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**WEDC training programmes in Sri Lanka**

**Dr A P Cotton**

### Summary

This paper describes the format and development of three extended training programmes in water supply, waste disposal and sanitation which have been carried out in Sri Lanka over the period 1981 - 1984. It is concluded that professional training for graduate and senior engineers is best carried out centrally, but that training of supervisors of rural construction schemes should be devolved as far as is possible down to district level to be effective.

#### 1. Introduction

The WEDC Group, based in the Civil Engineering Department of Loughborough University of Technology U.K. has provided three extended training programmes in water supply, waste disposal and sanitation for various agencies in Sri Lanka during the period 1981 - 1984. The main agencies involved have been the National Water Supply and Drainage Board (NWSDB) and the National Housing Development Authority (NHDA). In addition, a considerable number of specialist short courses have been held, and teaching assistance to the University of Sri Lanka, Moratuwa Campus, has been provided.

The main thrust of WEDC training programmes is to relate training to practical needs, and to enable participants to become more proficient in their work. Discussion and practical problem solving have formed an integral part of the programmes; site visits have provided opportunities for specific problems to be discussed and analysed, and for questions regarding design, operation, maintenance and management of systems to be dealt with.

All of the WEDC staff involved have considerable overseas experience, and the on-going nature of the programmes has permitted extremely good relations to be established with the agencies concerned, and has enabled the WEDC staff to build up an invaluable pool of experience of specific local conditions and problems. Staff have visited Sri Lanka for periods of two to four weeks, and during the first two programmes, a resident tutor from WEDC was based in Sri Lanka to coordinate visiting staff.

#### 2. National Water Supply and Drainage Board Programme

Several approaches to the provision of relevant professional training for the graduate engineers employed by the NWSDB have been tried. During the first program in 1981-82, engineers were released for two days each week over a four month period to attend the course at the Board's headquarters in Colombo. The advantage of this "day release" type of system was that the engineers were able to carry out some of their duties during the remainder of the week. Disadvantages included the total duration of four months, with consequent difficulties in maintaining continuity, and the commitment of WEDC staff for such a long continuous period.

The second program was amended to provide a ten week full-time course. This enabled a better degree of continuity to be achieved, but had the significant problem of requiring engineers to be released from all duties for that period.

Both courses were wide ranging, with emphasis being given to those topics highlighted by the senior management of the Board.

Participants were assessed by both coursework and written examination. Apart from the fact that all participants passed the assessment, their overall enthusiasm and good attendance provided a further indicator of the success of the courses. A vital ingredient in this success was the presence of a resident WEDC tutor, who provided continuity for the participants, coordinated the local arrangements and maintained regular contact with the Board and the British Council, who administered the programmes on behalf of the Overseas Development Administration.

Having run two extended, broad-based courses, it was decided that future training needs would be best met by a series of shorter, more specialized courses for selected staff. Three such courses, each of two weeks' duration were run during 1983-84, namely:

1. Operation and maintenance of water treatment plants;

2. Groundwater and drilling;
3. Control of pollution.

The training team from WEDC also included associated non-university specialists having wide experience, which ensured maximum relevance of the courses. As in the previous programmes, site visits and discussion provided a valuable input.

In addition to the training of graduate engineers, a series of short, informal seminars was held for the senior managers of the Board. The subjects covered reflected specific problems and areas of interest of the participants, and were arranged on an informal basis.

### 3. National Housing Development Authority Programme

The NHDA has been responsible for substantial housing programmes throughout Sri Lanka. In its initial programmes, it took overall responsibility for design and construction, whereas in the latest "One Million Houses Programme" launched in late 1983, the NHDA has set out to facilitate the construction of homes by householders themselves. There is a tremendous enthusiasm for this ambitious programme which extends to the provision of safe water supply and adequate sanitation for householders.

NHDA employees are in the main qualified in the area of building, and do not usually have specialist knowledge of water supply or sanitation. Participants included graduate engineers, building inspectors, health inspectors, housing officers and development workers, all of whom are vital for the success of NHDA's work. The approach to the provision of training thus had to be radically different from that at the NWSDB, and in the light of experience, has been considerably modified.

The basic approach has been to carry out seminars on a Regional level, whereby the WEDC staff move from region to region in a "travelling circus". During the first programme, six one-day regional seminars were held; group discussion was used to good effect. However, it was felt that one day was insufficient to have the necessary impact, and in the second programme, two days of site inspection and on-the-spot problem solving followed the seminar. This proved much more satisfactory, and the participants showed more interest and commitment. However, this arrangement was not entirely satisfactory, because up to 40 participants would be present, from all over the region and it was difficult to

sustain interest on the site inspections. It was felt by the WEDC staff involved, that site inspections should be carried out with fewer participants. Thus the third NHDA programme involved a one-day seminar at a Regional centre, after which the site inspections were carried out with separate groups of participants. The following structure was adopted in each Region:

1. At each centre, the formal one day teaching seminar was complemented by site visits on the following days to housing schemes constructed by NHDA.
2. The taught component covered aspects of water supply and sanitation which related specifically to the region concerned. For example, in Anuradhapura, water supplies from groundwater sources only were considered, whereas in Badulla emphasis was placed on surface water sources for those working in the hill country.
3. An important and successful feature of the taught seminars was the direct involvement of the participants; formal lecturing was kept to a bare minimum, whilst the participants discussed problems and their solutions in small working groups. This technique stimulated much interesting and relevant discussion; language problems were minimized, because the discussion could take place in the local language, although it was ensured that at least one competent English speaker was placed in each group to report back on the results of the discussion.
4. Subsequent site visits served to emphasize and highlight certain problems and solutions which had been raised during the taught component of the seminar, thus increasing the awareness of the participants.
5. For the site visits, participants were split into two groups; the staff then accompanied each group in turn on a series of site visits, in order to inspect sites in the districts in which participants worked. This avoided the lack of interest which can arise if the sites being inspected are totally dissimilar from those concerning some of the participants.

An interesting difficulty arose relating to the ideas on low cost sanitation. During the many site inspections, severe problems were found with the much-heralded alternating double pit pour flush latrine. Many of the participants did not fully understand the way in which the latrine works, and the majority of householders interviewed did not appreciate the necessity for pit emptying. The simpler

single deep pit latrine seemed to work very well.

The NHDA have a standard design for the twin pit latrine which is to be used on their housing schemes; however, direct criticism of this latrine was avoided at all costs because it was felt that such criticism of what may have been a matter of policy would be potentially damaging and negative. At all times a positive approach was maintained, emphasizing the vital constructional details, and the great care which had to be taken to ensure that the householders would use and maintain such latrines. The responsibility of such training programmes is to be supportive, and at all times to work from within the organization, and to avoid adopting a stance of being highly critical "in public" from outwith. The third programme proved to be the most successful, largely due to dealing with problems almost at District level, thereby enabling participants to relate to similar problems which they had themselves encountered.

#### 4. Specialist Courses

Throughout the three programmes, many specialist short courses of up to several days duration have been held; they have proved popular, and an encouraging feature has been the number of participants from a wide variety of state and para-Government organizations and private industry.

Such courses can be arranged at relatively short notice, to fit in with the demands on the visiting staff. An important feature of these courses has been the bringing together of participants from different organizations and companies who may have similar problems to deal with.

Table 1 indicates some of the courses which have been run.

#### 5. Conclusions

5.1 It is appropriate to provide training for graduate engineers centrally at the headquarters of the NWSDB. Subsequent to broad-based courses, shorter courses covering more specialist topics for selected staff are relevant.

5.2 In dealing with the wide range of backgrounds of the NHDA staff, decentralizing seminars down to District level has produced the most successful results. At this level, participants can appreciate the relevance of the seminars and site inspections in relation to their own specific problems.

5.3 Short courses on specialist topics have continued to attract a wide and enthusiastic audience.

5.4 The on-going relationship between WEDC and Sri Lanka has made the training programmes successively more worthwhile. Staff have become increasingly familiar with local conditions, and are able to use a wide variety of local case studies and anecdotes in the training programmes.

5.5 The wide variety of courses within an overall programme has enabled a large coverage of participants to be achieved (Table 1).

#### 6. Acknowledgements

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NHDA		NWSDB		SPECIALIST SHORT COURSES	
Programme 1 1981-82	Six regional centres	Junior	17	Solid Waste Management	14
	190	Senior	8	Groundwater	10
				Water Analysis	29
				Industrial Wastewater	42
				Low cost sanitation	26
				Canal Pollution	13
				[Also: resistivity; septic tanks; isotope techniques]	
Programme 2 1982-83	Five regional centres	Junior	15	Industrial water supply	40
	175	Senior	8	Water pollution	10
				Sewer safety	15
Programme 3 1983-84	Four regional centres	Operation and maintenance	18	Water pollution monitoring	47
	145	Groundwater drilling	18		
		Regional Managers Course	10		
		Pollution control	22		
Totals	510		116		246
				<u>GRAND TOTAL</u>	<u>872</u>

Table 1 Number of participants attending WEDC Training Programmes in Sri Lanka