

# TRAINING FOR EXTENSION IN THE ENVIRONMENT AND SUSTAINABLE AGRICULTURE: LESSONS FROM A STUDY IN SOUTH-EAST ASIA

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## Abstract

The study formed part of a wider research project on the implications of environment and sustainability (E/S) issues for the organization and practice of agricultural extension in three countries in Asia. It focused upon the training of both field staff and rural clients through the development of case studies of course curricula. These provided much positive evidence that some of the curricula did show an increasing responsiveness to E/S issues; with positive moves towards more interactive, learner-centered and experiential learning methods. In several cases curriculum development processes were becoming more participatory and, in some cases, had begun to take account of changing patterns of demand. In some instances, however, participatory approaches were still lacking; there was continuing emphasis on theory rather than practice, and a lack of training needs analysis. The need for a more integrated approach to extension training; one which models Agreener,<sup>®</sup> more holistic approaches in both learning systems and training management is advocated.

## Introduction

This research formed one component of a wider project entitled: *Implications of Environmental and Sustainability Issues for the Organization and Practice of Agricultural Extension*, funded by the UK Department for International Development (Garforth and Lawrence, 1997). The author was a member of the research team, studying extension training curricula which involved four collaborating institutions in Asia.<sup>1</sup> The conclusions drawn and the guidelines provided in this paper are entirely the responsibility of the author, and should not be attributed to the Department for International Development (DfID).

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## The Rationale for Institutional and Curriculum Reform

Recent literature has highlighted the need for both training institutions and curricula to reflect the global concerns for the environment and sustainability. For example: "education is critical for promoting sustainable development and improving the capacity of people to address environmental and development concerns" (Agenda 21 - quoted in Van Crowder, 1996:134). The UN Food and Agriculture Organization (FAO) recently commissioned case studies of the integration of environmental and sustainable development themes into the agricultural curricula of 10 universities from different countries and regions of the world and concluded that, "the ultimate goal to which higher agricultural education should contribute is the fullest possible awareness of and commitment to environmentally responsible behavior in all segments of society" (FAO, 1993, p.5).

The present study, however, showed that in some cases the faculties of agriculture were not the main initiators of efforts to integrate environmental education and sustainable

development, but lagged behind both public agencies and non-governmental organizations (NGOs) involved in extension and training.

Other researchers have recently highlighted the difficulties that training organizations have experienced, in achieving the necessary paradigm shift (Roling and van der Fliert, 1994, p. 38-39), both in their training curricula and in moving towards a more participatory curriculum process, including the involvement of a range of stakeholders. Stocking (1994, p. 13-14) indicated the common mismatch between the nature of the institutions involved in agricultural education and extension and the character of environmental problems and the "pedagogic challenge in current debates ... which involves 'ways of learning' and 'ways of knowing'." Yassin (1996, p. 43) suggested that training for environmental and sustainability issues needs to follow the "emancipation principle", fostering self-reliance, local resource control, empowerment and participation; training which offers "opportunities for self-satisfying actions." Rowe (1994, p. 107) in describing the process of the "greening" of the curriculum in one UK agricultural college argued that changes proposed in academic curricula could only be effective if, "they were reflected in all aspects of the institution's business, including land management and domestic organization..."

Within the overall design of the research project reported upon here, it was recognized that an investigation of current training curricula, both for extension workers (EWs), and for their clients, would provide very important information in relation to issues of E/S and their implications for extension. In all the study areas, training, of both staff and clients, had been operationalized at different levels, from the agricultural universities, through sub-degree level training institutes or colleges, to various kinds of training centers in both public and private sectors. In addition to the pre-service or foundation training provided to new entrants to the field services, it was accepted that all field staff required to be updated through in-service training if they were to provide effective extension, and that rural people needed to receive inputs of new knowledge and skills

through some form of structured learning experience.

### **What is meant by Curriculum and by Curriculum Process**

One of the challenges facing this research was the limited view, so commonly held, of Curriculum as being a written document; essentially a menu or checklist of topics to be taught, and a prescription of the manner in which that is to be done. That this was too restricting was emphasized by the fact that in many of the cases, any such documents were virtually non-existent. In several, especially those from NGOs and other providers of short courses, the only documentation made available was a handbook or prospectus, with the briefest of information about the training, which they provided. It was, then, important to develop a wider understanding of the context within which training was taking place, and the processes by which it was planned, implemented and evaluated. Training needed to be seen as facilitating learning over a longer period, including the role of pre-training needs assessment and post-training follow-up. Thus, the case studies attempted to encompass a holistic view of the curriculum process.

A guiding hypothesis of the study was that there are clear links between the levels of participation engendered; the educational innovativeness of the learning process, and the access to relevant content on issues of E/S. This is well supported from much of the recent PRA/RRA literature (see for instance Thrupp et al, 1994; Pretty & Chambers, 1994). The latter argue that participatory approaches and methods "support local innovation and adaptation.... and so are more likely to generate sustainable processes and practices." Also that support for participatory methods "gives innovators the freedom to act and share" (p188). Van Crowder (1996, p.142) quotes Fujisaka in stating that, "evidence shows that farmers are willing to adopt conservation practices on a widespread and sustainable basis if their participation is.... a critical component of technology development and transfer."

The case studies included an analysis of the

processes by which curriculum was developed and reviewed, including the participation of various groups of stakeholders from outside the organization; reflecting the notion that where curriculum process is itself open and participatory it is more likely to lead to changes which incorporate new issues which are significant, either locally or globally; such as those relating to the environment and sustainability (FAO, 1993, p. 14-15).

### **Methodology**

The methodology was developed at a planning workshop held in Reading, England, for all the partners of the research project in early 1995. The first step was to design an instrument, which could be applied in each of the study areas, and to all the different types of training programs offered. Country groups worked on the question, "What are the key areas of knowledge, attitudes and skills required for field level extension workers in order to perform effectively in meeting the environmental and sustainability objectives of (a) their organizations and (b) their clients?" Their suggestions were then grouped under three headings:

- (i) generic knowledge and attitudes (i.e., in relation to general environmental problems, basic ecological cycles and processes, etc.);
- (ii) technology specific knowledge and skills;
- (iii) extension knowledge, attitudes and skills (including e.g. communication, interaction).

Important dimensions for curriculum analysis were agreed to be the training objectives; subject areas; amount of time allocated to each area; methods of training and learning; level/type/cadre of trainees; evaluation/assessment methodologies used.

Following a period of iterative consultations, the five research teams formed a common instrument for use in the case studies.

During the workshop the collaborating

institutions identified a total of 20 institutions and organizations which they intended to survey (Lawrence, 1995, p. 13). In each country these included organizations offering both pre-service and in-service staff training (as well as client-training in a few cases), and both formal institutions (mainly state-funded) and organizations offering non-formal training (mainly NGOs, commercial or quasi-government organizations). The fieldwork involved visits to the 20 organizations to conduct semi-structured interviews with training staff and to examine curriculum materials (where available).

Inevitably with such a large project, involving several collaborating institutions in a number of different countries, there were some limitations, which have been detailed elsewhere (see Wallace, 1998, p. 117-118). Despite these limitations the case studies were all completed and provided some clear indications of trends in all types of extension training in the study countries; including those for staff and for client groups; in both formal and nonformal settings.

### **Findings from the Research<sup>2</sup>**

#### Inclusion of E/S material in training curricula

There was considerable evidence that training curricula in all the study areas, and from different types of institutions and programs, did include material, which made explicit reference to E/S issues. Even traditional basic science and production-oriented courses often included much implicitly-related content, and in some cases had a high level of explicitly-related content (e.g., in several formal institutions entomology was reported to have developed a clear focus upon Integrated Pest Management). Amongst the NGO programs, the Bangladesh Rural Development Board (BRDB) short courses, which were targeted mainly for resource-poor farmers, still had a high production/economy focus, but now included explicit E/S objectives. For instance the topic of fertilization in the course reviewed was dominated by the use of cow-dung, compost and green manure. This

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<sup>2</sup> The section following is based on a full account of the case studies in Wallace, 1997.

seemed a logical approach, given that many of their clients were quite unable to afford chemical fertilizers. Another interesting example from an NGO was ASSEFA in South India, which explicitly embraced Gandhian principles and was reported to be reviving the ideas of "rural self-sufficiency and emancipation of the poor," including a strong emphasis on low external input, sustainable production.

#### More interactive learning

There was evidence of increasing commitment to interactive learning in some of the rural training programs, and of implicit linkages between changes in modes of learning and the fostering of E/S concerns. A good example was ASSEFA, where training programs were reported to "pave the way to keep in touch with field-level workers and farmers", and that exposure to new information was seen to play a pivotal role in adoption of sustainable technologies in agriculture".

#### Towards experiential learning

There was some evidence of growing linkages between training organizations and external groups leading to valuable opportunities for experiential learning for trainees through field visits and village stays, as well as assisting in the follow-up of former trainees. Major spin-offs from such linkages can be an increasing contribution from training organizations to local development and the potential for their own learning as a result of these interactions (Pretty & Chambers, 1994). An example from the study was the Village Stay Program, which is an integral part of the degree offered at Annamalai University in South India. Students spent a period of one month living in a village, being involved in learning from farmers and participating in a practical way in organizing extension. ASSEFA in South India was also interesting because of its "people and action-oriented" training methodology, which aimed to encourage mutuality and self-help amongst client groups, and to enable them to apply economic and technical inputs in the context of the "social, cultural and moral situation in the community."

#### Evaluation of training

Most of the short-term, in-service courses did not have any formal assessment, but often included follow-up visits as part of their post-course evaluation. For instance FARMI in the Philippines used the adoption of new learning as its major criterion of training effectiveness, and former trainees were also invited to participate in an evaluation of the curriculum. An innovative approach was that of The Bangladesh Rural Advancement Committee (BRAC), where action plans were developed by trainees as part of their course and then assessed by local field workers after their return to their homes. In the same way the BRDB organized follow-up visits to trainees by local field organizers and trainers. During these, uptake of new practices (e.g. use of organic manures, IPM, crop rotation and crop diversification) were recorded and evaluation workshops were also organized with ex-trainees in the field.

#### Changes in curriculum processes

There were some clear indications of more participatory approaches to curriculum development, which were leading to some issues of importance to stakeholders, other than the trainers, getting into training agendas. For instance, at the Visayas State College of Agriculture (ViSCA) and the Eastern Samar State College in the Philippines the views of former graduates, employers and client groups were considered in the process of curriculum reform. The Rural Development Training Center (RDTC) in South India was noticeable in that it aimed to ensure that every course which it offered met the needs and interests of the particular group of trainees; there was a pre-training needs assessment for every training event. This involved "teachers, trainees, ex-trainees and farm leaders."

#### The Greening of curriculum content

Some cases indicated conscious attempts to ensure that new or reformed curricula took greater account of E/S issues. An example was the seminar held at ViSCA for the academic staff in 1995 which aimed to, "enhance integration of sustainable agriculture and environmental issues

in both technical and non-technical courses" (Wallace, 1997, appendix 5.4.1). The Extension course for the degree here included elements of land use, air and water quality, soils and biodiversity, whilst the Farming Systems course had a clear bias towards conservation farming. The environmental focus had led to a greater interweaving of the technical and non-technical (e.g. social science) aspects of the curriculum.

On the whole, the NGOs and quasi-government providers of short courses and in-service training appeared to be more responsive to E/S imperatives than the formal institutions. Their target audiences came from real-life situations in the field where technologies are changing, and this was often reflected in their teaching. The Central Coffee Research Institute in South India now included topics such as raising ladybird beetles, shade management, compost making, and cradle pot preparation in its courses.

Another factor leading to wider and more open curricula in some pre-service courses was an increasing responsiveness to changing demands in the rural labor market. Both the Annamalai degree course in South India and the diploma offered at nearby Ghandigram Institute had previously aimed mainly at production of trained manpower for the state Department of Agriculture, but had now developed a much broader set of aims which sought to prepare people for careers in commercial organizations, financial institutions, input suppliers and NGOs.

### Continuing Weaknesses

Despite the many encouraging signs of change towards greener curricula and more participatory approaches to curriculum, some negative tendencies were also observed. These included a wide lack of learner-centered approaches in training, a continuing emphasis on theory rather than practice and common failures to conduct any form of training needs analysis or rural labor market studies.

### **Some Conclusions and Guidelines for the Future**

There appeared to be a need in most of the

formal institutions, and in some of the nonformal organizations for a more integrated approach to the whole business of training. Rather than the straightforward delivery of "lessons" on a series of subjects and topics, training needed to be seen as a cycle of related activities; starting from the identification of needs, leading to an iterative phase of curriculum development and materials preparation, followed by a complex but well-managed phase of implementation, and ultimately to the development of relationships and linkages sustained through follow-up and participatory evaluation which feed back into further reviews of the curriculum review.

Training involves partnership with learners and other stakeholders; responsiveness to changing situations and needs, and openness amongst training providers leading to the creation of "learning organizations." Effectiveness in promoting changes in E/S related behavior amongst both extension workers and their clients requires an approach which models "greener," "softer" and more "holistic" life-styles, management approaches and learning systems within the training system itself.

The funders of the study (DfID), required that the research should lead to a set of guidelines for enhancing the role of E/S issues in extension training programs in the Region. These arise from the findings discussed above, and are summarized below.

- The changing roles of the farmer and of extension need to be recognized.
- The Importance of E/S should be explicitly stated and modeled in training.
- Extension training should develop appropriate understanding and analytical skills.
- Technical and economic training should be clearly related to E/S issues.
- Preservice extension training should equip new entrants for more flexible career paths.
- Curriculum processes need to become increasingly open and participatory.
- The E/S content and relevance of existing curricula need to be regularly reviewed.
- Close links with rural communities and

- organizations are necessary.
- Integration of training and extension functions should be encouraged.
- Rural training should be both participatory and holistic in its approaches.
- Competent practical training should form an integral part of the preparation of future extension workers.
- Both training managers and trainers themselves need to be retrained.

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