

4 THE LOCATION OF TERTIARY LEVEL TEACHING OF AGRICULTURE IN PAPUA NEW GUINEA : A VIEW FROM THE UNIVERSITY OF TECHNOLOGY IN LAE*

Introduction

This case presents some interesting facets of decision making and of rationalisation of resources. It also reminds us forcefully of that abiding issue everywhere, that of the interrelationships of human beings in complex situations. The teaching of university level agriculture forms the substance of the case. What kinds of agriculture and where would it best be taught were the questions to which simple answers might be expected. But the politicians, the academics and the public servants had different perspectives on what was needed.

The Case Study

In his account of the development of universities in Papua New Guinea Howie-Willis concluded that the movement of the first agriculture students from the University of Papua New Guinea (UPNG) in Port Moresby to the University of Technology (UOT) in Lae in 1975 to undertake the final year of their degree course demonstrated "that the two universities could work together if they chose to". (1) with the benefit of hindsight the move referred to can be seen rather as simply one chapter in a long-running and occasionally acrimonious train of events which has effectively paralleled the history of university development in Papua New Guinea and continues to sour official relationships between the two universities in the country.

A History of the Situation

1. Phase 1 : 1964-1975

The history of decision making with regard to the teaching of degree level programmes in agriculture in Papua New Guinea falls very broadly in two main phases. The first phase, from 1964 to 1975, involved consideration of the basic rationale for the teaching of agriculture. The second phase, from 1975 to the present has seen successive attempts to put right what has increasingly come to be regarded as an unsound initial decision to split the teaching of agriculture between two widely separated campuses.

* Prepared by D W Parry, Planning Officer of the Papua New Guinea University of Technology. This case study was prepared for discussion purposes in September 1981. It is not intended to show effective or ineffective management.

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Between 1964 and 1974 three major reports were commissioned on higher education in general, or universities in particular, in Papua New Guinea. The first of these was the Currie Commission of 1964. The Currie Commissioners were requested by the Administrator of the Territory of Papua New Guinea to investigate and report on "the means for further developing tertiary education to meet the present and prospective needs of the Territory to serve the best interests of its people and enable them to take an active part in the social, economic, and political advancement of their country".(2) Its major recommendation was that a university be established in Papua New Guinea in Port Moresby, the administrative centre of the country and the future capital of an independent Papua New Guinea. The Currie Commissioners noted "that all indigenous witnesses (to the Commission) gave the highest priority to agricultural training". Training in agricultural techniques was seen as being "of vital importance to agricultural growth" and it was emphasised that "most thoughtful Papuans and New Guineans... hold strongly to the view that a Territory University should have a close association with agricultural education". The Commission recommended that "at an early stage the (proposed) University should appoint a Dean of Agriculture who should have as a main task the planning of agricultural education in the University".

Despite this recommendation, agriculture as such was not one of the degree programmes being mounted at the University of Papua New Guinea (founded in 1966 as a result of the Currie Report) at the time of the second major report on higher education established in late 1970 by the then Australian Minister for External Territories. The Brown Committee was requested by the Minister to advise on the rationalisation and co-ordination of post-secondary and tertiary education in Papua New Guinea to achieve a balanced growth in enrolments in the light of the supply of applicants to and the demand for graduates from post-secondary institutions and to ensure maximum economies of scarce staff and physical resources.(3) The report itself contains very few references to the teaching of agriculture at either degree or diploma level despite devoting an important section of the report to the trained manpower needs of the country.

Nevertheless, the department of agriculture at the University of Papua New Guinea requested permission to begin teaching agriculture in conjunction with the faculty of science, leading eventually to the establishment of a degree course in the subject.(4)

The Committee apparently endorsed the request thus providing UPNG with independent support for its proposal - later agreed to by the Administrator - that a committee consisting of representatives from UPNG and the Government's own Department of Agriculture be established to recommend on the mounting of a degree programme in agriculture.

This committee was expanded in 1972 to include the recently appointed Director of the Institute of Technology (IOT) in Lae (some 320 kilometres by air from Port Moresby). The inclusion of a representative from IOT was partly a recognition that it had land available on its campus for a demonstration farm and had access to a wide variety of agricultural environments

and government-run experimental agricultural stations.

The committee reported to the Administrator in August of 1972 recommending that a broadly based agriculture course be established.(5) The necessary basic science training and the more theoretical aspects of the course would be taught on the Waigani campus of UPNG and would last for three years. The Joint Committee felt, however, that Lae, the site of the IOT, was "the most logical site for a University field station", and recommended that the fourth and final year of the degree programme be located at Lae with UPNG awarding the degree.

This recommendation was accepted and at the start of 1975 the first agriculture students moved to Lae to complete their final year of degree studies. Thus ended the first phase in the development of degree teaching in agriculture in Papua New Guinea; a development which contained within it, however, the seeds of future conflict.

2. Phase 2: 1975-1981

During 1974 the third of the reports on higher education referred to earlier in this paper was presented to the Minister for Education of what was by then the self-governing state of Papua New Guinea. The Gris Committee was appointed "to advise on future university developments in order to achieve a balanced growth of academic programmes, maximum economies, and the most effective approach for university education in P.N.G."(6) Significantly this committee was chaired by the man who was to become (in 1975) the Vice-Chancellor of UPNG, Dr Gabriel Gris, and it is interesting to note that in early 1976 the faculty of agriculture of UPNG established the Agriculture Development Committee "to determine whether or not the resources of the faculty were adequate, whether or not they were being fully and economically utilised and whether or not the resources available should be increased to allow the faculty to carry out its functions effectively and efficiently".(7)

The similarities between the terms of reference of this committee and the Gris Committee reflect the influence that the latter committee had on thinking about university development in general at the time although it had made no specific recommendations concerning the development of agriculture degree courses. In fact the Agriculture Development Committee was established after only the second class of students had graduated with degrees in agriculture. There was already a feeling, it would appear, that the original decision to split the teaching of agriculture between two campuses had been an unwise one.

The Agriculture Development Committee (ADC) consisted of one representative of the agriculture faculty who became the committee chairman; two representatives of the (government) Department of Primary Industry (DPI) - formerly the Department of Agriculture; and a representative of the Office of Higher Education. The ADC, in presenting its report in July of 1976, noted that "a unified faculty would have many academic advantages" and that "because of the agricultural advantages ... recommends that the Faculty be established at Lae by 1978".(8) The response of the agriculture faculty of

UPNG to this recommendation was, to say the least, unenthusiastic!

The faculty requested the committee to seek more information including a cost effectiveness analysis. The ADC reconvened and within two months had produced a second report.(9) This report supported the principle of a unified agriculture faculty, but the actual site of unification was to depend on the teaching strategy and enrolment policies to be adopted. In May of 1977 the UPNG Council agreed in principle to the unification of the agriculture faculty. The site of unification was to be dependent on the reports of two sub-committees of the Agriculture Development Committee, the Farm and Curriculum sub-committees respectively. During 1977 the Government's own Department of Primary Industry indicated that it would be willing to allow the agriculture faculty to take over a farm in the Port Moresby area. Armed with a farm and having agreed to the so-called "modular" teaching approach proposed in the second report of the ADC report, the UPNG Council agreed at its final meeting of 1977 to unify at the Waigani campus in Port Moresby.

There remained then the question of making funds available to enable the unification to be undertaken. In essence this involved relocating the staff and facilities that had been established and were operating in Lae to Port Moresby and developing the farm site in Port Moresby referred to earlier. In addition, the agriculture faculty was keen to have an academic building erected solely for its exclusive use. Funds to enable unification to commence in 1979 were agreed to during 1978 with the major effort of unification, including erection of the agriculture building, to be undertaken in 1980.

During September of 1978 Professor G D Sims, Vice-Chancellor of the University of Sheffield in the United Kingdom, visited the University as an external adviser. This was a follow-up visit to one undertaken in 1974. His report commented on the "impressive work of the Department of Agriculture" but "greatly regretted that there are plans to break up (an) excellent and far-seeing combination of subjects by the proposed transfer of agriculture back to Port Moresby".(10) A number of reasons were given by Professor Sims for this view including concern over the possible costs of developing the farm site in Port Moresby by comparison with Lae and the importance of having easy access to varied agricultural environments at all times during the degree course. Sims argued, in fact, that in combination with the existing departments of fisheries technology, food technology and forestry, the University of Technology would have "one of the most comprehensive schools of natural resources and food science ... in any developing country in the world".

This opinion was brought to the attention of the then Minister for Primary Industry by the Acting Vice-Chancellor of the University of Technology. The advice of the Director of the Office of Higher Education, himself a member of the Agriculture Development Committee, was sought. He was careful to outline the history of decision making on the issue and the numerous factors that had been taken into account in arriving at the decision to unify at Port Moresby. Nevertheless he proposed, in view of the fact that a new professor had recently been appointed to the

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agriculture faculty and the concerns expressed by Professor Sims, that an early meeting of those involved in the issue be held to determine whether or not the position should be reassessed.

The proposed meeting did not eventuate - at least not in the way envisaged above. Indeed, the matter lapsed effectively until the arrival at the University of Technology in October of 1979 of Vice-Chancellor Mead, thus ending a two and a half year period during which there had been no substantive holder of the Vice-Chancellor's post. Shortly after his arrival in PNG, Vice-Chancellor Mead held preliminary discussions with the Minister for Higher Education, the Director of the Office of Higher Education and Vice-Chancellor Lohia of UPNG. The question of the unification of agriculture was one of a number of topics raised at these various introductory meetings. In addition, Vice-Chancellor Mead also held discussions with agriculture staff located at UOT. It was clear that, for a number of reasons, including the quality of the evidence available to those who had recommended unification at UPNG; the arguments of Professor Sims; the apparent reversal by UPNG of its earlier intention to adopt the so-called "modular approach" to agriculture teaching - a major reason for the decision to unify at UPNG (see below) - there were sufficient grounds to warrant a review of the decision.

As a result, the Minister for Higher Education, pointing in addition to the large sums involved in the proposed unification project; noting increasing concern over the viability of the farm made available to UPNG in Port Moresby and questioning the suitability of the Port Moresby location in terms of access to a variety of agricultural environments, authorised the Director of the Office of Higher Education to convene a meeting of the principal persons and organisations involved in the matter to undertake a final review of the whole issue. On the strength of this, the funds previously made available for the unification process were frozen. Discussions then commenced culminating, in May of 1981, with the decision of the National Executive Council directing unification of agriculture degree teaching at UOT and establishing an Implementation Committee to oversee the process of unification. There, for the present (1981), the matter formally rests until completion of the work of the Implementation Committee.

The Decision Situation

From the foregoing, it will be apparent that the major issue of the teaching of agriculture at the tertiary level in Papua New Guinea has involved a number of sub-issues each one being emphasised at different points in the chain of events. Four sub-issues may, however, be highlighted and will be briefly discussed in turn:

1. The level of courses: degree or sub-degree?
2. The type of graduate: science or technology based?

3. The balance between theory and practice.

4. Comparative costs.

1. The level of courses

Whilst acknowledging that agricultural training should be associated with the proposed new university, the Currie Commissioners noted "with approval" the development of the Department of Agriculture's own Agricultural College. This college, situated on the island of New Britain to the North East of the mainland of Papua New Guinea, mounted a three-year course leading to a diploma at "a level similar to those at Australian Agricultural Colleges". The Commission advocated the establishment of a broad-based pyramid of people with different levels of training and skills in agriculture estimating the need for three-year diploma holders to be "only hundreds" with only "scores or dozens" requiring the degrees essential "for high level research or administration". For the immediate future, the Commission recommended that "suitable students wishing to do so should be given scholarships to take a degree at an Australian University" whilst within Papua New Guinea itself a dean of agriculture be appointed to the proposed university to plan the development and introduction of agricultural studies at degree level "and its relation with the work being done in existing institutions".

The Commission believed "that it would be desirable for the University to have some direct association with the development of Diploma training", warning, however, that "the precise nature of such an association needs careful working out". The Commission itself offered two possible patterns for co-operation. The first option was for the affiliation of the existing (and any future) college with the University, rather than direct integration. The second alternative was "so close as to amount to amalgamation." The Commissioners declared their preference for the first option with the University awarding the diploma following a course of study at an agricultural college affiliated with it, such diplomas constituting a prerequisite qualification for entry into the degree programme mounted at the University itself.

It could be argued that the whole approach of the Currie Commission on the issue of agriculture was one of conservatism, in terms of its estimates of the numbers of degree holders required in agriculture, and caution, in terms of the effect of its proposals on the vested interests of the Department of Agriculture and its existing training programmes. Not surprisingly, therefore, as indicated earlier, a formal agriculture degree programme had still not been established by the time of the publication of the second major report on higher education in Papua New Guinea in 1971.(11)

2. The type of graduate

The broad objective of the agricultural education to be undertaken by the University in the eyes of the Currie Commissioners was "not to stay on the farm ... but to produce agricultural advisers or experts". The diploma was seen as "essentially a practical qualification" with standards "similar to those demanded of diplomates of Hawkesbury Agricultural College in Australia ... A diploma is a qualification given for the study of practical

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knowledge and its application, with some basic science included, but this is not to be confused with the higher scientific training given for a degree."(12)

The Joint Committee on Agriculture in submitting its report in 1972 recommended that the role of the faculty should be to train:

- (a) informed agriculturalists and extension workers who can assist farmers to identify and solve problems confronting them;
- (b) specialist problem solvers where problems have been identified and research application is required to solve them (... such specialist training to be carried out at higher degree level) ... and
- (c) agricultural administrators who need a sound and broad understanding of the agriculture potential of the country.

It was generally agreed by the Joint Committee that "the Agriculture course be broad in its scope and with a strong practical basis but that teaching should be in depth and should emphasise the understanding of underlying principles". The Committee was confident that "most of the courses already taught within the framework of the Science Faculty and the departments of the Arts Faculty (at the University of Papua New Guinea) that will be concerned with the training of agriculturalists are already strongly orientated towards the Papua New Guinea environment, and that most of the courses taught within the Biology and other science departments are strongly agriculturally orientated".(13)

In the light of much of the current debate on the decision to unify at the University of Technology this latter statement is significant. The somewhat restrained recommendations of the Currie Commission clashed with the more forceful views of Vice-Chancellor Gunther of UPNG on the importance of the teaching of agriculture at university level. In the absence, at least initially, of a degree programme in agriculture, Vice-Chancellor Gunther was compelled, in the words of one writer "to introduce (agriculture) to UPNG through the back door, offering options like soil science and applied botany, which might eventually lead to an agricultural science degree".(14) Partly as a result of this, significant sections of the present course are either taught for the agriculture faculty by staff of other faculties or are courses mounted by other faculties and departments and attended by agriculture students. This orientation of the present programme has led to the assertion that its graduates are "Generalist Agriculture Scientists of the highest academic and professional competence".(15)

This is in contrast to the fear that the transfer of the entire degree programme to the University of Technology would result in a reorientation of the programme resulting in the production of agricultural technologists, narrowly-trained technicians capable of performing only a low-level, short

term exploitative role in agricultural development rather than high-level, innovative, problem-solving scientists capable of revolutionising agricultural practice for the long term benefit of the country. The early utilisation of UOT as a field station tended to emphasise the practical orientation of the contribution of that institution to the degree programme and, quite clearly, influences present thinking as to the possible role of UOT and its impact on the future orientation of agriculture teaching and thus of the graduates produced.

3. The balance between theory and practice

The question of the appropriate balance between the theoretical and practical elements of the agricultural degree has surfaced in many different guises during the period. The initial discussion of the Currie Commission, as has been seen, sought to work out a satisfactory relationship between the practical orientation of the existing diploma programme in agriculture and the "higher scientific training" required for a degree. Thus it noted that "some of the practical work for a Territory degree in agriculture, when that is established, might be undertaken at the (agricultural) college".

Howie-Willis commented that the then Director of Agriculture, F C Henderson, feared that if the university were to mount an agricultural degree programme "there would be a stress on academic standards which would eliminate many potential trainees; there would be an over-emphasis on the background sciences, and insufficient stress on practical processes and extension". (16)

The Joint Committee in its 1972 report argued that "many aspects of tropical agriculture ... are often specific to environment" ... and proposed "that these more detailed aspects will be better taught in a strong agricultural environment, where access to the crops and to the farmers of the country is possible. Moreover", the Committee continued, "the teaching of a course based on the needs of Papua New Guinea demands exploration and researching of those needs. This is not feasible at Port Moresby which is a non-agricultural area of the country ... Therefore a proposal is made ... for the establishment of a field station in Lae to undertake fourth year teaching". This fourth year course was to be based on "practice and field work rather than be classroom orientated" and was to follow a "strong basic scientific training" in the first three years of the course located in Port Moresby.

The underlying assumption in the decision making of the early 1970s seemed to be that it was possible to separate the theoretical and practical elements of the course, either by giving diplomates with a practical training a theoretical, scientific "topping up" programme at the university or - which is what actually happened - by giving the more academically oriented high school leavers a science-based programme initially to be rounded off by a final practical year "down on the farm". It is tempting to argue that such reasoning was based less on what were sound professional and educational arguments than on an attempt to compromise between the

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competing desires of the Department of Agriculture for people capable of running plantations and acting as extension officers; of the UPNG to mount an internationally acceptable and rigorous academic degree programme; and of the Institute of Technology in Lae, under its ambitious new director, to get a "foot in the door" as it were by whatever means.

Indeed, no sooner had the partners implemented the compromise agreement than they began to quarrel over those very elements of compromise upon which the agreement was based. The Agricultural Development Committee established in 1976 argued, for example, that "the field is an essential laboratory for most agricultural courses". Having compared the two locations, Lae and Port Moresby, in the light of that assumption, the Committee concluded that "because of the agricultural advantages ... the Faculty should be established at Lae ... with students undertaking their Science common core course at Port Moresby and the remaining three years of the degree course with the Agriculture Faculty at Lae".(17)

That a committee established by the faculty should recommend the transfer of the faculty to Lae was not a welcome recommendation. In requesting the ADC to "comprehensively re-examine the advantages and disadvantages of each site" the Agriculture Faculty Board pointed out that it had recently agreed in principle, and for an experimental period, to what was described as a "modular approach" to agricultural education. This meant that students would be required to complete a two year certificate course at an agricultural college followed by one year of practical work in the field before enrolling in the agriculture faculty. "The introduction of this modular approach", the chairman of the ADC argued, "will have a significant bearing on the proposed changes in the organisation of the Agriculture faculty".(18)

Conceding that "the decision to split the Faculty in the first place was a poor one" the ADC recommended that "if the modular concept is accepted" unification of the agriculture faculty be at Port Moresby. If the modular concept were to be rejected, however, Lae was to be the site of unification. "Arguments to the effect that students need experience in a range of agricultural environments in Papua New Guinea /such as were relatively easily accessible from Lae/ are not valid", declared the committee. "In the four short years available to us", it continued, "we can do little more than teach the principles of agriculture on a firm science background. This knowledge can then be readily applied to any agricultural situation, and detailed knowledge of particular environments will be accumulated with field experience after graduation".(19)

In the event, the modular approach presented problems. In 1978, and again in 1979, the faculty admitted some certificate holders from agricultural colleges to the UPNG science foundation year. In both intakes, the students were selected on the basis of their performances at the agricultural college yet, in the view of one observer, "they had enormous difficulties in meeting the standard required at UPNG".(20) As a result the agriculture faculty agreed to admit high school students direct to its degree programme as had previously been the case, combining in the intake certificate holders

for a three year experimental period beginning in 1978. "In effect", argued Desphande "this was an open admission of the failure of the modular concept, the very basis of the whole exercise of unifying at Port Moresby".(21)

In one sense, the issue of a modular or non-modular approach was irrelevant. A more fundamental question concerned the quality and availability of practical experience to support the theoretical concepts being taught throughout the degree programme. There was a need, according to one senior staff member, "to enable agricultural theory to be related constantly to practice".(22) "In all respects other than the availability of a suitable farm", he continued "there is probably not much to pick and choose between the alternative sites of UPNG in Port Moresby and University of Technology in Lae. The availability of farm land has been the major problem in choice, and remains so ... You cannot teach agriculture", he concluded, "without farms any more than you can teach medicine without a teaching hospital".

The University of Technology has within its campus a nineteen-hectare farm suitable for teaching and demonstration purposes. In addition there are a number of plantations and research stations in the vicinity of Lae which can easily be visited and a large number of farms and research stations located in agriculturally varied environments which are accessible in the hinterland for visits, by day or longer, in the form of agricultural orientation tours. The farm made available to UPNG by the Department of Primary Industry in 1977 was by 1979 being seriously questioned in terms of its suitability and likely developmental costs if it was to be adequate for teaching and demonstration purposes. And access to the sort of varied agricultural environments located in or near to the University of Technology was simply not available in Port Moresby.

The notion of a split campus based on the assumption that theory and practice could be successfully taught in isolation was established at the time of the Currie Commission in 1964. It was almost 12 years before a formal, public acknowledgement was made as to the "overwhelming academic, administrative and social advantages" of a unified agriculture faculty.(23) Having established that position, however, there remained the problem of ensuring that, whatever the location, theory and practice could be successfully combined and continuously demonstrated.

4. Comparative costs

A recent study of the socio-economic rationale of higher education provision in developing countries noted that "wide differences exist in educational costs depending on curriculum types: university subjects such as agriculture, sciences and engineering" the study claimed, "are on the average more than twice as expensive relative to general subjects".(24) Indeed, as the table below indicates, agricultural subjects are on top of the relative expensiveness index:

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(Cost of all higher education subjects = 100)

Agriculture	191
Sciences	125
Engineering	111
Arts	73
Humanities	67
Social Sciences	50 (Source: Psacharopoulos 1980,3)

Whilst it would be wrong to say that money was no object, the Currie Commission presented its report at a time when the potential returns to investment by governments in higher education throughout the world were widely accepted as substantial. Added to this was the fact that the university proposed by the Commission was inevitably seen as an essential status symbol for the soon-to-be independent nation.

It was not long, however, before concern was being expressed over the high costs of the two universities. By 1973 they consumed 39 per cent of the education budget compared with 61 per cent for primary and secondary schools and the Department of Education sponsored tertiary training institutions. Per capita student costs in the universities were 84 times those in the remainder of the education system.(25) Such facts were not lost on the Government and the then Chief Minister, Michael Somare, commented somewhat disapprovingly on the situation at the 1974 Waigani seminar at UPNG.

It was against such a background, reinforced by the thrust of the Gris Committee report of 1974, that the agriculture faculty at UPNG established its Agriculture Development Committee with the purpose of rationalising its resources to ensure that it could carry out its functions effectively and efficiently. As noted earlier, the ADC produced two reports in July and September of 1976 respectively. Neither of these considered the costs involved in implementing their recommendations in any detail, despite a specific request to the committee following its first report that a "cost effectiveness analysis, based on a 5 to 10 year programme, for the unification of the Faculty of Agriculture at one campus - Lae or Port Moresby" be carried out."(26)

The committee noted that assistance was being received from "experts at the University of New England in preparation for an economic analysis of unification of the Faculty at Lae or at Port Moresby". However, the committee argued that "the detailed economics of the proposal need have no direct relevance to the recommendations of this committee".(27)

In the event, no cost-effectiveness analysis was ever done. A year after presentation of the second ADC report, however, the Acting Director

of the Office of Higher Education (OHE) did not feel that there was "sufficient difference in either of the locations to be able to make a clear rational decision on the location". He was of the opinion that on the basis of known facts "the outcome of such a cost-effectiveness analysis ... would be little more than indicative of a marginal preference for either one or the other site". Lack of such evidence made it more likely that in the end the decision would be made on other factors, largely political, rather than economic.

Once the UPNG Council had agreed in principle in May 1977 to unify the faculty at Port Moresby, a request to the Government for funds in excess of Kina 400,000 was made for the purpose of unification (28) followed a year later by a request for almost Kina 700,000 for a new agriculture building at UPNG. Such requests, simply to transfer some 20 students and associated staff from Lae to Port Moresby, and to fully develop the newly acquired farm at Port Moresby, inevitably seemed rather large to those responsible for authorising them at the national level. In November 1979 the Minister for Higher Education instructed the Director of the Office of Higher Education to convene a meeting of the principal persons and organisations involved in the issue of unification to take stock of all the pertinent facts and arguments involved. In its formal response to this initiative UOT pointed out that the UPNG Council decision to unify had been taken "without a thorough cost-effectiveness analysis of the options involved" or a "realistic assessment of the agricultural potential and development costs of the farm" at Port Moresby. (29)

5. Summary of the decision situation

Essentially the issue throughout has been where to locate the teaching of degree level agriculture in Papua New Guinea. At the time the proposal was first seriously considered by the Currie Commission the logical place was the proposed university to be established in Port Moresby. The existence of an agricultural college and the establishment and growth of an Institute of Technology resulted in compromise decisions which successive administrators at university and national levels have sought to reverse. The rationale for reversal has been different at different points in time ranging from the fundamental issue, in the initial stages, of the appropriate level of courses required by Papua New Guinea in agriculture to later considerations of the orientation of the graduates produced - once it had been agreed that a degree programme was required; the most appropriate location in terms of the balance required between theory and practice; and finally the comparative costs involved in unification.

The Organisational Setting

Five major levels of decision making can be identified in the process of decision making on agricultural education as follows:

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1. Official reports
2. The two universities
3. The faculty
4. The Office of Higher Education
5. The National Planning Office.

1. Official Reports

In retrospect, the influence of the Currie Commission on the development of tertiary level agricultural training, particularly in the early stages, cannot be overemphasised and deserves highlighting in this section on the organisational aspects of the problem. It is the view of the writer that its conservative estimate of the demand for degree holders in agriculture helped initially to delay the effective establishment of an agriculture faculty. In addition its desire to accommodate the existing structure of sub-professional training gave too many vested interests a legitimate claim to a voice in the decision making process. As a result, sometimes unseemly haggling between supposedly professional experts over the years can hardly have inspired confidence in their objectivity amongst the bureaucrats and politicians ultimately charged with recommending and deciding on what action to take. The two later reports were far less influential in their impact on the agriculture issue.

2. The Two Universities

By the early 1970s, issues such as agriculture training and others, in particular forestry, and later, applied chemistry and accountancy, continually raised the same question: "At which institution" should they be located? "The scope for rivalry" between the two universities at Lae and Port Moresby was, in the view of Howie-Willis "greater than for co-operation". "They were competing for the same resources: able students, government patronage, funds for expansion, and general public interest". (30) UPNG had a head start over its "sister" in Lae to the extent that whereas it was granted university status from the outset in 1966 it was not until 1973 that full university status was achieved by the Institute of Technology. As a result, during much of the early discussion on agricultural education it was apparent that Lae was viewed as suitable only for the more practical, and by inference at least, less important aspects of the proposed degree programme. Indeed, a good deal of the current controversy, as indicated earlier, centres on the assumption, not always merely implicit, that the University of Technology produces technologists or technicians as opposed to graduates of high academic excellence. Any analysis of the issue of the location of tertiary level agricultural education in Papua New Guinea which does not take account of these inter-institutional jealousies and ambitions would not be presenting a complete picture.

Influencing the issue further was the argument that following the establishment of UPNG in 1966 any consideration of the future of agriculture

was an internal matter for UPNG. It was suggested that since the agriculture faculty was a faculty of UPNG and since UPNG awarded the degree and funded all aspects of the degree programme, including what was taught at the University of Technology, it was well within the rights of the UPNG Council to decide if and where the faculty should be unified. This did not preclude the seeking of external advice as evidenced by the composition of the ADC. Nevertheless, that committee was appointed by UPNG and the reaction of the UPNG Academic Board to the recommendations of its first report made it clear what was expected of that committee.

This has made any real sharing of ideas on the issue between the two universities rather difficult and has made claims that recommendations were being made objectively and in the national interest sound hollow and unconvincing at times.

3. The Faculty

The physical separation of the faculty on two campuses 320 kilometres apart has been a significant factor in the issue, in particular during the more recent past. Departmental and faculty meetings have been costly to arrange and this has not made communication at the formal level easy. The informal communication so vital to any faculty has been even more difficult and has hampered discussion of the issues by those most closely involved. In such a situation suspicion and mistrust have been inevitable and have made the formulation and discussion of proposals for the development of the faculty difficult. Whereas in normal circumstances such counter-views would be accepted as part of desirable academic debate, in the circumstances they have at times been interpreted as an attempt to influence the decision on unification in a particular way and judged accordingly rather than on their own merits. The issues of modular or non-modular teaching and the farm are two examples of this problem.

4. The Office of Higher Education (OHE)

A potential mediator in the issue has been the Office of Higher Education (OHE), a division of the Department of Education. As indicated earlier, the office was represented on the ADC by Mr Bill Oostermeyer, its Director from 1975 to 1980, who provided a continuously well-informed source of information and advice and a potential meeting ground for the parties on what was becoming an increasingly sensitive issue in the late 1970s.

The Office of Higher Education was, however, bedevilled by political **indecision** as to its appropriate status, oscillating between, on the one hand, the existence of a separate Ministry of Higher Education serviced by the Office of Higher Education and, on the other, the existence of the Office of Higher Education simply as a division - and a relatively small one at that - of the Ministry of Education. In the former situation its potential influence was largely negated by a Minister who was unfamiliar with higher education issues and in a relatively minor ministry; and in the latter, and more recent situation, a much more powerful Minister who has been required to grapple with political pressure for free universal primary education and economic restraints, effectively reducing the options available

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to him. Despite this the Office of Higher Education has played a significant role in the issue since the mid 1970s and now has the delicate task of chairing the committee charged with implementing Cabinet's decision to unify in Lae.

5. The National Planning Office (NPO)

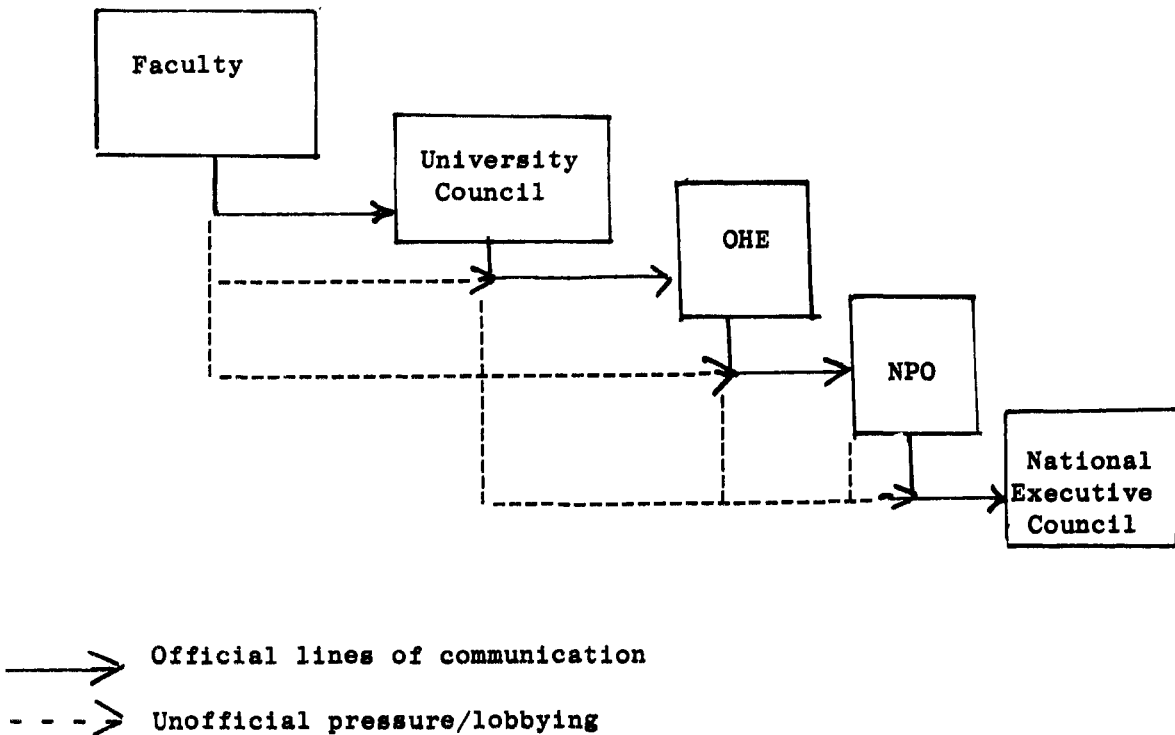
All new developments, of which unification of agriculture is one, are funded under the National Public Expenditure Plan, an annual exercise undertaken as part of the budget process. Scrutiny of these new developments is the function of the National Planning Office whose task it is to assess requests against national strategic objectives and recommend on them to Cabinet. Projects are submitted to the National Planning Office via the appropriate ministry whose authority is required prior to onward transmission to the National Planning Office. With the introduction of zero-based budgeting, and a separate system of financing for new developmental projects in 1978, the role of the National Planning Office has become increasingly important and could be crucial as the cost of implementing the May 1981 decision of Cabinet becomes clearer.

6. Summary of the Organisational Setting

Although not a permanent feature of the organisational arrangements for dealing with higher education in Papua New Guinea, a section on the Currie Commission has been included because of its influence in shaping the structure of higher education in general in Papua New Guinea. In fact, the extent of its influence was probably accentuated in the absence, initially, of a co-ordinating authority for higher education, a vacuum which was only partly filled, following the Brown Report, by the establishment of the Office of Higher Education. In addition, although not separately discussed in this section, the early influence of the Department of Agriculture has been noted elsewhere and was certainly an important factor in the eyes of the Currie Commissioners.

The relatively intimate political environment which exists in Papua New Guinea gives rise to opportunities for direct lobbying of senior public servants, politicians and even government ministers. Such access at times blurs the official lines of communication and may result in decision-making based more on personal influence and political ambition than professional and academic considerations. The formal decision-making process described in Figure 1 is thus sometimes circumvented as indicated.

Figure 1 The Educational Decision-Making Process



Conclusion

It is now 17 years since the report of the Currie Commission and its recommendations on agriculture and over five years since the first report of the Agriculture Development Committee recommending the unification of agriculture teaching at degree level at UOT. It would nevertheless be a brave man, even now and following the Cabinet decision of May 1981, who could say with certainty that unification will take place at Lae. This paper has tried to provide a number of reasons for the prolonged debate and uncertainty over the issue.

It has been argued, for example, that by comparison with other faculties and departments, the establishment of the agriculture faculty at the newly created UPNG was delayed because of uncertainty over the number of graduates required and the relationship of the faculty with existing agricultural training institutions.

A second factor has concerned continuing debate over the type of graduate required; a debate which has been influenced partly by the prior establishment at UPNG of a science faculty whose orientation towards agriculture was influenced by a Vice-Chancellor determined to establish an

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agriculture degree programme by whatever means; partly by the Department of Agriculture's desire to ensure continued production of manpower to meet its extension and other needs, and partly by UOT (through its successive Vice-Chancellors, through the report of Professor Sims, and, of course, the UPNG agriculture faculty staff at UOT itself) which could see at first hand some of the benefits of unifying at Lae.

A third factor has been the lack of data, until recently, on the comparative costs of unification at Lae, Port Moresby or indeed even a third location. As has been seen, this has not prevented recommendations and "final" decisions on unification being made! It has, however, made it easier for later participants to question the wisdom and validity of previous decisions and thus reopen the issue.

Related to this is a fourth factor. A significant feature of the events surrounding decision-making on the teaching of degree level programmes in agriculture in Papua New Guinea has been the frequent change in personnel in certain key areas. Both universities have had four Vice-Chancellors or executive heads in the first 15 years of their existence with three changes of leadership in the three years at UPNG between the years 1975 and 1977 and at UOT between 1976 and 1979. Between 1972 and 1981 there have been four holders of the post of Director of the Office of Higher Education. Given that personnel in these key positions have changed at frequent intervals during debate on the question, it has usually been possible for each new occupant to legitimately review the issues and, with apparent objectivity, propose modifications to previous ideas or decisions.

Finally, within the universities themselves and the more general structure of higher education in Papua New Guinea, there has neither been sufficient agreement nor sufficient sustained authority on the part of the various individuals or groups (official and unofficial) to ensure that once an agreement had been reached it would be speedily and effectively implemented. Too many vested interests have usually had too many opportunities to delay, obstruct and obscure the decision-making process.

Paradoxically, it could be argued, a fundamental weakness on the part of UPNG, more recently in particular, in persuading the bureaucracy to speed up the implementation process has been the continued production of agriculture graduates! If the agriculture students graduating each year are, in the eyes of the staff, good enough to graduate and sufficiently well-equipped to meet national manpower needs what advantage is there to the Government in allocating additional scarce resources merely to achieve unification? In its crudest form, what guarantee is there that K1 million spent on unification would produce an equivalent return in terms of an improved product?

An adequate definition of its product is something which eludes universities generally. Various proxies are, therefore, used to determine the value to society of its university graduates, in particular reference to the salaries enjoyed by different occupations employing graduates. Such an

approach has a number of flaws both in terms of its general theory and in terms of its particular applicability to Papua New Guinea and neither issue can be considered in detail here. However, Psacharopoulos, in the study referred to earlier, notes that whereas agricultural subjects are on top of the relative expensiveness index, agriculture graduates are at the bottom of the earnings league as indicated below:

(Earnings of all higher education graduates = 100)

Engineering	106
Social Science	104
Arts	94
Sciences	88
Agriculture	87 (Source: Psacharopoulos 1980,3)

The difficulties associated with this and other methods for assessing the contribution of different types of graduates to the nation, and the more specific contributions of different types of agriculture graduates inevitably leads to the reliance by the Government on the collective advice and wisdom of those responsible for the training of the country's graduates. Given the history of disagreement between the major groups and individuals involved in the issue of the unification of agriculture it could be argued that this approach is unlikely to lead to a satisfactory and speedy conclusion of the issue. As previously suggested no one group or individual within the higher education system to date has had sufficient prestige or power to be able to secure agreement on a course of action and its subsequent implication. Nor has a sufficiently authoritative and generally acceptable group external to the higher education system been appointed to decide the issue.

At this stage (1981), therefore, the outlook is a somewhat gloomy one. Apart from the principle of unification there would appear to be very little else upon which the two universities agree. On the evidence produced to date

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unification at either location is going to involve a good deal of expenditure. To be successful, the process of unification requires a degree of agreement and co-operation between the parties involved that hitherto has not been forthcoming. Thus despite the years of debate, the volumes of evidence produced and the recent apparently final decision on the site of unification by Cabinet, there remains a feeling that a great deal of time and effort is still required before a final solution is satisfactorily implemented.

Postscript (1983)

The implementation Committee at the direction of Cabinet met on a number of occasions and thoroughly analysed the costs involved in implementing the decision of Cabinet to unify in Lae. A report was submitted to government in early 1982 requesting funds totalling K1.5m for the unification. This would have consumed substantially more than the new funds to be made available in 1983 by government under the objective. "Training," within which all new developments at the post-primary level have to be accommodated. Not surprisingly, the proposal was not funded and the faculty remains split with no immediate likelihood of unification.

STATISTICAL APPENDIXA. Student Registrations(1): First Semester, 1980

(i)	UPNG:	Agriculture Faculty	53	
		Medical Faculty	131	
		Other Faculties	1076	
		Goroka (Teachers' College)	347	
		Campus		1607
(ii)	UOT:	All Departments		<u>1250</u>
				2857

(Source: Student Statistics - 1980
Office of Higher Education, 1981)

B. Academic Staff: First Semester, 1980

(i)	UPNG(2):	Agriculture Faculty	8.5	
		Other Faculties	<u>141.0</u>	149.5

(Source: University Academic Staffing. UPNG 1980)

(ii)	UOT:	All Departments		145.0
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(Source: Academic Staff Allocation Exercise for 1982. UOT 1981)

C. Budget Data for 1982

	<u>K '000,000</u>	
	<u>UPNG</u>	<u>UOT</u>
Teaching and Research	6.8	4.8
Academic Services	1.6	1.2
General Services	3.7	3.6
Staff Training and Development	0.6	0.3
	<hr/>	
TOTAL	12.7	9.9
	<hr/>	

(Source: "Estimates of Revenue and Expenditure for the Year Ending 31 December 1982", PNG Government, Department of Finance, Waigani, 1981)

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- Notes:
1. No distinction is made in the figures between full and part-time students. Consequently EFTS figures would be lower than those given.
 2. Comparable data for academic staff is not available for the UPNG Medical Faculty and the Goroka campus.

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