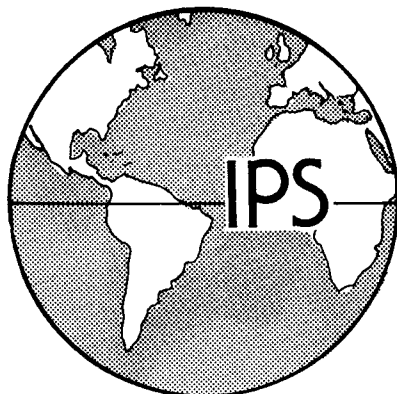




**PAKISTAN EMPHASIZES SYSTEMATIC  
PLANNING AND CURRICULUM  
DEVELOPMENT IN  
FARM WATER MANAGEMENT**

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Training Directors from all parts of Pakistan met in a National Conference in Lahore in January, 1984. They discussed ways to improve their training programs. One way to bring about improvement was to coordinate training efforts in On Farm Water Management through the establishment of formal curriculum development committees comprised of members from each of the provincial areas and from each of the disciplines represented. The conference focused on the training of future "trainers," or faculty, who would be needed in the development of new training institutions in Hyderabad, D.I. Khan and Quetta as well as those new faculty who would be appointed to the On Farm Water Management Training Institute at Lahore. It was understood that the educative process to be utilized by faculty (trainers) would need to be related to technical training, as opposed to a more general theoretical education approach commonly used in colleges. Conference members were also concerned with how to make the

national curriculum more relevant for those employed in On Farm Water Management Field Teams.

Curriculum which had been developed, in the early stages of On Farm Water Management programs had not been systematic nor had it been related directly to personnel job requirements. The Conference, therefore, set up committees which were assigned to study the job description of each group of employees and then design curriculum and training procedures which would be more task specific. The new curriculum committees were fortunate to have a great deal of background information available to them such as field manuals, directorate documents and university reports developed under U.S.A.I.D. funded projects in previous years including materials developed at Colorado State University and University of Agriculture, Faisalabad. Additionally, the Director and the faculty at the "Institute" at Lahore had already developed lectures and practical field exercises which were being used.

One major contribution of the work of previous consulting teams in On Farm Water management had been to introduce a multidisciplinary approach in solving problems in On Farm Water Management. This approach, however, was not well utilized in the curriculum development process. Rather, faculty from each discipline area organized their lectures and practicums rather independently and with little dialogue with each other about how these disciplines could be tied together in a unified way. Perhaps the greatest lack in all of this was that curriculum was

not developed systematically, and that heavy emphasis was placed on lecturing about engineering concerns of watercourse construction, surveying and precision land levelling. Little or no emphasis was initially placed on the management of water on the farmers' fields, on how to help farmers improve their farming practices, and how to work with farmers effectively in the development of Water User Associations, both for initial construction purposes and also for future maintenance of these watercourses. So, the curriculum committees tackled these problems related to farmer communications, to irrigation agronomy, to rural sociology, to management training and began to suggest what subject matter was appropriate for each area of need. This work continued for six months after the conference concluded.

Training which had been given in an organized fashion during the last seven years, occurred in Lahore at the Institute. Primarily this training was in applied engineering. Some training had been held in offices of Directorate staff as need arose, however, there had been few systematic efforts made to pull these various efforts together within the provinces, or among the provinces nationally. During a seven year period many watercourses were constructed in the Punjab, Sind, Baluchistan and in the Northwest Frontier. Achievements in watercourse construction to date have been amazing and speak to a real "success story". By 1981, two thousand watercourses, 6,232 kilometers in length had been constructed. More than 38,804 acres

of land of small farmers had been levelled, the majority of which occurred in the Punjab. But each irrigation construction project required additional field staff who needed training. Therefore, the critical link in the entire On Farm Water Management scheme was the training and education of an ever increasing number of people to work with this project under the Ministry of Food and Agriculture.

A recent government decision required three thousand or more Extension Field Assistants to take a six week's course in On Farm Water Management at the Institute in Lahore during the next three years. This put a tremendous strain on the existing training process and on the trainers at the Institute, since only 40 students could receive training at one time during a six-week course. This course was to include practical training in land levelling, surveying, watercourse engineering, irrigation agronomy and social/management concepts related to working with rural farmers. Trainers at the Institute took on this new challenge, however, the more theoretical curriculum which had been employed for professionals was considered to be largely unsuitable for field assistants who needed practical training in a number of skills. Thus, there was a need for the development of a new curriculum which would relate to the tasks of Field Assistants and Sub-Engineers on the field teams.

In the Northwest Frontier Provinces, Sind and Baluchistan there was a critical need to develop better training facilities.

Directorate staff were busy with many administrative duties and consequently could devote very little time to the training functions. As more and more watercourses were to be constructed, and as new field teams were hired, less and less attention was able to be devoted to training these new people. It was evident that coordination of training and cooperation between the provinces was essential. So the First National Conference on Training and Curriculum Development struggled with the tremendous challenge of recommending more appropriate training methods and more relevant curricula for On Farm Water Management needs nationally.

But the Conference had to consider other needs also. In addition to the concerns of the provincial directorates to improve their training systems, funding agencies which supported improved training and curriculum development through the technical aid provided by their consultants lacked integration and a unified approach. Assistance had been provided by the World Bank's Consortium for International Development Project, the Asian Development Bank's Tate and Lyle Project and the various projects funded by U.S.A.I.D. These projects were very concerned with watercourse conveyance losses of almost 40% of all available water provided to farmers. These losses had continued in spite of the fact that irrigation channels had been constructed. Irrigation channel construction was, therefore, only a partial answer to On Farm Water Management. People who used water, the farmers, abused

water and needed to be informed about improved irrigation practices. Additionally, the major aim of all funded projects was to improve crop production. This was not happening as rapidly as the funding agencies and government directorate had hoped. Farmers needed to receive training in irrigation agronomy. This required more and more trainers to train field teams and extension workers from the Department of Agriculture. The task ahead was huge indeed. Ad hoc measures would no longer suffice.

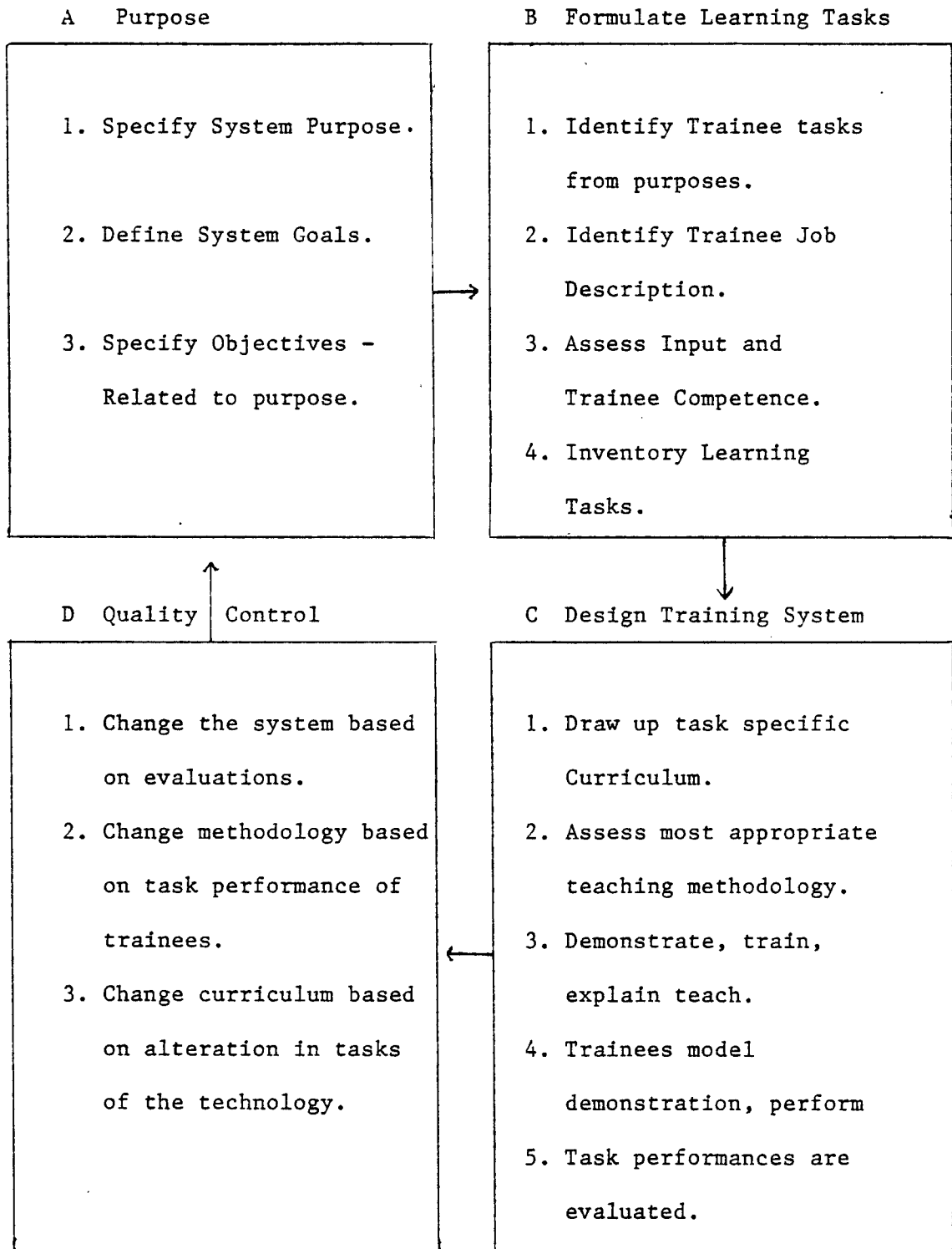
The National Conference on Training and Curriculum Development, therefore looked for ways to solve the above problems. A systematic Inter-disciplinary Training Model was discussed and the way to introduce this was considered. In brief, the approach the Conference decided to use was:

1. Define the purpose of the On Farm Water Management Training System and its major operational goals. Develop objectives for each discipline area related to the goals, such as engineering, agronomy, sociology, etc.
2. Committees were then appointed to look at the job descriptions of each category of employee developed by the directorate staff, assess the competencies each category would be required to have and finally develop learning tasks related to these competencies.
3. From this list of tasks the committees began to develop a curriculum which was "task specific" in nature. They

were asked to suggest which training methodology would be most appropriate for the task related to training, whether these be theoretical in nature or skill related learning for practical field tasks. Ways to evaluate trainees' level of success were then to be developed.

4. Finally, it was considered to be important to check the system's efficiency by looking at what worked or didn't work with those who received training. Methodological changes needed were to be fed back to committees of the institutes so that they could implement changes in their design of the curriculum for On Farm Water Management.
5. The final step to be taken was to look at the original purpose of the system annually so that the curriculum could be changed to meet new needs. For instance, Rural Sociology was added to the curriculum in 1984 so that trainees would learn about barriers to change and how to deal with people from different social groups in the transfer of technology process. (See Figure 1 below)

TECHNICAL TRAINING SYSTEMS MODEL



SUMMARY:

The design of a training system for a technology such as irrigation water management, requires attention be given to developing a process which is logical, holistic and contextual. System's thought requires a conscious process of reflection which is systematic in the sense that it is methodical, coherent, designed and analytic in nature. It is relational, that is, it accounts for references, connections, interconnections and cooperation particularly from all the representative disciplines i.e., engineering, irrigation agronomy, rural sociology and technical/vocational education.

What did all this mean to conference members in regard to On Farm Water Management training? It meant that the entire training program to be established would be related to "referents" of tasks to be performed by trainees, their job descriptions, their function in a larger inter-disciplinary system. It meant that trainers would plan curriculum together. Thinking this way reversed the usual curriculum development process which had begun with discipline experts listing what they thought trainees must know.

The Systems Approach in Curriculum Development embarked upon by the conference required that initial reflection about the

entire On Farm Water Management System, its process, structures and outcome had to be made by all cooperating agencies. Then the educational system which was initiated would carry out training so that those who perform tasks for the On Farm Water Management would do so more effectively and more efficiently in future years.

During the two day conference many major concerns were discussed and important decisions reached. The first five agenda items below give some idea of the work done by the conference members and to be done at regional institutes in the years to come.

1. Establish an Overarching Joint Planning Unit.
2. Initiate Interagency and Interdisciplinary Coordination for Training.
3. Establish a Unified Curriculum in the Country.
4. Establish Standard Job Description for all Trainees.
5. Establish Training Targets in a Systematic Fashion through Inter-Agency and Interprovincial Dialog.

The efforts to improve and coordinate training and curriculum development to enhance On Farm Water Management practices by providing more well trained people who are able to perform their tasks well has begun in earnest. Committees have worked hard and have recommended training needs. A National Curriculum Guide has recently been published by the Punjab Directorate of On Farm Water Management. Task specific training modules in Urdu and English have been written and published. Much dialog has occurred between

Training Consultants of the funding agencies. Plans to open new training institutes in Sind and North West Frontier Province are under-way, based on the work of the National Committee for Training and Curriculum Development. Assessments have been made for manpower needs and the training of a new cadre of trainers is presently a primary concern. Development education is a difficult and challenging task. It is encouraging that so much progress has been made in the area of training in On Farm Water Management in Pakistan.