

LOCAL RESEARCH-CAPACITY DEVELOPMENT IN UGANDA:CHALLENGES AND PROSPECTS

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ABSTRACT

In a fast changing world, the South continues to face overwhelming challenges of sustainable development. These challenges take on a strategic importance for both developing and developed countries, with respect to finite world resources, continued marginalisation of developing countries and globalisation. A time and context focused S & T is fundamental if these challenges are to be addressed. This calls for concerted efforts in Research-Capacity Development, the foundation of any science and technology. Focusing on Uganda, the twentieth poorest nation (UNDP Report 2002), this article examines the issues, challenges and prospects of local Research Development. Four aspects of Research Capacity Development are presented; the Human resources base, the institutions and the research environment. Crosscutting issues such as cooperation/competition, ownership/partnerships in research are discussed. Finally, the article proposes some solutions.

INTRODUCTION

From the time Man started living in communities, societies with an edge in science and technology have controlled nature as well as those communities that had inferior S&T. Thus, societies from the North with superior S&T have continually(ab)used resources from the South, to accumulate a wealth and power-base, used in controlling planetary affairs. A fast changing world-environment, of unpredictable political, economic and environmental dynamics, with spillovers from systems both in the North and South, requires us to reflect more on the 'One World' concept. These same dynamics have worsened the devastating challenges that the Third World faces. Science and Technology has a fundamental role in the judicious use of the limited world resources for any sustainable Development. We here examine the foundation of S&T; Research Capacity Development, notably the prospects, challenges and issues of research in Uganda.

CONTEXT

Uganda is sandwiched between Kenya, Sudan, Tanzania, Rwanda and the DRC. Straddling the Equator in East Africa, Uganda, the 20th poorest nation (UNDP Report, 2002), is predominantly an agricultural country (involving 80% of the Population). 60years of British colonisation that ended in 1962, have left their mark and continue to shape the country's destiny.

Uganda has a chequered post-independence history of political and economic mismanagement; beginning with President Obote to Idi Amin who left a legacy of violence that is still present. It is only in the last decade, that a semblance of economic and political order has been re-established. Even then, the region is still faced with political turbulences in Sudan, Democratic Republic of Congo, Rwanda, etc., the effects of which spill over into Uganda. The country is beset with serious developmental challenges; Poverty, HIV-AIDS, Malaria, and other diseases, ecological and environmental degradation, food insecurity and the fastest population growth-rate in Africa. Fervent efforts to deal with these challenges have been initiated in the last decade; the results however remain modest. Inherited colonial policies and priorities still dominate the way of doing things, including Research.

THE INSTITUTIONS

Pioneer research institutions in Uganda date to the early 1920s and were largely concerned with increasing agricultural output of cash-crops of particular interest to Great Britain, the colonial master then. It was only in the late 1960s that the post-independence Uganda government made an attempt to regularise research activities, forming the National Research Council (NRC) in 1969, to oversee financing of research in Uganda. (Opio-Odongo 1993). Under-funded and generally ineffectual, the National Research Council (NRC) was a fig-leaf for the government's general apathy to research. Subsequent years (1970-90) removed doubts about governmental position on research-development; little research was done during this period.

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An economic revolution in the 1990s and the prior increased interest in developmental issues as a result of several landmark advocacy efforts (Brundtland Commission, the Lagos plan of Action, the Bali declaration etc), as well as the end of the cold war, led to increased funding towards development issues. Action for development called for policy-research; thus a lot of research during this period in Uganda was related to policy-research in social development, and many research institutions have consequently sprung up during the 1990s.

The last inventory of Research and S&T related institutions in Uganda revealed a considerable increase in the number of institutions (123) (Bennett, J.G. 2000). The increased number of research institutions and interest in research led to efforts to streamline the research activities. The indolent National Research Council metamorphosed into the Uganda National Council for Science and Technology (UNCST) in 1990, underlining a reawakening to the importance of S&T in development. The UNCST was formed by an act of parliament, Statute 1 of 1990, which also spells out the mandate of UNCST; this statute.

Empowers the UNCST to provide a central mechanism for rationalising the integration of Science and Technology into the national socio-economic development process, by advising government on all matters relating to Science and Technology for development of National Economy.
(Mugoya, 2000; 145)

The recognition of the role of S&T in development is further underscored by the Vision 2025, Uganda's blueprint for long-term development; "S&T has been recognised in national development-strategy as a clear avenue for Uganda to leap forward from an agrarian to an industrial economy" (Mugoya 2000; 143). However the encouragement of this interest, and the increased inventoried research institutions should not engender a false euphoria! Beleaguered by organisational problems, under-funded and understaffed with less skilled personnel, most of the research institutions are weak, proof of which is the derisory research output. In a period of ten years, for the whole of Uganda, the number of research publications was less than two hundred! During the same period the number of patents applied for were forty (and we are not even

talking of breakthrough inventions). The liberalisation of education, as a result of structural adjustment, has seen the emergence of 11 universities in the last eight years. These are budding institutions and are yet to contribute substantially to research. The two national universities; Makerere University Kampala (MUK), and Mbarara University of Science and Technology (MUST) have seen government-funding slashed drastically reflecting a shift of donor-support to primary education.

Universities have always been bastions of Research in S&T, but Uganda's universities have often been accused of an ivory-tower mentality, of doing research that was disarticulated from the realities of their society. They have further been accused of being more concerned with international accreditation than with responding to local needs (Opio F 1998, Opio-Odongo 1995). University-based researchers have consequently been regarded as being too theoretical for policy-research and this has led to difficult working-relations with other policy-makers. University output in terms of graduates has increased by 30% (1990 to 2000), however single digit PhDs (less than 8 annually) and double digit M.Sc./M.A are still too low to create a critical mass of researchers. Moreover, most of these graduates are quickly absorbed in mainstream employment. The practice of pegging university career-advancement on scholarly (Research) output seems to have been largely ignored in Uganda: partly because there are few regular journals and other publication-media, partly because of the overload that lecturers face (despite increased under-graduate numbers, there is still a ban on recruitment of staff, as a result of structural adjustment policies since 1996). The reluctance to do research and publish is further encouraged by an attitude that once one gets his/her doctorate, then there is little else to prove. It is not therefore surprising to find Doctors, whose last publication was their thesis, heading research institutions.

Slightly divorced from the world of academia, and generally better funded, are the sector-based "mission" research institutions: the National Agricultural Research Organisation (NARO) comprising seven agro-specialised research institutes, the Uganda Investment Authority (UIA), the National Environmental Management Authority (NEMA), the Uganda National Health Research Organisation (UNHRO) and the Uganda National Bureau of Standards (UNBOS).

These research organisations are legally constituted and form the backbone of government research-policy. These institutions are run, and funded by the ministries to which they belong, as well as donors 'interested' in the work they do. The knowledge that has been generated by these research organisations has not really trickled down to the grassroots communities, mainly because of knowledge-sharing and management weakness in the research-system and a lack of multidisciplinary approach. Better- yielding seeds are, for instance, developed, and it is simply assumed that grassroot communities will adopt them; which they do not, because of social norms and other aspects that would better be understood by a social scientist: Thus the need for the natural- science researchers to work with the social scientists. Efforts to diffuse research-knowledge to grassroots, through joint outreach and partnership initiatives by 'mission' research institutions and social research institutions, have been initiated. It is still early to assess their success.

Private-sector involvement in research has been limited. The other research-institutions are independent and struggling, grappling with a system that has not yet fully realised the importance of

research. These NGO-like research institutions depend on donor-funding for commissioned research, which unfortunately is reducing in importance. In an effort to strengthen themselves and hence to have a better bargaining power, thirty-two research institutions formed a coalition of researchers: NURRU the Network of Ugandan Researchers and Research Users. NURRU had early serious organisational problems of mismanagement that led to donors withdraw funding (Rugumire-Makuza 2001). After restructuring, NURRU has re-launched an open call for research-proposals, mostly in the social sciences. In the social science arena, notable institutions are the Centre for Basic Research (CBR), Makerere Institute for Social Research (MISR) and the Economic Policy Research Centre (EPRC).

Perhaps the most important institutions in research, in Uganda, are the funding agencies: by their capacity to influence the research-agenda and the rules of the game. Uganda has benefited from donor-funding, especially on poverty-eradication research, from the OECD countries. Of particular note are Sida-SAREC, DANIDA-ENRECA, UNDP, IDRC, IFAD, GTZ-DAAD, Rockefeller Foundation, RAWOO and the Dutch Ministry of Foreign Affairs, DFID/ESCOR, USAID and

Box - 1: Institutional Profile of S&T System of Uganda

Function	Institutions			
F1	Office of the President	Parliament	Cabinet	Ministries
F2	Uganda National council of S&T UNCST	Mission Agencies NEMA, NARO, UNHRO	International Organisations UNESCO ASARECA	
F3	Public R&D Institutions; Universities, Polytechnics...	Semi-public R&D Uganda Management Institute	International R&D IIATA, CIAT	Private R&D NGOs, Private Universities
F4	University Based Institutions; MISR, EPRC		Others USSIA, Central Materials	
F5	International Donor Agencies: IDRC, IFS, Rockefeller..		Ministry of Finance	
F6	Regulatory and Standards Bodies UNBOS, UIA, URA			

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many others. These institutions have not only determined what research to do, but also who does it, the way it is done, and the policies that emanate from the researches. This has not always been good for Uganda. The nefarious effects of this will be discussed in the issues. What we cannot ignore is that research institutions can only be as good as the people that are involved: because organisations only learn through individuals who learn.

RESEARCHERS

“The active force in any organisation is people. All the other resources are only tools” affirms management guru, Peter Senge, in his book ‘The fifth Discipline’”. Research Networks, research infrastructure and research environment can only deliver ‘good’ research, as good as the researchers involved. The UNDP Human Development Report on S&T (2002) places Uganda at the 150th mark in S&T out of 173 countries. For every million Ugandans, only 25 scientists and engineers are available. Opio-Odongo (1995) laments the quality of researchers; the junior researchers lack creativity and are not well tooled in methodology, while the senior ones have poor understanding of policy-issues.

The lack of researchers and the poor quality are a result of a colonial educational system that created elitist tertiary-education institutions that were used as a ‘pivot centre of separating the underdogs from the elite’ (Opio F 1998). Consequently, the number of undergraduates has been deliberately low. For a long time, a Bachelors degree was enough to gain employment, consequently thus seemed little need for postgraduate studies. It is only recently, with the liberalisation of the education sector, that there has been an increase in output at undergraduate level as a result of new universities opening up. Doctoral output from Makerere University confirms this; less than 8 PhDs per annum for the last ten years. Those who find their way into research are even less: a comparative study of S&T capacity in East Africa found that 9% of the researchers had doctorates, 15% M.Sc./M.A and the rest had B.A/B.Sc. 75% of the researchers were male! Yet Olsson (2001; 250) reminds us of the importance of doctoral studies in research: “doctoral [students] are important for the implementation of research as well as for the capacity of the institution to reproduce ‘its own capacity’”.

The lack of a critical mass of researchers and scientists poses a serious challenge for local research capacity development, and by the look of things, this trend is likely to continue until research commands its due respect. For most researchers, research is not a job or a vocation. It is a stopgap, as they look for ‘better things to do’. For others yet, especially from government institutions and academia, it is simply another means of supplementing their incomes. A Ministry of Finance, Planning and Development survey (MFPED 1999) found out that researchers were;

- Underpaid, overworked and appeared to have low social status,
- Isolated from international research and,
- That there was little or no research training for personnel and supporting cadres.

Demonstrably the research conditions are far from being encouraging in Uganda. What makes this picture bleaker, is the distribution of researchers...Poverty challenges and social research are better funded and hence have more researchers, often at the expense of vital areas to science. Enos. J (1995) on Makerere University clarifies:

“Particularly deprived is the Mathematics Department. With an ‘establishment’ of 13, the mathematics faculty (sic) has been able to attract and retain only 4 mathematicians, of whom two are former graduate students, who have not progressed beyond the level of M.Sc. Two professional mathematicians, trained abroad, and two local ex-graduate students are a dreadfully inadequate body to teach a subject which is the basis for all the scientific and technical fields....”

“...without the supplement of their salaries [...] the mathematicians must seek part-time employment outside the university...as accountants”.

(Enos J. 1995; 144)

Additionally most of the research institutions we visited had no research-training component in their activities. “Unless that component is explicitly included in the terms of reference of the research project, we can not afford to train” confessed one research institution Director.

ISSUES AND CHALLENGES

Uganda is at the crossroads of its Development destiny. Policy-research is crucial if Development issues are to be addressed. "Lack of sufficient analytical capacity in the South has often been cited as the cause for Development policy failure" Ng'ong'ola & Suresh (1994). Susana Moorehead, the Head of ESCOR of the Department For International Development of Great Britain, puts it more succinctly: *New ideas and sound evidence are essential tools in reducing poverty. Good research, targeted at the right audience in a timely manner underpins successful changes, policies and behaviour. At a time of transition, knowledge is the vital ingredient that will affect the impact of globalisation on people living in poverty. The impact of government funding for research on poverty is crucial.*

(Moorehead 2001).

The case for supporting research is clear, its funding unfortunately is not. Neither the donor community, nor the private sector nor government is contributing enough towards R&D. Uganda has only increased its spending on R&D to a paltry 0.8% of its GNP.

Related to the poor funding of research, is undue influence by donors in priority-setting. This becomes critical where a researcher from the north is involved and his country has contributed substantially to the research. The power relations in such a case are that, in deference to the researcher or more important to the money involved, the results of the research become policy.

Any research, however 'good', will always have its limitations. If research is going to inform policy whose potential impact may go beyond generations, then it is wise to have multiple views. In Uganda we have had cases where a single research became policy, and the limitations are beginning to show in the implementation of the policies. This raises the question of 'ownership' vs. 'partnership' in setting research agenda. Research 'ownership' has often been cited as the way to increase participation and ensure long-term benefits to the local communities. The case for partnerships is also strong, as far as knowledge- management and sharing of scarce resources are concerned. Striking the right balance is a challenge that Ugandan research faces but which at the same time represents an opportunity of growth.

Table - 1: University Enrolment for Undergraduate Courses 1995/96

University	Male	Female	Total	%
MUK	1830	957	2787	82.2
MUST	77	18	95	2.8
Islamic Univ.	136	57	195	5.8
Ndejje	12	1	13	0.3
Uganda Martyrs	29	39	68	2.0
Bugema	30	16	46	1.4
Nkumba	76	76	152	4.5
Namasagali	18	16	34	1.0
Total	2210	1180	3390	100.0

Table - 2: University Education: Full-Time Academic Staff in MUK

Position/Gender	males	Females	Total
Professors	48	3	51
Associate Professors	60	6	66
Senior Lecturers	179	28	207
Lecturers	233	85	318
Assistant lecturers	91	22	113
Total	611	144	755
%age	80.9	19.1	100.0

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Research in Uganda, especially in the social sciences, has been the 'quick and dirty' short-term kind; baseline surveys, rapid rural appraisals...etc. Certainly, this kind has its merits, but there is need to take a long-term perspective on R&D. Unfortunately, research-funding has often been averse to supporting long-term research. Connected to this, is the concentration of research-resources on limited research-themes, at the expense of other equally vital areas. It can be argued that resources are limited and, therefore, not every research can be funded, but experience is such that in research, there is wasteful duplication of efforts, multiple donors-funding the same type of research. This has often been the result of research following Development fads.

In Uganda there are inherent constraints in the R&D system. Mugoya (2000) pointed out some of these constraints:

- poor management-skills, as a result of political appointments, where the skills do not fit the job;
- poor remuneration, leading to survival-mechanisms such as economic rent-seeking, corruption and poor accountability.
- poor work-culture that promotes nepotism as a way of protecting mediocrity.

Bennet J (2000) points out lack of the necessary legal framework for S&T to be effective. Additionally, he says 'Uganda's S&T policies are too ambiguous and one fails to see how the 'plethora of S&T, R&D issues can be operationalised'. This can be explained by a weak UNCST. Although the Uganda National Council for Science and Technology (UNCST) is slightly better than its predecessor, the National Research Council, it still lacks both the intellectual and political clout to be really effective. For an organisation that pretends to "advise government on all matters relating to S&T, R&D for Development', its budget and personnel are painfully inadequate.

Another issue in Uganda, is how to deal with research-output: most often it has been left to gather dust on shelves of the research institutions that are involved. Dissemination is perhaps the weakest point in research practice in Uganda. Scarce funds to publish, arrange exhibitions, seminars and workshops, as well as lack of journals in which to publish, have affected scholarship. For many junior researchers, the

opportunity to see their names in print would be enough motivation to stay in research. Recent developments in ICT, with the help of donors, have however enabled researchers to access online journals.

Another challenge has been the poor remuneration and lack of incentive systems in research. This has led to the massive brain-drain from research to less challenging but well-remunerated jobs. The main culprits have often been international NGOs. It is common to find a highly qualified scientist working as a data clerk for an NGO, because the pay is good and he/she has to put bread on the family table.

Notwithstanding these challenges, research in Uganda has evolved remarkably well in the last decade. Increased support, through increased funding, development of research networks and support of institutions as well as researchers, would concretise efforts. S&T is the motor that will lift Uganda out of poverty and thus ensure Sustainable Development.

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