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Sanitation in Developing Countries

Proceedings of a workshop on training held in Lobatse, Botswana, 14–20 August 1980

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Botswana Polytechnic and its Involvement in the Teaching of Sanitation

J.E. Attew

The Polytechnic

The Botswana Polytechnic is located in Gaborone, the capital of Botswana. It is probably the youngest Polytechnic in Africa, having evolved in 1979 from the National Centre for Vocational Training. It consists of three departments: electrical engineering (50 students), mechanical engineering (100 students), and civil engineering (100 students). City and Guilds courses are used throughout, as well as specialist short courses designed to suit the requirements of industry. The majority of the City and Guilds courses are specifically written for the overseas countries in which they are normally offered, and they include local practical training within the syllabus.

There are 250 full-time students in residence within hostels at the Polytechnic. Being the only such establishment in Botswana, students attend from towns and villages throughout the country.

The academic staff number 35, made up of 20 expatriates and 15 local counterparts. A sincere effort is being made to use local teachers but an aversion to teaching seems to prevail within the people of Botswana. This is due to the fact that with the proper qualifications, more money can be obtained in the private sector and in the past, personnel attending overseas upgrading courses have been lost to the private sector upon their graduation.

The Courses

The courses currently offered are at the craft and technician levels, but in the future, only technician and higher-level courses will be offered. There is no strict academic year and courses commence as and when staff and resources become available. The constraining factor on the expansion of courses is the scarcity of trained manpower, i.e., qualified lecturers.

The specified entry qualifications are Form 3 (3 years of secondary school education) for entry to craft courses and Form 5 (5 years of secondary school education), with a General Certificate of Education (GCE) "O" level pass in mathematics, science, and English, for the technician courses.

Over the last few years, these standards have risen and it is now common to find craft students who have completed Form 5.

When a new course is about to commence, a notice is placed in the Daily News stating the nature of the course and when applicants may attend the Polytechnic for an interview. Generally, about 75 applicants arrive to be interviewed for the 16 available places in any particular course. (Sixteen is the maximum number of students that can safely be accommodated in the workshop areas.) Because interest is high, it is crucial that more courses be started and more places be made available for enrollment in the courses, thereby satisfying the need for technical education advancement in Botswana.

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Education in Sanitation

Although the importance of teaching about sanitation systems is appreciated, only three courses are currently offered that deal with this subject.

Plumbing Craft Certificate

The course leading to a Plumbing Craft Certificate is a 2 year, full-time course of study whose syllabus is specifically designed for overseas countries. It includes the writing of two theory papers, one of which is written in Botswana and includes questions on local practices.

Blocklaying, Bricklaying, and Concreting Craft Certificate

This is a 2 year, full-time course of study, again specifically designed for overseas countries, but in this instance, the opportunity to receive local practical training is not offered, the argument being that in this discipline tropical practices are similar worldwide.

Construction Technician's Certificate

This course takes 3 years to complete. The first year is spent in full-time attendance at the Polytechnic, at the end of which a series of examinations are taken. The second year is spent in industry, working with the organization that is sponsoring the student to attend the course. The final year is again spent in attendance at the Polytechnic. At the end of the third year, final examinations are taken.

The syllabus is not written specifically for overseas countries but City and Guilds are in the process of revising the course to make it more suitable for use in developing countries. This course is no longer available in the United Kingdom, having been replaced by Technical Education Council courses.

Conclusions

Current sanitation studies are concerned with modern waterborne systems of disposal instead of addressing the real need for rural, low-cost sanitation systems. The City and Guilds, however, are very flexible and are willing to accept recommendations from developing countries for curriculum modifications.

The need for training in low-cost sanitation systems at the Botswana Polytechnic is very apparent and advice will be taken as to the most effective way of improving the situation. It is recommended that thought should be given to the commencement of a certificate course in public health engineering that could be made available to successful construction technician students.