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## 'UNIVERSITY REPORT'

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**GWYNETH HENDERSON:** In this week's 'University Report' some fascinating insight into the problems of developing a modern agriculture in Ghana - and engineering in Sierra Leone.

I wonder why it is that the educational systems - both at school and university level - instituted in Africa by all the colonial powers should have produced quite such a preponderance of people trained in the arts. Well I don't know the answer to that - but I know that all African countries are still suffering from the results - both because there are simply far too few African engineers, agriculturists and so-on, and also because, in many instances students are so conditioned by the arts tradition that they just don't consider the applied sciences when they are deciding on what to study at university. Consequently, of course, many countries rely very largely still on expatriate expertise - and apart from the political and economic reasons Africanisation is of course very desirable in terms of an appropriate African-oriented training.

In Sierra Leone a member of staff in the Department of Engineering at Fourah Bay College has recently started a research project aimed at improving the current situation there. His research is specifically looking into the training and employment of Sierra Leonean engineers over the past fifty years - and the aim is to make sure in the future that students are given the right training in the right fields of engineering - and the right employment. The man who's doing the research is senior lecturer Mr. S. Burnei-Nicol - and in Freetown Roland Buck spoke to him about his work. Roland asked Mr. Burnei-Nicol first whether Sierra Leone was now producing the right type of engineer - the right proportions of civil to electrical to mechanical and so-on.

**MR. BURNEI-NICOL:** Well, I would say there is an abundance of civil engineers, and this is due to the fact that the first set of Sierra Leonean engineers that came out were mainly civil engineers. If I remember rightly there were about six of them and four were civil engineers. We had two electrical engineers, and it was much later that the first mechanical engineer, I mean Sierra Leonean, came out. Therefore this trend has continued, so that even now you have more people going in for civil engineering than for the other types of engineering. If we divide engineering into three groups - civil, mechanical and electrical, we can see there are more civil engineers than the other two put together.

ROLAND BUCK: Mr. Burnei-Nicol, what is the role of the University of Sierra Leone in the training of engineers necessary for development role in Sierra Leone?

MR. BURNEI-NICOL: Well at the moment the Department of Engineering in the University is only about ten years old but it has turned out, I would say, something near twenty engineers who are working in the country. They are mainly concerned with certain ministries, like the Ministry of Works, and the Ministry of Transport. So I think it is essential that this department is developed to be able to go into the other branches of engineering, because mining for instance, is not done at the college and we have a lot of vacancies for mining engineers, or marine engineers. At the moment we concentrate on the basic engineerings - branches - civil, mechanical and electrical

ROLAND BUCK: Mr. Burnei-Nicol, based on the results you've obtained so far on this research project, can you say that Sierra Leone has offered her engineers the training and employment they require and is necessary?

MR. BURNEI-NICOL: No. I would say that we are trying to give them as much as possible, but it is not what they require. We give them the basic engineering knowledge and when they go out into industry, they acquire what is necessary to make them an engineer. There is that school of thought which says you cannot train an engineer in a university. He gets the basic fundamentals in the university, and we need a liaison between industry and the university to make the engineers.

ROLAND BUCK: Finally Mr. Burnei-Nicol, what are the results you have obtained so far, and what are the benefits to the university, Sierra Leone engineers, and Sierra Leone as a whole?

MR. BURNEI-NICOL: Yes, well so far what we could see is that there were certain branches of engineering that were occupied in the 40's and 30's that helped to develop Sierra Leone and in the 50's these branches were neglected, and because of that we don't have people interested in those branches even though they are essential. For instance, the irrigation and drainage engineering that was practised in the Agriculture Department is not longer in use, and for a country like Sierra Leone, I think agriculture needs irrigation and drainage. And we also see something like civil aviation, which was occupied by Europeans - now we need to train Africans to take over these positions, rather than leave them vacant. So from the details I have got, I think one could recommend that some of these branches, even if we don't have training facilities in Sierra Leone, we should be able to send people abroad for specific training, and when they come back, they can do the work to help develop the country.

GWYNETH HENDERSON: Planning for the future in engineering in Sierra Leone Mr. S. Burnei-Nicol, senior lecturer in the Department of Engineering at Fourah Bay College, the University of Sierra Leone, and he was talking there to Roland Puck.

And still on planning for development but now in agriculture. Now nobody denies the importance of - or necessity for - agriculture to shift from subsistence farming, to growing crops for sale - i.e. to a cash crop economy, but this change (now happening rapidly all over the continent) has brought with it many sociological problems. One of the most important of these in many places is the problem of who actually owns the land - and how the new methods of larger scale farming are affecting and have affected traditional patterns of land tenure!

Well Mr. Isaac Ofori - a research fellow in the Institute of Statistical, Social and Economic research at the University of Ghana, Legon, has been studying just this. He describes the traditional pattern of tenure in Ghana as communal - but says now that several new patterns have, and are, emerging.

In Accra, Christine Oppong, talked to Mr. Ofori for us and first she asked him what are the major ways in which traditional methods of land tenure and land use have been changing.

MR. ISAAC OFORI: The first major way is in the question of who owns land. Originally in the communal tenures ownership of land was strictly in the hands of the communities or the clans. As a result of the introduction of cocoa into this country roundabout 1870-79 people who don't belong to the clan or the tribe have been able now to enter agriculture. I mean that this is the first change which has come on. Of course following the introduction of cocoa a lot of other forms of changes - formerly one could not sell land, but now land is sold in places and there have been all types of arrangements for the sharing of the produce from the land as a result of these changes.

CHRISTINE OPPONG: What are some of these forms of sharing the produce from the land which you have mentioned?

MR. ISAAC OFORI: There is, for example, what we call the abusua system. Now the abusua system is a formula for dividing the produce from the land. In some areas, depending on whether the landlord made the farm before he gave it to the tenant, the produce is divided into three: the landlord taking one, and the tenant taking two parts. In other places the ratio is reversed, the landlord taking two and the tenant taking one. Then there is the abonu system, the abonu system is a division into two, in that case the landlord hires the tenants to make the farm and at the end of the farm, when the fruits are ready, the farm itself, not only the produce, is divided into two. The landlord takes one and the tenant takes the other half.

CHRISTINE OPPONG: In what ways are the many different systems of land tenure facilitating or on the other hand restraining the development of a modern agriculture.

MR. ISAAC OFORI: Well, agriculture, as you would know, Mrs. Oppong, is practised not only in the in the technological plane, but also in an institutional framework. Now tenure systems generally must satisfy certain requirements. Whoever is working the land must feel secure. Whoever is working the land must feel that the formula for dividing the produce is not against him. Therefore these problems of security of tenure and fixative of rent and fair compensation sometimes are vital. Now, in our tenure systems, what we are looking at now, is to see whether these present arrangements for sharing the produce from the farm give enough incentive both to the tenant and to the landlord, both whom have contributions to make. One will have to make the inputs, there are perhaps more of the durable inputs, one may have to make more of the variable inputs. Now all these are matters which have got to be looked at in the light of modern economic development of agriculture.

CHRISTINE OPPONG: Have you any results on hand from your own researches which you could mention to us at this point which might throw light upon some of these problems?

MR. ISAAC OFORI: Yes. As a result of our researches in traditional agriculture I have now been able to discover that the amount of payments, what I call amounts you pay to enter the income stream in agriculture vary from region to region in Ghana. In some places one only pays about twenty cedis to enter the land, whereas in other places one can pay as much as fifty cedis plus a whole host of other things, calico, umbrella, schnaps. Now all these become part of the cost of entry into agriculture and the idea now is to make sure to examine and see whether these are too much, whether the system is well loaded enough wherever it is being practised and whether there is a need to have a look at devising any new ways of entry into the income stream by agriculture.

CHRISTINE OPPONG: What kind of developments do you foresee taking place in the near future?

MR. ISAAC OFORI: I foresee development which will be in the direction of whether we have to continue to combine ownership of land and the management and the use of land. Now this in my view is going to be one of the very interesting developments in all parts of the world. Normally in discussing this problem people think that it either has to be a communal type of tenure or an individualisation of tenure. Now, in a rural country like Ghana, where the land has formed quite a great part in the social fabric of society, one would not see individualisation of titles coming to the front. On the other hand, one will see now as a result of the metamorphose which are coming into the tenure systems, the development of the land still being retained in the ownership of the

MR. ISAAC OFORI: traditional rulers and the clans, but the management of the use rights of this land might be transferred to either a lands commission, or some other body quite separate from the legal owners of the land. And I must say that now that Ghana is making great efforts, the governments plan of rural development when we are trying very hard to get people to go to the land, this kind of change, where people would not be prevented from land, simply because they don't belong to the clan, would be a very useful one, because it would make it easy for people who are interested in agriculture to enter land and farm and be able to make a living and increase the productivity of Ghana's agriculture.

GWYNETH HENDERSON: More food and money for development in Ghana - Mr. Isaac Ofori, research fellow in the Institute of Statistical Social and Economic Research was talking there to Christine Oppong. And so to the end of another 'University Report'.

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