ENVIRONMENTAL EDUCATION

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Environmental Education may be defined as the type of education which is relevant and meaningful to environmental conditions. It is the type of education which takes into account the economical, social and cultural aspects of its society. It is geared to solve day-to-day social problems. It is dynamic education changing with time and ideal to national aspirations.

Several fields of the Tanzanian educational system have made advancement towards Environmental Education. The syllabuses have been adjusted to include the fundamental principles of the subjects and accommodate the environmental aspects of the Tanzanian Society. History, for example, pays more attention to Ujamaa Village and dwells less on Voyages of Vasco da Gama and the so called discoveries of Krapf and Rebman. Political education looks more into the African Liberation course and pays less attention to the British monarchy and its parliamentary set up. Science has adopted modern mathematics which is more suitable to developing Tanzania. Geography is laying more emphasis on East African crop orientation than sheep rearing in New Zealand and cotton farming in United States of America. Economics would now take keen interest in cost relationship between raw materials from third world and the manufactured goods from developed countries, and less interest in economic development on the basis of foreign investment. Even medicine has intention to look into local shrubs in an attempt to minimize typical environmental diseases.

Technical education has made no significant movement in this respect. The syllabuses in use today are not very different from those used in colonial times. Only the cover sheets of the syllabuses bear new Tanzanian titles but the material content remains unchanged. The syllabuses used in our technical institutions are a copy of those used in the pre-independence colonial power. As there is remarkable social, economic and industrial differences between colonial Britain and developing Tanzania, our technical education is therefore not very relevant to our industrial demand as it is adopted on a base other than the Tanzanian environment. The syllabuses are often superficial and usually concentrate on high technology which has no resembleness to our day-to-day social problems. There is often less technical practice during course-work. The courses are, in general, not relevant to our environmental conditions.

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This state of affairs has negative influence on the technical and economic growth of our nation. It is the cause of training frustrations, industrial unrest and low production. Our Technical College in Dar es Salaam, for example, is having regular problems concerning their courses. The source of trouble lies in the type of curriculums they are using. Their syllabuses have not been rooted into the Tanzanian political and economic structure. Graduating technicians often run into frustrations as their training does not resemble the national industrial undertakings. They would not usually find working conditions pertaining to their courses and would take too long to adjust themselves with the new working conditions before they become productive. Construction firms suffer from technical manpower deficiency. Several of our commercial institutions such as UDA record low production because of lack of skilled technical manpower. As we are having several technical institutions the manpower problem should not have been so crucial. The deficiency has been magnified because of the non-Environmental Education being offered in our technical institutions.

To adopt Environmental Education does not necessarily mean to lower the present standard of education. It simply means to adjust our educational system to focus towards the Tanzanian socio-economic problems. It means that our politico-economic ideology will govern the nature of our school curriculums. It means that emphasis should be laid on the current day-to-day problems of our society. It means that the training institutions should produce experts who would effectively meet our technical demand and readily be absorbed into our industrial structure. It means that we have to redefine the duties of our technical personnel and make them more relevant and meaningful to Tanzania.

A number of projects have been carried out on individual initiatives which show sense of direction towards Environmental Education. In nineteen sixties, Ifunda Technical School engaged itself in making ploughs and other farm implements. The school played an outstanding roll in modernisation and intensification on farming in Iringa. In other words the school was a prominent tool for the development struggle of the people living around it. In 1973, a man serving prison sentence, invented a machine for pearling nuts. Though small and simple, the machine can be of great help to the common farmer of Tanzania if modified and put to use on a large scale. The prisons are today producing various designs of cloth from a very simple hand-weaving machine. This machine is cheap and easy to maintain. It can be afforded by many people of our society. The machine could be more meaningful to the common Tanzanian than the sophiscated machines at the textile mills. Early this year our news papers carried news and photographs of the experiments on irrigation being done using bamboo pipes by the Reginal Water Engineer in Mwanza. Work is still going on and it is difficult to predict the success of the project. Nevertheless this is another venture which shows creative thinking and environmental understanding.

Recently there has been the stimulating story about the production of gas from cow dung. Should the experiments go successfully, this will be a step further in the modernisation process of the common man. The above mentioned examples are very simple technical operations in relation to the science and technology of our modern times. But they are important because they spring from the actual needs of the Tanzanian society. They are cheap to run and can be afforded by many of our citizens.

There are several areas which require immediate attention. The majority of our people in the rural sector have moved into Ujamaa Villages and it is hoped that by the end of next year the entire population will be living in collective communities. This would call for a high degree of healthy conditions. Public Health Engineering should thus become an important subject in all school curriculums. The subject could easily be adopted in our technical institutions where emphasis could be laid on plumbing, waste disposal, water treatment and distribution. There is this question of irrigational farming to intensify agricultural production. Again, this could be a compulsory subject in our technical institutions and introduce the students to the principles of bore drilling, water supply and irrigational techniques. A directive has been spelled out on the use of burnt bricks and tiles for all building purposes. To effect this call it means that the people should be taught how to mould and burn bricks and tiles in the required standards. Technical students and personnel would have been of great help to transmit the necessary skill to the masses if they themselves were taught how to do it at school. When dissolving Parliament, in July 1975, our President, an all round teacher, directed that we should evolve our thinking and try to be realistic in our economic planning. We should now incline towards the use of locally made equipments which are usually cheap and easy to maintain. He suggested that we should, for example, opt for the use of ox-driven carts to transport harvest from farms instead of relying on lorries. This means that cart-making should be taught throughout the country to enable the peasants to acquire these carts without much economic strain. Technical institutions along with Small Industries Development Organization (SIDO) could play a decisive roll in this respect if only our technical education was moving with time. A lot more can be added to this list but it would suffice to say that our technical education ought to be reformed to merge with national objectives.

Environmental Education requires that curriculum developers to be aware of national priorities at any given time so that the syllabuses are geared towards the right direction. In Civil Engineering, for instance, emphasis should be laid on the various types of construction such as roads, buildings, bridges, woodwork etc. These are the areas of high technical manpower demand at our present stage of development. Motor vehicle repair and welding are the other fields of high demand in Mechanical Engineering. And wiring installation and electrical repair are similar areas in Electrical Engineering. Our syllabuses should likewise put more stress, in terms of theory and practice, on these fields of high demand in order to offer better service and increase production.

It would be worthwhile to learn from other countries which had conditions similar to ours. China, for example, with a quarter of the world population is managing to feed, cloth and shelter her population without foreign assistance. She has been moving at a very fast pace in the fields of Construction and National Development. The success is attributed to their evolution of education which placed great emphasis on training environmental technicians. West Germany is another good example. After World War II, the country had been reduced to scraps. In less than thirty years, Germany is another aspiring world power. This is because of the environmental education they adopted which emphasized on training skilled manpower strictly for service in Germany. The training curriculums were established upon German post-war problems. Similar countries are Romania, Yugoslavia, Scandinavian countries, etc.

There are several problems in the whole question of environmental education in Tanzania. Since Tanzania is a developing country, our problems are "smaller" compared to those in developed countries. These problems usually require practical skills, say, in building construction, motor vehicle repair, electrical installation etc. Many of our teachers in the technical institutions are not practically oriented. They therefore find it difficult to induce the relevant practical skills into the students and thus make the whole idea of environmental education a sounding dream. With proper planning and coordination, these teachers could still acquire the desired practical skills if they were to undertake vocational apprenticeship in relevant factories and engineering workshops. This system would equip the teachers with the missing techniques and keep them up to date with modern technology.

There is a lack of vertical coordination between our technical institutions. You would find, for instance, the syllabus for a subject like surveying in Technical Secondary Schools almost congruent to that for technician course at Technical College and very much similar to the one taken at the Faculty of Engineering, University of Dar es Salaam. As a result students experience constant repetition of the same stuff and eventually grow bored of the subject. On the other hand we are wasting people's money to maintain a student at school/college when he is learning nothing new! With proper curriculum coordination of technical schools and college much time would be saved and spent on areas of environmental studies.

Again, there are these problems which are caused by the examining system currently in use. The National Examination council offers examinations in theory paper only at the end of the duration of the course. Practical skills are not tested. This phenomenon introduces two basic problems. One is that both students and teachers pay more attention to theory work and tend to ignore technical practice because it does not count in the final examinations. The other is that it is not easy to amalgamate environmental studies in the normal school curriculum. To overcome these problems practical assessment on the basis of day-to-day performance should form part of the student's final examinations.

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