, farmer participation research, market led production, sequential extension interventions, cost and resource sharing IT and communication support, public private partnership, techno managerial focus team approach devitalizing, ongoing schemes and farmers focused and farmers accountable extension based on the performance of the pilot study.

National Agricultural Innovation Project (NAIP)

The Government of India has launched the National Agricultural Innovation Project with a credit support of the World Bank. The project will run up to June 2012.

The overall objective of the project is to facilitate accelerated and sustainable transformation of Indian agriculture for rural poverty alleviation and income generation by the application of agricultural innovations through collaboration among public research organizations, farmers' groups, NGOs, the private sector and the civil societies and other stakeholders.

The important objectives of NAIP are -

1. To build the critical capacity of- the Indian Council of Agricultural Research (ICAR) as a catalyzing agent for management of change of the Indian National Agricultural Research System (NARS).
2. To promote research in the production-to-consumption system mode in the priority areas/themes to enhance agricultural productivity and profitability and, nutrition, income and employment of the rural stakeholders.
3. To improve livelihood security of the rural people living in selected disadvantaged regions through technology-led innovative systems which encompass the wide process of social and economic change among all the stakeholders.
4. To build capacity to undertake basic and strategic research in strategic areas of agricultural sciences to meet the technology development challenges in the immediate and predictable future.

Key Components of NAIP

1. **Component -1 Institutional development by strengthening of ICAR role**: Strengthening the ability of the ICAR to act as a catalyzing agent for rapid transformation of Indian agricultural research system. The emphasis in this component is to change the mindset and strengthen the ability of the system to change according to context. Substantial resources under this component are intended to be spent on SAUs.
2. **Component-2: Establishment of consortia for research on production to consumption systems**: Establishment of value chain (production to consumption system) promoting consortia for raising productivity, profitability and competitiveness. Value chains in rural areas are creative income generating and employment intensive options.
3. **Component-3: Establishment of consortia to for research on sustainable rural livelihood security in disadvantaged areas**: Establishment of system and action research consortia for livelihood improvement in disadvantaged regions and vulnerable groups. During transformation of agriculture, regional and class disparities are bound to crop up. Research should consider the needs of the poor and disadvantaged regions and vulnerable groups.
4. **Component-4: Establishment of consortia to strengthen basic and strategic research in agricultural science**: Support to basic and strategic research to address challenging problems of national and global importance. Some' outstanding problems cutting across regions, production systems requiring innovative, cutting edge research, education and extension will be funded.

Technology Assessment and Refinement

The Technology Assessment and Refinement (TAR) was a site specific project with farmer's participation and provision of technical solutions to existing problems. It is inter-

disciplinary and interactive in approach. The project started in 42 centres of selected ICAR Institutes and SAU's.

The objectives include multifaceted directions for ensuring productivity of small production systems and ensuring profitability. The programme also includes on – farm value addition of agricultural products, bi-products and wastes for greater economic dividends, addresses gender specific issues and assesses the impact of refined technologies in different production systems. The research based findings under NATP are carried out through five Agro-Eco Systems (AES). The technologies thus assessed and refined are finally passed on to district extension system for implementation of innovation through Agricultural Technology Management Agency.

Institutional Village Linkage Programme (IVLP)

IVLP is an innovative program developed by the ICAR to help scientists to have direct interaction with the farming community so that appropriate technologies are developed for farmers. Here research, extension and farmers establish firm links by carrying together the assessment and refinement functions in the technology development and dissemination process.

The IVLP is being implemented through ICAR institute headquarters, SAUS headquarters, and Regional Research Stations, Zonal Research Stations of the ICAR institute, SAUs and KVKs. The centers selected for the purpose have required infrastructural facilities, viz. in terms of team of scientists, laboratory and transport. Each centre has to adopt a village or cluster of villages representing of the district.

Objectives of IVLP as per ICAR guidelines are as follows

1. To introduce technological intervention with emphasis on stability and sustainability along with productivity of small production systems.
2. To introduce and integrate the appropriate technologies to sustain technological interventions and their integration to maintain productivity and profitability taking environmental issues into considerations in comparatively well defined production systems.
3. To introduce and integrate the appropriate technologies to increase the agriculture productivity with marketable surplus in commercial farm production systems.
4. To facilitate adoption of appropriate post - harvest technologies for conservation and on - farm value addition of agriculture products, by products and wastes for greater economic dividend and national priorities.
5. To facilitate adoption of appropriate technologies for removal of drudgery increased efficiency and higher income of farm woman.
6. To monitor socio-economic impact of the technologies intervention for different production systems.

Methodology of implementation

Methodology of implementation of IVLP as per ICAR guidelines are given below

Selection of participating Institutions

1. ICAR and ICAR Institutions
2. SAUs and their Regional Research Stations/Zonal Research Stations.
3. Krishi Vigyan Kendras Based on availability of multi-disciplinary team of scientists, laboratory facilities and transport etc.

Selection of village

1. One village or a cluster of villages to cover about 1000 farm families.
2. The selected village should not be far away from the research station
3. Should have access through road
4. Should be relatively poorly developed in agriculture

Agro – Eco-System analysis

Using Participatory Rural Appraisal Methods to gather information about

1. the resource availability with farmer's present production practices
2. the extent of impact of the previous programs in the area.

Constitution of multi-disciplinary team of scientists

1. Core team: Those whose disciplines are essentially needed.
2. Optional team: The other disciplines depending upon the needs of the area.

Selection of team leader

Provide training to the multi-disciplinary team

Plan for Technology Assessment and Refinement

1. Intervention points based on problem-cause analysis
2. Basket approach considering the problems
3. Weightage to indigenous knowledge

Implementation of action plan

1. On farm research
2. Demonstration
3. On farm trials

Monitoring and Evaluation

1. Regular visit of team members
2. Technical staff posted for the village

3. IVLP card separately devised for the purpose.

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Limitations

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3. **Repetitive information creates disinterest**: The change agents did not take interest in the training programmes. Training programmes had become a ritual.
4. **Male orientation**: The system reached the male family head only. It neglected the other family members like farm women, youth and grown up children, whose role in agricultural production is substantial and widely recognized.
5. **Lack of competency**: The system emphasized on technical competency only. Unfortunately that too had suffered the serious causality due to non-seriousness on the part of trainers as well as trainees throughout the system. These change agents lacked economic, social, communication and scientific competencies significantly, hence their efforts of transferring technology had been imperfect.