

XI. TRAINING STRATEGY FOR DECENTRALIZED WATER RESOURCES DEVELOPMENT

There have been a number of approaches to drought proofing, each involving different types of skills and training.

1. The British irrigation policy was motivated by considerations of land revenue and minimizing famine relief expenditure.
2. Large reservoir approach that involved single point storage and canal based distribution in large commands.
3. The green revolution too was a strategy to combat drought through a regionally and class concentrated growth strategy. Despite several problems, environmental and socio-economic, the green revolution did pay rich dividends in terms of food security at an aggregate level.
4. The watershed-based ridge to valley watershed approach, which emphasizes increasing the water harvesting capability of our watersheds and brings in its wake more regionally and socially dispersed growth, rejecting a river reservoir and groundwater dependent approach.

Each technological solution obviously involves a range of institutional, financial and training possibilities and requirements. A watershed-based micro-irrigation approach such as the one we are suggesting involves working with statutory local bodies. Training is a very crucial factor in realizing the full democratic and participatory potential of this approach. How do we break away from the 'I plan you implement' type of participation? Location specific decentralized planning in the drylands under rainfed conditions requires a far greater dispersal of the technical and knowledge base. At one level it is an extremely formidable and daunting task. The existing knowledge base or range of technological options must become widely available and its dissemination is a challenge.

Our aim in this section is not so much to provide a blueprint but to identify mechanisms and institutions that are capable of doing this. Ultimately, participation will remain a mere rhetoric unless drought proofing strategies are conceptualized in a manner amenable to local area development. Often, community-based advocacy undermines the importance and need for training and adaptive contributions of science and technology, focusing exclusively on traditional knowledge. We favour an approach that demands greater responsiveness and accountability to the needs of *panchayat*-based decentralized development from technical and agricultural Universities; from the agricultural extension infrastructure; from the Rajiv Gandhi Watershed Mission; from NGOs; from Administrative Training Institutions.

The institutional, technical and financial recommendations are closely interrelated to each other. We recommend largely micro-irrigation within a watershed approach through devolution of financial, functional and administrative powers and resources to different tiers of local government. Very important lacunae remain in the substantive empowerment of statutory bodies through devolution of powers and resources to them, which are discussed separately. Capacity

building and training of members of local governments is the other key input that is required for any implementation strategy to become effective.

There are broadly four issues as far as training is concerned:

- (1) Selection of nodal agency or institution
- (2) Identification of trainee categories
- (3) Designing course content suitable to the profile and needs of each trainee category
- (4) Monitoring and accountability

The Indira Gandhi Agricultural University (IGAU), Raipur is a State Agricultural University (SAU) carved out of Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV), amalgamating its constituents situated in eight eastern districts of Madhya Pradesh popularly known as Chhattisgarh, namely Raipur, Bilaspur, Durg, Rajnandgaon, Raigarh, Sarguja, Bastar and Balaghat.

It is mandated that IGAU catalyses a shift in the region to at least double cropping, besides increasing productivity of rice and other crops in *kharif*, with the appropriate components of livestock husbandry, fishery and agro-forestry, etc. The Mission of IGAU is to facilitate continuous improvement in agriculture and allied fields, by developing quality manpower, providing relevant technological solutions, piloting their field use and supporting other related activities.

The routes to achieve the stated mission are as under:

1. To provide quality education in the area of agriculture and allied fields.
2. To undertake basic, applied and adaptive research and to develop the most appropriate solutions and technologies relevant to the area and the socio-economic conditions of the people.
3. To provide direct and indirect education and technological support to the public, in general, and to farmers in the region in particular, with a view to improving agricultural productivity and the economic conditions of the rural population.
4. To provide extension services, in-house and off-campus training to farmers and agricultural extension personnel, and demonstration and information dissemination.
5. To develop commercial potential of the agriculture sector in the region by facilitating and supporting the growth of agro-based industries.

Unlike the green revolution technology, which has wider scale adaptability, the rainfed technology needs to be location and, sometimes, time-specific. This emphasises the necessity of regional agricultural research. The World Bank aided National Agricultural Research Project (NARP) came into existence in 1979 to strengthen the regional research capabilities of State Agricultural Universities, for developing location specific and problem oriented research technologies. Location specific agricultural research was initiated by identifying different farming situations and prioritizing the problems in each zone.

To undertake location specific research the Directorate of Research has created Zonal, Regional, and location specific Research Stations. Zonal Agricultural Research Stations (ZARSs) are located in all the three Agro-climatic Zones of Chhattisgarh. Namely ZARS, Raipur for Chhattisgarh Plains covering the districts of Raipur, Bilaspur, Durg, Rajnandgaon, Balaghat, and parts of Raigarh (Raigarh, Gharghoda, Sarangarh and Kharsia *Tahsils*) and Bastar (Kanker *Tahsil*); ZARS, Ambikapur for Northern Hills comprising of Sarguja and parts of Raigarh; and ZARS, Jagdalpur for Bastar Plateau in south. Regional Agricultural Research Stations (RARSs) are located at Bilaspur, Waraseoni, Raigarh and Rajnandgaon and Agricultural Research Stations (ARS) are at Bhatapara, Baronda and Anjora.

The mandate and structure of the IGAU therefore fits in best with the requirement of training. We therefore recommend that it be designated as the nodal agency, with the affiliate field and zonal centers as partners. In 1972 the Irrigation Commission too recommended training of farmers and irrigation and extension personnel in a similar manner.

“There appears to be a genuine need to provide technical guidance to farmers in soil conservation methods and in the technique of lift irrigation. We would suggest that good use could, perhaps, be made of agricultural engineering graduates of the Jabalpur Agricultural University in this work...We consider that irrigation engineers and agricultural extension workers need to be trained in water management. We understand that a training course in water management had been given for some time by the J.N. Krishi Vidyalyaya, Jabalpur, and that nearly 750 persons were put through this course. We were informed that the course had been discontinued because persons who had been trained could not find employment. We would strongly recommend that the State Government should review the position, and that steps should be taken not only to employ those who have been trained, but to revive the course, so that more workers can be trained in this extremely important branch of irrigation development.”⁸⁰

However, it is well known that despite the mandate, most SAUs have not lived upto this task and fulfilled the expectations from them in terms of combining research, teaching, training and dissemination to the villages. IGAU is no exception to this failing.

Similarly, the Rajiv Gandhi Watershed Mission has a network of trained and experienced personnel spread across the DPAP blocks in the state, many of whom are out of jobs today after projects were completed. These persons can help provide the link between IGAU and the villages. However, there are many problems in the RGWM. Therefore, while the Mission offers a rich potential of a body of experienced and trained personnel, much has to happen before this can become a reality. There are also several NGOs that have executed watershed projects for CAPART and other funding agencies. Though these organizations have little, or no experience, in working with *panchayats*, they can become resource centers to extend assistance to *panchayats* and *gram sabhas* in drought proofing.

Before launching a massive exercise of this kind, therefore, an advisory cum monitoring body comprising leading experts/institutions in training local cadres for drought proofing must be constituted, both from within and outside the state. The chairperson of the committee should preferably not belong to the Irrigation Department but be an experienced agricultural economist or watershed expert. This Committee cum regulatory body must be set up by the state soon with the following terms of reference:

⁸⁰ *Report of the Irrigation Commission*, 1972, Ministry of Irrigation and Power, New Delhi, pp218-9

- (1) Identification of sources for funding this training exercise
- (2) Additional manpower, infrastructure and financial requirements for IGAU for this task.
- (3) How best to form a pool of experts at the state level, drawing in experts from the Geo-hydrology department of the university, the regional office of the Central Groundwater Board, Geo-hydrologists from the Public Health Engineering Department, scientists from the regional office of the National Bureau of Soil Survey and Land use Planning, in order to prepare modules for training in groundwater management, etc.
- (4) Identification of resource centers, including NGOs, for preparation of training material.
- (5) Identification of trainers and resource persons from NGOs, Universities and Training Centers from the state and other parts of the country.
- (6) Systems for facilitating close collaboration between IGAU and other relevant departments like Irrigation, Power and Electricity, Forest, Food and Civil Supplies, etc.
- (7) Regular consultations, monitoring and feedback about the training.

To begin with, efforts must be concentrated on selected blocks. A state level orientation programme for 3-4 days may be held for the key resource persons and faculty of IGAU, and the zonal centers who will impart the training. A possible strategy could be dividing the training into 3 phases.

Each Block should select two persons, the Janpad coordinators. One may be from the Janpad, perhaps a person with experience in a DPAP or RGM project and one elected representative with class XII literary and numeracy skills. These persons must undergo rigorous and exhaustive in house training at IGAU for 6-8 weeks. Though in-house, the main methodology of training should be fieldwork and practical hands-on learning. This will also facilitate conceptual clarity and application of appropriate interventions.

Some of the issues that such a training should cover are as follows:

I.

- A. Introduction to Drought Proofing through watershed-based land, soil and water management
- B. Surveying Techniques and Analysis
 - 1) Socio-economic Survey Methodology
 - 2) Ecological Survey Techniques
 - 3) Production system baseline survey
- C. Need Identification and Problem Analysis
 - 1) Food
 - 2) Fodder
 - 3) Livelihood
 - 4) Water

5) Fuel

D. Interventions

- 1) Earth and Soil Engineering
- 2) Groundwater management
- 3) Land use planning

II.

1. *Technical Aspects*

- a) Catchment area treatment through simple vegetative measures and bunds and trenches to reduce the rain run off velocity
- b) Drainage lime treatment by means of boulder checks and other silt-stoppage and velocity reducing measures.
- c) Water harvesting techniques through labour intensive technology for individual farms (farm ponds and wells) and groups of farmers/villages (earthen dams, anicuts, weirs, diversion channels, etc.)
- d) Groundwater recharge and appropriate well repair, deepening and location.
- e) Resource estimation through baseline surveys
- f) Land use and production system planning keeping in mind location specific conditions like soil, slope, cover, rain, geology, etc.
- g) Project Formulation and Action Plan Formulation
- h) Agro-forestry, pastures, fisheries, etc.
- i) Multipurpose project planning for irrigation and small hydroelectric units.

2. *Institutional Issues*

- a) Powers of PRIs for decentralised local area drought proofing and development
- b) Responsibilities of other line departments
- c) Water sharing and management of irrigation systems

3. *Resource mobilization*

- a) Transfers and Grants
- b) Government schemes and programmes
- c) Institutional and co-operative credit
- d) Departmental budgets and guidelines

The training could have the following modules:

- A. Introduction to Drought Proofing through watershed-based land, soil and water management
- B. Surveying Techniques and Analysis
 - 1) Socio-economic Survey Methodology
 - 2) Ecological Survey Techniques
 - 3) Production system baseline survey
- C. Need Identification and Problem Analysis
 - 1) Food
 - 2) Fodder
 - 3) Livelihood
 - 4) Water
 - 5) Fuel
- D. Interventions
 - 1) Earth and Soil Engineering
 - 2) Groundwater management
 - 3) Land use planning
- E. Project preparation and Action Plan Formation
- F. Resource Mobilisation

Phase 2 and 3 will involve a shorter duration (7-15 days long) modules at the Janpad level by those trained by the IGAU in the intensive programme, interspersed with actual work. The trainees may include two *panchayat* representatives (at least one woman) and all *patwaris*. NGOs, retired government and technical persons and others must be drawn in at this stage by the Janpad to constitute a Block level monitoring and support organization. The trainees must now return to their villages to undertake some clearly defined activities. The extension officers, persons trained at IGAU and the Zonal Centers will provide technical support at the field level.

Training in Water Policy Documents

The NWP 1987 states that there must also be a perspective plan for standardized training for all involved personnel and farmers, covering information systems, sector planning, project planning and formulation, project management, operation of projects and their physical structures and systems and the management of the water distribution systems. While the NWP 2002 appears to be essentially concerned with training government functionaries, with farmers added as an after thought, the Alternative CAPART draft brings capacity building needs in tune with a people's planning approach to water resources development. It therefore, visualizes PRIs, WUAs and NGOs as the trainees.

The Documents do not make such a massive capacity building exercise mandatory or realizable, by not devising a structure or demarcating resource for it. To begin with, one needs nodal agencies that can identify different capacity building needs and a trainee profile assessment for the pedagogical and course content for different categories of trainers, etc.

In fact the Chhattisgarh state's Draft Water Policy went a step further and mandated the setting up of a new training center for Agricultural Extension Workers and other irrigation functionaries, so that cadres of technically skilled and committed extension workers can be formed. This will help the integration of advanced and innovative practices and techniques in water resources development. Standardized training in information systems, project evaluation, construction, and water management and distribution systems should be included in it. In-service training to functionaries at all levels is seen as a critical factor in water resources development. What we have suggested does not involve setting up a new institute but expansion in the existing infrastructure, mobilization of scientific, educational, civil society and NGO inputs.