

USHEPiA:
Building a Research Capacity Network in Africa

Martin West and Lesley Shackleton
UNIVERSITY OF CAPE TOWN

A Report of the ADEA Working Group On Higher Education

This study was commissioned and financed by the Working Group on Higher Education which is sponsored by the Association for the Development of Education in Africa (ADEA). It was also supported by substantial in-kind contributions from staff of Eduardo Mondlane University. The views and opinions expressed in this report are those of the authors and should not be attributed to ADEA, to its members or affiliated organizations, or to any individual acting on behalf of ADEA.

Published by the ADEA Working Group on Higher Education
The World Bank
1818 H Street, N.W.
Washington, D.C. 20433
U.S.A.

The Working Group on Higher Education (WGHE) was founded in 1989 to strengthen collaboration between African governments, development agencies, and higher education institutions. Its goals are to improve the effectiveness of development assistance and, more broadly, to support the revitalization of African universities. The lead agency of the WGHE is the World Bank, which works closely with the Association of African Universities (AAU) in carrying out the WGHE's activities.

© ADEA Working Group on Higher Education
July 1999

Table of Contents

Introduction	1
University Science, Humanities & Engineering Partnerships in Africa	2
What is USHEPiA?	2
The origins of USHEPiA	2
Funding of USHEPiA	4
Setting up USHEPiA	4
USHEPiA in operation	5
USHEPiA: progress to date	6
USHEPiA achievements	6
USHEPiA difficulties	7
USHEPiA: A Critical Analysis	9
Key success factors	9
Lessons from USHEPiA and other networks	10
Conclusion: Networks and the Future	11
References	
<i>Appendix 1:</i> Memorandum of Understanding	
<i>Appendix 2:</i> USHEPiA Fellows	

Acknowledgements

The authors would like to thank Dr. Jeffrey Fine for his helpful comments on a draft of Section 3 of this paper, but more importantly for his generally insightful comments on the USHEPiA programme at various stages of its evolution.

USHEPiA:

BUILDING A RESEARCH CAPACITY NETWORK IN AFRICA

Martin West¹ and Lesley Shackleton²
UNIVERSITY OF CAPE TOWN

ABSTRACT

A case study of the USHEPiA (University Science, Humanities and Engineering Partnerships in Africa) project is presented in an attempt to suggest ways of developing African research capacity using a network of institutions. The USHEPiA experience demonstrates the effectiveness of a network based on a common needs assessment, the enthusiasm of all participants, and adequate management capacity. This study examines the origins of the project, reviews its modus operandi and its achievements, and then attempts a critical analysis of its effectiveness to date and the lessons learned.

Introduction

The problems of higher education in Africa are well known. In general, according to one respected analyst, universities have been faced with limited resources and increasing enrolments, often "against a background of poor national economic performance, inappropriate governing structures, feeble national policies, political interference in many aspects of university endeavour, weak internal university management, and campus instability" (Saint 1997: 3). Faced with these problems, in whatever combinations, it is not surprising that the research endeavour, including postgraduate support, suffers most. Limited facilities, poor salaries, the need to moonlight, and occasionally, the lack of a research tradition, compound the problem. These problems exacerbate the difficulty of African universities to compete globally in a situation where international co-operation, partnerships and networks are increasingly important to successful research.

These circumstances have stimulated an increasing interest in the potential of African networks as one way of developing research capacity on the continent. This network approach seeks to move beyond the simple dissemination of knowledge – the conventional function of networks – to the strengthening of research capacity and the production of new knowledge (Prewitt, 1998:13).

¹ Deputy Vice-Chancellor at the University of Cape Town and Project Leader of the USHEPiA programme.

² Director of the International Academic Programmes Office at the University of Cape Town, with overall management responsibility for the USHEPiA programme.

The University Science, Humanities & Engineering Partnerships in Africa (USHEPiA) project has been identified as one of several successful examples of an African capacity-building network (Prewitt 1998). This paper presents a case study of the project. It offers a preliminary analysis of its effectiveness to date and highlights lessons that could be learned from it by those wishing to maintain, support or develop other research networks on the continent.

University Science, Humanities & Engineering Partnerships in Africa

WHAT IS USHEPiA?

USHEPiA developed as a co-operative programme between a number of partner Universities in East and Southern Africa. The following universities are currently members: Makerere University (Uganda); Jomo Kenyatta University for Agriculture & Technology, the University of Nairobi (Kenya); the University of Dar es Salaam (Tanzania); the University of Zambia; the University of Zimbabwe; the University of Botswana; and the University of Cape Town (South Africa).

USHEPiA is a "south-south" initiative with the aim of human resource development through sustainable capacity-building in the general areas of science, engineering and the humanities. Working through an International Steering Committee, USHEPiA has awarded 39 fellowships since its formal inception in 1995. Thirty-six of the fellowships have allowed staff development Fellows at the participating universities to work for higher degrees (34 at the University of Cape Town, and one each at the University of Nairobi and the University of Dar es Salaam). The approach is based on the "sandwich model" in which the Fellow alternates between the partner universities. The programme is implemented by a management structure that links supervisors at each university with the aim of fostering of research capacity within participating universities.

THE ORIGINS OF USHEPiA

The origins of USHEPiA can be traced to two developments. Firstly, the political changes in South Africa in the 1990s re-opened the possibility of contacts and co-operation between South African universities and their counterparts to the north. Secondly, donors in the northern hemisphere became interested in the possibilities inherent in so-called "south-south" initiatives in higher education and, later, to the role of networks in this type of collaboration.

The key African initiative came from the Association of African Universities (AAU). With the support of the Organisation of African Unity, the leadership of the AAU anticipated the final transition in South Africa, and placed the issue of the South African universities on the agenda of their 1992 Annual Meeting in Accra, Ghana, inviting representatives of the South African universities as observers. The University of Cape Town (represented by Deputy Vice-Chancellor Martin West) was one of the small number of South African universities to accept the invitation.

A special segment of the meeting, chaired by Professor Thomas Tlou, then Vice-Chancellor of the University of Botswana, was devoted to the issue of South Africa. It recommended that member universities should be open to individual academic contacts with South African universities.³ This became AAU policy and provided the political legitimacy, before the advent of the new South African democracy, for the contacts that later gave rise to USHEPiA.

³ It is interesting to note that the South African universities were then seen, in the AAU terminology of the time, and prior to the 1994 elections, as "Universities in Africa" rather than as "African Universities".

The 1992 AAU meeting, and subsequent AAU meetings, were influential in a number of ways. They introduced the University of Cape Town to its counterparts on the continent; they helped to develop links and relationships with individual university leaders; they led to further contacts with the donor community and in particular members of the ADEA; and in general they helped to begin breaking down the isolation wrought by the decades of apartheid.

The AAU initiative led directly to discussions at the University of Cape Town on possible future linkages. As a first step, it was decided to begin with Anglophone institutions in Southern and East Africa due to the ease of communication in terms of both geography and language. This led the then Vice-Chancellor of the University of Cape Town, Dr. Stuart Saunders, to authorise Martin West to visit universities in Southern and East Africa in 1993 to explore possibilities for co-operation. In this the Rockefeller Foundation, in the person of its then East African Representative, Dr. David Court, played a critical facilitating role in making introductions in East Africa, and providing valued advice and logistical support.

Discussions explored whether mutually useful forms of co-operation between UCT and other African universities were possible, and if so, what shape these might take. Once the ice was broken and UCT made clear that it was interested in mutually-reinforcing partnerships with opportunities to learn as well as to share, the meetings were cordial and constructive.

Remarkable unanimity arose out of a number of separate meetings concerning the importance in any future collaboration of staff development through the pursuit of higher degrees. In general a joint project with UCT was favoured over similar schemes with the northern hemisphere because research undertaken by staff development fellows was likely to be more relevant to the continent, costs were likely to be lower than for an equivalent scheme in Europe or North America, and it was hoped that a continental location would reduce the threat of brain-drain. The UCT also explained that it had much to gain in renewed links with the rest of the continent, mainly through the development of research projects, the filling of spare graduate capacity in some areas, and the role that other African researchers and graduate students could play as role models in the emerging new South Africa.

At roughly the same time, Dr. Stuart Saunders, supported by then Deputy Vice-Chancellor, Dr. Mamphela Ramphele, approached the Rockefeller Foundation with a proposal to develop south-south research links in the field of capacity-building partnerships in science and engineering. The Rockefeller Foundation responded favourably, with particular support from Dr. Joyce Moock, in the form of a launching grant which was used to fund an exploratory workshop at UCT in early 1994. Vice-Chancellors and Deans of Science and Engineering from several Southern and East African universities visited UCT, examined facilities available, agreed that co-operation was viable and important, and drew up a Memorandum of Understanding (Appendix 1), authorising UCT to solicit funding for a sustainable staff capacity-building programme.

The group also established a Steering Committee to manage the process, consisting of two representatives from UCT and three from other partner universities. The involvement on the Steering Committee of three Vice-Chancellors from the partner universities – Professor Mathew Luhanga of the University of Dar es Salaam, Professor Ratiemo Michieka of Jomo Kenyatta University for Agriculture & Technology, and Professor Andrew Siwela⁴ of the University of Zambia – became very important resources as the project unfolded.

⁴ Professor Siwela was replaced by Professor Sharon Siverts, Vice-Chancellor of the University of Botswana, in 1998.

In sum, the development of USHEPiA can be attributed to the vision of the AAU in providing a framework for co-operation, to subsequent initiatives from UCT in beginning contacts and providing fund-raising and organisational skills, to key donor agencies for enabling these initiatives, and to the enthusiasm and support of Vice-Chancellors in the partner universities.

FUNDING OF USHEPiA

Fund-raising for the project, which became known as USHEPiA, was undertaken by UCT, firstly by Dr. Saunders, and then by Dr. Ramphele when she succeeded him as Vice-Chancellor. Major funding for Fellowships in Science and Engineering initially came from the Rockefeller Foundation and the Carnegie Corporation, with some financial support also contributed by the Ridgefield Foundation and the Coca Cola Foundation. Significant funding was later obtained from the Andrew W. Mellon Foundation for the addition of fellowships in the Humanities. By 1999, \$2,188,000 had been raised to launch the programme.

The development of USHEPiA coincided with increasing interest on the part of the donor community in two areas: the potential of inter-institutional networks as a part-solution to problems being faced by individual institutions in Africa; and a parallel interest in the development of “south-south” linkages. USHEPiA qualified on both of these counts, and has consequently attracted financial support.

At a more general level, it should be noted that donor interest in networks has remained high, prompting a number of investigations into potential success factors (e.g. Prewitt, 1998). This remains an important development area in Africa. The track records and existing analyses of several successful African networks provide useful guidelines for others.

SETTING UP USHEPiA

An important step in the development of the USHEPiA project was a series of reciprocal visits by UCT staff to prospective partner universities. These were undertaken against the background of a useful review by Lesley Shackleton of existing linkages between UCT and other institutions in the region, as had been suggested by the funding agencies.

The visits were a condition of the funding received and turned out to be crucial in the development of the programme. The first delegations focussed on science and engineering, and later on the humanities when funding for this was obtained. The UCT delegations included Deputy Vice Chancellors David Woods and Martin West, Lesley Shackleton, and the Deans of Science, Engineering, Social Science and Humanities, and Arts. These visits were valuable in giving UCT academics first-hand experience of the conditions and resources of potential partner universities, and for highlighting particular priority areas for collaboration. Moreover, the visits helped to cement good working relationships between the participating institutions which have become a hallmark of the USHEPiA programme.

The visits were also administratively important in that the experience gained helped Lesley Shackleton, who became Director of the UCT International Academic Programmes Office, to set up an appropriate operational structure for USHEPiA. It is interesting to note that this initial contact with other African universities contributed directly to UCT’s subsequent decision to establish an International Academic Programmes Office in 1996.

This office has undertaken the direct administration of the programme since its inception. In this it has been assisted by a local Management Committee (which has one non-UCT member from a partner university) and by the Steering Committee, which is the overall policy- and decision-making body.

USHEPiA IN OPERATION

The USHEPiA programme has eventually settled on a consistent pattern. Once funding is received for a specific cohort, fellowships are advertised at partner universities. Staff members at partner universities may apply to do a higher degree (registration is permitted at UCT or at the partner university; to date two Fellows have registered at the University of Nairobi and the university of Dar es Salaam) or to spend a shorter period at UCT for a specific project (such as writing-up, using specific equipment, or taking a particular training course). The fellowships allow travel and subsistence for a maximum of 20 months at UCT, and also make provision for supervisor travel (supervisors are appointed at both UCT and the partner university), research expenses and relevant research equipment.

Applications are channelled to UCT via the office of the Vice-Chancellor of each partner university. The endorsement of the Vice-Chancellor is required for each application, thus ensuring high-level support and involvement at an early stage.

Applications are received by the UCT International Academic Programmes Office, which administers the programme. Applications are submitted to appropriate departments or individual academics, after which a meeting is held with those interested to explain the project in detail and to assess the reactions and commitment of the potential supervisors.

Information is then collated and the Management Committee (which includes one representative of a partner university to whom all the papers are sent for external assessment) prepares a short-list of candidates. The Steering Committee then meets to determine the awards, subject to a final approved budget and satisfactory academic programme.

Once the awards are made, the successful candidates are informed. If they accept in principle, funds are released for the UCT supervisor to travel to meet the candidate and the potential local supervisor at the home university. These very important visits allow for the in-person assessment of the candidate, for the refinement of the project, and for the drawing up of a work plan and budget in consultation with both supervisors. The opportunity for the supervisors to meet at an early stage has also proved quite helpful.

The fellowship is confirmed once the final budget and academic plan are approved. Each work plan is individually tailored, and varies depending on the need to access equipment and library resources (often at UCT) and time required in the field (usually in the home country). Whilst it is the UCT supervisor's responsibility to manage the day to day operation of each fellowship (including devolved responsibility for research and travel funds), general co-ordination, including responsibility for the rest of the budget, is provided by a dedicated USHEPiA office within the International Academic Programmes Office at UCT. The USHEPiA co-ordinator assists the Fellows and supervisors with practical problems, establishes operational procedures, circulates information, and ensures that visiting supervisors and Fellows are integrated into academic life at UCT. The USHEPiA co-ordinator also facilitates annual reporting and evaluations.

USHEPiA: PROGRESS TO DATE

By mid-1999 funding had been received for two cohorts of science and engineering Fellows and two cohorts of humanities Fellows. A total of 36 full-degree fellowships have been awarded: 12 in science, 10 in engineering and 14 in the humanities.⁵ Ten of the fellowships have been awarded to women (out of 28 applications from women) and 26 to men (out of 155 applications). It has been the desire of both the partner universities and the funders to increase the number of women Fellows in the programme, and the partner universities have undertaken to emphasise this in their nominations. Nevertheless, the small number of woman applicants remains a problem.

By mid-1999, various results were registered. Two PhDs and 2 Masters degrees had been awarded, all but one (a PhD from the University of Nairobi) bestowed by UCT, and several further graduations were expected by the end of 1999. In terms of attrition, there have been only two fellowships which have been terminated before completion – one due to an untimely death and the other to domestic financial reasons. While the programme has concentrated on full fellowships, there have been opportunities for shorter research visits. A total of 3 shorter visits have been undertaken under the auspices of the programme. In addition, over 40 supervisors have visited partner universities. Supervisor visits have often given rise to further activity, such as seminars, lectures, external examining and research co-operation.

An important part of each fellowship is the equipment that the Fellow takes back to the home university. In all cases to date this has involved computer hardware and software, and often includes specialised scientific or technical equipment including books. The choice of equipment is influenced both by the immediate research needs of the Fellow, but also importantly by what is judged to be necessary to help sustain research upon the Fellow's return to the home university.

Evaluation has been a part of the USHEPiA plan since its inception. The Steering Committee decided that it would be appropriate to conduct an internal evaluation four years into the project. An evaluation workshop was held during 1998 involving Fellows and senior delegates from all the partner universities. The workshop assessed USHEPiA's operational strategies and its effectiveness in achieving its goals, and also gave some thought to future development. The workshop endorsed USHEPiA as a very successful south-south network, and made a number of suggestions for strengthening the programme in the future. These included: deepening rather than broadening the linkages between USHEPiA partner universities; focussing more on shorter degrees and training courses; empowering local supervisors; building up sustainable research in home universities; and attempting to find sustainable sources of funding.

USHEPiA ACHIEVEMENTS

There is no doubt that USHEPiA is achieving its aim of promoting research collaboration amongst African researchers in order to build institutional and human capacity. The project has helped to break down some of the historical barriers between South Africa and the rest of the continent, and the fellowships have also provided a focus around which regional research collaboration has developed. The travel of Fellows and supervisors between institutions has increased understanding and broadened horizons. Lesley Shackleton has calculated that on average some 5 academics are closely involved with each project (the Fellow, 2 supervisors and often at least 2 other researchers). In our view, such participation is particularly important to Fellow's ultimate success as it provides him or her with a mini-network of support.

⁵ See Appendix 2 for details of the cohorts up to 1998; the 1999 second humanities cohort was being finalised at the time of writing.

This collaboration has led to a sharing of regional resources in a number of instances, as the following examples serve to illustrate. The Zambian supervisor of two of the USHEPiA Fellows in the field of Chemical Engineering has expertise which is not available at UCT and now annually gives a course at UCT. In another area, a short Fellowship was given to a member of the Marine Institute from the University of Dar es Salaam to use isotope analysis equipment in the Archaeology Department at UCT. A UCT supervisor in the field of education has donated her academic library on retirement to Makerere University, and a number of USHEPiA supervisors have been appointed as external examiners in each other's institutions.

The goal of developing a network of African researchers capable of addressing the developmental requirements of sub-Saharan Africa is also being addressed. Research within the USHEPiA programme covers a wide variety of areas and applications. Examples include: developing new metal alloys from recycled material, studying the bacteria which cause gastro-enteritis, understanding and predicting rainfall and droughts, curriculum design and evaluation, the use of indigenous music in education, and gender relationships in coastal resource utilisation.

USHEPiA Fellows are encouraged to present their results at international conferences and in world-class research journals. At present, a number of scientific papers are in preparation. In general the programme is developing and strengthening research processes and skills.

While the programme has begun to deliver in terms of the fellowships themselves, it was clear almost from the start that there would be various unforeseen advantages – known within the programme as "spin-offs." Some of these have already been referred to, such as the short courses, external examining, and other sharing of resources. Others have included useful linkages between university managements, individual academic departments, and between the Fellows themselves.

USHEPiA DIFFICULTIES

The implementation of USHEPiA has not been without its difficulties. Communication problems – whether by letter, fax, e-mail or telephone – are almost endemic in Africa, and have probably been the most challenging of the difficulties faced. They have affected communication between the USHEPiA office and the partner universities and between Fellows and supervisors. To some extent this has been countered by members of the USHEPiA office staff (Nan Warner and Caz Thomas) visiting the partner universities and making direct contacts. The office has also produced detailed written documentation which partner universities have found very helpful. Modern communication means are critical to research, and their absence, unreliability, and high cost when available, remain a very significant hurdle to development on the continent, not least in the academic sphere.

The method of selection of Fellows has worked well. It has efficiently brought together the mutual research interests of the institutions, helpfully linked to high-level support from the partner universities and corresponding enthusiasm for the project from UCT. The only significant problems encountered have been the result of inexperience in assessing the prior qualifications of some Fellow candidates. On a few occasions a Fellow has needed remedial coursework or training before beginning the research. This has retarded the schedule, cost extra money, and sometimes lowered morale.

The joint supervisor system has generally worked well and produced benefits. But it has not always been wholly successful. Difficulties have occurred, for example, on occasions where the USHEPiA requirement of a local supervisor has not yielded a qualified staff member at the partner university. This has sometimes resulted in an unsuitable local supervisor being appointed – or more often in a local supervisor being appointed from another university in the area. It is noteworthy that the only early withdrawal from a fellowship was by a Fellow whose local supervisor was at another (distant) local university, and who consequently lacked part of the support network that other Fellows have enjoyed.

The joint supervisor system has led to some tensions over division of labour. In part some of the difficulties encountered may be attributed to the fact that the duties of the supervisors and the nature of their relationship were never adequately addressed within the project – a matter referred to in the evaluation workshop in 1998.

The decentralised funding system has worked efficiently, but has had to be adjusted as the management team has learned more about the needs of Fellows. Initial stipends, for example, were too low and had to be increased. The inadequacy of salaries at the home universities has been a constant problem, and a number of Fellows have found themselves worse off at UCT, despite having notionally the same income, as they had lost “perks” attached to their conditions of service at home. One Fellow relinquished his fellowship as he could no longer sustain his family at home. We suspect that others have had to prolong their research programmes at home through having to spend time working on the side to augment their salaries. On another level, a contingency fund had to be introduced to deal with various unforeseen problems (for example, the costs associated with the sudden death of a Fellow, changes to work programmes involving extra time to be spent at UCT, problems with equipment, and so on). The original budgets submitted to donors made no allowance for these, and the costs have been rather fortuitously met through the use of interest (given the high South African interest rates) on donor money invested before being used.

The “sandwich” system has worked well for the most part. But Fellows have experienced difficulties in completing work once they return to their home universities. The pressures of local work and local responsibilities have been a factor on more than one occasion.

While the USHEPiA programme is undoubtedly meeting its aim of capacity-building, the question of the sustainability of the research enterprise remains as a critical issue. To date the University of Cape Town has borne all the responsibilities of fund-raising and of project management, with no direct initiatives from the other partner universities. Strong home university support will be needed to ensure sustainability once the fellowship has ended and the Fellow has returned to home base. It is too early in the project to evaluate this aspect properly, but there have been some encouraging signs. In the field of education, for example, Gorette Nakabugo has returned to Makerere with the objective of setting up a Master’s course in curriculum design and is attempting to gain funding for this. And in several of the engineering projects, contacts made at UCT have helped colleagues in Zambia and Zimbabwe develop the ability to seek industry support for further research.

While the partner institutions have been extremely supportive of the USHEPiA project, there have been occasional conflicts – notably where there has been a tension between the interests of senior staff and those of the more junior Fellow. A typical example concerns control of equipment made available to the Fellow, which may be eyed jealously by more senior colleagues.

Overall the administration of the programme demanded much more in terms of time and money than had been anticipated at its inception. In particular, efforts involved in communication, reporting to donors, and in the daily management of the fellowships have required much more effort than originally envisioned.

The organisational structure – essentially an administrative office, a local management committee and a steering committee – was put in place at the start by informal agreement amongst the partners. In what is probably typical network fashion, no great attention was paid to constitutional detail or future possibilities. While this structure has been very effective in running the programme, its strength is also a possible weakness. It provides no easy mechanism for change (for example, it has no agreed way of adding or subtracting partner universities, or even changing committee members). In fact, significant structural change – should it be required – would most easily be achieved by outside pressure (through donors or external evaluators).

USHEPiA: A Critical Analysis

In this section we offer a preliminary analysis of some of the key factors which have contributed to the initial success of the USHEPiA programme at this stage of its development, and then turn to some of the main lessons that we believe can be learned for those interested in regional co-operation in graduate training.

KEY SUCCESS FACTORS

- *Thorough advance consultation*

The USHEPiA project emerged from a series of preliminary meetings that established common concerns, and built personal relationships at an early stage. AAU support was politically important in the early stages. So too were the reciprocal visits at senior management level (including Vice-Chancellors, Deputy Vice-Chancellors and Deans) that familiarised the potential partners with the facilities and interests of the different universities. The Cape Town workshop and Memorandum of Understanding allowed interested parties to shape and define the project co-operatively, and was very important to the "buy-in" of those involved.

- *Agreed identification of objectives*

The south-south partnership was viewed by all parties as a powerful advantage. The project was seen to offer mutual advantages for capacity-building within the continent, as contrasted with the asymmetrical relationships more customary in north-south programmes. Early discussions between potential partners clarified the specific advantages. UCT, for example, stressed its unused capacity to receive additional post-graduate students, its desire to develop research relationships within the continent, and the importance of students from other parts of Africa as role models within the changing South African context. Other partner universities stressed their staff development and capacity-buildings needs, as well as their desire to develop continental research relationships. The sharing of a common research tradition – however attenuated by circumstances in some of the partner universities – was a vital underpinning of the programme.

- *High-level co-operative management backed by intensive local management and support.*

The processes followed ensured institutional buy-in from the start, at the highest level. As the project developed, the direct involvement and support of the Vice-Chancellors of the partner universities proved crucial in resolving administrative and other difficulties.

The professional administrative support of the UCT International Academic Programmes Office has also been critical in developing the process, underpinning its implementation, and in being able to deal effectively with unforeseen difficulties as they have arisen.

- ***Flexible individual fellowship management***

The flexibility of the fellowship model has also been important, particularly as far as budgeting is concerned. Each fellowship is individually-tailored as part of an interactive process involving the Fellow and the two supervisors. Despite initial concerns, the concept of flexible budgeting for fellowships has been accepted by donors,.

- ***The "enthusiasm principle"***

Common interests and capacity have been necessary but insufficient factors in the success of USHEPiA to date. What has been referred to within the USHEPiA administration as the "enthusiasm principle" has been particularly important – in practice this has referred to an assessment of the degree of enthusiasm for the project, starting with the assessment of potential partner universities and continuing with a similar assessment of potential supervisors.

- ***Network development beyond individual fellowships.***

USHEPiA has been devised to develop networks beyond those involving individual Fellows. The programme has developed linkages between universities, departments and supervisors. This has led to other spin-offs, particularly involving supervisors, such as the appointment of external examiners, and invitations to lecture or deliver seminars.

We believe that such opportunities for supervisors to travel and meet have been a particularly valuable aspect of the programme, and have in most cases facilitated the proper joint management of the research programme of individual Fellows.

- ***Multi-level, interacting linkages.***

One of the most successful characteristics of the USHEPiA network has been that it involves effective networking at three levels simultaneously: at the university senior management level; at the departmental level; and at the level of individual Fellows.

- ***Sustainable capacity-building.***

An attraction of USHEPiA for its participants is its declared aim of sustainable capacity-building. Its strategy in this regard includes the involvement of joint supervisors, the focus on local research projects, the provision of suitable equipment, and the emphasis on longer-term research co-operation and the ability to raise funds independently for future research.

- ***Other factors***

A subsequent evaluation of the project has highlighted the following as particular factors contributing to potential success: flexible determination of budgets, active involvement by supervisors in the selection of Fellows, and the attractiveness for staff of an expanding student network which in turn expanded their research horizons (Fine, 1997:40-1).

LESSONS FROM USHEPiA AND OTHER NETWORKS

The Bellagio Colloquium (Prewitt, 1998) represents an initial attempt to identify success factors in research networks. Among the factors identified as critical for eventual success were balancing open membership with quality; a good governance system which can manage multiple relationships and deal with conflicts; financial stability; and good project management.

A further discussion of partnership networks was undertaken in late 1998 under the auspices of the Association of African Universities (AAU) and the Association for the Development of Education in Africa (ADEA, 1998). Key lessons for potential success learned from the examination of four networking experiences were suggested as:

- A common needs assessment with shared ideas of problems and solutions
- A demonstrated demand for the proposed activities
- Adequate management capacity
- Frequent communication and decision-making transparency
- institutional ownership of the programme.

As the foregoing has indicated, the USHEPiA programme clearly incorporates the factors referred to above. On this basis, it may be said to be a successful network at its current stage. But the final analysis will require appropriate evaluation of performance against objectives. The USHEPiA programme has already undergone one internal evaluation at a meeting attended by representatives of all involved sectors: Vice-Chancellors, Deans, external and internal supervisors, the Fellows themselves, and the project management. This was valuable as a mid-term assessment, and allowed fine-tuning of many of the details of the programme. Nevertheless, a full external and independent evaluation is planned. Real success or failure, however, can only be assessed in years to come when the passage of time will indicate USHEPiA's longer-term results in terms of sustainable capacity-building.

CONCLUSION: Networks and the Future

We conclude with some questions that have been asked about USHEPiA as a general model. Can it be offered for wider adoption on the African continent? Or is it so dependent on a major partner – in this case the University of Cape Town – that the result is not much different from the unequal relationships that many African universities have had with counterparts in other parts of the world? It is true that UCT plays a major role in the network, but it does so by agreement of the partners, and on the basis of its capacity and facilities for the training of researchers which are not generally available at universities in other parts of the continent. USHEPiA, as we have shown, developed out of joint discussions in which it was clear that both UCT and its future partners had much to gain from the project. We would contend that the structure and governance of the project, as well as its “south-south” nature rooted on the African continent, makes it very different from the usual one-way training schemes in place between Africa and other parts of the world.⁶ This difference is reinforced by the multiple linkages which have emerged as the programme developed.

⁶ The USHEPiA programme is consistent with UCT's strategic vision of becoming a world-class, African university, “exemplifying Africa's capacity to succeed on its home ground” (University of Cape Town, 1999).

As far as the replicability of the model is concerned, we would contend that many of the key success factors mentioned above are certainly applicable at a general level to other African networks. As far as staff development and research training is specifically concerned, we believe that the model is apposite – provided that there are one or more institutions which have the capacity, jointly or severally, to provide facilities of the appropriate quality.

Co-operative research networks have an important future in higher education, and not only in Africa. As William Saint has rightly pointed out, cross-country and cross-institutional co-operation needs to be the norm and not the exception, and African universities need to build capacities to initiate and manage partnerships as this becomes the dominant global practice for research and training (ADEA, 1998). We believe that the interest shown by the donor community in viable network projects should encourage their further development in Africa.

Despite interest in the role of networks in building research capacity, it is agreed that there is no single model of success. Fine has aptly characterised these networks as based on "structured informality" (Fine, 1997). Faced with the absence of a single model, there have been increasing attempts to understand the factors which might lead to either success or failure. We submit that the USHEPiA project provides some useful pointers in this regard.

While it is important to heed Prewitt's caution that networks are supplements and not substitutes for ordinary institutional structures such as universities and research institutes (Prewitt, 1998:21), their flexibility and ability to transcend other boundaries make them particularly useful tools for sharing resources and strengthening a somewhat imperilled research enterprise on the African continent.

5 July 1999

References

- ADEA. *African Regional Frameworks for Graduate Training and Research*. Report of an ADEA Working Group on Higher Education. Ougadougou, Burkina Faso, November 1998.
- Fine, J.C. *Networks for Research & Learning: A Strategic Approach to Capacity Building in Sub-Saharan Africa*. Unpublished paper: Cross-National Capacity Building in Africa: Interventions that Work, Rockefeller Foundation, Bellagio, Italy, July 1997
- Prewitt, K. (ed.), *Networks in International Capacity Building: Cases from Sub Saharan Africa*, SSRC Working Papers, 2, 1998
- Saint, W. *Revitalizing Universities in Africa*. World Bank, 1997
- University of Cape Town, *Strategic Planning Framework : First Revision 1999-2002*), June 1999.

Memorandum of Understanding

We the undersigned record that we have held meetings with our colleagues at the University of Cape Town over the period 21-24 February 1994.

The purpose of these meetings was to familiarise ourselves with the resources, facilities and research interests of the University of Cape Town in the fields of science and engineering, to reciprocate with similar information about our own universities, and to discuss with our colleagues the possibilities of future co-operation.

We record that we have had fruitful discussions on Human Resources Development for sustainable capacity-building for Science and Engineering at universities in sub-Saharan Africa. We are agreed that the proposal will stress mutual collaboration with the intent of strengthening science and engineering capacity in our own countries.

We record that, as a result of these deliberations, a final proposal document will be drawn up which will stress the vital importance of staff development programmes which will include study for higher degrees, research collaboration, and sharing of resources.

We have agreed to the formation of an interim steering committee to oversee the development of a mechanism for soliciting and allocating funds for the project.

We wish to place on record our full support for the project, and our endorsement of the initiative of the University of Cape Town in obtaining financial support for it.

Signed in Cape Town, 24th February 1994, by Vice-Chancellors, Deans and other representatives attending the meeting.

USHEPIA Fellows (Information up to June 1999)

SCIENCE & ENGINEERING 1996: COHORT S&E96

NAME	UNIVERSITY	DEGREE	TITLE	ESTIMATED DATE OF COMPLETION	AGE
Ignatius Matsheka	University of Botswana	Ph.D.	Genomic fingerprinting of <i>Campylobacter</i> , <i>Helicobacter</i> and <i>Arcobacter</i> by restriction fragment end-labelling	End 1999	30
Mufalo Mbinji	University of Zambia	Ph.D.	Spatio-Temporal Response of Farmer Decision in a Subsistence Economy	End 1999	35
John Mothibi	University of Botswana	Ph.D.	Formulation of Science and Technology Policies for Botswana : a system dynamics approach	Mid 1999	35
Wata Mpoloka	University of Botswana	Ph.D.	The genetic effects of UV radiation on <i>Dimorphotheca sinuata</i> DC (Asteraceae)	End 1999	29
Henry Mulenga	University of Zambia	Ph.D.	Tropical convective anomalies and Southern African circulation	Mid 1999	44
Maxwell Musongole	University of Zambia	Ph.D.	Stochastic Modelling and Optimization of Product-Service System	End 2000	38
Nellia Mutemeri	University of Zimbabwe	Ph.D.	Fluid Evolution and Gold Mineralization in the Archaean Harare Greenstone Belt	End 1999	36
Dr. Noel Nalitolela	University of Dar Es Salaam	CAD/CAM		Complete	N/A
John Ochora	JKUAT	Ph.D.	The embryology, seed coat and conservation of some Kenyan species of the Orchidaceae	Mid 1999	39
Simon Onywere	University of Nairobi	Ph.D.	Structural analysis of the drainage basin of the Kenyan rift valley lakes Bogoria, Nakuru, Elementeita and Naivasha (Aberdare Detachment) using satellite data, GIS and Field Observations	Complete	36
George Simba	JKUAT	Ph.D.	The numerical modelling and analysis of asphaltic pavement structures under dynamic loads.	Early Termination	44
Peter Taringa	University of Zimbabwe	Ph.D.	The effect of impurity elements on the properties of an LM6 (aluminium-12% silicon) alloy	End 2000	32
Cornwell Tapa	University of Zambia,	M.Sc.	An evaluation of the floatability of open pit and underground ores from the Nchanga Division of ZCCM	End 1998	38

HUMANITIES 1997: COHORT H97

NAME	UNIVERSITY	DEGREE	TITLE	ESTIMATED DATE OF COMPLETION	AGE
Agripah Gava	University of Zimbabwe	Ph.D.	Post-War Rehabilitation Policies for Ex-Servicemen and other Victims of War from the Great War to the Second World War in Southern Rhodesia and South Africa, and the Post-Liberation War Rehabilitation Policies in Independent Zimbabwe and South Africa.	End 1999	41
Rosemarie Mwaipopo-Ako	University of Dar es Salaam	Ph.D.	Gender Relationships and Coastal Resource Utilisation and Management in Tanzania	End 1999	37
Hassan Mwakimako	University of Nairobi	Ph.D.	Ulama and Social Consciousness in Kenya : The Contribution of Sheikh Abdalla Saleh Farsy 1912 - 82	End 1999	34
Mary Gorette Nakabugo	Makerere University, Uganda	M. Phil		End 1998	26
Joseph Ng'andu	University of Zambia	M.Mus.	Music Education	Mid 1999	42
Crispino Chicano Ochieng	JKUAT	Ph.D.	Culture and the Built Environment in Regional Urban Centres of Western Kenya	End 1999	38
Martha Ambrose Suley Qorro	University of Dar es Salaam	Ph.D.	The Teaching and Learning of Writing Skills in Tanzania Secondary Schools : Their Effectiveness in Meeting Students' Future Writing Demands	End 1999	46

SCIENCE & ENGINEERING 1998: COHORT S&E98

NAME	UNIVERSITY	DEGREE	TITLE	ESTIMATED DATE OF COMPLETION	AGE
Adrian Habanyama	University of Zambia	Ph.D.	Condensed Matter Physics	Mid 2001	32
Robert Kiunsi	UCLAS	Ph.D.	Desertification Control in Tanzania	End 2000	42
Fainess Lumbwe	University of Zambia	M.Sc.	Range Management as it Relates to Vegetation and Land Use	End 1999	24
Hagai Martine	UCLAS	Ph.D.	Knowledge-Based Extraction of Spatial Information from Satellite Data	End 2000	40
Viviene Matiru	JKUAT	Ph.D.	The use of Bacteria in Growth Promotion of Kenyan Cereal Crops, Forage Grasses, Coffee and Tea	End 2000	37
Ramadhan Mlinga	University of Dar es Salaam	Ph.D.	Significance of the Informal Construction Industry in the Development of the National Economy - The case of Tanzania	End 2000	37
Ronnie Nyemba	University of Zambia	Ph.D.	Influence of Maturity Status on Nodule Durability and Nitrogen Fixation in bush-type <i>Phaseolus vulgaris</i> L.	End 2000	42
Adam Sebbit	Makerere University, Uganda	Ph.D.	Dynamics of Energy Consumption Mix in Developing Countries with Uganda as a case study	End 2000	42
Edward Siame	University of Zambia	M.Sc.	The Role of Pulp Chemistry in the Recovery of Nchanga Copper / Cobalt Ores	End 1999	28
Gitae Wanyona	JKUAT	Ph.D.	Construction Economics	End 2000	44
Julius Francis	University of Dar es Salaam	Short course	Coastal & Offshore Marine Pollution	Complete	N/A
Alfred Muzuka	University of Dar es Salaam	Consultancy Project	Stable Isotope Compositions of Sedimentary Organic Matter in Tanzanian Coastal Waters	Complete	N/A

HUMANITIES 1999: COHORT H99

Six full-degree Fellowships and one short-term Fellowship were awarded in June 1999, and were in the process of being finalised at the time of writing. Four of the awards have gone to women and three to men.