

## EDUCATION & TRAINING REVIEW

### Original Brief

- 1 Examine current education and training needs regarding Urban Hydrology and in particular The Wallingford Procedure.
- 2 Update proposals regarding future development of education and training initiatives.
- 3 Contact professional bodies to establish the legitimacy of Urban Hydrology for the purposes of achieving professional status.

### Needs

Education and training needs can be split into two distinct areas; (a) industry's requirements and (b) the individual's needs.

- a) Since privatisation of the water industry the demand for skilled Urban Hydrologists/drainage planners has increased and brought to light a deficiency in this area. The industry will therefore require suitably accredited training schemes of a known standard through which they can develop the skills in their personnel.
- b) To date individuals attending in-company and external training courses have had little opportunity to accumulate credits for the formal knowledge or experience gained for the purposes of acquiring a nationally recognised academic or professional award. There is therefore a very real need to fulfil the personal aspirations of the individual with respect to attaining such academic achievement, and enhancing their career prospects.

### Proposals

It is proposed to establish a framework of education and training modules which can accumulate credits towards nationally recognised academic awards such as Post-graduate Diplomas and Master's Degrees. The extent of the modular approach can be seen in figure 1. In order to make the system as flexible as possible a range of learning methods will be used which would include courses at various regional centres, open (distance) learning, and residential courses.

The line diagram in the figure indicates lines of progression through the various training routes. Each module would accumulate a fixed number of credit points. Some of the areas of study are 2 modules in length as indicated in the figure. For each module the necessary pre-requisite knowledge and prior learning would be identified. This could be met either by studying the previous units of a particular line in the diagram or by prior experience or other learning in these areas. An

indication would also be given of possible routes leading on from a particular module.

Three levels of study will be identified:

Under-graduate level

Post-graduate Diploma level

Masters level

To study for a Post-graduate Diploma the students would have to study four modules.

For a Masters award students would study a further four modules and undertake a final module of an integrated project which could take place in the work environment.

The scheme would require validation by an appropriate academic establishment who would be responsible for quality assurance of the scheme and would make available open learning modules to users and would franchise any taught modules to appropriate regional centres and employers.

Three methods of learning are anticipated:

- a) Open learning where students can study specially prepared packages by themselves.
- b) In-company training where the responsibility for the delivery would rest with the employer
- c) Specialist courses provided at regional training centres.

The appropriate use of a particular method of learning would depend on the level and content of the module. In all cases quality control would be the responsibility of the franchising organisation. In addition to leading to Post Graduate awards the scheme could be linked to accredited professional development leading to corporate membership of a professional body.

### Developments

The scheme proposed is ambitious and would need to be divided into phases for development. A suggested phased development is indicated in the figure. Because of the high cost of developing open learning packages and learning material which is to be franchised out and operated by a series of regional training centres and employers, it would be necessary to secure an adequate level of funding for the development. In the longer term much of this funding could be recovered by charging appropriate fees for the modules. A number of options will therefore be proposed for managing subsequent development (see below).

However the development is carried forward it is important that representatives of potential users are involved in the management and development of the programme. It is therefore recommended that the development and initial operation is overseen by an appropriate management group.

### The Next Step

The various issues which now need to be addressed can be summarised as follows:

- a) Is the modular structure as set-out appropriate?
- b) Are the relative levels appropriate/correct?
- c) Have the most appropriate methods of learning for individual modules been identified?
- d) What is the best way to organise and finance the proposal?

#### Options

- i) Single sponsor  
for: Good accountability and responsibility  
sharpens commitment  
against: Could be impractical and monopolistic  
Single ownership may not be widely acceptable.
  - ii) Club (Recommended option)  
for: Shares costs  
Widely acceptable.  
Ensure wider, more diverse approach in development  
against: Will require lead organisation for management  
Possible difficulties in managing return on investment
  - iii) Specialist Company  
as for Club but also  
for: Possible ability to borrow money.  
against: Unnecessarily complex and bureaucratic
- e) If the Club option is chosen, who should be approached for Club membership?

#### Suggestions

Water Plcs  
Regional Councils  
D of E N Ireland  
H R Wallingford  
Water Training International  
Higher Educational Establishment(s)  
Watson Hawksley  
Frank Graham & Partners

f) What are the costs for development of the proposal and is it commercially viable?

g) What is an appropriate timescale and programme?

Set up organisational structure - Summer 1991  
Development of Phase 1, 5 modules - Summer 1992  
(12 months)  
Development of Phase 2, 4 modules - Summer 1993  
(12 months)  
Validation for Post-graduate Diploma by Summer 1993

h) How would the scheme fit in with EEC developments such as those under COMETT, TECHWARE, and STEP?

Paper 5 : Educations and Training (Professor D Balmforth  
Sheffield City Polytechnic)

D Wright (Applied Research) : First of all congratulations on undertaking this initiative, it is pleasing to see the Committee react to issues raised from the floor. I would point out that the area you have described is not the only area within the Water Industry that needs this approach. Who would be the nationally recognised body who would accredit - professional, academic or industrial?

Answer: I take your point about other areas but we had to start somewhere - we feel we have built in the flexibility to broaden out. The three bodies you mention need not be mutually exclusive, e.g. accreditation could be both an academic and professional qualification.

J Payne (HRL) : I feel River Impact modelling and Water Quality assessment needs incorporating into your framework.

Answer: Agreed, we shall accommodate this.

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Delegate (Wallace Evans) : The Open University undertake courses on Environmental Management which would lead in nicely to the envisaged structure.

Answer: The Open University has some very good material - will include.

.....  
M Osborne (HRL) : Your framework address sewer systems - what about the treatment works?

Answer: Yes, we will include.

.....  
J High (Wolverhampton) : I am a member of the CHAT User's Group, and we would like to be included.

Answer: Agreed.

.....  
D Walters (M W Barber & Co.) : The proposals outlined are very much along the lines of what I sought at the Blackpool meeting, though they are far more ambitious than I envisaged. Are the proposals possible?

D Balmforth (Sheffield City Polytechnic) : The sub-committee believe it is possible, however it must be approached in the phased manner as outlined. Phase 1 is a relatively small step and should be a good indicator for future work. Assistance with funding will be sought from the EEC.

R Moore (Welsh Water) : Are there similar courses in Europe to those being proposed in this paper?

Answer: There are European training schemes starting and we will link/coordinate with them.