AGRICULTURAL EDUCATION FOR RICE PRODUCTION

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Abstract: Education, training and communication have an important role to play in facilitating Sri Lanka to achieve self-sufficiency in rice. To increase production levels, those involved in agricultural support services have to serve farmers efficiently. Schools of Agriculture, In-service Training Institutes and communication media activities are used to achieve effective technology transfer. Development support communication programmes are being made more relevant by field studies. Participatory activities are used to make the rice sector more dynamic and progressive. The strategies identified for the future include the use of the systems approach, increased commitment, better coordination, efficient communication and staff development. At present, communication and training efficiency are being strengthened. Assistance is needed for the development of human resources and infrastructural development, and provision of resources to implement the programmes that have been formulated to accelerate agricultural development.

INTRODUCTION

In Sri Lanka, about 700,000 farmers are engaged in rice production on about 640,000 paddy holdings. However, in about 40% of the total area cultivated to rice, yields are low, and range from 1.5 to 2.0 t/ha. Although the recommended varieties have yield potentials exceeding 7.0 t/ha the national average yield is about 3.5 t/ha. Thus, there is a yield gap, between the technically feasible yields and the actual yields obtained by farmers.

Yields produced by a variety vary widely depending on the environment where it is grown. For example, in the Kurunegala district during maha 1983/84 Bg 34-8 rice variety grown under major irrigation yielded 4.8 t/ha while under rainfed conditions the corresponding yield was 1.4 t/ha (Dhanapala and Pathinayake, 1985). The constraints causing this gap are both bio-physical and socio-economic (Ranaweera, 1985). Agricultural and rural development efforts, wherever they are made, require the support of agricultural education and training (FAO, 1986). This statement applies to rice production as well.

At present, rice farmers are served by 528 Agricultural Instructors (AI) with village level extension service performed by 14,410 Grama Niladharis (GN). In addition, there are youths and farmers and people employed in agricultural support services who must be provided with technical information

required for efficient rice production. Providing this training is the responsibility of the Education, Training and Information (ETI) Division of the Department of Agriculture (DOA), and is effected through development support communication programmes with specific training activities to develop the needed skills. To serve the farmers' needs the ETI Division conducts rice production training programmes for extension workers. These programmes are supplemented by special training programmes, where necessary, to effectively support the rice production programme in Sri Lanka.

This paper reviews the present status of agricultural training with particular emphasis on the rice sector. Detailed discussion covers facilities available for manpower development, technology transfer, communication systems and other issues that have to be addressed in the next decade.

AGENCIES INVOLVED IN AGRICULTURAL EDUCATION

The main private sector organizations engaged in agricultural education, with emphasis on rice, are the Institute of Agriculture of Trinity College, Kandy, and the Aquinas College, Colombo. The Institute of Agriculture of Trinity College and the Aquinas College of Higher studies have annual intakes of about 15 and 60 students, respectively. Both institutions offer a two-year training course in the theory and practice of agriculture leading to Diploma in Agriculture.

Faculties of Agriculture in the Universities of Peradeniya, Ruhuna and Batticaloa offer students courses of study leading to a Bachelor of Science (B.Sc.) degree in agriculture, while the Postgraduate Institute of Agriculture (PGIA), Peradeniya offers courses for the benefit of students who desire to undertake higher studies leading to a Master of Science (M.Sc.), Master of Philosophy (M.Phil.) or Doctor of Philosophy (Ph.D.) degrees. Rice occupies a significant position in crop production courses conducted in all above mentioned institutions.

The Department of Education has many schools where agriculture is taught and students prepared for General Certificate of Education-GCE (Ordinary Level) and GCE (Advanced Level) examinations. In their syllabi rice is given prominence. This is a boon to the students who wish to pursue their interests further in crop production, particularly of rice.

The technical schools of the Department of Education offer a National Technical Diploma in Agriculture. Those who teach agriculture in these schools are periodically given in-service training by the Department of Agriculture in order to update their knowledge in the latest developments and innovations in agriculture.

THE ROLE OF THE DEPARTMENT OF AGRICULTURE IN AGRICULTURAL EDUCATION

The ETI Division conducts both formal and non-formal education programmes. The Schools of Agriculture provide formal education while the In-service Training Institutes (ISTI) as well as the District Agricultural Training Centres (DATC) conduct both formal and non-formal education programmes. Non-formal education programmes include the radio and television programmes designed and produced by the Farm Broadcasting Service (FBS) and print material such as magazines, bulletins, leaflets etc., produced by the Publications Unit. Exhibits, slides, photographs and video films for educational purposes are produced by the Audio Visual Centre (AVC). The Communications Unit conducts studies at the field level to gather information on training needs, behavioural and communication characteristics of farmers, and attempts to understand better the sociological influences on farmers' decision making.

Diploma level training at schools of agriculture

Schools of Agriculture are intermediate national level agricultural institutes providing instruction and training on theory and practice of farming over a period of 2 years, leading to a Diploma in Agriculture. There are schools of agriculture established at Kundasale, Pelwehera and Angunakolapelessa with a total registration of 250-300 students per year. Admissions to these schools are determined by a competitive examination conducted by the Examinations Department of the Ministry of Education. Admission of officers from government departments and corporations are made based on an examination separately conducted for the purpose. Annually, about 100 students are selected from the category of personnel employed in agricultural vocations.

In the curriculum of the Schools of Agriculture emphasis is placed on providing both theoretical knowledge and practical skills in agricultural production, and about 50% of the total time is allotted for practical work in the paddy fields.

In-service Training Institutes

ISTIs conduct a wide variety of training programmes ranging in duration from one week to two months. The two-month training programmes fit into the category of formal education, and these are in-depth training programmes that cover subject areas from land preparation to marketing in a detailed and most comprehensive manner. Usually, such programmes are conducted for officers who are to be trained as Subject Matter Officers (SMO). Since rice is the staple food of Sri Lankans and since the country is not yet self-sufficient in rice, rice production training is accorded high priority. This is clearly seen in Table 1 which summarizes training activities at the ISTIs during the last three years. The major subject matter areas covered in these training programmes are presented in Tables 2, 3 and 4.

Table 1. Time devoted for rice production training at the In-service Training Institute (ISTI) from 1987 to 1989

Year	*Percentage time spent at ISTI*					
	Angunakola-pelessa	*Gannoruwa*	*Maha-Illuppallama*	*Kilinochchi*	*Bombuwela*	*Mankandura*
1987	72.0	48.5	57.0	33.0	54.5	39.4
1988	95.2	50.4	63.3	44.0	88.4	-
1989	-	20.6	30.6	55.7	86.1	76.6

Table 2. The major subject areas of rice production activity used for training and the mandays of training achieved in 1987

Training programme	*Mandays*				
	ISTI				
	Angunakola-pelessa	*Gannoruwa*	*Maha Illuppallama*	*Kilinochchi*	*Bombuwela*
Pre-seasonal	2135	2877	3497	307	899
IPC	107	1752	219	-	134
Seed production	-	1098	-	-	90
Paddy cultivation	-	90	-	44	148
Paddy transplanter	6	37	198	-	79
Rice and OFC	-	132	-	-	-

IPC = integrated pest control; OFC = other field crops

Rice production training programmes of two-month duration are conducted at ISTI, Gannoruwa. On the successful completion of an intensive rice production training programme the officer gains the knowledge and skills required to serve as a SMO in rice production. In addition to these training programmes, the SMOs attend training programmes in advanced rice production technology for 3 days to one-week duration conducted by research officers and trainers who have followed the 'Rice Production Specialist' training programmes at the International Rice Research Institute in the Philippines. Prior to recommending technology to farmers, the SMOs receive advance training to ensure that by the time the recommendation reaches the farmers, the SMO is competent to handle practical problems that are likely to emerge.

Regardless of the duration of the programme 50% of the training time is spent on practicals in the field. Skill development is given top priority in rice production training programmes, in subject matter areas ranging from initial

Table 3. The major subject areas of rice production activity used for training and the mandays of training achieved in 1988

Training programme	*Mandays*						
	ISTI						
	Angunakola-pelessa	*Gannoruwa*	*Maha Illuppallama*	*Kilinochchi*	*Giranduru-kotte*	*Bombuwela*	*Anuradha-pura (FMTC)*
Pre-seasonal	675	2050	2757	540	802	1030	-
IPC	-	1074	-	-	-	-	-
Rainfed rice	-	45	-	-	-	-	-
Rice production	-	958	216	57	-	-	-
Paddy transplanter	-	-	-	-	-	-1035	
Paddy reaper	-	-	-	-	-	-	108
Water managment	72	-	1144	-	196	-	-
Tractor operation	-	-	-	-	-	-	175

FMTC = Farm Machinery Testing Centre

Table 4. The major subject areas of rice production activity used for training and the mandays of training achieved in 1989

Training programme	*Mandays*					
	ISTI					
	Gannoruwa	*Maha Illuppallama*	*Kilinochchi*	*Bombuwela*	*Makandura*	*Anuradhapura (FMTC)*
Pre-seasonal	782	708	322	377	671	-
IPC	250	50	-	-	400	-
Seed production	142	-	-	-	-	-
Paddy transplanter	-	-	-	-	-	206
Organic fertilizer	-	-	-	14	-	-
Tractor operation	-	-	-	-	-	1160
Training modules	18	-	-	-	-	-

FMTC = Farm Machinery Testing Centre

land preparation to rice harvesting and processing. The trainees are provided all possible facilities required to carry out operations related to raising a rice crop.

Since 1985, all levels of extension officers of DOA, were trained in Integrated Pest Control (IPC) in rice farming which was supported by the IPC project of the Food and Agriculture Organization (FAO).

Pre-seasonal training programmes are specially designed and conducted to train field staff to solve farmers' problems. This upgrading of knowledge and skills of the extension staff is a continuous and important process.

To identify and effectively serve the location-specific training needs, DOA has established 8 ISTIs in the major agroecological zones, and they are referred to as the Regional Training Centres (RTCs). Since the RTCs are located close to the Regional Agricultural Research Centres (RARC), it is possible to receive the latest research information and technical back stopping.

Training on the maintenance and operation of farm machinery and implements to farmers and officers is provided at the Farm Mechanization Training Centre (FMTC) at Anuradhapura.

To support and strengthen the extension effort by improving information processing and delivery of competencies to extension workers, ETI Division conducts training programmes on the following topics: preparation of teaching aids, extension methodology, communication and scientific writing. The aim of conducting these training programmes is to improve the efficiency of information dissemination to the farmers.

TRANSFER OF RICE PRODUCTION TECHNOLOGY

Technology transfer is increasingly recognized as a major factor in improving agricultural productivity and farmer welfare over time and among nations (Ruttan and Hayami, 1973). The differences in agricultural productivity among countries is attributed by most researchers to differences in diffusion of new production technology. While a sociologist may attribute effective technology transfer to compatibility of socio-cultural aspects with the introduced technology, an economist may focus his attention on economic variables such as the profitability of the innovation, the availability of resources and management factors.

Effective technology transfer depends on the appropriateness of the introduced technology, economic, social and institutional factors, and effective communication. Sustained adoption of introduced technology will, however, depend on the farmer acceptance, market prices and marketing facilities, as well as the convenient availability of inputs.

Technological advances adopted by a minority of farmers with adequate resources also contribute to the widening of income disparities among farmers. Poverty, lack of access to new technology, lack of irrigation facilities and funds for inputs are likely to further widen disparities. Farmers having access to both technology and resources may even double or treble their production and incomes. This widening of income

disparities among farmers may increase social tensions. Thus, technology transfer should concentrate on the small-scale farmers, and enable them to increase production.

Due to differences in soil fertility and productivity of land, possession of resources and opportunities, it is necessary to introduce supplementary or complementary economic enterprises for marginal farmers. Therefore, education and training programmes on the production of other field crops, floriculture, small-scale food processing and preservation must be planned and conducted for the benefit of farmers with resource constraints.

Strong linkages have been established between research, education, training and extension related to rice production through extension field programmes. Rice production training programmes incorporate research findings and provide feed-back from farmers through extension staff in the field. The quality of information passed onto the farmers by the extension workers is the key to success in extension. The Subject Matter Specialists (SMS) attached to ISTI obtain research information from the RARC and pass it onto extensionists and farmers while continually keeping themselves abreast of new advances in technology. SMSs prepare teaching materials for SMOs to train the agricultural instructors and other trainees.

STRATEGIES FOR THE DEVELOPMENT OF THE RICE INDUSTRY

Agricultural growth and development is a multi-sectoral, multi-dimensional and multi-faceted process. Therefore, it is necessary to develop a comprehensive strategy which deals with every aspect of production, processing and marketing. This demands team work among research, education, training, communication, extension and input supply staff.

In addition to generating appropriate technologies and transferring same to the farming community, achieving the goal of self-sufficiency in rice demands philosophy and commitment, coordination, mobilization, participation, communication, monitoring and evaluation, and manpower development.

Philosophy and commitment

There should be a well-defined policy that states clearly how the rice production, processing and marketing would be assisted, managed and guided to avoid waste and maximize benefits.

Coordination

The smooth flow of information from the research to the farmers and coordination among and between research, education, training, communication and extension must be strengthened. Since each division has its own priorities and limitations and aims and expectations, unnecessary duplication

of efforts should be avoided through a clear-cut policy intimated to all concerned.

Mobilization

All divisions and units should be mobilized to achieve developmental goals along with full participation of farmers.

Participation

Any individual, institution or organization having constructive ideas, should be free to participate in development planning and implementation.

Communication

Various approaches for information transfer should be strengthened and made more purposeful. Programmes such as farm broadcasting should cease to operate in isolation, but be integrated, enabling communication support activities to be planned and implemented more effectively.

Monitoring and evaluation

Monitoring and evaluation should be built into the programmes, and appropriately carried out.

Manpower development

The objectives of training extension workers should concentrate on imparting diagnostic, technical, management, and communicative and evaluation skills. Trainees should be able to diagnose problems and use effective communication technologies, organize and manage activities to solve their problems using effective and efficient methods and evaluate the progress achieved. The extension staff should be competent to plan, implement, coordinate and monitor the progress of the technology transfer process. The need to combine various media to strengthen the extension effort in the field must be recognized. Educational programmes must be planned so that they complement each other.

DEVELOPMENT SUPPORT COMMUNICATION

Once a country has set its development goals to increase productivity, people must be informed, and motivated to become active participants in the development process. Integrated communication programmes are required to facilitate the smooth flow of information, sustain motivation and to provide mechanisms for continuing interaction between development planners, policy makers, scientists, technicians, extensionists and the farmers.

Integrated communications approach

The goals of the different media used by the ETI Division are given in Table 5. The human, inter-personal and mass media must complement each

Table 5. The goals of the different media

Medium	*Goal*
Human media	
Knowledge	Stimulate and promote learning
Skills	Facilitate skill development
Attitudes	Develop favourable attitudes
Inter-personal media	
Group activities	Guide sustained action
Group development	Maintain communication linkages
Mass media	
Radio	Supplement inter-personal activities
Television	Present credible information
Leaflets	Reinforce oral or broadcast messages
Posters	Create awareness
Other print materials	Support the main programme
Visuals	Create visual impact

other to enable the country to achieve set goals to increase agricultural productivity.

Communication efficiency

Communication efficiency can be enhanced by the proper management of technical information services, with information tailored to specific user needs and through the innovative use of available media. The brokerage of information is particularly valuable for policy and programme formulation and to develop new strategies for training and action programmes.

Communication must be an integral part of development planning, and recognizing this, several units have been established within the ETI Division to collect, process, store and selectively disseminate agricultural information.

Information bank

An Information Bank (IB) was established to collect information both from published and unpublished sources, and classify, catalogue, index and organise them for easy retrieval. Dissemination of information is achieved through publications such as a quarterly technical bulletin, content pages and fact sheets, and assistance to information seekers is provided through various means including correspondence.

The clientele of IB are professionals from government, semi-government and non-government organizations, and students from universities and schools as well as entrepreneurs and farmers. The contribution of IB towards rice production has been limited due to inadequacy of facilities. However, it has contributed to disseminate information on rice cultivation through its quarterly technical bulletin 'Krushi' (Table 6).

It has now been planned to start publishing a monthly news letter and fact sheets on rice production, to deliver new technologies to extension staff, rural organizations and farmers.

Mass media

The use of mass media has been an integral part of the non-formal agricultural education. Institutional organizations such as Farm Broadcasting Service (FBS), Publications Unit (PU) and Audio-Visual Centre (AVC) have been set up within DOA in order to use media for technical information dissemination. Among them the FBS and the PU produce programmes and materials directly for the use of farmers while the AVC is mainly concerned with training of extension personnel and developing training aids to be used by extension personnel, to promote effective extension communication.

Despite the fact that a fair proportion of the rural communication uses mass media as a popular source for information gathering, relatively low priority has been hitherto given to this area of communication in the national agricultural development effort. However, in the recent past policies have been changed to exploit mass media for the benefit of the majority in the rural sector.

An agricultural communication system that is not closely linked to the farmer is of little value. Therefore, it is imperative to develop a communication system to find out what concerns farmers and the kind of information they need. Farm radio programmes and publications have been mostly designed to give additional publicity to or information on research findings, and other departmental activities. As development is a participatory process, the strategies and the methodology of using media need to be reorganized to suit the present situation.

Agricultural programmes for radio, television and publications should coincide with actual field operations. It is a fact that the specialist personnel in DOA work on a sectoral basis. But, it is important to realize that farmers don't have 'sectors'. Therefore, the farmers' needs have to be addressed in a more integrated and holistic manner. Communication specialists of FBS in DOA at present make an attempt to integrate information to some extent while keeping with the government policies. It is vital to develop this attitude among all the units of mass communication within the Ministry of Agricultural Development and Research.

Table 6. Articles on rice production printed in 'Krushi' during the period 1984 - 1989

Year	*Volume*	*Issue*	*Topics*
1984	7	1	Research priorities of the low country wet zone Agricultural Research Centre, Bombuwela; Water requirement of rice; Seed paddy supply within the Gampaha district in yala 1984 in an emergency situation; Water-saving techniques in rice; Yellowing disease of rice in the Hambantota district.
1984	7	2	White-backed planthopper; Stand establishment in rice; Potential of grain legumes in paddy fields.
1985	7	3	Bg 380 for Mahaweli area; Efficiency of carbosulphan on rice thrips; Effect of packing materials on seed viability.
1985	7	4	Rice weeds and their effect on yield.
1985	8	1	Problems of rice culture in the low temperature regions of Sri lanka; Water management for wetland tillage.
1985	8	2	A new predator on Coccinelidae beetle - a natural enemy of rice insect pests.
1985	8	3	Parasites and predators of rice; Pests in Kalutara district.
1986	9	1&2	*Aeschynomene indica* -Is it a weed?; To prevent iron toxicity in rice plants; A tool to desilt drainage channels.
1987	9	3&4	Paper bags for seed paddy storage.
1987	10	1&2	An exploratory study on use of insecticides in peasant paddy production in the central region of Sri lanka; Nematode disease of rice.
1988	11	3&4	An exploratory study on use of insecticides on peasant paddy cultivation (Continuation).
1988	11	1	Effect of potassium on rice bronzing; History of IPC activities in Sri Lanka.
1988	11	2	Varietal response to nitrogen top dressing in half-bog soils of low country wet zone; Is iron toxicity only an aspect of a multiple nutritional disorder?
1989	11	3	A new method to control of weeds in rice nurseries; Twenty-two reasons why farmers prefer to grow rice in the paddy field instead of subsidiary crops; Insecticide use in Mahaweli `H' area to control rice pests.

It is tempting for many of us to think that agricultural development will take place if we provide enough information to the farming community. There are, however, many development problems that cannot be solved only by providing information. Therefore, communicators must learn how to organize and prioritise information, identify problems and determine the kind of inputs required.

If we expect to utilize the radio, television and print media in the proper manner, it is important to develop an information inflow system with reliable linkages with the farmers at the grass root level. As the structure of the agricultural extension system is at present undergoing drastic changes due to provincialization of the administration in the country, one cannot depend only on agricultural extension workers to gather information. We have to rely more on the leader-farmers and farmer organization representatives than on the officers at the grass root level. Perhaps we may need a different set of criteria to evaluate present day problems. It is also important to develop linkages with all other governmental agencies to pass on relevant information and to get proper feedback. More local radio stations and publishing units must be created to cater to the local communities more efficiently than at present. With the recent advancements in mass communication technology, establishing radio broadcasting units in the FM band and the use of low powered television stations are feasible propositions. For example, a mini radio broadcasting facility, with recorders for both field and studio use can be set up with an expenditure under US $ 20,000. However, a greater number of mass communicators should be trained and provided with greater mobility to reach as many sections of the community as possible. With the breaking down of conventional extension services due to the administrative changes taking place now, it may make sense to provide staff and operational costs to manage such local mass communication systems. This would change the communication behaviour and enable people to recognize the importance of mass media, and will pave the way to people becoming participants of a development initiative. The various aspects of rice production under which programmes have been conducted are summarized and presented in Table 7.

Publications Unit

This unit produces the 'Tropical Agriculturist', 'Govikam Sangarawa' (farm magazine in Sinhala), 'Kamaththolil Vilakkam' (farm magazine in Tamil) and leaflets on crops and related tropics. Tropical Agriculturist (English) is a scientific journal and is published for the benefit of professionals in agriculture. 'Govikam Sangarawa' is a quarterly agricultural magazine which is produced for the benefit of school children, extension workers and the general public. 'Kamaththolil Vilakkam' is also a quarterly agricultural magazine, and is meant for the benefit of Tamil agricultural students and the general public including farmers.

Table 7. Radio programmes on subjects related to rice production during Jan - March 1990 presented by the Farm Broadcasting Service

Subject *	*Duration (minutes)*			
	Colombo Service	*Rajarata Service*	*Kandy Service*	*Ruhunu Service*
Seed paddy	45	10	15	45
Nursery management	15	Nil	Nil	Nil
Plant protection	15	Nil	45	15
Fertilizers	45	35	60	60
Weed control	15	Nil	Nil	15
Water management	15	Nil	15	Nil
Use of mechanical implements	15	Nil	15	Nil
Harvesting	Nil	15	Nil	Nil
Rice varieties	30	Nil	Nil	Nil
Processing and storage	Nil	15	Nil	Nil

Note: The total duration of programmes on rice production as a percentage of time provided for agriculture is about 60%.

* Quiz programmes, farmers problems and agricultural educational programme for General Certificate of Education students have not been included

The production of leaflets related to agriculture, particularly on rice production is a regular activity of the ETI Division. Leaflets published recently on rice are given in Table 8.

Audio Visual Centre

The AVC located at Gannoruwa has been gradually developed to produce audio and visual materials needed for agricultural education, training, communication, research and extension services. This centre engages in the following activities:

- Organization of short-term training courses on preparation and use of simple visual aids to be used by extension workers, trainers, SMSs and SMOs.
- Maintenance of a display room of exhibits and published materials.
- Production of tape-slide programmes on rice production for training purposes.
- Production of black/white and colour photographs on rice production for training and display.
- Designing and production of simple visual aids such as flip charts, wall charts, posters, slot boards and video films for training and communication activities.

CHALLENGES AND STRATEGIES

Agricultural education and training should not be static, and curricula and syllabi as well as teaching methods and materials have to be adjusted to suit the changing situations. Institutional structures and management as well as inter-institutional relationships require streamlining and support.

The recent developments at the national level necessitate changes of structure and conduct in agricultural education and training. It is necessary to have a thorough assessment of the policy framework in which agricultural education and training operates. This assessment needs to give attention to three aspects:

- Development of a system of agricultural education and training of the rural farmer.
- Provision of an extension service for farmer development.
- Formulation of objectives of formal and non-formal education programmes.

Development of staff and curriculum

With the advances in the field of agricultural science, it is necessary to strengthen the agricultural education and training institutions with a view to develop new teaching programmes and to provide more staff, physical resources, institutional structures etc. The skills of personnel in the technical, educational and management fields should be enhanced so that they can effectively tackle the complex task of improving the agricultural productivity to provide

Table 8. Leaflets published on rice

Title	*Year*	*Number of copies*
Paddy cultivation	1983	70,000
Paddy cultivation(Reprint)	1987	50,000
Straight fertilizer use on rice	1989	13,000

for the food security and the well-being of rural people.

In the past, Schools of Agriculture and Training Centres have benefited by support from foreign-aided projects to establish institutional structures and obtain other essential facilities. But, further improvements are needed in the area of curriculum development, staff training, improvement of physical facilities, etc.

Agricultural education should integrate teaching and learning of new rice production technologies and also cover related subjects like farm management, environment management, rural home economics and human nutrition.

Communication and training challenges to meet on-going structural adjustments

Unprecedented changes have occurred with the implementation of the recent decentralization of government departments and institutions. Administrative changes have made it necessary to facilitate individuals to assume new responsibilities and roles. Since training is the process that brings about changes in behaviour that leads to better job performance, training now assumes a new dimension of importance, if desired goals are to be achieved.

In this regard three dimensions appear to be very important to rice production as well as other agricultural enterprises. These are social intervention capability, institutional leadership and systems-oriented management.

Social intervention capability

The determination and the competence needed to implement the structures required to intervene with rural groups and communities must be developed to promote both agricultural and social development. Thus, in-service personnel must be trained to recognize the importance of using techniques that would enable them to fit into changing times and trends.

Institutional leadership

As rapid changes are taking place at present, development organizations have to redefine organizational objectives and goals and also redirect roles, values, energies and processes to achieve the expected targets. It is essential to maintain relationships with other organizations to

fulfil the community needs. Applied field studies aimed at gaining deeper insights about organizations, personnel and the problems of rural communities are necessary. Recognizing this need, the ETI Division has initiated field studies to generate information to be utilized in the planning and designing of educational and training programmes.

Systems-oriented management

Humans are the most valuable of the resources. To smoothly and effectively adapt to changing conditions and live up to the commitments, management approaches that are more appropriate need to be identified.

Thus, there is a need for applied studies related to organizations, and ETI Division has initiated such field studies as an initial step to obtain empirical evidence in this area.

CONCLUSIONS

The ETI Division remains sensitive to the changing circumstances while concentrating its attention to serve the needs of the agricultural sector in Sri Lanka. Through education and training of farmers, this Division is committed to direct its energies and resources to raise the production levels of farmers, and thus progressively achieve better living standards.

With the thrust on education, training and communication for self-sufficiency in rice, and thereby to achieve food security, manpower development and technology transfer have to be strengthened to enable effective dissemination of relevant information to the farmer, using the systems approach. Therefore, manpower training, infrastructure development, supply of modern techniques and equipment to improve communication techniques and programmes are of paramount importance and require to be considered during the next decade.

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