

Honing Skills Of Engineering Students

Asif Khan

A group of environmental engineers in Tanzania have been studying the problem of flooding of roads during the rainy season. The floods disrupt local life and traffic, besides causing damage to the road surface. Any water left behind to stagnate is breeding ground for mosquitoes.

The engineers examined the drainage systems and, armed with a questionnaire, talked to people living in the affected areas to determine the extent of the problem and to suggest corrective measures.

The main purpose of the exercise was to learn lessons for future road building programmes and to avoid the kind of problems caused by flooding on existing roads.

In another study, they investigated environmental impact of disposal of solid waste on a dumpsite, on surface and underground water sources and on soil.

The investigators were from the Department of Environmental Engineering, Ardhi Institute, in the capital Dar es Salaam.

The institute negotiated the projects as part of a consultancy service it was providing to the Japanese International Co-operation Agency.

The guiding spirit behind the surveys was Professor Shashi Kumar Gupta, a Commonwealth expert who is head of the Department of Environmental Engineering of the institute.

Environmental Engineering (EE) involves preventive and corrective measures in the management of air, water and land. Among other things, it covers transportation, purification of drinking water and handling and treatment of waste materials to and from human settlements and industrial and agricultural activities.

Ardhi Institute was created by the Tanzanian government as a seat of

higher learning, specialising in courses in land related and land based subjects.

The only educational body of its kind in East Africa, it attracts students from Tanzania and also from other African countries.

Prof. Gupta, 48, from India, previously taught at University Sains Malaysia in Malaysia. He is in Tanzania under the auspices of the Commonwealth Fund for Technical Cooperation (CFTC), the Commonwealth's own development agency.

His services were provided to Ardhi through the Commonwealth Secretariat's General Technical Assistance Services Division headed by Mr. Seth Barnor of Ghana.

Prof. Gupta, educated in India and Britain with a brilliant academic record, brought wide experience in industry and teaching to the institute.

Before leaving for Malaysia, he was in charge of pollution control in a leading rubber tyre manufacturing company in northern India. Earlier, he was professor of civil (environmental) engineering at a technical college in Iraq.

He began his CFTC assignment at Ardhi in December 1992 since when he has contributed to a wide range of its activities, besides teaching and guiding research.

He has overseen the planning and establishment of a modern pollution control laboratory where students receive practical training and which is also used for research and consultancy work.

He has conducted workshops and seminars and contributed to the improvement and development of curriculum and training which lays emphasis on project-based teaching. Training junior faculty members in practical work has been another important activity.

He is supervising Mr. Shaban

Mgana, a senior lecturer in EEC working for his doctorate whose research concerns low cost treatment of domestic waste water. Prof. Gupta has also helped other staff members with their research and Ph.D proposals for sponsoring agencies.

He has provided support for upgrading the institute, to be renamed Ardhi University College of Lands and Architecture next month (Editors: July) when it will become an affiliated college of the University of Dar es Salaam.

He has collaborated with outside agencies concerned with environmental issues to publicise the institute's training programmes and its enhanced capabilities in research and consultancy work.

There has been a growing demand for its consultancy services from local industries anxious to do their bit for the environment as well as from research organisations and regulatory bodies.

Fees earned through this service help augment the institute's income and cut its reliance on grants from the government and donors.

Student's participation in consultancy work provides them with a welcome source of income. It broadens their horizons and gives them an opportunity to gain practical experience.

And, as a Prof. Gupta points out, it hones their communication skills and builds their confidence as they have to deal with the outside world.

"Communication skills are very important for environmental engineers, especially because they have to convince politicians and others to allocate funds for projects," he said.

"Our training is broad-based; we want our students to gain as many skills as possible before they leave us. We want our engineers to be generalists as well as specialists so

that they can be more useful to society."

Tanzania was fast developing industrially, said Prof. Gupta, who is participating in the development of national discharge standards at the invitation of the Tanzanian government.

"The government welcomes industrial expansion, but is anxious that any adverse affects are kept to a minimum. So there is pressure on the industries to adopt sound environmental policies."

He was also invited by the Dar es Salaam city council to chair a working group on industrial effluent pollution control as part of a sustainable development project of the United Nations Development Programme.

He initiated through the group a detailed study on four major industries reckoned to cause the most pollution in this city of nearly three million.

These include textiles, with their effluents such as colours, lead and zinc based dyes, and dairies which release oily and other fatty substances into the environment.

The study's findings will be included in a report to be considered by a Swedish agency likely to fund the project.

Prof. Gupta is one of some 200 CFTC experts engaged in a wide variety of fields throughout the developing Commonwealth. Most of the experts themselves come from developing nations.

The CFTC maintains a roster of potential experts to meet requests for assistance from governments. It welcomes applications from well-qualified and experienced Commonwealth citizens for inclusion in the roster, especially women.

— Commonwealth Feature