

SLAAS PROJECT ON THE "SAFE USE OF AGROCHEMICALS"

NIMALA R. AMARASURIYA

Natural Resources, Energy & Science Authority. (NARESA)

A severe problem confronting Sri Lanka today, is the high incidence of poisoning by agrochemicals which has become a major health hazard to the entire population.

During the last few decades, the national pattern of development has been characterized by an emphasis on increasing agricultural production to meet the needs of the expanding population and to save foreign exchange now spent on food imports. As traditional methods of controlling pests could not be effective or possible on large-scale cultivations, the increased use of agrochemicals became essential. The increasing dependence on vast quantities of fertilisers, pesticides, weedicides and fungicides however, also required increased levels of scientific awareness among the users. Unfortunately the use of agrochemicals by ignorant farmers even in the remotest areas of Sri Lanka has resulted in widespread misuse.

A WHO survey conducted in November '83 reported that Sri Lanka has the highest death rate in the world resulting from pesticide poisoning. According to a national survey carried out recently, 16,000 people suffer from pesticide poisoning annually. However, medical authorities believe that the number of cases of chronic and undetected poisoning caused by regular, unintentional intake of small quantities of pesticides as residues in food are far greater and could be of a more real danger to the population at large.

The section of the population that is most vulnerable to acute poisoning by agrochemicals is the rural farming community. Illiterate farmers, ignorant of the nature of the chemicals they handle, test their mixtures of chemicals by dipping a finger into the mixture and testing it with their tongue. Some use the same vessel, already

used to prepare the chemical mixture, to bathe. Empty chemical cans and bottles are used to store coconut oil and other consumer liquids or even medicine. Agrochemicals are transported along with consumer goods such as rice, flour and sugar in the same vehicles and stored over consumer goods in stores and boutiques. Although legislation regarding the use of pesticides was passed in 1980, the enforcement of the laws has proved difficult and inadequate to control the existing situation.

In 1981, the Committee for the Popularization of Science (CPS) of the Sri Lanka Association for the Advancement of Science (SLAAS) launched a programme to combat the misuse of Agrochemicals. They decided that the proper education of the users, the farmers, by bringing them a simple and effective message regarding correct use would be the most practical approach to solve the growing problem. Instruction to farmers in the usage of pesticides as a part of agricultural extension work had been carried out for several years, but various constraints made it difficult to be sufficiently effective. The CPS therefore decided that another agent, selected from the farming community itself should be utilised to carry the message to the rural areas.

The effectiveness of school children in the communication of messages to peers and parents is being recognised today in many parts of the world. The CPS felt that they would be the best choice as agents of change for development support information transfer particularly at rural level. Students are amenable to training, enthusiastic and idealistic and enjoy a position of confidence among their peers as well as in the village community, which was the ultimate target. Besides, the interaction involved in carrying out

the program would ensure that the liaison achieved between the school and the village community would be an added benefit.

The broad objective of the exercise was to select a group of senior students from schools in each of the predominantly farming, districts in Sri Lanka, equip them with the necessary knowledge regarding the correct use and hazards of the improper use of agrochemicals and to impart to them the communication skills necessary to motivate parents, peers and neighbours in the proper use of these chemicals. Twenty-four rural educational districts in Sri Lanka were selected for the Programme giving preference to underprivileged areas. Schools from each district were requested to nominate five students and one teacher each, to follow the Programme. The students who were drawn from Grades 10 (Ordinary level) to 12 (Advanced level) had to possess a science background and also show a fair degree of communication skills.

A Sub-committee on Agrochemicals drawn from the CPS was appointed in August 1981 to plan, coordinate and monitor the entire programme. The Sub-committee was interdisciplinary in nature, being composed of scientists, engineers, doctors, information scientists, etc. The Committee aimed to cover the farming districts of the entire island during the course of the Programme.

The subject areas covered by the Programme included (a) the nature and use of agrochemicals, (b) their hazards, both environmental and pathological, (c) alternative methods of pest control, (d) safety measures in the handling, storage and transport of agrochemicals and (e) simple principles of communication methodology to enable participants to organise seminars at the village level. The resource personnel were all professionals in the chosen fields and drawn from University staff, Research scientists, Medical specialists, Environmentalists and Plant Protection Officers from the Department of Agriculture. Thus the Sub-committee ensured that the best available human resources were utilised for the project.

The Programme has been carried out in 3 stages:

Stage 1 — A selected batch of about 250 rural students are exposed to a one-day awareness-

creating programme. Lecture/demonstrations, discussions, slide-shows and films are included in the schedule. The Seminar is supported by an exhibition of the safe-use of agrochemicals provided by the major firms dealing with agrochemicals in Sri Lanka. As follow-up to *Stage 1*, the trainees are required to conduct a local survey on the use/misuse of agrochemicals in their villages. A brief report of the survey is a pre-requisite for attendance at Seminars in the next stage of the Programme.

Stage 11 — Smaller groups of 50 to 60 students drawn from *Stage 1* are subjected to a two-day intensive training workshop held at a resident agricultural research institute. The subject matter covered includes the same areas as *Stage 1* but in more detail as well as additional modules on common agricultural pests in Sri Lanka, effects of pesticide use on the soil, practical demonstrations of safety measures and field visits. Instruction in basic communication methodology is included at this stage to enable the students to organise similar seminars to disseminate information at the village level.

Stage 111 — The organisation of seminars at the village level by trainees from *Stage 11* for their peers and the farming community in their respective localities. The trainees are expected to carry out the major part of the planning and execution of *Stage 111* with marginal assistance from the Sub-committee. These seminars were designed to provide a forum for the farmers to discuss freely with the resource personnel about local problems in the usage of agrochemicals and how they might solve them.

The communication technique for the entire project was planned taking into full consideration current attitudes and practices and patterns of behaviour in the local farming community. The typical Sri Lankan farmer has deep-rooted traditional beliefs and values and traditional ways of doing things. Nevertheless in recent years the older generation has exhibited an increasing respect for the new knowledge and skills acquired by the younger generation through expanded and increasingly science oriented curricula in schools. It was envisaged that the effect of directing the message through children would have a far greater impact on their elders and their home

environment than through the occasional visits of agricultural extension officers. It was also felt that the trained students would be more successful in persuading their parents to participate in the village level seminars.

The materials used for the project were planned and developed to be directly relevant to local needs and issues. Emphasis has been laid throughout to use materials and examples that the participants are familiar with. The medium of instruction throughout the programme has been in one of the national languages, Sinhala, and the materials used have been translated from English, when necessary.

Pre- and post-activity questionnaires were served to the trainees at each stage of the project. Based on the feed back received and suggestions made by participants, there has been a constant updating of training materials and techniques. The course content has therefore evolved during the 5-year period into an intensive and practical one, well adapted to local needs and problems. Throughout the project, interpersonal communication was supplemented with a wide range of instructional methods. The traditional lectures were freely illustrated with colour slides. Audio-visual presentations, exhibitions of posters and visual aids, discussions, field visits, practical demonstrations and films were used to reinforce the message and for greater impact. A set of colour slides has been specially prepared for the project by one of the resource personnel (a Research Officer from the Department of Agriculture,) to illustrate the lecture on the correct use of handling and storage, which has proved to be very effective. Although posters were gifted to the Sub-committee by the International Group of National Associations of Manufacturers of Agrochemical Products (GIFAP), they could not be utilized as they depicted situations and images unfamiliar to local farmers. Instead, hand-drawn posters loaned from the Department of Agriculture have been used throughout the project. One of the future objectives of the Sub-committee is to produce posters in the national languages depicting the do's and don'ts of handling pesticides for free distribution to farmers, nationwide.

A video film of the Project was also prepared in April 1986 using funds donated by the British

Council. The film will be shown at future village level seminars. The added entertainment value of using films and videos goes a long way to make the programme interesting and effective in the villages.

Equipment belonging to the SLAAS such as AV equipment, film and slide projectors and a portable recorder are transported in the SLAAS van for all the village-level activities. Technical personnel from the SLAAS are responsible for maintaining and operating the equipment.

Since the programme was launched in 1981, the Committee has organized six *Stage 1* Workshops for approximately 250 participants each. These have been followed by Workshops at the second stage at the Central Agricultural Research Institute. Each group of trainees has organized *Stage 111* Workshops in their respective localities for the farming community.

The Sub-committee members who visited the villages for *Stage 111* Workshops have observed a high degree of confidence in the trained students by their communities. Success is indicated in the village level activities that have been catalysed by the Programme. Farmer participation in *Stage 111* Workshops has proved to be very high. Requests for more seminars have been received by the Sub-committee from other farmer groups, outside the scope of the Programme itself. Although it is difficult to assess the direct benefits of the Programme, the Sub-committee feels that the awareness created among the farmers regarding the hazards and safe use of agrochemicals is a sufficient measure of the success of the programme. The ultimate test would be to investigate whether agrochemicals use has become less harmful, but such figures are difficult to obtain.

The entire programme was planned as part of the science popularization activity of the SLAAS. Apart from the funding obtained from the parent association, inputs to the programme of professional expertise by the members of the Sub-committee have been purely on a voluntary basis. In 1986, the Queen's Silver Jubilee Trust provided funding through the British Council to support the programme for one year.

As an example of a science communication project for rural development, the success of Programme on the Safe Use of Agrochemicals demonstrates a clear and urgent need for such projects in Third World countries such as Sri Lanka. The inexpensive method which utilises interpersonal communication for the transfer of information stands in contrast to the cost effec-

tiveness of the mass media programmes with admittedly more coverage but much less effect on the individual. Examples of such development related problems are plentiful in the Third World, where the availability of simple but essential scientific information can mean the difference between health and disease, life and death.