

SOME REFLECTIONS ON TECHNOLOGY TRANSFER AND UNIVERSITIES IN DEVELOPING COUNTRIES: WITH REFERENCE TO SRI LANKA

by

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Universities in developing countries are under pressure both from their governments as well as from the general public to satisfy several equally vital requirements at the same time often causing problems of priority. They are expected to reach the highest standards of academic excellence in keeping with the traditions of the university and also admit as many students as possible in order to cater to the educational needs and aspirations of the younger generation. On the other hand, the university has the responsibility to provide the output both in research and development as well as in manpower, needed for the economic growth and development of the society. Often, in a situation where financial as well as human resources for universities are scarce, universities in developing countries attempting to satisfy all these demands, subsequently fail to achieve the long term development objectives of the institutions and become mere 'degree factories.'

Developing countries fall into different categories according to their levels of socio-economic growth and development. As far as universities are concerned, there are the oil rich developing countries where handsome remuneration attract better academics from all parts of the world; then, there are those countries that pay good salaries in spite of economic difficulties and attract staff from the first world as well as from other developing countries and finally, there are the poor developing countries which are unable to pay high local salaries and are therefore not in a position even to attract some of their own academics. India though a poor developing country, is in an exceptional position having well staffed centres of excellence scattered around the country, thanks to the far sighted planning of their post independence leaders. What has been stated for staffing applies equally to infrastructural facilities and other resources.

In the case of Sri Lanka, university salaries were sufficient to attract some of the Indian academics up to a decade ago, but not any more. The only way we could attract any foreign academic who is worthy of being accepted is through an aid programme. Even then, we are often forced into accepting a mediocre academic for want of a better person. No academic with a good research background and presently active in his field, would want to be "academically stranded" in Sri Lanka for a long period. There are

exceptions to this rule. Someone who has a particular research interest, say in the tea industry, would certainly like to be stationed here for some productive research and use of our reasonably reliable data bases.

In the new universities of Africa, we see the same situation that existed in Sri Lanka in the fifties, when places were available to all those who successfully completed the university entrance examination. Peradeniya built its hostels with single room units which now house three and at one stage even four. The total student population envisaged was 1,000 whereas now it is 6,000. Almost all universities in Africa have even better facilities than what Peradeniya had in the fifties, together with salaries attracting expatriates. Soon, the large numbers of students enjoying free and improved educational facilities introduced after independence would be at the doorstep demanding entry, and rooms built for one will be made to take two and then three and so on. In the University of Zimbabwe, already the rooms built for one are taking two now and the dining halls are self service instead of the earlier provision of service including even room service. These countries will very soon find that they cannot afford to pay high salaries for expatriates. Even now, the Sri Lankans working in Nigeria are finding it difficult to remit their earnings.

All these are manifestations of the same development plan of post independent universities of ex-colonies, mostly British, trying to imitate "Oxbridge." The huge campuses of the University of Ghana in Lagon, the University of Tanzania in Dar es Salaam, the University of Zimbabwe in Harare, the University of Lesotho in Roma and many more remind one of Peradeniya in its hey-day, when there was no overcrowding and the large campus with spacious and extravagantly constructed buildings was a national show-piece and indeed the highest seat of learning, keeping with the highest traditions of learning. However, it is certain that the tragedy that befell Peradeniya would some day reach these universities of Africa unless the lessons we have learned are taken note of and adequate precautions are taken. Unfortunately, there are still no signs of such action.

A University is a national institution, a national asset and has to be the centre of academic excellence of which the whole nation can be proud of. At the same time, it should also take the lead in research and development work, particularly in areas concerning the growth and economic needs of the country. From a purely academic point of view, this would apply to all disciplines equally well.

Universities in the third world have a major role to play in the context of national development. With dwindling resources, increasing population and economic hardships, how does one expect these universities to face this challenge?

In the long run, one must depend on one's own academics. The expatriate could be an academic "mercenary" travelling from one assignment to another, without any feelings for the development of the particular nation in which he is serving. Being interested in teaching a particular subject according to his own standards and criteria, may be irrelevant to the needs of his host country.

The local academics can be divided into three groups. One, those who are interested in the academic excellence of the first world and would therefore not return except on personal visits to see their parents and so on. Some of them expect the country to receive them as heroes and it is a pity that often, they receive unwarranted publicity and recognition never received in their countries of employment, while those academics working under very unfavourable local conditions are totally ignored. Then there are those who would want to have one foot here and the other overseas, exploiting both systems to one's own advantage, and thirdly, those who opt to serve their country full time. There is no problem with the first category as long as they do not try to interfere with the smooth running of a local institution by virtue of their "built-up" public image obtained by working overseas. They are welcome to return as often as possible and impart some of their knowledge and experience to our scientific community. It should however be noted that they have very little feeling for or experience of the local situation. The second category are those who serve the country till they are reasonably well experienced to obtain a post overseas. They will earn a lifetime Savings in a few years and some do return after a stint of a few years. As long as they do not make their country a launching pad for further assignments overseas, their return is welcome.

It would be useful if these academics use their influence to recruit Sri Lankan graduates to their universities for graduate study and help build up collaborative studies, but this is often not the case even with those who have had a royal treatment from the state whenever they returned home, mostly in the winter. How many Sri Lankan students do the Sri Lankan Professors overseas, big or small, have? It is well known that our neighbours, the Indians have always been ready to help a fellow Indian scientist but the rule seems to be the reverse for Sri Lankans.

The third category are the patriots. They never left the local universities except on study leave and are struggling to survive with teaching, administration, research, student guidance and so on, on top of the many domestic problems such as housing and children's schooling to occupy their time. Some of them were our brilliant products at university. Given half a chance, they would have been better scientists than some of those who make their annual visit to be proclaimed the greatest scientists we have produced.

It is just that they never had that opportunity, due to domestic obligations, personal reasons or the mere fact that they preferred to serve their motherland at the expense of their own academic future.

What then is the way out for the universities in the developing world ? How can they progress and contribute to national development while keeping abreast with the technological developments ? The main task of the university in the third world is to provide knowledge, manpower and technology for the comprehensive development of the nation. Therefore provision and advancement of knowledge and technology remains the most positive contribution the university can make for the nation. Haven't we been doing this for the last few decades ? Then what have been the causes of the disparity between our expectations and achievements ?

To my mind the university should not only improve and import knowledge and technology : it should most discriminately adopt and diffuse knowledge and technology to suit the needs of the nation. This is one way how the university could prevent its products becoming alienated to the society : one way of closely identifying and harmonising with the needs and aspirations of the nation.

At this point, I cannot refrain from recalling the early stages of Vidyodaya University. I remember with a sense of nostalgia the air of "emancipation" which wrapped the whole institution. It was militant in spirit, clear in vision and bold in its struggle to "liberate."

As I saw it, the pioneers of Vidyodaya envisaged building an institution which was more in harmony with the aspirations of the national intelligentsia who were disillusioned with the "Oxbridge" concept of the university.

How long could Vidyodaya stand boldly in its mission ? How long was it allowed to develop on its own lines ? These are questions which are more broadly discussed in other articles. Therefore I would not venture into specific performances of Vidyodaya in this context.

Acquisition of new knowledge and technology has been the basic problems of the universities in the third world. The main problem has been the worsening economic crisis which left the university poorer year after year, while new knowledge and technology became dearer and dearer.

I have been working on the practical aspect of this question from the time I left the then Vidyodaya Campus to rejoin my old university as Head of the Department of Mathematics exactly ten years ago. Thus it is appro-

priate that I elaborate on the experience of the last ten years, during which time a genuine attempt was made to build up a department of study which would conform to the requirements of a university spelt out earlier.

The immediate task was to identify what the priority needs of the department and the university were and then, on ways and means of achieving progress with the limited resources we had. The priority in the Department of Mathematics was identified as Applied Statistics, a subject neglected by the mathematicians until the introduction of the subject at Vidyodaya University in the sixties by Prof. P. W. Epasinghe. I was fortunate to have a Lecturer from U. K. on leave from the Department of Applied Statistics of the University of Reading assigned to the department for two years and with him I set about improving the curriculum, recruiting staff and advising and/or persuading junior staff already with us to specialise in Applied Statistics and then working in close collaboration with outside organizations and individuals dealing with Statistics.

We were fortunate to receive adequate but not extravagant funding from the British Government and eventually a Link Arrangement was established between my department and the department of Applied Statistics of the University of Reading, U.K. This helped us obtain staff assistance, train our junior staff and also receive a book and equipment grant. Now after 10 years, we have a viable postgraduate Diploma and M.Sc. course running, collaborative research between the two departments, staff exchange, and a plan to hold the summer course run at Reading on "the Management and Analysis of Statistical Data," in Colombo in 1984 December. From Statistics we went over to Computer Applications as this was a natural extension with modern day Applied Statistics depending on the calculating power of the computer. With our own Computer Centre established in 1981, collaborative work in Statistical Applications using computers has become a major part of the Link. This link has been found to be one of the success stories of British funding as reported by several review teams and it is therefore important to examine the reasons for its success as this can be a good model for technology transfer to developing countries.

The model consists of the following :

1. It is a Link between Institutions and not a programme where individuals and/or an exchange programme is funded by an agency.
2. The first phase involved long term visits which were later replaced by short term visits consolidating the achievements of the long term visits.

3. The visitors from the first world were motivated to engage in activities other than teaching alone and, appreciate the wealth of experience they could gain from working in a developing country as well as the tremendous research potential available locally.
4. The local personnel too were committed and were not merely interested in overseas visits.
5. Local staff trained were sufficiently motivated to return, continue their work and receive job satisfaction.
6. The work of the local staff was not restricted to teaching alone, but to research and consultancy work of importance and relevance to local needs.
7. Staff exchange both ways was encouraged, either supported by the grant under the Link or by other means whenever possible. Communication via the post, telex and even telephone was resorted to and both sides sought each other's advise on many matters.

Under the above conditions, it is possible to build up centres of excellence that can exist in the developing world with relatively little help from the external world as compared to the massive UN and other agency funded projects. The institutional link will continue even after U. K. Government funding stops due to the personal contacts made and other funding sources would also be available to help continue the linkage.

It is interesting to note that with very limited funding we have achieved much with the Colombo-Reading Link. Ten visits to U.K. by Colombo Staff and Eleven visits to Colombo by Reading Staff were made with British funding. In addition seven visits to Reading by Colombo Staff and five visits to Colombo by Reading Staff were made with other sources of funding. During these visits, the activities had not been teaching alone or being attached to the particular institution alone. Field visits, seminars, workshops, collaborative research activity were some of the work undertaken. A more recent area of work is the massive agroclimatology project jointly undertaken by the two institutions which has, among other things, created a very good data base on crop and climatic data. (At the very moment when this paper is being written, two visitors from the Reading Staff, together with our own Staff are conducting a one week course for a wide range of research workers, at Colombo, making extensive use of our mini and micro computer facilities).

Since the early seventies many such Link arrangements have been tried out and although we could claim to be the first success story, several that

followed us, particularly those that studied our own model have had successes. Still we can claim to be the least expensive and the longest lasting Link. Although funding is to end in mid 1985, we are confident that it will function with whatever resources the two institutions can muster with emphasis on collaborative research and exchange of information.

My own experience is that such low cost institutional links are far more cost effective than agency funding for short term projects, where individuals are involved or the employment of expatriate staff on a stop gap basis. There are several institutions and decision-makers still to learn from this experience even in Sri Lanka. As for other developing countries, particularly in Africa, it is time that they made a serious study of our own mistakes and more recent success stories. This, in my opinion is the only way we can keep up with the developing world as for technology transfer that would be of benefit to national needs.