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**THE FLOW OF INFORMATION:
SOCIAL AND ECONOMIC SCIENCE
IN SUB-SAHARAN AFRICA**

Research Report number RR 1997-02
ISSN: 0926-4485

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THE FLOW OF INFORMATION: SOCIAL AND ECONOMIC SCIENCE IN SUB-SAHARAN AFRICA

**PART I: Composite Report
Dr. E.K. Hicks**

PART II: Individual Reports

**AERC
Mr. N. Nsubuga**

**CODESRIA
Dr. B. Tidjani**

**OSSREA
Mr. D. Rahamato
Mr. T. Mekonen**

PART III: Recommendations

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2. CODESRIA Report, by Dr. B. Tidjani

3. OSSREA Report, by Mr. D. Rahamato and Mr. T. Mekonen

PART III: Recommendations

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ACKNOWLEDGEMENTS

Cooperating in the preparatory phases of the total report were the senior researchers assigned to this project (the authors of the individual reports in Part II); Prof.dr. B. Ndulu, executive director, AERC; Dr. T.A. Aina, deputy executive secretary, CODESRIA; and Prof.dr. A.G.M. Ahmed, executive secretary, OSSREA.

Also cooperating in the preparatory phases of the report were Ms. G. Ngola, Manager Publication & Dissemination, and Ms. S. Okinda, Information Services Manager (both with AERC).

The project was administered under the auspices of the research programme "Innovation and Networks", which is headed by Prof. dr. W. van Rossum, in the Faculty of Management and Organization, University of Groningen. I would like to extend my thanks to Professor van Rossum for his invaluable assistance with the methodological aspects of the composite report.

I would also like to thank the members of the Advisory Committee for their support and valuable advice during the course of this project: Dr. Howard Elliott of ISNAR; Dr. Louk de La Rive-Box and Mr. Peter Ballantyne, both of ECDPM; Ms. Carol Priestley of IAI and INASP; Mr. Tim Cullen of NRI, representing ODA; and especially Dr. A.J. Nederhof, CWTS, University of Leiden, for his assistance with the methodological aspects of the field study.

An additional word of thanks must go to Dr. Heike Michelsen of ISNAR for her assistance in the preparation of the field study questionnaire.

PREFACE

In September, 1992 a small group of like-minded donors met in Oslo, Norway at the "Donor Meeting on Coordinated Support to Documentation, Scientific Information and Libraries in Developing Countries", to assess whether there was scope for collective donor activities in the area of scientific information flow. The group concluded that a study was needed to develop a research project that would aim at i) improving the knowledge base; and, ii) identifying trends and needs, as well as possibilities for donor support. The objectives outlined in the initial Terms of Reference were prepared by the Norwegian group: the operationalization of these objectives fell to the Netherlands.

In the same year, the Ministry of Foreign Affairs, Directorate General for International Cooperation (DGIS) published the policy directive "Onderzoek en Ontwikkelingssamenwerking" (Research and Development Cooperation), in which explicit attention was given to the issue of information flow (chapter 2 of the directive). However, no specific policy with respect to this issue was formulated.

It was in this general context that a project proposal entitled "The Flow of Scientific Information North/South, South/North, South/South" was submitted to DGIS DST/SO by Dr. E.K. Hicks of the research group "Innovation and Networks", Faculty of Organization and Management, University of Groningen. This proposal resulted in the project which forms the basis for the present report.

The short term goal of the proposed project was to gain greater insight into the problems associated with the limited and fragmented access developing countries have to scientific information exchange media.

The long term goal is that this research project should contribute to the formulation of donor policy directed to support the diffusion of scientific information requisite to conducting scientific research in developing countries.

The proposed project was to be developed over two phases:

- 1) a literature based feasibility study that would act as a guide for the second phase;
- 2) preparation of case study proposals on selected topics, concentrating on identifying trends, needs, and possibilities for donor support with respect to the flow of scientific information.

An inventory was made of the information flow related projects sponsored by DGIS, DANIDA, IDRC, and SAREC. Consultation visits were made to these, and other relevant organizations. Phase one objectives were to identify:

- 1) key issues that were of major relevance to the problem of scientific information flow;
- 2) thematic and geographic restrictions;
- 3) relevant fields of research and the primary fields in which such research is usually conducted.

Three key issues were found to be of major relevance to all of the organizations consulted:

- 1) **Needs assessment and utilization:** there should be a systematic identification of the information needs of the users of scientific information.
- 2) **Information dissemination and exchange:** strategies should be developed to overcome the difficulties associated with the dissemination of research results within (and between) research communities.
- 3) **Impact and utilization assessment:** systematic impact and utilization assessments of information related projects are needed.

The resulting report was presented at a workshop organized by DGIS DST/SO in February, 1995. In addition to DGIS representatives, other donor organizations represented at this workshop included DANIDA (Ministry of Foreign Affairs, Denmark), IDRC (Canada), ODA (UK), SAREC (Sweden), the Ministry of Foreign Affairs, Norway (Research and Evaluation) and the Ministry of Foreign Affairs, Switzerland (Policy and Research).

The report prepared for the workshop formed the basis for determining the specific objectives of the project and the selection of potential case studies. The primary objective assigned to the project was to identify strategies whereby donor organizations can improve the flow of scientific information to, from and between developing (particularly the least developed) countries.

Three underlying assumptions were to form the basis for the project:

1) That the research activities of scientists in developing country universities and affiliated research institutes could be enhanced, increased, and made more relevant to the development process if these researchers had (better) access to research results produced in developed - and other developing countries.

Policy relevant questions identified in this context included:

- Should investment in IT and/or the development of a related infrastructure be increased?
- Should information flow strategies (other than IT) be developed to improve and promote the flow of scientific information north-south; south-south; south-north?

2) That research networks form the basis for i) the cooperative pooling of

meagre resources; and ii) facilitating communication between researchers across national, regional and international boundaries.

Policy relevant questions identified in this context included:

- How does the nature and amount of research produced within the context of research networks compare to that produced by researchers who do not participate in such networks?
- What is the visibility at the national, regional and international level of the research produced by developing country researchers; and how does this compare to the visibility of research produced by those who are not affiliated in some way with these networks?
- What are the advantages of being affiliated with a research network?

3) That donors and technical agencies can play an important role in helping research networks to strengthen and improve both access to -- and the dissemination of scientific information. The main objective in this context is the identification of strategies to (help research networks) i) improve access to research produced in developed countries; and ii) stimulate the national, regional and international dissemination of scientific output produced in developing countries.

In the spring of 1995, DGIS DST/SO formalized the first case study, which was to target social and economic science research in sub-Saharan Africa. Three social science research network organizations (AERC, CODESRIA and OSSREA) participated in the execution of the case study. The study formally commenced in the spring of 1996 and was completed one year later, in the spring of 1997. The results of this study are the subject matter of the present report.

EXECUTIVE SUMMARY

SOCIAL AND ECONOMIC SCIENCE RESEARCH IN SUB-SAHARAN AFRICA: A STUDY OF THE FLOW OF INFORMATION

1. Introduction

This report presents the results of a case study conducted in conjunction with the research project on "The Flow of Scientific Information North/South, South/North, South/South". The project was funded by the *Special Programme on Research*, DST/SO (now DCO/OZ), Directorate General for International Cooperation (DGIS), Dutch Ministry of Foreign Affairs.

The short term goal of the project was to gain greater insight into the problems associated with the limited and fragmented access developing countries have to scientific information exchange media.

The long term goal is that this research project should contribute to the formulation of donor policy directed to support the diffusion of scientific information requisite to conducting scientific research in developing countries. In this general context, a number of case studies were developed to investigate what is actually taking place with respect to north-south, south-south, and south-north (scientific) information flow in selected disciplinary sectors (in the social sciences, the health care sector, and so on).

The project was based on three underlying assumptions:

- 1) That the research activities of scientists in developing country universities could be enhanced, increased, and made more relevant to the development process if these scientists had (better) access to research results produced in developed, and other developing countries.
- 2) That research networks form the basis for i) the cooperative pooling of meagre resources; and ii) facilitating communication between scientists across national, regional and international boundaries.
- 3) That donors and technical agencies can play an important role in helping research networks to strengthen and improve access to -- and the dissemination of scientific information.

The first case study to be conducted was to target research in the social and economic sciences in sub-Saharan Africa. The nature of the study and the timeframe in which it was to be completed made it imperative to find an efficient means to identify as many social and economic scientists as possible in a large number of sub-Saharan African countries. However, no systematized statistical data on human resources in the social and economic sciences is available for sub-Saharan African countries.

As the most immediately accessible source for identifying social scientists was the mailing lists of pan-African research network organizations, the formal cooperation and participation of three was sought (two pan-African and one sub-regional): the African Economic Research Consortium (AERC); the Council for the Development of Economic and Social Research in Africa (CODESRIA); and the Organization for Social Science Research in Eastern (and Southern) Africa (OSSREA).

In cooperation with these three organizations, the case study objectives were defined to identify:

- the way in which social scientific information flows to, from and between sub-Saharan African countries; and, on this basis, to identify
- policy strategies that could be adopted by donor agencies and research networks to improve the flow of information.

In order to realize these objectives, an empirical analysis has been made of:

- how social scientists and economists in sub-Saharan Africa acquire (scientific) information from national, regional and international sources (flow of information south/south and north/south);
- how they disseminate the results of their own research among other social scientists within -- and external to the African continent (flow of information south/south and south/north); and,
- the limitations that exist with respect to the acquisition and dissemination of such information.

2. Case Study Research Method

In studying scientific communication patterns, it is important to:

- Understand the role played by formal and informal communication channels in the flow of scientific information. Informal channels include, for example, researcher to researcher communication; scientific meetings/conferences; e-mail contacts; pre-publication information distribution. Formal channels include, for example, publications, libraries, electronic data bases.
- Identify the factors that influence the structure of these channels and the behaviour of social scientists and economists therein.

In order to gather as much information as possible about those communication channels most often used by sub-Saharan social scientists and economists, two methods were employed:

i) A survey was made to identify informal and formal communication patterns. The survey was based on in-depth interviews, conducted with social scientists and economists in 11 countries. A total of 410 social scientists (in 11 sub-Saharan African countries) were identified. Of these 376 could be (physically)

located. The field team was able to contact and conduct questionnaire based interviews with 199 of these social scientists and economists.

ii) A bibliometric study was made to identify publications (formal communication channels). This involved the identification of publications at all levels: international and domestically published books and articles in books; articles in international and domestic academic and trade journals; commissioned reports; research -- and working papers, papers presented at academic meetings (conferences, workshops, seminars, etc.); research proposals.

In addition to the composite report (indicating the findings relevant to the entire population surveyed), three individual reports were prepared by the respective participating network organizations. These reports, which address the role of research networks in the flow of scientific information, contain information about i) the structure of the respective network organization, their institutional goals and the services they provide; and ii) a comparison between the users and non-users of research network services.

3. Research Approach

Information flow is here defined as an identification of:

- The extent to which published (international, domestic and grey) social science information is accessible, i.e., visible.
- The means by which this information is made accessible (visible), i.e., how is it disseminated.

The potential and limitations for the acquisition and dissemination of social scientific information -- and the extent to which that information is visible, are seen to be determined by the following factors:

Environment: The structural options and limitations within which social scientists and economists must operate.

Behaviour: The behaviour of social scientists and economists (e.g., use they make of existing facilities and services; membership in professional associations; attendance at scientific meetings)

Orientation: Some researchers (or groups of researchers) will be more internationally oriented; while others will evidence a primarily local, national and/or regional or interregional orientation.

Attitude: involves the perception social scientists and economists have about their relationship to science and their role and position in the academic environment.

While the above four factors are not, in practice, entirely mutually exclusive, each one has been operationalized separately in order to identify which of them (or what combination) presented the greatest limitation to the publication and dissemination of research results; i.e., to the visibility of research.

4. Summary of Results

4.1 Background Information on Respondents

The majority of respondents in the study were males

- between 39-46 years of age; who
- had received their highest degree outside Africa (primarily in Europe and North America);
- are well educated (60% of respondents had a Ph.D or equivalent);
- hold full time positions at a university or affiliated research institute (however, 50% were also engaged in other income generating activities) - acquired their current appointment in the past 20 years; and
- were employed in those fields in which they had received their highest degree, in the countries of which they were a citizen (by birth).

The age category of the majority of respondents is reflected in the academic appointments held by the majority: only 8% were full professors; 37% were senior lecturers or assistant professors; 30% were lecturers. With the exception of where they received their highest degree, there is little evidence of geographic (employment) mobility in this population of social and economic scientists.

4.2 Research Network Affiliation

The majority of respondents (66%) were identified as "users" of one or more research network services (i.e., had participated in one or more scientific meetings organized by a network; had received a research grant or travel funds, and so on).

The user group was generally younger than the non-user group. This age distinction is reflected in the positions held by the respondents. More non-users were found in higher echelon positions (full professor; associate professor; senior lecturer).

A distinction was also found in the distribution by field of employment of economic and social scientists. There is a greater representation in the economic sciences among the younger group (the majority of whom are "users" of research network services).

In addition, a significantly greater proportion of higher degrees were found among the "user" population. This group had also received significantly more higher degrees both within Africa and in Europe (figures for degrees received in North America were quite similar between user and non-user groups).

4.3 Environment

The environmental factor was operationalized with variables that indicated:

- i) The adequacy of personal, administrative, organizational and professional

resources.

- **Personal resources:** included adequate financial support (for self and family); suitable living conditions and job security. The majority of respondents indicated personal resources as meagre.
- **Administrative resources:** included those factors important to successfully support research activities: operating supplies and materials; transportation; office facilities; research assistants. The majority of respondents indicated administrative resources as inadequate.
- **Professional resources:** included those factors that positively motivate researchers: freedom to determine research problems; contact with other researchers; opportunities for advanced education and training, professional advancement, scientific recognition, promotion based on merit, implementation of outputs; and the opportunity and freedom to publish research findings. The majority of respondents indicated professional resources as meagre.
- **Organizational resources:** included those factors that influence performance: scientific training and management; institutional reputation for scientific achievement. The majority of respondents indicated organizational resources as meagre.

ii) The availability of -- and access to scientific literature; electronic and other communication and information media; databases.

- **Scientific literature:** The majority of respondents were within ten kilometers distance from the library, and used library facilities. Those sources most often accessed for research, *in ranked order*, are books, scientific journals, government documents and theses/dissertations. Of these, the greatest *inadequacy* of availability is in the two categories deemed most important to research (scientific journals and books).
- **Information (IT) and other technology:** The majority of respondents had had ready access to a telephone; fax machine; typewriter; printer; photocopy machine; and a personal computer. Almost half of the respondents had ready access to email and to scientific databases. However, it must be noted that availability is not necessarily synonymous with accessibility: in many instances there is a centralized use of email (one computer servicing all users).

4.4 Behaviour

The behaviour of social scientists and economists was operationalized in the questionnaire by including the following variables:

Use made of information technology: the majority of our respondents preferred personal contact as a medium for disseminating research results: primarily through the form of scientific meetings.

Use made of research network organization services: 32% of respondents used the documentation centre services of network organizations; 65% had participated in research network organization activities; 53% had received partial or full funding from a research network organization for one or more research activities during the past five years;

Work activities: the majority of respondents spend between 3-4 days per week teaching and 1-2 days doing research.

Pattern of research activities: the research pattern of the majority of respondents was a combination of basic/strategic and one of the other three research types (applied, adaptive, or methodological).

Membership in professional associations: the majority of respondents indicated having membership in one or more professional associations.

Scientific meetings: the categories of professional meetings included home meetings (national level); African meetings (regional and interregional level); and international meetings (outside the African continent). Of the total respondents, 89% attended scientific meetings, 57% of whom attended meetings in all three categories (most of the respondents indicated having prepared papers for the meetings attended). The majority of papers produced for all categories of scientific meetings were published in a proceedings and distributed directly to participants. University libraries received publications primarily from nationally organized scientific meetings. Publications from African or internationally organized meetings were primarily distributed internationally. Research network organizations seem to be an important distributor for publications from national and African scientific meetings. Moreover, of the total national and African scientific meetings attended by respondents, 33% of the former, and 67% of the latter had been organized by one or more of the three participating research networks.

Scientific Collaboration: further scientific collaborations had resulted for 40% of respondents as a result of their participation in scientific meetings. Publications resulting from collaborations in each category of meetings were as follows:

- **national meetings** - 49% resulted in publications (25% of which were published by a research network organization);
- **African meetings** - 59% resulted in publications (41% of which were published by a research network organization);
- **international meetings** - 43% resulted in publications (37% of which were published internationally).

Dissemination of Research Results: analysis of the data revealed four primary groups/organizations that respondents provided with information about their research results. In ranked order, the first (and most important) group included government agencies, donor organizations, policy makers and consulting

agencies; the second included national, African, and international researchers in the respondents own field; the third included national and international research networks; and the fourth group included science journalists.

4.5 Orientation

Some researchers (or groups of researchers) will be more internationally oriented, while others will evidence a primarily local, national and/or regional or interregional orientation. The orientation of respondents was operationalized in the questionnaire as follows:

- **Journals:** Of the total (321) journals indicated by respondents as important information sources for their researcher, 16% were indexed in ISI Journal Citation Reports; and 38% were (internationally) registered journals. When identifying the most serious limitations to doing research, the majority of respondents ranked the lack of adequate access to scientific literature (particularly journals) as second only to the lack of research funding.

- **Publication of Research Results:** a count was made of the publications produced by the total estimated population (410 social scientists and economists) for the period 1990-(mid)1996 in the targetted social and economic science sectors. Subsequently, a count was made of the publication trends of respondents. A total of 1452 publications were produced by the 199 respondents to the survey: 20% of these publications were in international media; 35% were domestic publication; and 45% were published as grey literature.

4.6 Attitude .

Included in this category was the perception social scientists have about their relationship to science and their role and position in the academic environment. Attitude was operationalized in the questionnaire as follows:

- **Research Limitations:** in ranked order, the five most serious limitations to doing research indicated by respondents were

- the lack of funds for conducting research;
- insufficient access to scientific literature;
- lack of adequate incentives and rewards for doing research;
- limited availability of supplies and equipment;
- lack or limited availability of information technology.

- **Factors Promoting Professional Advancement:** respondents indicated the following three factors as most important to their professional advancement:

- academic qualifications;
- international publications;

- reporting research results.

- **Impact of Research:** The majority of respondents indicated that their research activities had had an impact in the economic, social or political context. Of these, 1/3 indicated that this was because their research results were relevant to a specific policy issue; 1/3 said it was because their research had come to the attention of the institution involved; and the remainder indicated that it was the result of a personal contact or that they had offered their services to a number of institutions.

- **Beneficiaries of research:** Analysis of the data revealed three primary groups/organizations that respondents saw as the beneficiaries of their research. The first (and most important) group included rural residents, foreign institutions or governments, donor organizations. The second included primarily other scientific disciplines, and the third included the general public and researchers in own discipline.

- **How Research Network Organizations are Perceived:** Of the total respondents, 43% indicated that research networks had been important to their research as follows: i) financially supporting all or part of research related travel abroad; ii) organizing scientific meetings relevant to research; iii) providing technical advice; iv) providing relevant literature or other information.

Of the total respondents, 43% indicated that network organizations had also been important to their teaching activities -- as follows: i) financially supporting thesis/dissertation for M.A., Ph.D or equivalent; ii) providing technical advice; iii) providing relevant literature or other information; iv) providing travel funds; v) organizing meetings.

Finally, 32% of the total respondents indicated that affiliation with a research network had helped them produce research that was used in, or impacted on the economic, social or political policy context. The majority of the latter also indicated that involvement in research network activities had helped them gain a better understanding of the linkages between research and policy making.

5. Discussion

The lack of an enabling environment can have serious negative effects on the potential of developing country social and economic scientists to access information and conduct research and publish. However, our findings indicate that the specific background, orientation, behaviour and attitude of these researchers will also have a profound affect on the three types of information flow. Moreover, for some groups these factors can override environmental restrictions to conducting (and publishing) research.

5.1 Findings

5.1.1 Environmental Effects

Despite limited resources (administrative, organizational, and financial), the majority of respondents indicated that they had engaged in some form of research activity during the past five years; most of which had an international orientation.

5.1.2 Background, Orientation, Behaviour And Attitude Of Researchers

The three dependent variables indicating north-south, south-south, and south-north information flow were tested against the background, behaviour, orientation and attitude variables.

The majority of respondents were employed full-time in an academic institution: and 50% were engaged in other income generating activities. Despite the need for supplementary income and other limited resources (administrative, organizational, and financial), during the past five years, the majority of respondents had:

- engaged in some form of research activity -- most of which had an international orientation; and
- had published in some form. Of the total number of publications by respondents, the majority appeared in grey media (43%); 35% were in domestic media, and 22% in international media.

Those who publish internationally also tend to publish domestically: the flow of information from this group is primarily south-north. Respondents with higher degrees (Ph.D and equivalent) published significantly more internationally (*especially those from Francophone universities*). The majority of these publications were in the social sciences; whereas the majority of those in domestic and grey media were in the economic sciences.

Respondents who regularly attended African and international scientific meetings published more internationally; and those attending domestic meetings published more domestically.

Domestic publishing behaviour varies from country to country, but is proportionally similar for the social and economic sciences in all the countries studied. Although degree level did not have a profound affect the production of domestic publications, those with Anglophone Ph.D and MA/MS degrees produced more domestic publications than respondents with equivalent degrees from Francophone universities.

The vast majority of respondents indicated international journals as being of greatest importance to their research (albeit that the availability of such journals is limited).

Respondents who regularly attended domestic scientific meetings published more domestically. Those attending African and international meetings used more indexed and registered journals and published more internationally.

Research network organizations tend to play an important role in the provision of a research environment for a small, generally younger group of social and economic scientists, 42% of whom had received their highest degree at an African university. This group also made more use of indexed and registered journals for their research; published more in domestic and international media; and attended more international scientific meetings.

6. Concluding Remarks

In spite of the fact that

- international journals were considered of greatest importance to doing research; and, that,
- over the past five years, the orientation of the research activities of the majority of respondents was international,

the greatest number of publications produced by respondents during this same period appeared in domestic and grey media. The majority of these publications were in the economic sciences.

The orientation of a relatively small population of researchers producing both domestic and international publications is south-north. However, the publications media used and the communication patterns of respondents indicates that for the vast majority, the primary orientation is at the domestic and local levels.

Although environmental limitations certainly restrict the research potential of social and economic scientists in sub-Saharan Africa, the most prevalent pattern of orientation (domestic and local) is not radically different from that which can be found among social and economic scientists in developed countries. Perhaps the most central question that needs to be addressed is whether -- and how, the substantive nature of domestic and locally oriented publications can effectively contribute to the development process.

7. Recommendations

7.1 Introduction

The composite results of this study indicate that there is a clear need in sub-Saharan Africa to improve:

1. The publication and distribution of i) research results; and, ii) resource materials for teaching (at the tertiary level), that have been produced by

sub-Saharan African researchers in the social and economic sciences (south-south flow).

2. The availability of scientific literature produced elsewhere as a resource for conducting social and economic science research (north-south flow).

3. The international visibility of sub-Saharan African researchers (e.g., the access they have to participation in international scientific meetings); of their research results (their potential to publish in international media; and the intra-African and international availability of the media in which they do publish (south-south and south-north flow)).

Moreover, the combination of the results of this study and the relatively instability of universities in sub-Saharan Africa indicates that there will continue to be serious limitations to the generation of viable research agendas and individual research opportunities in public institutions of higher learning. Taken together, we can conclude that, for a small number of social and economic scientists, the participating research networks have supplemented the role of universities with respect to partial or full financing of theses, dissertations and post-doctoral research; providing selected training at various stages of the research process (i.e., proposal preparation, research methodology; publication of results); partially or completely financing travel to scientific meetings.

The results of the present study indicate that these organizations play an important role in ensuring the flow of social scientific information at the national and regional level. Moreover, that these organizations have i) organized 68% of the total national and African scientific meetings attended by all respondents during the past two years; and that they ii) form an important outlet for the publication and dissemination of research results.

As a result, central to developing our recommendations has been the future role of sub-Saharan African research network organizations in improving and expanding i) formal communication channels (indexing, publishing and disseminating research results); and, ii) informal communication channels (e.g., the organization of scientific meetings).

7.2 Summary of Recommendations

1. University and research networks should strengthen and increase their collaboration in the areas of research, research training and teaching.

2. A feasibility study should be conducted to identify the need and desirability for the creation of an *Information Services Consortium* between research network organizations in sub-Saharan Africa.

3. There is a need for greater coordination between research network organizations (i.e., a network of networks). In this context donor organizations

could facilitate joint planning meetings between research network organizations to develop the following strategies:

- i) A separate funding system should be generated for textbook development for use at the tertiary level; and a project initiated to identify textbook needs and relevant companion literature from the north.
- ii) Research networks should collaborate in the identification of distinguished scholars -- and in the organization of activities around them.
- iii) Research networks should collaborate on the development of a database on human resources in public institutions in the social and economic sciences in all African countries where such data is available.
- iv) Research networks should collaborate to prepare an in-depth status report on the social and economic sciences in sub-Saharan Africa (in the sectors of research and teaching).

4. Research networks (individually and collectively) should expand the number of scientific meetings they organize at the national and regional level. Donor organizations should extend support to ensure greater participation of African researchers in international conferences.

5. A needs assessment study should be conducted to determine how best to strengthen the documentation centres of research network organizations.

PART I: THE COMPOSITE REPORT

E.K. Hicks

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I. INTRODUCTION

1. The Study: The Flow of Social and Economic Science Information To, From and Within Sub-Saharan Africa

This report represents the results of a study conducted in the context of the *Research Project on the Flow of Scientific Information: North-South, South-North, and South-South*. The study was funded by the *Special on Research* of the (then) DST/SO department of the Directorate General for International Cooperation (DGIS), Dutch Ministry of Foreign Affairs. It is concerned with the nature and extent of access to -- and the dissemination of research results to, from and within sub-Saharan Africa.

Because the study was concerned with "research" results, it was important that we target that segment of researchers that would be producing "visible" material in academic institutions. Individuals who do *not* publish in some form (i.e., in international, domestic or grey media) are difficult to identify. They are, in effect, *invisible*.

1.1 Case Study Objectives

In sub-Saharan Africa, public universities and research institutes are the environment in which the vast majority of researchers work.

The goal of these institutions is similar to that of most universities everywhere: to produce highly qualified manpower to generate knowledge through research, and to translate this knowledge such that it will directly or indirectly serve the community and/or society at large.

However, African universities have an additional mandate to provide training that will contribute to national development (Mohamedbhai, 1994:11). In this context, development is perceived as dependent upon i) an understanding of economic, political and social problems within the context of specific national or regional socio-cultural reality; and ii) designing and applying appropriate policies relative to these problems (Rasheed, 1994:92).

It seems self-evident that social science research has an important role to play in meeting these goals. However, while social science institutions have been in existence in sub-Saharan Africa since the 1960s, social science research on a reasonably large scale is a relatively new activity, and has become prolific only in the past 10-15 years (Lado, 1993). Although the primary function of social science institutions has always been training *and* research, priority has been given to the former. Research was assigned a relatively minor role in these institutions. It was -- and continues to be of an ad hoc nature lacking central focus and priorities, and only a relatively small proportion is actually concerned with development issues (Lado, 1993).

Added to this problem is the relative instability of universities in sub-Saharan Africa. This has precluded the creation of institutionally defined s designed to study and foster development. It has also seriously impeded the realization of an

environment appropriate to the development of highly qualified human resources and appropriate research agendas.

To some extent, organized research networks have alleviated this difficult situation by providing a safe research and training haven to a small number of social and economic scientists. These organizations have supplemented the role of universities with respect to partial or full financing of theses, dissertations and post-doctoral research; providing selected training at various stages of the research process (i.e., proposal preparation, research methodology; publication of results); partially or completely financing travel to scientific meetings.

The combination of the above factors formed the basis for the decision that the case study should

- i) target social and economic science research in sub-Saharan Africa; and,
- ii) that this should be done in cooperation with a small number of established social science research network organizations.

Three social science research network organizations participated in the execution of the case study (AERC, CODESRIA and OSSREA). In cooperation with these organizations, two interrelated objectives were identified for the case study:

- 1) To address the basic assumptions outlined in the preface (i.e., that research activities in developing country universities could be improved if there were (better) access to scientific information; that research networks are important for cooperative pooling of meagre resources and facilitating communication between researchers; and that donors and technical agencies can play an important role in helping research networks to improve access to, and the dissemination of scientific information).
- 2) To identify policy strategies that could be adopted by donor agencies to improve the flow of information.

In addressing these objectives, an empirical analysis has been made of how researchers in the social and economic sciences in sub-Saharan Africa:

- acquire (scientific) information from national, regional and international sources (*flow of information south/south and north/south*); and,
- how they disseminate this information, and the results of their own research among other social scientists and economists within -- and external to the African continent (*flow of information south/south and south/north*); and,
- the limitations to the acquisition and dissemination of such information.

To this end, an identification was made of i) those factors that influence the flow of scientific information; and, ii) the extent to which these factors can be reformed or modified to result in the improvement of information access and dissemination.

2. Study Research Method

In order to gather as much information as possible about those communication channels most often used by sub-Saharan social scientists and economists, two methods were employed:

- i) a survey was conducted to identify (informal and formal) communication patterns;
- ii) a bibliometric study was made to identify publications visibility (formal communication channels).

2.1 The Survey

The survey was based on in-depth interviews, conducted with social scientists and economists in eleven (11) sub-Saharan African countries. The project provided for eighteen (18) field researchers to collect the field study data (three senior researchers, three research assistants and twelve field researchers). The field researchers were variously distributed in the target countries (see Part II of this study for a more detailed account of the field study).

The senior researchers and their field staff conducted all of the questionnaire based interviews. All research personnel were appointed in cooperation with the three research network organizations.

2.2 The Questionnaire

The first two sections of the questionnaire were designed to provide information about the background and work activities of sub-Saharan African social scientists and economists (the questionnaire can be found in Appendix 1).

- i) *Background information.* Educational background and area(s) of specialization.
- ii) *Employment and annual work activities.* Academic employment and area(s) of specialization; distribution of work activities; the extent to which social scientists and economists participate in consultation activities.
The informal (and formal) communication patterns of the respondents was addressed in the last section of the questionnaire.
- iii) *Research activities.* The nature of research activities; the media in which research results appear, and their distribution; the extent of access to research related information sources; the availability and use made of available information technologies for research activities, and the importance attached to such access for the research process; the rate and nature of access to other information media (e.g., libraries; professional attachments, membership in research networks); the extent to which social scientists and economists participate in scientific meetings (conferences, workshops, seminars, etc.).

3. The Population

As this study is concerned with the flow of social scientific information, it was imperative that an efficient means be found to identify as many social scientists and economists as possible in a large number of sub-Saharan African countries. To this end, the formal participation of three research network organizations was sought for this case study.

Over the past few decades, Africa has witnessed the creation of a number of research network organizations. An important objective of such organizations is to develop an "information gatekeeper" role. These organizations do this by organizing activities designed to stimulate the flow of information: through formal and informal communication channels.

Together with the DGIS *Special on Research* (DST/SO), three appropriate research network organizations were identified: the African Economic Research Consortium (AERC); the Council for the Development of Economic and Social Research in Africa (CODESRIA); and the Organization for Social Science Research in Eastern (and Southern) Africa (OSSREA). These organizations were approached because:

- i) They could assist in the identification of a large number of social scientists and economists throughout sub-Saharan Africa (all three are supra-national organizations).
- ii) Two of these organizations represent a number of social and economic science disciplines (with AERC specializing in economics and economic policy).
- iii) They all sponsor both formal and informal communication activities (e.g., research and training s; workshops; seminars; conferences; production and dissemination of publications). In this sense all of these organizations function as "information gatekeepers".

No adequate information is available about the total number of social scientists and economists in the 11 countries that meet the criteria indicated for the present study. This is in keeping with the general difficulty of population identification and data collection in developing countries signalled by Casley and Lury (1981 and 1987).

Consequently, the population for the case study was identified and extracted from the *mailing lists* of the three participating research network organizations. The names appearing on these mailing lists are acquired by a variety of methods, for example through:

- information from other (national and international) organizations;
- responses to questionnaires that are periodically circulated (names and addresses for circulation are acquired in a variety of ways);
- participation in network organized activities (to include grant recipients): *these we have called the "users" of network organization services.*

On the basis of such information, these organizations maintain (and update when possible) a mailing list of social and economic researchers on the African continent. Although they do have some formal subscription "membership", this is very flexible (i.e., it changes regularly). These organizations do, however, keep records of all individuals who have participated in research network organization activities.

All three organizations manifest disciplinary overlap, and they all have social and economic scientists on their mailing lists. Not surprisingly, this resulted in some redundancy (see below, 6.2). Nevertheless, given the combination of,

- i) a paucity -- and in some cases lack of appropriate statistical information;
- ii) the various sources used by the research networks to identify social and economic scientists in Africa; and
- iii) the broad geographic representation of the three organizations in sub-Saharan Africa: CODESRIA is a pan-African organization for the social sciences; AERC is a field specific pan-African organization; and OSSREA is a sub-regional organization, concentrated in all of eastern (and more recently Southern) Africa,

we may presume that these mailing lists provide a reasonable approximation of the total population of social and economic scientists engaged in research in sub-Saharan Africa.

The names from these lists were categorized by country. Because the target population was to include individuals most likely to be doing and reporting research (on some level), countries were selected for inclusion in the survey if ten (10) or more individuals meeting the following criteria could be identified:

- an MA (or equivalent) level degree;
- full-time employee in a university or affiliated research institute.

It was possible to find sufficient individuals meeting this criteria in eleven (11) sub-Saharan African countries (Cameroon, Cote d'Ivoire, Ethiopia, Ghana, Kenya, Nigeria, Senegal, Sudan, Tanzania, Uganda, Zimbabwe).

Subsequently, for each country, an identification was made of the most frequently occurring disciplines. Where possible, *discipline* was identified for each individual in the population using thesis/dissertation titles, current research, and publications. The most frequently occurring fields were anthropology, economics, education, political science, and sociology.

The total population initially identified comprised 410 individuals. The identified population (410 individuals) was adjusted to reflect duplications, individuals who had migrated to other locations, in and outside of Africa; deceased and unknown individuals; and those whose whereabouts could not be ascertained.

The adjusted population included in the study:

- numbered 376 social scientists and economists employed in a total of 30 universities or related research institutes in the eleven countries studied¹;
- many of whom had participated in the activities of one or more of these research network organizations, and a substantial number who had never done so.

Table 1 indicates the distribution of non-respondents, by country, of the total unadjusted population. The percentages provided in this table are only indicative of the population sampled.

Of the total population, 3% were on academic sabbatical (E), either within or external to Africa; 7% could not be traced, i.e., were unknown (F); and a total of 13% were either permanently out of Africa or out of the country and residing elsewhere within Africa (C and D). As no information could be found about the individuals in category F (unknown), we were unable to determine in how far this group actually falls within the categories C and D (out of Africa or residing elsewhere within Africa).

3.1 Survey Response Rate and Survey Limitations

Of the total 376 social scientists and economists that could be (physically) located, 199 participated in the survey (53%).

University closure throughout Nigeria during the timeframe of the survey seriously limited the response rate. As a result, we were unable to adjust the total population number for Nigeria to reflect immigration, deceased and unknown individuals, and so on.

In addition, there is a general lack of available statistical information on the general population targeted by this study in the 11 countries surveyed. This precluded a determination of the extent to which the population studied is representative of the total number of social and economic scientists *meeting the above outlined criteria*.

4. Bibliometric Search

Bibliometric methods were used to assess *formal scientific communication*. This involved the identification of publications.

In this study, we have broadly defined the term "publications" to include international and domestically published books and articles in books; articles in international and domestic academic and trade journals; commissioned reports; research -- and working papers, papers presented at academic meetings (conferences, workshops, seminars, etc.); research proposals.

As indicated above, the case study is concerned with the flow of scientific information and the access to, and dissemination of research results. This means that we had to target that segment of social scientists and economists that would be producing "published" (defined above) material in academic institutions. Social scientists and economists who do *not* publish in some form

do not usually make use of the various communication channels considered in this study. These social and economic scientists are, in effect, *invisible*.²

In the interests of producing a rudimentary database of sub-Saharan African social and economic science publications, a publications search was made for the total population initially identified from the mailing lists of the three research network organizations. As mentioned above, this population (which was identified by name and institutional affiliation) comprised 410 individual social scientists and economists in eleven sub-Saharan African countries. A publications search was made for all of these individuals for the period 1990 through (mid)1996. The following media were searched:

- i) all network sponsored publications (book series, research proposals, journals, working papers, and so on) published during this period;
- ii) national journals within the (11) targetted countries;
- iii) the Netherlands university libraries on-line service; the Melvyl (Univeristy of California) on-line library system; on-line and current contents; social (and economic) science databases available on CD-ROM (ECONLIT, 1969-1996, American Economics Association; ERIC, 1982-1996, Educational Resources Information Centre; IBSS, 1981-1996, International Bibliography of the Social Sciences; PAIS, 1972-1996, Public Affairs Information Services; SOCIOfile database, 1990-1996; ABI, business management and related areas database) .

All of these publications have been included in the publications database that was developed in the context of the case study (1796 publications for the total population of 410 individuals).³

5. Individual Reports: AERC, CODESRIA, OSSREA

Because the study assumes that research networks facilitate communication between researchers across national, regional and international boundaries, it was important to gain some insight into i) the role of research networks in the flow of scientific information; and ii) what, if any, advantages there are to participating in research network organization activities.

On the basis of the field data, each of the senior researchers prepared a report providing detailed information about

- i) the structure and institutional goals of each of the participating research network organizations; and
- ii) the characteristics of those respondents who were the "users" of these network services, and the value they placed on network services.

Two sources of information were used to identify the structure of each respective network organization, its institutional goals and the services it provides:

- i) the annual reports and other relevant documents provided by each organization;
- ii) a separate questionnaire was designed for this purpose, and subsequently administered by each senior researcher to the respective research network organization executive secretary/director (this questionnaire has been included in Appendix 1).

Respondents to the field survey were identified and divided into four groups: groups 1-3 comprised, respectively, the users of AERC, CODESRIA or OSSREA services; group 4 included only those individuals who were not "users" of research network services.

The results of these individual reports and the composite report (reflecting the findings relevant to the entire population surveyed), together form the basis for the proposed recommendations (see PART III).

6. Background Information on Respondents

6.1 Adjusted Population, Age, Field of Employment, and Highest Degree

On the basis of the field survey questionnaires, we can identify the total (adjusted) population number, the percentage of responses by country (table 2), and the distribution of respondents according to:

- i) year of birth (table 3);
- ii) highest degree achieved (table 4); geographic region where respondents received highest degree (table 5); degree level by age group (table 6);
- iii) field of employment (tables 7 and 8); appointment titles (table 9);

The majority of respondents were males between 39-46 years of age (table 3): only 21 (11%) of the respondents were female.

Of the 199 respondents, 192 indicated their highest degree achieved (table 4); and for 172 respondents, we have information about where they had received their highest degree (table 5). Of the latter, 116 (67%) received their highest degree outside Africa (of these 56% received their highest degree in Europe (to include Eastern and Central Europe); 34% in North America; and 9% elsewhere). The remaining 33% had received their highest degree in an African country.

The highest frequency of Ph.Ds (equivalent or higher) can be found in the age group born between 1947-1958 (38-49 years of age). The older group (50-75 years of age) has a lower percentage of Ph.Ds (see table 6). Not surprisingly, the number of Ph.D's decreases in the younger group (30-37 years).

A comparison of the field of employment and the field of study (for the highest degree) reveals that the vast majority of respondents are employed in the field in which they did their highest degree. Table 7 provides information about the

distribution, by field, of the responding population.

A high proportion of respondents was in the field of economics. This is in keeping with the common tendency for social science institutions - and especially development research institutes, to consist predominately of economists (Lado, 1993:125).

As a result, for the population under study, two primary categories have been employed for the data analysis: economists and other social scientists. These two categories are used in the breakdown, by country, provided in table 8.

With few exceptions, the respondents are currently employed in those countries of which they were citizens by birth. With one exception, this is also true for previous employment. In Senegal, only 5 of the 12 responses (42%) indicating previous employment were citizens of Senegal.

The majority of respondents have a relatively recent history of previous and current employment:

- Of the 88 respondents indicating organization of prior employment:
 - 41% had been in government service
 - 24% had been employed in domestic university
 - 15% had been employed in domestic industry

- Of the 183 who indicated dates of prior employment, between:
 - 1965-1975 (27) 15%
 - 1976-1985 (89) 49%
 - 1986-1996 (68) 37%

- Of this latter group, current employment was acquired in the period between:
 - 1971-1980 (13) 7%
 - 1981-1990 (70) 38%
 - 1991-1996 (101) 55%

The majority of respondents (96%) indicated that they were employed full-time (the distribution of their appointment titles is indicated in table 9). Nevertheless, 50% of respondents also indicated that they were engaged in other income generating activities.

6.2 Research Network Affiliation

To a considerable extent, it was possible to estimate the number of "users" of network organization services in the adjusted population identified for the survey. The questionnaire that was administered to this population included a series of questions designed to verify research network affiliation (and the nature of this affiliation). Table 10 indicates the users and non-users of the services of (one or more) of the participating research networks.

Of the total users of network organization services, thirty-four (34) were

affiliated with AERC only; thirty-seven (37) with CODESRIA only; twenty-nine (29) with OSSREA only; the remaining thirty (30) were affiliated with two, or all three of these organizations.

The background factors for users and non-users of research network organization services are indicated in tables 11-15. As can be seen in table 11, users generally tend to be younger than non-users. Users tend to be between 30-46 years of age; non-users between 39-57 years.

This distinction is reflected in the positions held by the respondents. More non-users than users were found in higher echelon positions (Full professor; Associate Professor/Maitre de Conference/Assistant professor; Senior lecturer) (see table 12).

A distinction was also found in the distribution by field of employment of economic and social scientists. There is a greater representation in the economic sciences among the younger group (primarily users) (table 13).

A slightly higher proportion of Ph.Ds (and equivalent) were found among the non-user population (table 14). This group had also received significantly more higher degrees outside Africa (particularly in North America and Europe) (table 15).

6.3 Summary Points

1. The majority of respondents were males between 39-46 years of age. The users of research network organization services were generally younger than the non-user group.
2. Of the total respondents, 60% had a Ph.D or equivalent. The non-user group had a slightly higher proportion of Ph.Ds; but this could be related to the age difference between the two groups.
More of the non-user group had received their higher degree in Europe or North America. In comparison, a greater proportion of the user group had received their higher degree at an African university (users 42%; non-users 17%).
3. A substantial proportion of respondents were in the field of economics. However, there was a significant difference between user and non-user groups with respect to the distribution over the social sciences and economics. In the user group, the distribution over these two categories was relatively similar (51% social scientists and 49% economists). In the non-user group, there were more social scientists (61%) than economists (39%).
4. Most of the respondents were employed in those countries of which they were citizens by birth. It was generally the case that respondents had a relatively recent history of previous (and current) employment. Of those indicating organization of prior employment, the majority had been in government service (41%). Most previously employed respondents (49%) had held their prior positions between 1976-1985; and had received their current appointment in the past six years.
5. The majority of respondents (30%) held appointments at the level of maitre

assist./lecturer. The distribution of respondents in senior lecturer and assoc. prof./maitre de conf./assist. prof. was relatively equal (respectively 19% and 20%).

Most of the user group held maitre assist./lecturer appointments (34%); while distribution in the non-user group was relatively equal over the categories maitre assist./lecturer, senior lecturer, and assoc. prof./maitre de conf./assist. prof. (respectively 25%, 22% and 23%). This was to be expected, give the age difference between the two groups.

II. UNIVERSITIES AND THE SOCIAL AND ECONOMIC SCIENCES IN SUB-SAHARAN AFRICA

1. Introduction

A study of flow of social and economic science research to, from and within sub-Saharan Africa must identify where the bulk of such research occurs, and the extent to which an enabling environment exists for the production, access and dissemination of such research.

In sub-Saharan Africa, public universities and research institutes are the environment in which the vast majority of researchers in the social and economic science researchers work. However, the relative instability of these universities and research institutions has seriously impeded the realization of an environment appropriate to the development of highly qualified human resources and appropriate research agendas. It has also precluded the creation of institutionally defined s (in the social and economic sciences) designed to study and foster development. This has been further exacerbated by the uneasy relationship between universities and government, and protracted brain-drain.

In the following, a brief outline is given of the historical (and current) context in which research in the social and economic sciences occurs in sub-Saharan Africa; and the extent to which these institutions have been able to provide an enabling environment for the production, access and dissemination of such research.

2. History and Role of Universities in sub-Saharan Africa

The majority of African universities were created by colonial administrations as "university colleges" that were linked to universities in Europe. Although these colleges were eventually upgraded to universities, the overseas link was maintained (the North American influence was introduced after independence).

In light of this background, Mohamedbhai seems justified in his characterisation of the African university as "an offshoot of an institution serving a Western society having an economic, social, industrial and cultural background totally different from that of Africa" (1994:1).

This characterisation is further underpinned by the subsequent historical development of African universities. Aina (1994) has distinguished four phases of this development during the course of modern African history:

"Colonial universities" phase (1900-1960): Here, the specific objective was training human resources, mainly for the public sector (that is, to meet colonial administrative needs).

"Independence and development universities" phase, respectively 1961-1966 and 1967-1979. There was considerable overlap in these two phases: the

primary goal of such universities was "nation-building and national development".

Priority concerns were with creating an African academic community; the development of relevant curricula; ending academic and administrative dependence on former metropolitan universities; teaching African languages; and the role of universities in national development (AAU, 1995:1).

These phases of university development were concurrent with the evolution and development of political independence. In effect, the Africanization of Africa found its counterpart in the movement to Africanize African universities. This was not without consequence, however, and as the staff and students of universities evolved a more critical orientation, these institutions increasingly became more the antagonists than the collaborators of governments:

"universities and the governments that support them exist in an uneasy and sometimes adversarial relationship across much of sub-Saharan Africa. The principal sources of this tension are government's perception of the university community as a frequent locus of criticism and political opposition, the increased involvement of governments in university affairs, and the inability of governments to provide for the financial needs of universities on a sustainable basis ... governments provide 85 percent or more of university operating funds, and universities are financially dependent upon them as a result" (Saint, 1992:xiv-xv)

Moreover, government involvement in university affairs continues to increase (Saint, 1992:xiv).

"Crisis-era universities" (1980 - present). African universities are currently in a twofold crisis:

i) They have not succeeded in generating an individual identity, or in meeting the terms of their mandate; i.e., to generate sustainable activities designed to contribute to development related issues and policy (at the governmental and the extension level) (Aina, 1994; Saint, 1992). Mohamedbhai goes one step further, pointing out that African universities were not even designed to reach out to the society they serve (1994:1).

ii) Universities have a history of mismanagement and unrepresentative hierarchical governing structures. This has been exacerbated by the infrastructural deterioration of the 1980s: a result of the scarcity of financial and other resources for higher education in conjunction with the African-wide economic recession and political and civil instability (Mohamedbhai, 1994; Aina, 1994; Coleman & Court, 1993).

In the 1990s, the environment of African universities is one of "stringent economic conditions, graduate unemployment, rising enrollment and continuing increased demand at a time of decreasing funding, increased confrontations

between students and university administrations, and between universities and governments" (AAU, 1995:1)

3. The Role of the University in Society

As in most universities everywhere, the goal of African Universities is to produce highly qualified individuals whose task it is to i) generate knowledge through research; and ii) to translate this knowledge such that it will directly or indirectly serve the community and/or society at large. African universities are also mandated to provide training that will contribute to national development (Mohamedbhai, 1994:11).

However, requisite to operationalizing a mandate that university trained human resources link with community and development needs (directly or through research results) is the creation of institutionally defined structures. This has not occurred in African universities. Saint contends that there are no

"institutionally defined programs and associated staff positions for university extension or outreach. The few exceptions are often donor-dependent ... community service remains a peripheral appendage to the university system ... service activities are unlikely to be more than short-term undertakings that generate minimal institutional benefits for university teaching and research programs" (1992:26).

Moreover,

"it is not apparent that universities possess any comparative advantage in assuming service responsibilities over the rapidly expanding number of African non-governmental organizations that appear better equipped for the purpose" (1992:xiii-xiv).

According to Saint, this is because the majority of African countries have been unable to develop infrastructures that are sufficiently stable to sustain production of the high quality training and research needed to address the developmental problems these countries face (1992:89).

Successfully undermining the short and medium range stabilization of African universities has been the combination of i) long-term economic -- and in some countries also political and civil crisis; and, ii) the lack of consensus about how to achieve the Africanization of universities, and what should be the nature of the relevance of universities to the development process (and who should decide).

Compounding this combination of difficulties is the dependence of academic staff and services on foreign financial aid; foreign academic ideals and standards; dependence on foreign generated scientific research results and information sources; and all too often, an overwhelming combination of foreign academic staff and African staff that had been trained abroad.

4. Research in sub-Saharan Africa

In most developing countries research is closely tied to public universities, and this is where "Africa's top caliber research personnel are concentrated" (Abegaz, 1994:12; see also Eisemon and Davis, 1993:68).

The majority of this research personnel has been trained outside of Africa. Although this may ensure high quality training, overseas postgraduate training does not usually provide an opportunity to work on "African" problems (Abegaz, 1994).

It is not, however, self-evident that postgraduate training *within* Africa will enable researchers to address such problems: in those universities having postgraduate training s, these are usually funded by external, usually foreign sources (national governments do not provide sufficient funding to support research) (Saint, 1992).

This will undoubtedly impact on research agendas and priorities (Abegaz, 1994; ESAURP 1987); and brings into question the relevance to the African context of the postgraduate training and research interests (and priorities) of African scientists.

Not only have African research institutions depended heavily on external sources (i.e., foreign funds), they have also been dependent upon foreign staff (Lado, 1993). Lado has qualified three categories of foreign scholars in the African context: graduate students, who come "to collect material for their doctoral dissertations"; faculty on sabbatical leave; and "academics recruited by the institutes either directly or through the assistance of foundations, bilateral or multilateral agencies" (1993:131-133). Foreign scholars are also involved with African institutions as a result of institutional links with universities in developed countries (Lado, 1993; Saint, 1992).

In addition, the effect of economic crisis on an already prevalent brain-drain has compounded the problem of an already insufficient number of qualified and experienced African staff. Many universities are currently comprised primarily of young (inexperienced and insufficiently trained) staff (Saint, 1992:xiii). This is reflected in the low research output of African universities (Saint, 1992:xiii).

5. Social Science Institutions and Social Science Research

To a considerable extent, development is dependent on two important factors: i) an understanding of economic, political and social problems within the context of specific national or regional socio-cultural reality; and ii) how to design and apply appropriate policies relative to these problems (Rasheed, 1994:92).

While it seems self-evident that social science research has an important role to play in this context, African national governments tend to view social scientists as "little more than social critics" (Coleman and Court, 1993:362). This is in part "because [social scientists] have chosen to concentrate their attention on the exposure of social, economic and political problems" (Coleman and Court, 1993:362-363).

This antagonistic relationship has its basis in the historical development of social

science institutions. Although social science institutions have been in existence in sub-Saharan Africa since the 1960s, social science research on a reasonably large scale is a relatively new activity, and has become prolific only in the past 10-15 years (Lado, 1993).

While the primary function of social science institutions has always been training and research, priority has been given to the former. Indeed, research was assigned a relatively minor role in these institutions. It was -- and continues to be of an ad hoc nature lacking central focus and priorities, and only a relatively small proportion of it was - and is actually concerned with development issues (Lado, 1993).⁴

Mohamedbhai (1994) has identified three phases in the historical development of social science institutions in Africa:

The 1960s. In this period, the emphasis was on training small numbers of students. There were strong ties with ex-colonial institutions, and adherence to the conventional academic social science pattern and ideological base of ex-colonial institutions. In addition to the ex-colonial interest in the affairs of African countries during this period, US-based foundations (Ford and Rockefeller, for example), were generating their own spheres of influence through the establishment of development studies s and institutes (Chabbott, 1996).

During this period, academicians were relatively autonomous; generally nationalist and pro-government; and the majority were trained abroad and transmitted their "metropolitan" social science knowledge to their respective home countries.

It was also a time when adequate funding was available for higher education. After independence, considerable investment was made in the development of social science institutions (albeit in some more than others) by indigenous governments; with ex-colonial governments providing primarily financial, technical and administrative support. However, this meant that the "form and content of these institutions was determined and controlled by national and ex-colonial governments who, in effect, owned them" (Bujra, 1994:122).

The North Americans entered the scene during the mid-1960s, which extended the source of funding in a number of African countries. The North Americans were an important source of financial support for social science institutes. The degree of financial support from external sources for these institutions progressively increased during the SAP regimes (in the late 1970s early 1980s), (Bujra, 1994:123).

The 1970s. The 1970s witnessed an expansion of institutional capacity (new universities were opened); growing student enrollment; increased financial and personal support from foreign sources; increasing numbers of academic staff (and they introduced the diverse ideologies acquired during training abroad); the IT revolution (in the broadest sense) generated relatively easy access to books and journals and the major trends in research and ideology in mainstream science.

During this period social scientists become increasingly active in the newly developed NGOs (CODESRIA, for example), which were "owned" by the academic community at the sub-regional continental level. In addition to providing various forms of support, these new institutions also became the forum for the debate on issues related to the development process and the relationship of the social sciences to that process and to government. In the post-1970s period, this debate generated a split in the social science community: one group supported conventional social science, the capitalist system and related ideology; and the other supported a more critical social science and Marxist ideology.

The post-1970s. In this period, political radicalization became the trend among the staff and students at universities (which often led to strikes and university closure). This led to the estrangement between government and academic institutions.

In this period of political instability and economic crisis, the funding allocation for national social science institutions was being reduced annually. This resulted in salary cuts, "book" famine, a lack of basic teaching and research tools, brain drain, and an increasing number of academics engaged in extramural employment in order to support themselves and their families (see also Coleman, Court, 1993:353; Saint, 1992).

Then, as now, research network organizations managed, to some extent, to soften the effects of economic crisis for a small number of social scientists. For example, they facilitated advanced training and research for individual university researchers by providing funding, information, and other services; they organized scientific meetings at the national and regional levels; published and disseminated research results; promoted regional collaboration, and so on. However, because these networks were -- and continue to be almost entirely funded by donor organizations, their future remains precarious, and a major concern has always been the nature and extent of the influence of supporting donor agencies.

Of course, given the history of university-government relations in most sub-Saharan African countries, a dependency on national government has not provided a viable alternative.

By the early 1980s, the "development process" -- which had been in the hands of African governments during the 1960s and 1970s, was under the control of the donor community; and by the end of the decade, the main form of research taking place in social science institutes was consultancy research (Bujra, 1994:135).

6. Summary Points

1. The institutional structure and function of the majority of African universities was initially based on the colonial metropolitan model (and later, the North American influence also became evident). After independence, these institutions evolved in tandem with political

development. They were (and continue to be), financially dependent upon, and under the control of national government.

The relationship between government and universities is an uneasy one that has become increasingly antagonistic; particularly in the context of the economic declivity of the past decade.

2. Universities have not succeeded in developing a stable infrastructural base. As a consequence, they have not been able to meet the terms of their mandate: training and research for the purpose of generating knowledge that will benefit society by meeting development needs and priorities.
3. Africanizing African universities has been undermined by the combined influence -- and dependence upon foreign staff, foreign aid, and the tradition of training African scientists abroad.
4. Social science research in Africa (with the possible exception of the field of economics), has been ad hoc, without a central focus, and without a national research agenda. This has further weakened the contribution of social science research to development related issues. Social science institutions have been unable to reverse this trend as their development and problems mirror those of the African universities with which they are associated.
5. Research network organizations have, to some extent, offered a safe research and training haven to a small number of social and economic scientists. However, their capacity for extending services is relatively small, ad hoc, and often erratic as their funding is almost exclusively dependent upon foreign donors. Because their relationship with African universities has never been formally institutionalized, communication links are limited to personal contacts. As a result, there has been little university/research network coordination of the supplementary research and training services offered by research network organizations.

III. THE FLOW OF SCIENTIFIC INFORMATION

1. Information Flow and the Visibility of Research

The flow of scientific information implies i) a broad-based, sustained dissemination of new and existing knowledge, that ii) can be readily accessed by those actors having the potential to use or apply such knowledge.

A study of the flow of scientific information must address the *process* of the dissemination, acquisition, and assimilation of scientific information:

- **Dissemination** refers to the (physical) distribution of scientific information; the extent of this distribution; and the media that are used for this purpose. Distribution involves, for example, electronic information processing and storing services and systems; published media (at the local, domestic and international level), and printed media with limited circulation.
- **Acquisition** refers to the means used to store information and the accessibility (i.e., retrievability) of these means (for example through libraries and archives (national, academic, public, etc.); information centres (information analysis centres, national information centres, etc.); data banks (general statistics banks, educational, administrative, financial data banks, and so on).
- **Assimilation** refers to the actual use of information; its adoption, adaptation and/or application.

The process of scientific information flow can occur by means of *formal* and *informal communication channels*. Garvey and Griffith (1971:360 and 1979:154) have contrasted these two types of communication channels as follows:

- *Formal* communication channels (e.g., publications, libraries, electronic databases), are public; user-selected; with potentially large audiences; information is permanently stored and retrievable; is relatively "old" (due to lag time in production and publication); and is usually monitored (i.e., evaluated). Formal channels do not usually involve the direct interaction of scientists.
Formal channels of scientific information flow also have the function of advancing certified knowledge (in the form of peer review). To a considerable extent, however, "certification" is biased in favour of selected developed countries and the English language. This has effectively isolated scientific communities in the periphery (especially developing countries).
- *Informal* communication channels (e.g., researcher to researcher; scientific meetings/conferences; e-mail contacts; pre-publication information distribution), are usually restricted, with smaller audiences; information is comparatively "new" as compared with that disseminated through formal channels; but is stored only temporarily (if at all), and is difficult to retrieve (i.e., is often *invisible*); information flow through these channels is usually

not monitored, and the individual researcher can select the communication media and the audience. Informal channels generally involve the direct, face-to-face interaction of scientists.

It is through these two channels that researchers "receive" and "send" information relative to, and relevant for i) the generic research reference framework within which they operate; and ii) their specific research agenda(s).

The nature of formal communication channels implies large numbers of potential "receivers" for a comparatively select number of "senders". In contrast, informal communication channels facilitate interaction between a relatively select number of "senders" and "receivers". Of course this will be greatly determined by the size (and geographic range) of informal communication channels. For example, association organized conferences with attendance in the hundreds or thousands will increase the range of receivers and senders in the informal channel. However, even in this case, imperative to *research visibility* is the transfer of information from the informal to the formal domain (i.e., from the conference presentation stage to acceptance for publication - preferably in a core journal). The parameters of research visibility are thus dependent upon:

- i) the extent to which researchers have access to both informal and formal communication channels; and
- ii) the range of this access, that is, whether it is restricted to the national level, or extends to the (sub)regional and international levels.

For the vast majority of developing country researchers, access to both communication channels is limited; and the transfer of research from the informal to the formal domain -- where visibility dramatically increases, is severely restricted. This implies that developing country researchers are limited, both as "receivers" and "senders" of scientific information.

These limitations are related to a range of factors; some of which may exert greater influence than others:

- i) Environmental and structural factors: a lack of access to (sub)regional and international informal communication channels, and to scientific literature available through formal communication channels: both of which are important to developing the skills and contacts needed for optimal transfer of research from the informal to the formal domain.
- ii) The behaviour, attitude and orientation of developing country researchers with respect both to the nature and amount of research they produce, and to the "publication" (in the broadest sense) and distribution medium they choose.

In effect, the number and geographic range of potential "receivers" of scientific information produced by developing country researchers will be determined by the exposure level of research in the informal and formal domains, and the range of these domains (local, (sub)regional, international).

- iii) The amount, nature, and/or quality of the research produced in developing countries; which could, in turn, be related to such environmental factors as the lack of funding and other incentives to doing research.

As a result, in this study of the communication patterns of social and economic scientists in sub-Saharan Africa, we have tried to:

- i) understand the roles played by informal communication channels in increasing the access researchers have to formal channels; and to
- ii) identify the factors that influence access to formal channels; i.e., the behaviour, attitude and orientation of social and economic scientists.

We have also made every effort to identify the amount and subject matter of research produced by the population studied.⁵ However, the scope (and objectives) of the present study precluded

- i) a determination of the extent to which information acquired is assimilated and used; and
- ii) the development (or use of existing) performance indicators to evaluate the quality of this research.

As a result, this study has been restricted to a consideration of the first two elements in the information flow process: the *dissemination and acquisition* of social and economic science information to, from and within sub-Saharan Africa. In conjunction with the objectives of this study, particularly emphasis has been placed on dissemination.

2. Measuring the Flow of Social and Economic Science Information To, From and Within Sub-Saharan Africa

Three forms of formal information flow have been distinguished: north-south; south-north; and south-south (within sub-Saharan Africa). The survey questionnaire and the bibliometric study were used to operationalize and measure the three forms of information flow. *Formal communication channels* were used for this purpose. A combination of *formal* and *informal communication channels* were used to measure the various factors that influence these three forms of information flow (see Section IV).

Three primary dependent variables were identified to operationalize north-south, south-north, and south-south information flow.

2.1 North-South information flow was operationalized by identifying the number of international journals used for, and deemed important to conducting research (table 16). This variable measures the visibility of international scientific journals in developing countries. The assumption is that those respondents using primarily international (especially indexed and registered) journals for their research will be more familiar with the central research themes and core journals

of their discipline.

Respondents were asked to list up to five scientific journals that were important to their research, and that they had accessed in the past five years. The total number of journals indicated by respondents and organized by discipline can be found in table 16. The table indicates the number of international journals; indexed and registered, and those that do not fall into these two categories but are produced outside of Africa and have an international distribution.

The most important information source accessed by respondents for research in the past five years was international journals. Of the total 321 journals indicated, 269 (84%) were international journals (to include indexed, registered and other internationally visible journals) (see also section IV, 4.4). However, while such a large number of international journals seems to indicate general availability and access, this proved not to be the case when other factors were considered. For example, the majority of our respondents had been trained abroad and were therefore already familiar with the most important international journals in their respective fields. They gained access to these journals (albeit inadequate access) in a variety of ways, ranging from university libraries, to private or institutional subscription, to donations.

2.2 South-North information flow was operationalized by identifying publication access to formal communication channels. This involved an identification of the number of international scientific publications in the categories economics and social sciences produced by the responding population for the period 1990-mid 1996 (i.e., books, chapters in books; international reports, articles in indexed and/or registered journals, and others published outside Africa and having an international distribution) (table 17).

Of the total 398 international publications for the unadjusted population (410 individuals), 295 (74%) were published by 94 (61%) of the total respondents. Averaged over the target period of 6.5 years this is .5 international publications per annum, per publishing respondent.

2.3 South-South information flow was operationalized by identifying the number of domestic scientific publications produced by respondents and distributed throughout Africa (scientific publications include books, chapters in books; international reports, and articles in journals that are indexed, registered, and others produced within Africa) (see table 18).

Because of the relatively small number of domestic journals in existence (and available), we expected few of these to be listed as important to research. Our expectations were exceeded, however: 43 (13%) of the listed journals qualified as domestic (to include indexed, registered, and other domestically published journals).

Of the total 628 domestic publications for the unadjusted population (410

individuals), 501 (80%) were published by 107 (70%) of the total respondents. Averaged over the target period of 6.5 years this is .7 domestic publications per annum, per publishing respondent.

There was considerable overlap in the number of individuals with *international and domestic* publications: 64 individuals (32%) had published in both categories. Of these, the vast majority (78%) have engaged in research activities during past five years:

- 80% were engaged in basic/strategic research activities; 46% of whom were economists (40% were social scientists and 14% had not indicated discipline);
- 42% had research activities involving international linkages; 18% had linkages with other universities; and of the remainder, 30% had not indicated orientation, 8% involved national and 2% regional research linkages.

With their research linkages and publications in international and domestic media, the "overlap" group (32% of total respondents), is the most highly visible, both within and external to sub-Saharan Africa. However, when the combination of the dependency on northern journals, international publications and research linkages is considered, the flow of information for this group is predominantly south-north.

3. Discussion

The three forms of information flow (N-S, S-N, and S-S) all identify the extent to which researchers in sub-Saharan Africa have access to -- or are visible in, *formal* communication (i.e., publication) media. In the case of North-South flow, this involves their familiarity with, and access to international publications, particularly core journals in their respective fields; South-North flow represents the extent to which they publish in international media; and South-South flow the extent to which they publish in domestic media.

We have assumed that the extent to which respondents access -- and publish in international media is related to their academic background, orientation, attitude and behaviour pattern. For example, an economist with a Ph.D from a foreign university (background); engaged in internationally oriented basic/strategic research (orientation); who maintains regular contact with international researchers in the same field (attitude); and regularly attends international conferences (behaviour), will be more likely to use registered and indexed international journals and publish (more often) in international media.

To this end, the three dependent variables indicating North-South, South-South, and South-North information flow, were tested against the background variables identified in Section I, 6. For this purpose, these variables were operationalised as follows:

- INDJOUR (the indicator for North-South information flow) is the number of journals indicated by respondents as important to their research that were found to be registered or indexed. Respondents were asked to list five journals. A score of 0 was given when no registered or indexed journal was listed; 1 when a registered journal was listed; and 2 when an indexed journal was listed. The scale INDJOUR was constructed by adding the scores for the five journals listed. As a result, the scale ranges from 0 (no registered/ indexed journals mentioned) to 10 (five indexed journals listed).
- DOMPUB is the number of domestic *scientific* publications (journal articles, books, articles in books) that respondents indicated having produced.
- INTPUB is the number of international *scientific* publications (journal articles, books, articles in books, international reports,) that respondents indicated having produced.

In addition to the correlation between the three dependent variables and the background variables, we were interested in knowing whether there are relationships between the three dependent variables. The correlations between the three dependent variables are presented in Table 19.

From table 19 it is apparent that there is a slightly significant correlation between the absolute number of domestic and international scientific publications. This indicates that researchers who publish internationally also tend to publish domestically. The table reveals no correlation between the two publication variables and the indexed journals scale. It must be stressed that all correlations involving the variables DOMPUB and INTPUB are based on the number of domestic and international publications that respondents *said* they had produced over the past five years (question 19 in the questionnaire). These figures do not necessarily correspond to the number of international and domestic publications identified in the independent bibliographic searches that were conducted in conjunction with this study (these figures can be found in Section IV). There are two possible reasons for this: i) the search procedure was incomplete due to, for example, the incorrect or incomplete spelling of the (sur)names of researchers; and/or, ii) incomplete or incorrect information was provided by the researchers themselves due to, for example, a misunderstanding as to what should be considered a publication in the three media (international, domestic, grey).

In the following, consideration is given to the extent to which selected central background variables are related to the three dependent variables.

3.1 North-South flow

In tables 20-23 the mean scores of the dependent variable **North-South** are indicated with respect to the background variables: country, highest degree, discipline, user/non-user of research network organization services. The difference between the means (summarized through an analysis of variance) indicates a relationship between a given background variable and each dependent variables.

A comparison of the various countries in table 20 indicates that the means of the variable JOUR_IND do not significantly differ.

Table 21 indicates no significant differences between respondents with respect to the highest degree achieved and the use of registered/indexed journals.

Table 22 shows that there is a significant difference in the proportion of registered/indexed journals when economists and other social scientists are compared. Economists use significantly more registered/indexed journals than do other social scientists.

Table 23 reveals that the users of the research networks use significantly more registered/indexed journals than do non-users.

3.1.1 Summary

Tables 20-23 indicate that for all the countries studied, there is little correlation between those who publish internationally/domestically and the significantly greater use of registered and indexed scientific journals. Nor does the type of highest degree achieved correlate with a greater use of registered and indexed scientific journals.

There is, however, a correlation between being an economist and/or a user of research network organization services and the significantly greater use of registered and indexed scientific journals. This combination of economists and users is no doubt related to the large number of users who are economists (see table 13, Section I, 6.2). It may be that the significantly greater use of registered and indexed journals by this group is related to the large number of users who received their higher degree abroad (see table 15, Section I, 6.2).

3.2 South-North Flow

In Tables 24-27 the mean scores of the dependent variable **South-North** are indicated with respect to the number of international scientific publications (INTPUB) respondents indicated having produced; and against the background variables: country, highest degree, discipline, user/non-user of research network organization services.

Table 24 indicates large and significant differences between the respondents from the different countries in the study with respect to the degree to which they publish internationally. Respondents from Cameroon and Ghana seem to publish relatively more internationally than those from other countries. Further analysis of the data (see the large standard deviations for these countries) reveals that the large differences between these countries and the others can be accounted for by a small number of scientists in Cameroon and Ghana who listed significantly more publications (in all categories) than the other respondents.

Those respondents with a Ph.D or a doctorate from French or Francophone African universities were found to publish significantly more internationally than respondents with lower level degrees (table 25).

A comparison between the groups "economists" and "social scientists" (table 26) reveals that the latter publish significantly more internationally than the former.

Table 27 indicates that non-users of research network organization services publish somewhat more internationally than do the users of such services (although the difference was not significant).

3.2.1 Summary

Tables 24-27 indicate some surprising results:

- there are a very small number of social scientists who publish significantly more internationally than their colleagues;
- economists use more indexed and registered journals for their research; (other) social scientists publish significantly more internationally;
- non-users publish less internationally than users (although the difference not significant).

3.3 South-South Flow

In Tables 28-31 the mean scores of the dependent variable **South-South** are indicated with respect to the number of domestic scientific publications, and against the background variables: country, highest degree, discipline, user/non-user of research network organization services.

Table 28 indicates that there are significant differences between the countries in the study with respect to the *number* of domestic publications respondents indicated having produced. Cameroon, Ghana and Nigeria produce significantly more domestic publications than the other countries in the study. For Cameroon and Ghana, as in the case of international publications, the higher mean score is a result of number of publications of a very small number of individuals. This is not the case in Nigeria, where social scientists in general publish more domestically than do social scientists elsewhere.

Surprisingly, and in contrast to the findings with respect to international publications, table 29 indicates only a weak significant relationship between the number of domestic publications and the level of highest degree of the respondents. However, those with Ph.D and MA/MS degrees published significantly more domestically (compared to those with equivalent degrees from, for example, the Francophone system).

In contrast to the results with respect to international publications, there is no significant difference between the number of domestic publications among economists and social scientists (table 30).

Table 31 reveals a nearly significant difference (at .05 level) between the user

and non-users of research network services with respect to the proportion of domestic publications. Users tend to produce more domestic publications.

3.3.1 Summary

Tables 28-31 indicate significant differences between the countries in the study with respect to the number of domestic publications. Cameroon, Ghana and Nigeria produce more domestic publications than the other countries.

There is also a difference indicated between the users and non-users of research network services: users tend to produce more domestic publications. Surprisingly, however, there is no significant difference between the proportion of domestic publications among economists and social scientists; nor is there a significant relationship between the proportion of domestic publications and the level of highest degree of the respondents.

4. Summary Points

1. The flow of scientific information involves the process of the dissemination, acquisition, and assimilation of scientific information. This process can occur by means of *formal* and *informal communication channels*.
2. The present study has been restricted to a general consideration of the acquisition, and particularly of the dissemination of social and economic science information to, from and within sub-Saharan Africa.
3. For the vast majority of developing country researchers, access to both communication channels is limited; and the transfer of research from the informal to the formal domain (where visibility dramatically increases), is severely restricted. This is related to environmental and structural factors; and to the behaviour, attitude and orientation of developing country researchers with respect to the nature, amount, and quality of the research they produce, and to the publication and distribution medium they choose. A combination of formal and informal communication channels were used to measure the influence these factors have on the three forms of information flow (north-south, south-north, and south-south).
4. *North-south information flow* involved measuring the visibility of international scientific journals in developing countries (which were the most important information source accessed by respondents for research in the past five years). The majority of respondents depend on northern journals as the primary information source for their research.
South-north information flow involved identifying publication access to formal international communication channels; i.e., the number of international publications produced by the responding population for the period 1990-mid 1996. Per annum, .5 international publications were produced, on average, per publishing respondent.
South-south information flow involved identifying publication access to formal domestic communication channels; i.e., the number of domestic publications produced by the responding population for the period 1990-mid 1996. Per annum, .7 domestic publications were produced, on average, per

publishing respondent.

There was considerable overlap in the number of individuals with *international and domestic* publications. With their research linkages and publications in international and domestic media, the "overlap" group (32% of total respondents), is the most highly visible, both within and external to sub-Saharan Africa. It is also the case, however, that the combination of the dependency on northern journals, international publications and research linkages indicates that the flow of information for this group is predominantly south-north.

5. N-S, S-N, and S-S information flow have been operationalized to identify whether researchers in sub-Saharan Africa have access to -- or are visible in, *formal* communication (i.e., publication) media. The extent to which researchers are able to access -- and publish in international and domestic media will be determined by the structural environment in which they must function, and the effect of the environment on the behaviour, attitude and orientation of social and economic scientists.
6. Testing the three dependent variables indicating North-South, South-South, and South-North information flow, against the background variables revealed the following:

North-South Flow: for all the countries studied, researchers who publish internationally also tend to publish domestically. No correlation was found between the two publication variables and the indexed journals scale, or between the type of highest degree achieved and the significantly greater use of registered and indexed scientific journals.

There is a correlation between being an economist and/or a user of research network organization services and the significantly greater use of registered and indexed scientific journals.

South-North Flow: Some surprising results were found in this case: i) a very small number of social scientists publish significantly more internationally; ii) although social scientists publish significantly more internationally, economists use more indexed and registered journals for their research; and iii) users publish more internationally than non-users.

South-South Flow: Significant differences were found between countries with respect to the number of domestic publications. Cameroon, Ghana and Nigeria produce more domestic publications than the other countries. Moreover, users tend to produce more domestic publications.

Surprisingly, there is no significant difference between the proportion of domestic publications among economists and social scientists; nor is there significant relationship between the proportion of domestic publications and the level of highest degree of the respondents.

IV. FACTORS INFLUENCING THE FLOW OF SOCIAL AND ECONOMIC SCIENTIFIC INFORMATION TO, FROM AND WITHIN SUB-SAHARAN AFRICA

1. Introduction

There is little doubt that the ability of social and economic scientists to access -- and publish in international and domestic media will be determined by the structural environment in which they must function, and over which they have little or no control. However, as the tables presented in Section III, 3. indicate, background factors also play an important part in the research and publishing behaviour of sub-Saharan African social and economic scientists.

In this report, we go one step further and propose that the specific orientation, attitude and behaviour of researchers have a substantial affect on the three types of information flow regardless of environmental (structural and financial) restrictions.

Because this study is concerned with the *acquisition and dissemination* of social and economic science information to, from and within sub-Saharan Africa, it has been restricted to the exchange that occurs among those social and economic scientists actively involved in doing research. The emphasis has been on the communication that relates to this research. This meant that we had to isolate those factors that reflect the acquisition and dissemination of research results through informal and formal communication channels. This was done by

- i) assessing the research environment in which these social scientists and economists must operate; i.e., identifying the options and limitations for communication on both levels; and
- ii) identifying the behaviour patterns of these researchers within that environment (with respect to the production and dissemination of research results); their orientation (national, African, international); and the perception they have about their relationship to science and their role and position in the academic environment.

In the following, detailed consideration will be given to i) the objective attributes of the environment; and ii) the other factors that influence access and visibility, and the manner in which these factors (environment, behaviour, orientation, attitude) were operationalized in the questionnaire and the bibliometric study. In Section V a model of analysis is presented wherein the relationship between these factors and the three forms of information flow is considered.

2. Environmental Factors

There is considerable support for the claim that a centre-periphery relationship exists between the scientific systems of lesser developed and developed countries (see, for example, Davis and Eisemon, 1989, Christovao, 1985;

Arunachalam, 1994). This relationship takes the form of a dependency of developing countries upon the centre: particularly evident at the publication level, where the periphery consumes more information from the centre than the converse. However, the environmental and structural options and limitations (e.g., library facilities, information technology; the communication infrastructure; research funding), within which social scientists and economists must operate severely limit access even to these information sources. In order to assess the research environment, the questionnaire included variables that indicated:

- 1) the adequacy of personal, administrative, organizational and professional resources; and
- 2) access to information sources.

2.1 Personal, Administrative, Organizational and Professional Resources

A number of resources are necessary for conducting research, presenting it for consideration in informal communication settings, and transforming it into a publishable form. These resources were separated into the following four categories:

- *Personal resources*: included adequate financial support (for self and family), suitable living conditions and job security.
- *Administrative resources*: included those factors important to successfully support research activities: operating supplies and materials; transportation; office facilities; research assistants.
- *Professional resources* included those factors that positively motivate researchers: freedom to determine research problems; contact with other researchers; opportunities for advanced education and training, professional advancement, scientific recognition, promotion based on merit, implementation of outputs; and the opportunity and freedom to publish research findings.
- *Organizational resources*: included those factors that influence performance: scientific training and management; institutional reputation for scientific achievement.

As can be seen in table 32, administrative resources are grossly inadequate; and personal, professional and organization resources are meagre.

Since administrative resources directly support research activities, their inadequacy will affect all three forms of information flow in both formal and informal communication channels. The severity of this effect for each of the three forms (north-south, south-north and south-south) will be co-dependent upon the availability of, and access to such communication and information sources as scientific literature and databases, and the libraries that house them.

2.2 Access to Information Sources, and Information (IT) and Related Technology

The majority of respondents were 10 or fewer kilometers physical distance from the library; and (82%) had used the library for doing research in the past two years. The fact that so many of our respondents regularly use the library, raises the question of the extent to which sufficient scientific literature is available. Table 33 indicates those information sources that respondents most often used for conducting their research. The greatest *inadequacy* of availability was in the two categories deemed most important to research, *scientific journals and books*. One solution to the lack of available literature in the library system has been private subscription (38%); donation (27%); and journals acquired by institutes, faculties and/or departments (29%).

Information (IT) and other technology were readily available for the majority of respondents:

- of 184 responses, 148 (80%) individuals had access to a telephone;
- of 165 responses, 105 (64%) had access to a fax machine;
- of 152 responses, 100 (66%) had access to a typewriter;
- of 168 responses, 123 (73%) had access to a printer;
- of 163 responses, 115 (71%) had access to a photocopy machine;
- of 168 responses, 123 (73%) had access to a personal computer;
- of 147 responses, 71 (48%) had access to email;
- of 180 responses, 77 (43%) had access to databases.

There were differences in the availability of various technologies for users and non-users of research network organization activities (table 34). It must be stressed, however, that although the term "access" was employed, "availability" is the more appropriate term. These two terms are not necessarily synonymous: for example, in many instances there is a centralized use of email with one computer servicing all users.

3. Behaviour, Orientation, and Attitude of Social and Economic Scientists

Garvey and Griffith (1966), and Garvey and Gottfredson (1979) have described the scientific enterprise as a "social system" composed of (informal and formal communication) elements such as scientific meetings, reports, preprints, journal articles, books, etc. "which scientists use to *process* (originate, develop, transmit, transform, etc.) information" (Garvey and Gottfredson, 1979:300). The way these various elements are used by scientists varies "according to a number of social-psychological factors. Attitudes toward, and experience with, the system influences its use" (Garvey and Gottfredson, 1979:301). However,

"the most prevailing and stable features of the scientific communication system stem from the information exchange behaviour of the scientists. This behaviour is impelled by strong motives (built in during predoctoral training) to attain recognition from one's scientific peers for having made a

significant scientific contribution. Underlying these imperatives are a combination of factors ranging from ... creating new knowledge and ...the individual's need to gain visibility for his work to enhance his professional and economic status to the complex matter of institutional pride in having its scientists produce large numbers of ostensibly high-quality published works" (Garvey, 1979:301).

The present study supports the importance of the behaviour, attitude and orientation of researchers in the production and distribution of social and economic science information.

3.1 Behaviour

The behaviour of social scientists and economists was operationalized by including variables that indicated:

- 1) the use they make of information technologies and research network organization services);
- 2) the amount of time they spent on research and teaching;
- 3) attendance at scientific meetings;
- 5) collaborative research links.

3.1.1 Use Made of Information Technology and Research Network Organization Services

Information Technology: The majority of respondents used primarily informal communication channels as a medium for disseminating research results.

- Of 164 responses, 99% disseminated their research results at professional meetings;
- Of 65 responses, 98% disseminated their research results through lectures;
- Of 79 responses, 97% disseminated their research results among personal contacts.

Research Network Organization Services: Respondents were asked if they were aware of the services offered by research network organizations. Of the 176 responses, 78% indicated awareness of these services. The nature and frequency with which they made use of these services is as follows:

Documentation Centre: Of the 96 responses, 67% frequently or occasionally used this service; 35% seldom or never used this service.

Participation in research network activities: Of the 183 responses, 71% had participated in activities organized by one or more of the three research network organizations participating in this study.

Research Funding: Of the 184 responses, 58% had received partial or full funding from a research network organization for one or more research activities during the past five years. Of 175 responses, 50% had received research

funding from organizations other than a research network. It is interesting that of this percentile, 69% were users of research network services.

In order to determine whether having received funding from elsewhere was influenced by being a research network organization grant recipient, respondents were asked to indicate if funding from other agencies was received before or after funding from a research network organization.

A majority of those responding had received other prior funding (60% of 72 responses). Of the 40% who received a grant *after* they had received funding from a research network organization, 83% indicated that having received a grant from a research network had been an important contributing factor to the receipt of further funding from other agencies.

Of course, it may also be the case that having received prior funding from another organization was an important contributing factor to receiving a subsequent a grant from a research network organization.

3.1.2 Work Activities

Respondents were asked to indicate the number of days per week they spend, on average, on research and teaching. Table 35 indicates that the majority of respondents spend between 3-4 days per week teaching (60%) and 1-2 days doing research (53%).

A comparison of users/non-users of research network organization services revealed that the latter spend more days per week teaching than the former:

- 1-2 days per week: 36% users, 12% non-users;
- 3-4 days per week: 53% users, 66% non-users;
- 5 days per week: 05% users, 16% non-users.

This is reflected in the publication record of the two groups. Users (per publishing individual) published generally more in every category (grey, domestic, international) than did non-users; although this was most evident in domestic publications. Averaged over the target period of 6.5 years per publishing individual:

- grey publications per annum; users 1.4 / non-users 1.3
- domestic publications per annum; users 1.2 / non-users .6
- international publications per annum; users .7 / non-users .5

3.1.3 Scientific Meetings

The most important informal communication medium of dissemination of research results indicated by our respondents was through professional meetings (i.e., conferences, workshops, seminars). Respondents were asked to indicate the number of conferences (in three categories) they had attended during the past *two years*.

The categories of professional meetings were: home meetings (national level); African meetings (regional and inter-regional level); and international meetings (meetings organized and held outside the African continent).

The total scientific meetings attended, and the extent to which the presentations prepared at these meetings were published and the medium in which this occurred is indicated in table 36.

In all three categories of meetings, the vast majority of respondents indicated that the conferences they attended focussed on their specific field of research.

While the number of scientific meetings attended is quite high, it must be stressed that these figures include the total number of meetings attended by each responding individual. Table 37 indicates the average number of meetings attended in the three categories. There is considerable overlap in the three categories; i.e., individuals attend meetings in more than one category. A total of 165 individuals (100% of the following percentages) attended scientific meetings. Of these,

- 57% attended meetings in all three categories;
- 16% attended only national and African meetings;
- 15% attended only national meetings;
- 8% attended only national and international meetings;
- 3% attended only African meetings;
- 1% attended only African and international or only international meetings

The majority of respondents attended meetings in all three categories.

Table 38 lists the number of users and non-users (of research network organization services) among the 165 individuals attending meetings in the various (combinations of) categories. Although the majority in both groups attended meetings in all three categories, a greater percentage of users did so than did non-users. Conversely, a higher percentage of non-users attended national and/or African meetings.

A comparison was made for users and non-users of the percentage of i) national and/or African meetings; and ii) international only or in combination with national or regional.

For the non-user group, the distribution over these two categories is relatively equal: 42% attending all combinations of national/African, and 59% all combinations of international/national/African. In contrast, in the user group we found 28% attending all combinations of national/African, and 74% all combinations of international/national/African.

It may be that the higher proportion of users attending international meetings related to their advantage of being aware of -- and accessing available travel grants (particularly from research network organizations). This would tend to confirm the position taken by Abegaz: that African scientists who are able to access travel grants to attend scientific meetings "may be more inclined to use this travel money to go to a professional meeting in Europe or North America

rather than in Africa" (1994:10).

The majority of papers in all three categories of scientific meetings were published in a proceedings (81% for national meetings; 67% for African meetings; 56% for international meetings). A similar pattern occurs for the distribution of these proceedings directly to participants (77% distribution for national meetings; 64% distribution for African meetings; and 62% distribution for international meetings).

A number of papers were subsequently also published as book and/or journal articles (see table 39), in international media, by research network organizations, or domestic media such as national publishers or university presses.

As can be seen from table 40, university libraries receive publications primarily from nationally organized scientific meetings. Publications in this category are generally equally distributed along all dissemination media. This is not the case for African or internationally organized meetings, however, both of which are primarily distributed internationally. Moreover, research network organizations appear to take the primary responsibility for distributing publications from both national and African scientific meetings.

Of the total 395 scientific meetings attended during the past two years, 287 were at the national and African level. Of this total, 32% had been organized by one (or more) of the three participating research networks. Table 41 lists the number of meetings and the percentage in each category organized by one or more of the participating research network organizations.

The tables for this section are indicative of i) the importance of research network organizations as a publication outlet (formal communication channel) -- particularly for papers produced for African scientific meetings; and ii) the relationship between the visibility of research and attending international conferences; i.e., many of the papers produced for such conferences are (ultimately) published in international media.

3.1.4 Scientific Collaboration

In addition to enquiring about the linkage relationship with respect to research activities within the past three years (see below, 4.2), respondents were asked whether scientific meetings had resulted in scientific partnerships and subsequent publications during the past two years.

National scientific meetings: Of the 151 individuals attending national meetings, 53% indicated that scientific collaborations had resulted from their participation in these meetings. Of this number, 56% indicated that the collaboration had resulted in the publication of research results, of which

- 30% appeared in a domestically published book and/or journal;

- 29% in an internationally published book and/or journal;
- 14% in a research network organization publication;
- 22% as grey literature; and
- 4% in the category "other".

African scientific meetings: Of the 115 individuals attending African meetings 53% indicated that scientific collaborations had resulted from their participation in these meetings. Of this number, 44% indicated that the collaboration had resulted in the publication of research results, of which

- 14% appeared in a domestically published book and/or journal;
- 43% in an internationally published book and/or journal;
- 21% in a research network organization publication;
- 12% as grey literature; and
- 10% in the category "other".

International scientific meetings: Of the 87 individuals attending international scientific meetings, 40% indicated that further scientific collaborations had resulted from their participation in these meetings. Of this number, 43% indicated that the collaboration had resulted in the publication of research results, of which

- 13% appeared in a domestically published book and/or journal;
- 48% in an internationally published book and/or journal;
- 13% in a research network organization publication;
- 26% as grey literature.

4. Orientation

Some researchers (or groups of researchers) will be more internationally oriented; while others will evidence a primarily local, national and/or regional interregional orientation. This factor was operationalized by including variable that indicated:

- 1) the pattern of their research activities (e.g., basic, strategic, applied);
- 2) linkages in conjunction with research activities;
- 3) membership in professional organizations;
- 4) the journals they used for their research, and whether they tended to publish in these journals;
- 5) orientation was also operationalized in the bibliometric search: the number of publications produced in the period 1990-mid 1996 and where, and in what form these research results were published (i.e., international, domestic, grey, or trade publication).
- 6) to whom (i.e., the individuals and organizations) they communicated their research results;

4.1 Pattern of Research Activities

With respect to the type of research -- e.g., basic, strategic, applied, adaptive, methodological, few respondents (3%) indicated only one type of research.⁶ For the majority (73%), the research pattern was a combination of basic/strategic and one of the other three research types (applied, adaptive, or methodological). However, this combination was more often found among the users of network organization services.

It is important to note that, although a general qualification of research type was given in the questionnaire, the interpretation of basic and strategic research in the social and economic sciences may vary. Useem et al. (1981) point out that this is particularly the case in the developing country setting, where "basic research problems" may not fit the "epicenter's definition of basic research", particularly when these problems relate to questions concerning the "application of foreign knowledge". Moreover, since "the establishment of independent states with their own educational and scientific communities, the persons who define what is basic or applied are nationals".

4.2 Research Linkages

We requested information from respondents about the three most important research activities in which they had engaged during the past five years. Respondents were asked to indicate research activity titles, duration, faculty and department, the initiator of the activity, research type, area of specialization, relevant university or external linkages, and the type of linkage.

Of the total respondents, 152 (76%) have engaged in research activities during this period: 66 (43%) did research in the social sciences; 67 (44%) in economics. Insufficient information was provided for the remainder (13%).

Those research activities for which sufficient information was provided (133) is indicated in table 42. The category "incomplete information" includes activities for which the initiator could be identified, but for which the remaining information categories were only partially complete. The table indicates initiator (self, international organization, national or regional organization); field (economics or social sciences); research type (basic/strategic or adaptive/applied/ methodology); orientation (national, regional, international).

As can be seen from table 42, the majority of research activities, regardless of the initiator involved primarily basic/strategic research (see endnote 6), with an international orientation. This orientation is consistent with that of research collaboration based publications resulting from scientific meetings (see 3.1.4).

4.3 Membership in Professional Associations

Of 144 responses, 126 (88%) individuals listed the associations of which they

were members. Of these,

- 25% only had membership in national associations;
- 21% only had membership in (sub)regional or pan-African associations;
- 17% only had membership in national and (sub)regional or pan-African associations;
- 15% only had membership in national and international;
- 11% only had membership in (sub)regional or pan-African associations, and international organizations;
- 06% had membership in national, (sub)regional or pan-African associations and international organizations;
- 05% only had membership in international organizations.

Most respondents (72%) indicated membership in one or more professional organizations. The vast majority (63% had memberships restricted to national or African organizations, or some combination of these); 37% had membership in international organizations -- or in some combination of international, national and/or African).

4.4 Journals

For the majority of scientific investigators (in almost every scientific discipline the most important tool used to facilitate the process of acquisition and dissemination is the scientific journal. It is also the primary means by which "visibility" is gained and maintained: in the academic setting, strong emphasis is placed on the publication of journal articles when awarding tenure, promoting or firing faculty.

Respondents were asked to indicate the five journals that have been of theoretical and/or empirical value to their research during the past five years. A total of 321 journals were indicated by the respondents. A search was made to determine how many of these journals (categorized by discipline) were registered publications; and how many were indexed in the Journal Citation Reports 1990-1996. It must be stressed, however, that in the present study, the "measure" of being a registered and/or indexed journal was used solely as an indication of the visibility of journals; *not* as a performance indicator.⁷ The combination of being a registered and/or indexed journal provides a reasonable indication of the visibility of a journal, its contents, and the author(s) of these contents -- north/south, south/north and south/south.

As can be seen in table 16, of the total 321 journals, 122 (38%) were registered publications; 52 (16%) were indexed in the Journal Citation Reports (JCR) 1990-1996 (published by the Institute for Scientific Information).

We can infer from Table 16 that greater importance is attached to 'northern' journals. This was also reflected in the replies given to the question of the most serious limitations to doing research: most respondents ranked the lack of adequate access to scientific literature (particularly international journals) as

second only to the lack of research funding.

However, the preference researchers have for northern journals may, in part, be related to the country where they received their highest degree (see table 5). It is not surprising that the preference for scientific journals reflects the trends prevalent in the university setting where respondents received their scientific background; particularly for those who have completed their highest level degree relatively recently.

We were interested in knowing whether the responding population published their research results in those international and domestic journals they identified as being of greatest importance to their research.⁸

None of the respondents listed solely domestic journals as being most important to their research. Of 163 responses, 106 (65%) indicated only international journals; 42 (26%) two or more international journals and only one domestic journal; and 15 (9%) indicated international in combination with two or more domestic journals.

Of the 148 respondents listing one or more internationally published journals as important to their research,

- 23 (16%) had published in the 40 journals indicated in table 44;
- of these, 19 (83%) had published in indexed journals.

This does not, of course, mean that the remaining individuals (84%) had not published in international journals: only that in the period 1990-mid 1996, they had not published in those journals they indicated as important to their research.

Of the 57 respondents listing one or more domestically published journals as important to their research,

- 12 respondents (21%) had published in the 21 journals indicated in table 45.

Here again, this does not mean that the remaining individuals (79%) had not published in domestic journals: only that in the period 1990-mid 1996, they had not published in those journals they indicated as important to their research.

4.5 Publication of Research Results

In developing strategies designed to improve the flow of scientific information it is important to determine the extent to which social scientists and economists conduct research and publish the results, and which medium they most often use to do this. In order to address this question, a count was made of the publications produced by the total estimated population (410 social scientists and economists) for the period 1990-mid 1996 in the targetted social and economic sciences. Subsequently, a count was made of the publication trends of respondents. The sources used to do this included:

- network organization databases and publications;
- national journals within the targetted countries;
- publications information gathered from respondents;
- international databases.

As mentioned in the Introduction, the term "publications" has been very broadly defined. For the present study, publications included, for example, international and domestically published books and articles in books; articles in international and domestic academic and trade journals; commissioned reports; research and working papers; consulting reports.

Of the total 1796 publications, 398 (22%) were in international media, i.e., produced outside of Africa and widely distributed. This category includes internationally published journals, books, articles in books, reports, and so on. Journals include those indexed by ISI; those registered in journals publications media (Ulrich's, Willings Press Guide, and various international databases (ECONLIT, 1969-1996; ERIC 1982-1996; IBSS; 1981-1996; ABI; PAIS 1972-1996; Socio, 1990-1996)); and those that are not registered in one of the latter sources, but are published outside Africa and could be physically located to verify their existence.

- Of these 398 international publications, 295 (74%) were produced by respondents.

Domestic publications numbered 628 (35% the total publications). This category includes domestically published journals (to include trade journals), books, articles in books, reports, and so on. Journals include those indexed by ISI; those registered in journals publications media (Ulrich's, Willings Press Guide, and various international databases (ECONLIT, 1969-1996; ERIC 1982-1996; IBSS; 1981-1996; ABI; PAIS 1972-1996; Socio, 1990-1996)); and those that are not registered in one of the latter sources, but are published within Africa and could be physically located to verify their existence.

- Of these 628 domestic publications, 501 (80%) were produced by respondents.

Of the total 1796 publications, 772 (43%) were published as grey literature. This category included research reports; invited papers; papers presented at scientific meetings but not otherwise published; working papers, research proposals, interim and final reports, occasional papers, training related publications, project and consultancy reports, and so on.

- Of the 772 grey literature publications, 656 (85%) were produced by respondents.

Of the total 1796 publications (all categories), 1452 (81%) were produced by the respondents to the survey. The total number of respondents publishing in

the two major categories "economics" and "social sciences" can be found in table 45.

The distribution of the publications produced by respondents in the categories "economics" and "other social sciences" is given in table 46. In this table, "international" publications includes articles published in registered and indexed journals; as internationally distributed books; as articles in journals published outside Africa and having an international distribution but that were not registered or indexed in the sources indicated above; reports commissioned from, and formally published by international organizations.

The distribution of publications produced by the respondents was as follows:

- 295 international publications of which 56% were in the category social sciences, and 44% were in the category economic sciences;
- 501 domestic publications of which 48% were in the social sciences and 52% in the category economic sciences;
- 656 grey publications of which 42% were in the category social sciences and 58% in the category economic sciences.

Table 47 indicates the average publications per category when compensation is made for the respective number of economists and sociologists who have published per country.

Those countries with the highest average of publications (> 10% for all categories), during the target period were Nigeria (20%); Uganda (17%); Zimbabwe (16%), and Tanzania (10%).

- Of the total of 44.1 average international publications for the entire period (1990-mid 1996): 54% were in the social science and 46% were in the economic sciences.
- Of the 53.3 average domestic publications for the entire period (1990-mid 1996): 45% were in the social sciences and 55% in the economic sciences;
- Of the 79.9 average grey literature publications for the entire period (1990-mid 1996): 37% were in the social sciences and 63% in the economic sciences.

The percentage published by the three participating research networks were:

- 146 (23%) domestic publications (all categories) were published by the participating research networks.
- 92 (12%) of the grey literature was published by the participating research networks.

4.6 Dissemination of Research Results

Respondents were asked to indicate the groups/organizations that have been provided with information about their research results. Because there were

multiple responses to the various categories, a factor analysis was used to determine whether clusters of interrelated variables could be identified (i.e., whether respondents tended to respond in certain combinations). The following factors were identified:

- I. Government agencies
Donor organizations
Policy makers
Consulting agencies
- II. National researchers in own field
African researchers in own field
International researchers in own field
- III. National research networks
International research networks
- IV. Science journalists

These four factors explain 60% of the variance; the first being the most important.

Researchers tend to inform a specific audience about the results of their research: in this case, the primary group indicated by respondents (category represent potential research funding organizations).

Respondents were also asked to indicate, on average, how frequently over the past two years they had professional discussions: with whom in which organizations:

- 72% had frequent contact with researchers in their own organization;
- 23% had frequent, and 53% had occasional contact with researchers abroad;
- 64% had frequent contact with postgraduates;
- 17% had frequent, 37% occasional, and 31% seldom had contact with government ministries;
- 21% had frequent, 34% occasional, and 23% seldom had contact with NGOs.

5. Attitude

Attitude involves the opinion social and economic scientists have about their relationship to science, and their role and position in the academic environment. Attitude was operationalized by including variables indicating the opinions the social and economic scientists had with respect to:

- 1) the most serious limitations to doing research;
- 2) the most important factors for professional advancement;
- 3) the impact -- and potential beneficiaries of their research;
- 4) information sources of greatest importance to their research;
- 5) the value of research network organizations to their research and the acquisition of professional attachments

5.1 Research Limitations

The most serious limitations to doing research indicated by the respondents, listed in ranked order, were:

1. the lack of funds for conducting research (65% of 187 responses);
2. insufficient access to scientific literature (26% of 184 responses);
3. the lack of adequate incentives and rewards for doing research (24% of 184 responses);
4. limited availability of supplies and equipment (e.g., paper, printers, photocopy machines) (19% of 164 responses);
5. lack or limited availability of information technology (16% of 164 responses).

Of these, 2, 4 and 5 are variables that can be directly associated with *formal* communication channels affecting all three forms of information flow.

With the exception of number 4, users and non-users scored roughly the same. A higher percentage of non-users indicated item 4 as a serious limitation (23% non-users; 11% users). This is interesting given that there was a slight difference in the availability of such equipment in favour of non-users (see table 21).

5.2 Factors Promoting Professional Advancement

Respondents ranked the three most important factors to their professional advancement (in their current position) as follows:

1. Academic qualifications.
2. International publications.
3. Reporting research results.

5.3 Impact of Research

Respondents were asked if their research activities had had an impact in the economic, social or political context; or whether they were involved in research of potential impact. Of the 154 responses, 60% were affirmative and indicated how this had occurred:

- 34% indicated that research results were relevant to a specific policy issue;
- 36% said their research had come to the attention of the institution involved;
- 13% indicated that their involvement was the result of a personal contact;
- 14% had offered their services to a number of institutions.

Respondents were also asked if their research (over the past five years) had been of benefit, and if so, to which groups or institutions. In this case also there were multiple responses to the various categories. A factor analysis was again

used to determine whether clusters of interrelated variables could be identified (i.e., whether respondents tended to respond in certain combinations):

- I. Rural residents
 - Foreign institutions or governments
 - Donor organizations
- II. Other scientific disciplines
 - Other
- III. General public
 - Researchers in own discipline

The first factor, which explains most of the variance, is of considerable interest here. It indicates that researchers apparently do not perceive a difference between the benefit of their research to rural residents and foreign institutions/governments and donor organizations.

5.4 Information Sources of Importance to Research

Respondents were asked to indicate the five sources of information that had been of greatest importance to their research activities during the past two years. These are ranked as follows:

1. International scientific journals (31% of 181 responses).
2. Books (primarily international) (22% of 181 responses).
3. Personal contacts with researchers in own field at the national and international levels (20% of 181 responses).
4. Unpublished research reports (15% of 176 responses).
5. Published research reports (12% of 175 responses).

5.5 How Research Network Organizations are Perceived

In response to the question of whether research networks had been important to their research during the past five years, 43% of respondents answered in the affirmative. Respondents were also asked how (by what services) research networks had been important to two of their research activities. The results for both activities (in ranked order) are as follows:

1. provided relevant literature or other information (52%).
2. financially supported all or part of research related travel abroad (37%);
3. organized scientific meetings relevant to research (35%);
4. provided technical advice (28%);

Respondents were also asked if research network organizations had been important to their teaching activities and, if so, in what way. Of the total respondents, 43% indicated that research networks had been important to their teaching activities during the past five years. These respondents ranked the services important to teaching as follows:

1. provided relevant literature or other information (74%);
2. organized meetings (65%);
3. financially supported thesis/dissertation at M.A. or Ph.D level (41%)
4. provided technical advice (29%);
5. provided travel funds (24%).

In answer to the question of whether affiliation with a research network contributed to their ability to produce research that was used in, or impacted on the economic, social or political policy context, 41% (63 of 153 responses) confirmed that this was the case. The majority indicated that this affiliation had helped them gain a better understanding of the linkages between research and policy-making.

Of general importance to the flow of information and of specific importance to generating information gatekeepers are professional attachments. Respondents were asked whether they had had any professional attachments external to their own institution in the past three years: 69 respondents (35%) had had such an attachment. Of this group, 39 individuals (57%) indicated that their affiliation with a research network organization had been beneficial or instrumental in acquiring the attachment. The major contributing factor indicated by this group was that research network activities (e.g., workshops) had provided them access to the professional contacts through which these attachments were realized.

6. Summary Points

1. Those factors influencing the acquisition and dissemination of research results through informal and formal channels include the academic/research environment; behaviour patterns, orientation and opinion researchers have about their relationship to science; the position and role of researchers in the academic environment.

2. These factors were operationalized as follows in the questionnaire and bibliometric study:

Environment: *i) Adequacy of administrative, personal, organizational and professional resources.* For the majority of respondents administrative resources were grossly inadequate; and the remainder meagre.

ii) Access to information (IT) and other technology. The majority of respondents had access to IT and related technologies.

Behaviour: *i) Use made of information technologies (IT) and research network organization services.* Most respondents rely on informal communication channels as the primary medium for disseminating research results.

Respondents made use of the following research network services: the

documentation centre; the grant ; attended network organized scientific meetings (national and African); publication and distribution facilities.

ii) Amount of time spent on research and teaching. Majority of respondents spend between 3-4 days per week teaching and 1-2 days doing research. Users of network services tended, on average, to spend fewer days per week teaching than non-users. Users also had slightly more international and grey literature and considerably more domestic publications than non-users.

iii) Attendance at scientific meetings. For the majority of respondents scientific meetings were the most important informal communication medium for the dissemination of research results. This was substantiated by the sheer volume of scientific meeting attendance over the past two years: 165 respondents attended a total of 395 meetings (a per person average of 2.4 meetings per annum). It may also be the case that this high attendance rate is related to the potential meetings offer to generate contract work.

The majority of respondents attended meetings in all three categories (national, African, international). Users attended more international meetings and non-users more national and African meetings. It may be that users have more funding options than non-users: they may take advantage of available travel grants from network organizations (or affiliated organizations) to attend international meetings.

There were 344 papers prepared for these meetings; of which 234 (68%) were published:

- 47% of papers were from national meetings (24% of which were published by a research network organization);
- 31% were from African meetings (45% were published by a research network organization); and
- 22% from international meetings (33% were published by a research network organization).

iv) Collaborative research. Scientific meetings in all three categories had resulted in scientific partnerships and subsequent publications over the past two years:

- Of 151 individuals 53% verified scientific collaborations resulting from national meetings; for 56% this resulted in publications (majority published in international and domestic media).
- Of 115 individuals 53% verified scientific collaborations resulting from African meetings; for 44% this resulted in publications (majority published in international media).
- Of 87 individuals 40% verified scientific collaborations resulting from international meetings; for 43% this resulted in publications (majority published in international media).

In all of these categories the orientation was primarily international.

Orientation: *i) Pattern of research activities (e.g., basic, strategic, applied).* A majority of respondents indicated that they did basic and/or strategic research in combination with adaptive, applied or methodological. A comparison of users and non-users indicated that more users than non-users followed this pattern.

ii) Research links. A majority of respondents (76%) have engaged in research activities during past five years: relatively equally distributed over the categories social science and economics. The vast majority of these research activities, involved primarily basic/strategic research, and had a primarily international orientation.

iii) Membership in professional organizations. Membership in professional organizations is important for all three forms of information flow at the informal communication level. In their study of the Phillipines, Useem et al. found that the number and strength of scholarly societies and professional organizations are important to the flow of information about research done by counterparts in other academic institutions, nationally and/or regionally. If these organizations are weak (coupled to minimal job mobility), then most scientists will remain "less aware of the research being done by their counterparts in other academic institutions in the country than they are of research going on in foreign universities, research sponsored by international organizations and to some extent the national government" (1981:289).

Of course, the extent to which scientists are aware of research done in foreign universities will greatly depend upon the extent to which they have membership in international professional organizations and are able to participate in the activities of these organizations.

Of the respondents having membership in one or more professional organizations, the vast majority (63%) were in national or African organizations, (or some combination of these). The remaining 37% held membership in international organizations (or some combination of international, national and/or African).

iv) Journals important for research, and whether they published in these journals. Of the 321 journals listed as important to research, 42% were registered; and 17% were indexed. International journals were indicated as being of greatest importance to research, and their poor availability was cited one of the most serious limitations to doing research. None of respondents listed solely domestic journals as being most important to their research.

It may be, however, that the preference for northern journals is related to the academic environment where respondents received their scientific background (a large percentage of respondents were trained abroad).

Only 16% of respondents had published in one or more of the international journals they had listed as important to research; however, 83% of these respondents had published in indexed journals.

Domestic journals fared somewhat better: 21% of respondents had published in one or more of the domestic journals they had listed as important to research.

v) *Number of publications produced (1990-mid 1996); and how these were published (international, domestic, grey).* Of the total respondents, 153 (77%) had published in some form. Of the total 1796 publications, 81% had been produced by respondents and were similarly distributed over the categories social sciences and economics and over international, domestic and grey publications:

- 74% international (56% soc. sci. and 44% econ.);
- 80% domestic (48% soc. sci. and 52% econ.); and
- 85% grey (42% soc. sci. and 58% econ.).

The three participating research networks published 23% of the domestic publications (all categories) and 12% of the grey literature.

vi) *Individuals and organizations they informed about research results.*

Researchers tend to inform primarily funding organizations of their research results.

They tended to communicate most frequently with researchers and post-graduates in their own organization. Only 23% of respondents had frequent contact with researchers abroad; 17% with government ministries; and 21% with NGOs.

Attitude: i) Most serious limitations to doing research. The most serious limitations to doing research, in ranked order, include lack of funding; poor access to scientific literature; limited supplies and equipment.

ii) Most important factors for professional advancement. The most important factors for promotion, in ranked order, were academic qualifications; international publications; reporting research results.

iii) Impact and potential beneficiaries of their research. Most respondents (77%) felt that their research directly impacted on the social, economic, or political context, or that they were involved in research of potential impact. The majority indicated that this was because their research was related to a specific policy issue (34% of respondents), or because it had come to the attention of an institution involved in impact related research (36%). The remainder of respondents indicated that their involvement with research of actual or potential impact was the result of a personal contact, or that they had offered their services to relevant institutions.

iv) Most important information sources used for research. The most important information sources indicated by respondents, in ranked order, were international journals and books (formal channel); national and international personal contacts (informal channel); unpublished research reports (informal channel); published research reports (formal channel).

v) *Perceived value of research network organizations to research and to the*

acquisition of professional attachments. Of the total respondents, 43% indicated that research network organizations had been important to both research and teaching activities by:

- providing relevant literature or other information
- financially supporting M.A./Ph.D level thesis/ dissertation research and all or part of research related travel abroad;
- organizing scientific meetings;
- providing technical advice.

Of the total respondents, 35% had had professional attachments. Slightly more than half of these indicated that a research network organization had been beneficial in the acquisition of these attachments: primarily by facilitating relevant personal contacts.

V. THE MODEL

1. The Model

The questionnaire developed for this study was designed to identify the various aspects of the independent variables environment, behaviour, orientation and attitude. The way in which these factors were operationalised in the questionnaire and the results were presented above (Section IV).

Subsequently, we developed a model designed to determine the extent to which the different aspects of each of these variables (individually or in combination) affects the three forms of information flow.

The model can be expressed in terms of three different sub-problems, in which an explanation is sought for:

- *North-South Flow*: the number of registered and/or indexed journals indicated by respondents as important to conducting research (INDJOUR).
- *South-North Flow*: the number of international publications produced by respondents (INTPUB).
- *South-South Flow*: the number of domestic publications produced by respondents (DOMPUB).

The method used to qualify and measure these variables (and those indicated below) can be found in endnote 9.⁹

These three variables (INDJOUR, INTPUB, and DOMPUB) can be positively or negatively affected as follows:

- a negative constraining effect can emanate from an environment with too few resources;
- a positive enabling effect can emerge from specific attributes of the environment, orientation, attitude and behavioral of social and economic scientists.

1.1 Part I of the Model

The first part of the model is based on the presupposition that there is a relationship between the objective attributes of the environment. For example, if there is little or no access to libraries and/or the various types of information technology, researchers will have few publications (domestic and international) and indicate few (or no) registered/indexed journals as important to conduct their research. A similar effect can be hypothesized if the perception researchers have about the environment is negative.

This is in line with the centre-periphery thesis that the lack of resources in developing countries seriously delimits the potential of researchers to participate in the international scientific community.

If this presupposition is accurate then, when comparing social and economic

scientists in different parts of Africa, we could expect that:

the more limited the availability of resources, the less social and economic scientists will publish (domestically and internationally), and the less they will acknowledge (and/or be able to access) core journals in their fields (i.e., those that are registered and indexed).

In this context, environmental factors were measured in two ways:

- i) By objectively assessing available technologies; distance to library; and university closure in the recent past.
- ii) Perceptions respondents had of the constraining aspects of the environment, that is,
 - limitations to research (only shortage of research funds is frequently mentioned, and has been used in the analysis)
 - adequacy/inadequacy of library resources
 - factors influencing researchers: personal; administrative; professional; organizational.

The presupposition (that there is a relationship between the objective attributes of the environment) was tested by considering the relationships of the following four factors with the three dependent variables representing information flow (INDJOUR; INTPUB; and DOMPUB):

- i) the availability of information technologies (COMTECH);
- ii) the distance to the (university) library (LIBDIST);
- iii) access to databases (DBS_ACC);
- iv) (regular) occurrence of university closure (UNICLOS).

1.2 Results

The objective attributes of the environment and their relationship to the three dependent variables is indicated in table 48.

With respect to the objective environment, we found no significant relationship with the COMTECH: whether respondents do or do not have a phone, fax, email and/or secretarial assistance has no relationship to the three variables indicating flow of scientific information.

There is a slightly positive relationship between the access to databases and INDJOUR (registered/indexed journals deemed important). Combined with the finding below (a significant relationship with the use of databases); this indicates that respondents who use databases are familiar with more registered/indexed journals than those who do not use databases. Having access, and actually using databases will lead social scientists to registered and/or indexed journals.

The proximity of the library is significantly related with both domestic and international publishing: those who live far away from a library will publish less.

The results with respect to university closure are difficult to explain. In those countries where respondents reported unusual numbers of publications (i.e. especially Nigeria), there were also more university closures reported.

1.3 Perceptions about the environment:

While we could expect a direct relationship between objective attributes of the environment and the three dependent variables, the relationship with "perception" is more complex. Rather than hypothesizing negative relationships between the perception of the adequacy/inadequacy of resources and the measures of information flow, we expected that the more people are actively engaged in publishing, the more they will perceive available resources as being inadequate. Particularly with respect to publication measures, we would expect a positive relationship with the measures used for the perception of inadequacy of resources.

The following variables were considered in measuring perceptions about the inadequacy of resources:

- i) perception of lack of research funds as a limitation to research (LACK_FUND)
- ii) perception of inadequate availability of books in library (BOOK_INAD)
- iii) five scales measuring the degree of inadequacy of factors associated with conducting research: personal factors (SCAL_PERS); administrative factors (basic and research resources) (SCAL_AD1 and SCAL_AD2); professional factors (SCAL_PRO); and organizational factors (SCAL_ORG).

1.4 Results

Perceptions respondents have about the environment and their relationship to the three dependent variables is indicated in table 4.9.

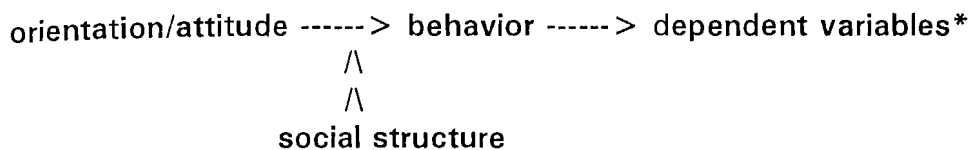
Perceptions about the lack of funds is significantly related to domestic publishing; and positively (but not significantly) related to international publishing. With respect to the inadequacy of books in the library the converse is the case: there is a significant positive relationship to international publishing and a positive (but not significant) relationship to domestic publishing.

The relationship with the various scales (for the most part not significant), are difficult to explain. We do not have an adequate explanation for the significant negative relationship between the SCAL_AD1 and INDJOUR. It may be that since SCAL_AD1 measures the inadequacy of facilities, there is a relationship when there are too few facilities, and respondents are unable to use the

databases (which is positively related to this variable).

2. Part II of the Model: Orientation, Attitude and Behaviour

The remainder of the model presumes a relationship between:



* number of domestic and international publications; and number of registered and/or indexed journals respondents indicted as important to conducting research.

2.1 Orientation/Attitude: We anticipated that two aspects of the orientation/attitude of social and economic scientists would be particularly relevant:

- i) orientation with respect to academe (ACAD); and,
- ii) positive orientation to either international (INT_PERS), or domestic personal (DOM_PERS) contacts. This measure is a combination of two dimensions: cosmopolitanism/localism and importance assigned to personal contacts.

An orientation emphasizing both academic values and the importance of international personal contacts will be related to the number of international publications (and to a lesser extent, to the number of registered/indexed journals deemed important for research). An orientation in which domestic personal contacts are deemed important will be related to a higher number of domestic publications.

2.2 Results

The relationship between orientation the three dependent variables is indicated in table 50. We did not find the expected significant relationship of the ACAD variable with the three dependent variables. It may be that ACAD is not an adequate measure of academic orientation: we should have at least found a relationship with international publishing.

It appears that respondents who consider international personal contacts important indicated fewer registered/indexed journals. It may be that the INDJOUR variable is a better indicator of the extent to which respondents use literature rather than personal contacts in their professional career: there is a strong positive relationship between international contacts as an information source and international publishing.

The significant negative relationship of the variable DOM_PERS with INDJOUR indicates the same phenomenon.

Respondents emphasizing the importance of domestic personal contacts do indicate registered/indexed international journals as important to their research (although this is a finding one could expect in academe in any part of the world - developed and less developed).

2.3 Behaviour: The following variables were considered in measuring behaviour:

- use of the library (LIB_USE) and databases (DBS_USE);
- time spent on research (RES_DAYS);
- frequency of attendance of national (DOM_CONF), African (AFRIC_CONF) and non-African (NONAF_CONF) scientific meetings.
- social structure: "users" of research network organization activities (USE_NETW).

An additional variable has been included here; and is used as an indicator of extent to which the behaviour of social and economic scientists is part of a social structure that facilitates the flow of information. This variable (USE_NETW) measures whether respondents have been "users" of at least one of the participating network organizations.

The number of national and African scientific meetings attended will be related to the number of domestic publications. The number of non-African scientific meetings attended will be related to the number of international publications. The number of registered/indexed journals deemed of importance to research.

We expected to find that utilization of the library, the time spent on research and the use of research networks would be related to all three dependent variables.

2.4 Results

The relationship between behaviour and the three dependent variables is indicated in table 51.

Respondents who often attended domestic conferences also publish more domestically; but the relationship with international publishing is not significant.

We have no explanation for why respondents who attend African conferences indicate more registered/indexed journals. Although this may be a spurious correlation, these respondents do tend to publish more internationally. Similarly, the more respondents attend international conferences, the more they publish internationally.

With respect to the variables measuring the use of library and databases, there was a significant relationship only between database use and a high indication of registered/indexed journals as important to research (this is not surprising, however).

The relationship between the number of days respondents spend on research is also relatively self-evident: the more time available for research, the more they publish. However, the relationship with domestic publishing is stronger than with international publishing. This may be related to the fact that, in order to publish internationally, other factors could also be expected to have an effect (for example, the strong relationship between the participation in international conferences and international publishing).

The relationship with the use network organization services is very interesting. There is a positive, significant relationship with INDJOUR; probably exemplifying the role of the research networks in the distribution of publications. Moreover, it appears that the users of the research networks publish significantly more. The relationship is especially strong with respect to domestic publishing; but there is a similar -- although not significant, relationship with international publishing.

VI. SUMMARY

1. Introduction

In recent years, information-development related goals have rapidly become an important element in addressing the plight of poverty-based developing countries (having antiquated, agricultural based political economies and an increasing population). However, Heitzman has pointed out that

"because these economies are not able to generate a high level of surplus capital, there are insufficient funds for the social and technical infrastructure necessary to create alternative economic forms. This infrastructure requires education and research facilities, a population trained in scientific and technical disciplines, and communication systems -- in short, a 'knowledge industry' that generates and disseminates information" (1990:492).

Nevertheless, as a perusal of the literature will show, the problem does not end here. In the vast majority of less and least developing countries, a number of factors combine to perpetuate the problem of the low level use of existing information resource institutions. These include, for example, i) modern high education being primarily a minority affair; ii) the concentration of information institutions (e.g., libraries, schools, research centers) in and around urban centres; iii) the limited availability of information and related technology access and iv) the limited consistent access to state of the art research results (for discussions of one or more of these issues see, for example, Heitzman, 1990; UN, 1985; Salman, 1981; Adimorah, 1978; Wise and Olden (eds.), 1990; Loveday and Gattermann (eds.), 1985; Vickers, 1983).

Added to this is the problem that the majority of students in developing countries are not trained to use information sources to solve problems, nor to gather data for productive research activities (see, for example, Salman, 1981; Slamecka, 1982 and 1985; Neelameghan and Tocatlian, 1985; Unomah, 1985; Baark, 1985a).

The composite result is that a considerable number of researchers tend, at best, to make only minimal use of available libraries and other information services. This is exacerbated by such extrinsic factors as i) the lack of the systematic collection of locally produced information (e.g., unpublished reports (to include government and institutional reports), inventories of current research and development projects); ii) poorly trained information services staff; iii) high levels of costs associated with introducing information technology (Salman, 1981); iv) the fact that information technologies produced in the north may be inappropriate to conditions existing in many developing countries: these vary from inadequate resource endowment to a limited sharing of capacity (Baark, 1982, especially pps. 266-268; UN, 1985); v) in many developing countries there does not appear to be a tradition of information exchange between organizations (such as prevails in international circles) (Baark, 1982:267). Compounding this problem is the fact that, even where developing country

researchers are active users of available data bases, this does not necessarily mean that they will be able to acquire the original publications announced in such data bases (Ruhl, 1985).

Simultaneously, however -- in the context of development related priorities, it is precisely this population that is expected to generate solutions to pressing national issues in a variety of areas (e.g., health care, science and technological development). And this must be accomplished in the current setting of a disintegrating higher education and research system context (Eisemon and Holm-Nielsen, 1994).

On the surface, this situation supports the centre-periphery thesis: an underlying assumption of which is that research is impeded in developing countries because there is no (or an inadequate) enabling environment. Developing country researchers are limited in their capacity to participate in "global science" because of environmental factors (financial and structural) over which they have no control. By extension, these same environmental factors limit, and even prevent them from making a substantive contribution to the development process.

However, the present study indicates that "environment" is not the only factor that will affect the actual and potential research productivity of social and economic scientists.

It is certainly the case that the lack of an enabling environment can have serious negative effects on the potential of developing country social and economic scientists to access information and conduct research and publish. However, our findings indicate that the specific background, orientation, behaviour and attitude of these researchers will also have a profound affect on the three types of information flow. Moreover, for some groups these factors can override environmental restrictions to conducting (and publishing) research.

2. Environmental Effects

The presupposition of the centre-periphery thesis is that little or no access to such resources as libraries and the various types of information technology results in researchers with i) few publications (domestic and international); ii) who use few (or no) international and domestic registered and indexed journals for their research.

A similar effect can be hypothesized if the *perception* researchers have about their environment is negative.

If this presupposition is accurate, then the more limited the resources, the less social and economic scientists will publish (domestically and internationally); and the less they will use -- or have access to, core journals in their respective fields.

2.1 Findings¹⁰

With respect to limited resources, we can conclude that:

- There is access to IT (information technology); however, respondents consider such access of paramount importance to their research. Far more important for respondents is the informal communication medium provided by scientific meetings. Moreover, the majority of researchers indicated their primary contacts for professional discussions were with research post-graduates in their own organization.
- Access to scientific literature is more important for those who publish in international media than for those who publish primarily in domestic media and, surprisingly,
- university closure does not seem to have an effect on the publishing activities of either social or economic scientists.

Despite limited resources (administrative, organizational, and financial), the majority of respondents indicated that they had engaged in some form of research activity during the past five years; most of which had an international orientation.

3. Background, Orientation, Behaviour And Attitude Of Researchers

The three dependent variables indicating north-south, south-south, and south-north information flow were tested against the background, behaviour, orientation and attitude variables.

3.1 Findings¹¹

The majority of publications (by respondents) appeared in grey media (43%). 35% were in domestic media, and 22% in international media. Respondents who publish internationally also tend to publish domestically; however the flow of information from this group is primarily south-north. Ph.Ds (equivalent and higher) -- especially those from Francophone universities published significantly more in international media than respondents with lower level degrees.

Comparing the two disciplinary categories (social and economic sciences), we found that social scientists tend to publish more internationally; and economic scientists more in domestic and grey media.

Publication trends (all forms) tend to vary from country to country: the highest average total publications (in ranked order) were in Nigeria, Uganda, Zimbabwe and Tanzania.

Domestic publishing behaviour also differs from country to country. However, it is proportionally similar for the two disciplinary categories (social and economic sciences) in all the countries studied.

Higher degree levels did not seem to affect the number of domestic publications.

however those with Anglophone Ph.D and MA/MS degrees produced more domestic publications than respondents with equivalent degrees from Francophone universities.

The majority of respondents indicated international journals as being of greatest importance to their research: in spite of the limited availability of such journals. In fact, none of the respondents indicated solely domestic journals as being of greatest importance to their research.

Respondents who regularly attended domestic scientific meetings were found to publish more domestically. In contrast, those who attended African and international meetings used more indexed and registered journals and published more internationally.

Involvement in research network organizations also seems to influence the behaviour and publication trends of (user) respondents. The users of research network organizations:

- make more use of indexed and registered journals for their research;
- publish more in domestic and international media (research networks were the publication media for 23% of domestic publications);
- attend more international scientific meetings.

4. Summary

The majority of respondents were employed full-time in an academic institution: and 50% were engaged in other income generating activities. Despite the need for supplementary income and other limited resources (administrative, organizational, and financial), during the past five years, the majority of respondents had:

- engaged in some form of research activity; most of which had an international orientation;
- published in some form. Of the total number of publications by respondents, the majority appeared in grey media (43%); 35% were in domestic media, and 22% in international media.

The majority of respondents were males between 39-46 years of age. The highest frequency of Ph.Ds (equivalent or higher) can generally also be found in this age group (38-49 years). The vast majority of Ph.Ds (equivalent or higher) had received their highest degree outside the African continent.

A high proportion of respondents was in the field of economics. This is in keeping with the common tendency for social science institutions - and especially development research institutes, to consist predominately of economists (Lado, 1993:125).

Those who publish internationally also tend to publish domestically: the information from this group is primarily south-north. Respondents with high degrees (Ph.D and equivalent) published significantly more internationally (*especially those from Francophone universities*). The majority of these publications were in the social sciences; whereas the majority of those in domestic and grey media were in the economic sciences. Respondents who regularly attended African and international scientific meetings published more internationally; and those attending domestic meetings published more domestically.

Domestic publishing behaviour varies from country to country, but is proportionally similar for the social and economic sciences in all the countries studied. Although degree level did not have a profound effect on the production of domestic publications, those with Anglophone Ph.D and MA/MS degrees produced more domestic publications than respondents with equivalent degrees from Francophone universities.

The vast majority of respondents indicated international journals as being of greatest importance to their research (albeit that the availability of such journals is limited).

Respondents who regularly attended domestic scientific meetings published more domestically. Those attending African and international meetings used more indexed and registered journals and published more internationally.

Research network organizations tend to play an important role in the provision of a research environment for a small, generally younger group of social and economic scientists, 42% of whom had received their highest degree at an African university. This group also made more use of indexed and registered journals for their research; published more in domestic and international media and attended more international scientific meetings.

4.1 Concluding Remarks

In spite of the fact that

- i) international journals were considered of greatest importance to doing research; and, that,
- ii) over the past five years, the orientation of the research activities of the majority of respondents was international,

the greatest number of publications produced by respondents during this sample period appeared in domestic and grey media. The majority of these publications were in the economic sciences.

The orientation of a relatively small population of researchers producing both domestic and international publications is south-north. However, the publications media used and the communication patterns of respondents

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indicates that for the vast majority, the primary orientation is at the domestic and local levels.

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Although environmental limitations certainly restrict the research potential of social and economic scientists in sub-Saharan Africa, the most prevalent pattern of orientation (domestic and local) is not radically different from that which can be found among social and economic scientists in developed countries. Perhaps the most central question that needs to be addressed is whether -- and how, the substantive nature of domestic and locally oriented publications can effectively contribute to the development process.

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NOTES

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1. According to Saint (1992:xi), there were were six institutions of higher learning in 1960; today are 97.

2. Because the concern in this study is with the flow of social scientific information a distinction was made between the "social scientific community" and the larger population of social scientists. The social scientific community is here defined as that group of individuals who, in conjunction with their educational backgrounds and the academic positions they hold, conduct research and publish the results of this research in *identifiable* media (as grey literature; research reports; in domestic or international publication media, and so on).

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While many individuals in both categories may have similar educational backgrounds and degree levels, the larger population of social scientists includes those individuals who do not belong to the scientific community -- as a result of the nature of their work or the fact that they do not do research and publish (in any form). Although it may be the case that the activities of a given group of these social scientists qualifies them as potential members of the social scientific community: they remain invisible for some reason (for example, because they conduct research within government institutions or private industry, which has restricted distribution and access).

The timeframe and scope of the present study made it impossible to include the latter population. This would have required a country by country human resources survey of *all* individuals in all social science fields to determine i) which of them held a degree at the M.A. or equivalent level and above; ii) where they were employed and the nature of their work; and iii) whether they conducted research, and whether the results were accessible.

Apart from the logistic difficulties involved in conducting such a study, acquiring permissions and funding for an undertaking of this size is difficult under the best of circumstances in any country, and almost impossible in a developing country.

3. Permission to access this database (which can be read in REFLEX, PARADOX and LOTUS APPROACH) can be obtained by writing to AERC (P.O. Box 62882, Nairobi, Kenya); CODESRIA (P.O. Box 3304, Dakar, Senegal); or OSSREA (P.O. Box 31981, Addis Ababa, Ethiopia).

4. I have been unable to find any *longitudinal empirical research* on the amount and nature of social science research produced in social science institutions in sub-Saharan African. In fact, the literature that I have consulted (see references) has proven rather contradictory on this subject - both with respect to the amount and nature of social science research (in any phase of the historical development of social science institutions). None of this literature (whether produced external to or in Africa) has incorporated empirical information to substantiate findings.

5. Time limitations for this study precluded a bibliometric (e.g., co-word) analysis of the publications produced during the target period. This data is currently under study and will be published in the near future.

6. It is possible that some journals that were indexed in the JCR in the past (i.e., before 1990) are no longer indexed. This could be because they did not consistently meet the rather rigid criteria of ISI (publish issues on time; provide English abstracts for non-English articles; purchase a US\$10,000.00 subscription to the index; and a more covert criterium -- that the members of the editorial board of a journal be "sufficiently" cited).

7. There is always a difficulty qualifying what is meant by basic and strategic research, particularly in the social and economic sciences. In the questionnaire, we qualified basic as generating new understanding; strategic as application oriented/background research; applied as creating new technology or new application; adaptive as adjusting technology/application to specific needs; methodology as developing new methods.

8. Those international journals indicated as being important to research and in which respondents had published are as follows:

Africa

African Affairs
 African Studies Review
 Agricultural Economics
 Agricultural Systems
 American Economic Review
 Applied Economics
 Canadian Journal of African Studies
 Community Development Journal
 Developing Economics
 Development and Change
 Development Policy Review
 Economic Journal
 Economies et Societes
 Educational Research
 Energy Policy
 Etude Internationales
 European Journal of Development reserach
 Health Policy and Planning
 Indian Journal of Applied Economics
 International Journal of Water Resources Development
 International Sociology
 Journal of African Economies
 Journal of Aricultural Economies
 Journal of Development Studies
 Journal of Econometrics
 Journal of Human Resources
 Journal of Modern African Studies
 Journal of Southern African Studies
 Journal of Development Studies
 Oxford Bulletin of Economics and Statistics
 Politique Africaine
 Population Studies
 Review of African Political Economy
 Revue d'Economie Politique
 Savings and Development
 Signs
 Social Science and Medicine
 World Bank Economic Review
 World Development

Those domestic journals indicated as being important to research and in which respondents had published are as follows:

Africa Development
 Africa Development review
 African Journal of Economic Policy
 African Review
 African Studies Monograph
 AHFAD
 Alternatives Sud
 Annales de la Faculte des Lettre
 Annals Social Science Council Nigeria
 CBN Economic and Financial Review
 East African Social Science Research
 Eastern African Economic Review
 Ethiopian Journal of Education
 Journal of African Economics
 Nigerian Journal of Economic and Social Studies
 Nigerian Journal of Public Administration
 Nigerian Journal of Public Affairs
 Nigerian Journal of International Affairs
 Rapport sur le developpement dans le monde
 UNESCO Africa
 UTAFITI

9. Measuring the Variables: The variables identified in this section have been qualified and measured as follows:
 DOMPUB: Number of domestic publications (journal articles, books, chapters in books).

INTPUB: Number of international publications (journal articles, international reports, books, chapters in books).

INDJOUR: Respondents indicated five journals of importance for their research. A determination was made of the extent to which these journals were registered or indexed. A registered journal scored 1 and an indexed journal 2 (otherwise the journal received a score of 0). By adding the scores a scale ranging from 0 to 10 could be constructed.

COMTECH: Respondents were asked to indicate to what extent various technologies and resources were available (question 21 in the questionnaire). Cluster analysis of the correlation matrix of these variables revealed that there was one cluster with the resources: telephone, fax, email and secretarial support. By adding these variables, we constructed a scale ranging from 0 (none of these resources available) to 4 (all of these resources available).

LIBDIST: Respondents indicated the distance (in miles) to the nearest university library.

DBS_ACC: Respondents indicated whether they could access scientific databases.

UNICLOS: Respondents indicated the extent to which they had experienced university closure during the past year.

LACK_FUND: Respondent identified the five most serious limitations to research (from a list of 14 possible limitations). In the subsequent analysis, only the lack of research funds was found to be frequently mentioned.

BOOK_INAD: Respondents indicated which elements of the library were inadequate. Analysis of the answers showed that books and journals were often simultaneously mentioned. As a result, we only included this variable if the availability of books in the library was indicated as being inadequate.

SCAL_PERS, SCAL_AD1, SCAL_AD2, SCAL_PRO, SCAL_ORG: The questionnaire included a list of 6-point items about the adequacy/inadequacy of, personal, administrative, professional and organizational factors. Each of the sets of items (and the set as a whole), were subjected to factor analyses. This revealed that only in the case of administrative resources could two different factors could be discerned: one concerned basic resources, and the other specific research resources (the adequacy of the library did not score high). Two different scales were constructed. As all of the variables scored high on the two factors (except the library), the scales were constructed by summing the scores.

ACAD: From a list of 11 factors, respondents were asked to indicate the three most important to professional advancement. The result was a pattern of answers combining academic qualifications, peer or supervisor evaluation, reporting research results, and international publications. If any of these factors was indicated as the most important (in this case the other factors were second or third in rank), the score for this variable was 1; otherwise respondents received the score 0.

INT_PERS; DOM_PERS: From a list of 14 items, respondent indicated the five information sources that had been of greatest importance for their research during the past two years. In many cases, the five items referred to a combination of local and international information sources. Consequently, these items were combined with others from the questionnaire in a factor analysis in order to assess if a distinction could be made between those respondents with a cosmopolitan orientation and those with a local orientation. The factor analysis revealed two factors, one of which combined international and personal information sources. The second combined domestic personal information sources and (negatively) international literature. Consequently, it was decided to use two measures: one indicating the importance of international personal contacts (INT_PERS), and the other the importance of national personal contacts (DOM_PERS). Both variables range from 1 (fifth important information source) to 5 (most important information source).

DOM_CONF; AFRIC_CONF; NONAF_CONF: These variables measure the number of domestic, African and Non-African scientific meetings in which respondents have participated during the past two years.

LIB_USE: Indicates whether respondents use the library.

DBS_USE: Indicates whether respondents use scientific databases.

RES_DAYS: Indicates the number of days per week respondents have to do research.

USE_NETW: Indicates whether respondents are "users" of one or more of the participating research networks (AERC; CODESRIA; OSSREA). Because of the way this variable was constructed, 0 means "user" of a research network organization, and 1 means "non-user".

All continuous variables have been trichotomized according to the principle of making three approximately equal categories. This implies that the variables concerned became ordinal scale. Accordingly, the association measure GAMMA is used in the tables. One of the reasons for making trichotomized ordinal scales was because some variables have a small number of outliers (e.g., individuals whose main library resource is 6000 miles away; who have attended 26 conferences in the past two years, and so on).

10. IT access: The majority had access to IT and related technologies. However, informal communication channels were deemed the primary medium for disseminating research results. Scientific meetings (conferences, workshops, etc.) were the most important medium for this purpose.

Library: The proximity of the library is significantly related with both domestic and international publishing: those who live far away from a library will publish less.

Access to Literature: The inadequacy of available literature in the library significantly affects the ability to publish internationally, but has considerably less effect on the ability to publish domestically.

University Closure: The results are difficult to explain. In countries where respondents reported unusual numbers of publications (e.g., Nigeria), there were also more university closures reported. The unusually high number of publications for Nigeria, for example, was substantiated by the publications search (the highest average number of publications was in the categories "domestic" and "grey").

Lack of Funding: Perceptions about the lack of funds significantly affect domestic publishing; but have less effect on publishing internationally.

11. International And Domestic Publications

- Researchers who publish internationally also tend to publish domestically (but the converse is not the case).
- Although social scientists publish significantly more internationally, economists use more indexed and registered journals for their research.
- There was considerable overlap in the number of individuals with *international and domestic* publications. This "overlap" group is the most highly visible, both within and external to sub-Saharan Africa. However, the combination of the dependency on northern journals, international publications and research linkages indicates that the flow of information for this group is predominantly south-north.
- Significant differences were found between countries regarding the number of domestic publications (Cameroon, Ghana and Nigeria produce more domestic publications).
- No significant difference was found between the proportion of domestic publications among economists and social scientists.
- No significant relationship was found between the proportion of domestic publications and the level of highest degree of the respondents.

Attendance At Scientific Meetings

- The majority of respondents attended meetings in all three categories (national, African, international).
- Scientific meetings in all three categories resulted in scientific partnerships and subsequent publications.
- Respondents who attend African conferences indicate more registered/indexed journals, and tend to publish more internationally.
- The more respondents attend international conferences, the more they publish internationally.
- Respondents who regularly attended domestic conferences published more domestically; the relationship with international publishing is not significant.

Journals Deemed Important For Research And The Extent To Which Researchers Published In These Journals

- Majority of respondents indicated international journals as being of greatest importance to research, and their poor availability was cited one of the most serious limitations to doing research.
- Few (16%) had published in one or more of those international journals they had listed as important to research.
- However, 83% of these respondents had published in other indexed journals.
- 21% respondents had published in one or more of the domestic journals they listed as important to research.

Research Activities

- Most respondents engaged in basic and/or strategic research in combination with adaptive, applied or methodological.
- A majority of respondents have engaged in research activities during past five years. The distribution over "other" social sciences and economics was relatively equal. The vast majority of research activities were basic/strategic research, with a primarily international orientation.

Information sources used for research

The most important information sources indicated by respondents, in ranked order, were international journals and books (formal channel); national and international personal contacts (informal channel); unpublished research reports (informal channel); published research reports (formal channel).

Users/Non-users Of Research Network Services

- There is a correlation between being an economist and/or a user of research network organization services and the significantly greater use of registered and indexed scientific journals.
- Users tend to publish more domestically and internationally than non-users of research network services.
- Users attended more international meetings and non-users more national and African meetings.
- More users than non-users engaged in basic and/or strategic research in combination with adaptive, applied or methodological.

Individuals And Organizations Researchers Inform About Research Results

Researchers tended to communicate most frequently with researchers in their own organization and with postgraduates.

Membership In Professional Organizations

- Of respondents having membership in one or more professional organizations, the vast majority held membership in national or African organizations, (or some combination thereof).

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TABLES

1: Distribution of non-response, by country, of total (unadjusted) population.

Legend: A = Unadjusted pop. E = Sabbatical
 B = Respondents F = Unknown
 C = Out of Africa G = Unavailable *
 D = Out of country H = Deceased

Country	A	B	C	D	E	F	G	H
Benin	15	7	3	-	2	1	2	
Ivory Coast	18	15	1	2	-	-	-	
Ghana	19	9	2	-	-	1	7	
Sierra Leone	14	8	3	-	-	3	-	
Senegal	78	34	4	5	3	5	26	1
Togo	98	33	7	-	3	2	53**	
Upper Volta	20	19	-	-	-	1	-	
Yemen	23	15	5	1	-	-	2	
Zambia	64	26	-	6	-	10	20	2
Zimbabwe	34	20	3	3	3	2	2	1
Abwe	27	13	4	3	1	2	4	
Total	410	199	32	20 (5%)	12	27	116	4
Percentage		49%	8%	5%	3%	7%	28%	1%

A number of individuals were unavailable in conjunction with the summer holidays. As we could not ascertain the status of these 53 individuals (university closure related), we have listed them as "unavailable".

2: Number of responses of total adjusted population and percentages, by country.

Country	Adjusted Population	Responses No.
Benin	15	7 (47%)
Ivory Coast	18	15 (83%)
Ghana	12	9 (75%)
Sierra Leone	11	8 (73%)
Senegal	72	34 (47%)
Togo	98	33 (34%)
Upper Volta	20	19 (95%)
Yemen	21	15 (71%)
Zambia	56	26 (46%)
Zimbabwe	30	20 (67%)
Abwe	23	13 (57%)
TOTAL	376	199

Table 3: Year of birth categories of male and female respondents.

Year of birth	Number Respondents		
	Males No.	Females No.	Total No.
1921-1938	7 (04%)	-	7 (04%)
1939-1949	46 (26%)	4 (19%)	50 (25%)
1950-1957	69 (39%)	4 (19%)	73 (37%)
1958-1966	46 (26%)	11 (52%)	57 (29%)
Missing cases	10 (06%)	2 (10%)	12 (06%)
TOTAL	178 (101%)	21 (100%)	199 (101%)

Table 4: Adjusted population, sorted by highest degree achieved.

Country	MA/MS or equiv.	Ph.D or equiv.	Total
Cameroon	3 (04%)	4 (03%)	7
Cote d'Ivoire	6 (08%)	8 (07%)	14
Ethiopia	5 (07%)	4 (03%)	9
Ghana	1 (01%)	7 (06%)	8
Kenya	19 (26%)	15 (13%)	34
Nigeria	11 (15%)	22 (18%)	33
Senegal	7 (10%)	11 (09%)	18
Sudan	1 (01%)	14 (12%)	15
Tanzania	4 (06%)	22 (18%)	26
Uganda	9 (13%)	7 (06%)	16
Zimbabwe	6 (08%)	6 (05%)	12
Other			4
Missing cases			3
TOTAL	72 (99%)	120 (100%)	199

Table 5: Geographic region where respondents received highest degree.

	Africa	North America	Europe	Other*	Total	Total Number Outside Africa
Cameroon	3	1	2		6	3 (03%)
Ivory C.	1	2	11		14	13 (11%)
Ethiopia	1	2	3		6	5 (04%)
Ghana	1	1	3	2	7	6 (05%)
Kenya	12	11	6	2	31	19 (16%)
Nigeria	19	6	5		30	11 (10%)
Senegal	2	3	10		15	13 (11%)
Sudan	1	2	8	1	12	11 (10%)
Tanzania	10	5	7	1	23	13 (11%)
Uganda	3	6	4	1	14	11 (10%)
Zimbabwe	3	1	6	4	14	11 (10%)
TOTAL	56	40	65	11	172	116 (101%)

* India, Australia, Cuba, and Israel.

Table 6: Age groups by highest degree achieved.

Age Group	MA/MS or equivalent	Ph.D or equivalent	Total
1921-1938	2 (03%)	5 (04%)	7
1939-1942	2 (03%)	9 (08%)	11
1943-1946	1 (01%)	10 (08%)	11
1947-1950	6 (09%)	29 (25%)	35
1951-1954	8 (11%)	28 (24%)	36
1955-1958	20 (29%)	22 (19%)	42
1959-1962	17 (24%)	10 (09%)	27
1963-1966	14 (20%)	4 (03%)	18
Missing cases			12
TOTAL	70 (100%)	117 (100%)	199

9: Distribution, by appointment titles, of responding population.

	Frequency
Professor	17 (08%)
Assoc. Prof./Maitre de Conf./Assist. prof.	39 (19%)
Senior lecturer	37 (18%)
Associate assist./Lecturer	59 (30%)
Assistant	11 (06%)
Other	29 (15%)
Missing cases	7 (04%)
Total	199 (101%)

10: Responses sorted by users and non-users of the services of one or more of the participating research network organizations.

	Total users	Total non-users
Belgium	6 (05%)	1 (02%)
Ivory Coast	12 (09%)	3 (04%)
India	5 (04%)	4 (06%)
Japan	6 (05%)	1 (02%)
USA	23 (18%)	12 (18%)
UK	22 (17%)	11 (16%)
France	11 (08%)	8 (12%)
Germany	9 (07%)	5 (07%)
Spain	20 (15%)	6 (09%)
Canada	8 (06%)	12 (18%)
Kenya	8 (06%)	5 (07%)
Total*	130 (100%)	68 (101%)

Missing case

Table 7: Distribution, by field, of responding population.

Discipline	Frequency
Anthropology	40 (20%)
Economics	100 (50%)
Educ. sciences	12 (06%)
Political sciences	19 (10%)
Sociology	25 (13%)
Other	3 (01%)
TOTAL	199 (100%)

Table 8: Distribution, by country and discipline category, of respondents.

	Economics	Social Sciences	Responding Population
Cameroon	1 (01%)	6 (06%)	7
Cote d'Iv.	12 (12%)	2 (02%)	14
Ethiopia	4 (04%)	5 (05%)	9
Ghana	6 (06%)	2 (02%)	8
Kenya	20 (20%)	13 (14%)	33
Nigeria	15 (15%)	18 (19%)	33
Senegal	7 (07%)	11 (12%)	18
Sudan	7 (07%)	8 (08%)	15
Tanzania	14 (14%)	12 (13%)	26
Uganda	10 (10%)	10 (10%)	20
Zimbabwe	4 (04%)	9 (09%)	13
TOTAL	100 (100%)	96 (100%)	196*

* Three respondents indicated their discipline as "other".

Table 11: Year of birth categories of user and non-user respondents.

Categories Year of birth	Users # Respon.	Non-users # Respon.	Total
1939-1949	26 (22%)	24 (39%)	50
1950-1957	48 (41%)	25 (40%)	73
1958-1966	44 (37%)	13 (21%)	57
TOTAL	118 (100%)	62 (100%)	180*

* Missing cases 12; and for 1921-1938, 7 respondents

Table 12: Distribution of appointment titles of responding population.

Title	Users # Respon.	Non-users # Respon.
Full professor	10 (08%)	7 (11%)
Assoc. Prof./Maitre de Conf./Assist. prof.	24 (19%)	15 (23%)
Senior lecturer	23 (18%)	14 (22%)
Maitre assist./Lecturer	43 (34%)	16 (25%)
Assistant	8 (06%)	3 (05%)
Other	20 (16%)	9 (14%)
TOTAL*	128 (101%)	64 (100%)

* Missing cases: 7

Table 13: Distribution by field of employment of responding population.

Discipline	Users # Respon.	Non-users # Respon.	Total
Social sciences	64 (51%)	39 (61%)	103 (54%)
Economics	62 (49%)	25 (39%)	87 (46%)
TOTAL*	126 (100%)	64 (100%)	190 (100%)

* Missing cases: 9

Table 14: Users/non-users of network organization services sorted by highest degree achieved.

	Users	Non-users
MA or equiv.	51 (40%)	21 (32%)
Ph.D or equiv.	75 (60%)	45 (68%)
TOTAL	126 (100%)	66 (100%)

* Other: 5; missing cases: 2.

Table 15: Geographic region where respondents received highest degree.

	Users	Non-users
Africa	48 (42%)	8 (17%)
North America	21 (18%)	19 (41%)
Europe	46 (40%)	19 (41%)
TOTAL	115 (100%)	46 (99%)

* Other: 11 (India, Australia, Cuba, Israel).

Table 16: Total number of journals indicated by respondents as important to research; and the number and number and percentage that are international, registered and/or indexed.

Discipline	Total Journals	No. Int'l Journals	Number Indexed % of int'l	Number Registered % of int'l
Anthropology	11	9 (82%)	2 (22%)	5 (56%)
Economics	87	79 (91%)	13 (16%)	45 (57%)
Education	24	20 (83%)	1 (05%)	8 (40%)
Gen. development	37	30 (81%)	8 (27%)	5 (17%)
History	6	3 (50%)	- -	1 (33%)
Info./Lib. Sciences	4	4 (100%)	- -	1 (25%)
Lit./Ling./phil.	18	16 (89%)	2 (13%)	4 (25%)
Envir./Agri./health	12	10 (83%)	1 (10%)	3 (30%)
Poli. Sci.	42	35 (83%)	9 (26%)	17 (49%)
Psychology	4	4 (100%)	- -	3 (75%)
Sociology	67	59 (88%)	16 (27%)	30 (51%)
Other**	9			
TOTAL	321	269	52	122

** These were journals without complete titles or listed as acronyms that could not be identified and/or located.

Table 17: Total international publications produced by respondents in the categories "economic" and "other social" sciences, by country for the period 1990-mid 1996

Country	Number International Publications By Respondents	
	Economics	Social Sciences
Cameroon	1	10
Cote d'Iv.	13	-
Ethiopia	-	7
Ghana	8	4
Kenya	7	8
Nigeria	33	36
Senegal	9	17
Sudan	13	10
Tanzania	21	29
Uganda	14	31
Zimbabwe	13	11
TOTAL	131	164

Table 18: Total domestic publications by respondents in the "economic" and "other" social sciences, by country for the period 1990-mid 1996

Country	Number Domestic Publications By Respondents	
	Economics	Other Social Sciences
Cameroon	1	4
Cote d'Ivoire	19	-
Ethiopia	6	11
Ghana	11	-
Kenya	7	6
Nigeria	124	100
Senegal	14	22
Tanzania	4	9
Zambia	39	42
Zimbabwe	26	35
TOTAL	261	240

Table 19: Correlations between the three dependent variables.

Correlations:	INDJOUR	DOMPUB	INTPUB
INDJOUR	1.0000	.0544	.0220
DOMPUB	.0544	1.0000	.2543*
INTPUB	.0220	.2543*	1.0000

Number of cases: 164 2-tailed Signif: * - .01 ** - .001

Table 20: Summary of INDJOUR by levels of BACKGR_3: Country

Variable	Label	Mean	Std Dev	Cases	
Entire Population		5.4329	2.9952	164	
BACKGR_3	Cameroon	6.2000	1.4832	5	
BACKGR_3	Cote d'Ivoire	4.5000	2.5944	14	
BACKGR_3	Ethiopia	6.1429	3.7607	7	
BACKGR_3	Ghana	7.5000	1.6903	8	
BACKGR_3	Kenya	5.2414	3.2586	29	
BACKGR_3	Nigeria	5.0000	2.8624	32	
BACKGR_3	Senegal	4.5556	2.8537	18	
BACKGR_3	Sudan	5.3846	3.4044	13	
BACKGR_3	Tanzania		6.0000	3.0950	20
BACKGR_3	Uganda	5.5000	3.0706	8	
BACKGR_3	Zimbabwe		6.6000	3.1693	10

Missing Cases = 35

Analysis of Variance:

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	93.8733	10	9.3873	1.0496	.4050
Within Groups	1368.3889	153	8.9437		

Eta = .2534 Eta Squared = .0642

Table 21: Summary of INDJOUR by levels of BACKGR_4: Highest Degree

Variable	Label	Mean	Std Dev	Cases
Entire Population		5.4329	2.9952	164
BACKGR_4	MA/MS	5.3571	3.1454	42
BACKGR_4	DEA/DESS	2.5000	3.0000	4
BACKGR_4	Ille Cycle	5.0909	2.3856	11
BACKGR_4	Ph.D	5.7640	3.0452	89
BACKGR_4	Dr. d'Etat	4.6000	2.5579	15
BACKGR_4	Other	6.0000	2.0000	3

Missing Cases = 35

Analysis of Variance:

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	57.0653	5	11.4131	1.2833	.2737
Within Groups	1405.1969	158	8.8937		

Eta = .1975 Eta Squared = .0390

Table 22: Summary of INDJOUR by levels of BACKGR_7: Type of discipline

Variable	Label	Mean	Std Dev	Cases
Entire Population		5.4329	2.9952	164
BACKGR_7	SOCIAL SCI.	4.5556	2.7839	81
BACKGR_7	ECON.	6.2892	2.9613	83

Missing Cases = 35

Analysis of Variance:

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	123.2020	1	123.2020	14.9050	.0002
Within Groups	1339.0602	162	8.2658		

Eta = .2903 Eta Squared = .0843

Table 23: Summary of INDJOUR by levels of NO_ORG: non-user of network services

Variable	Mean	Std Dev	Cases
Entire Population	5.4329	2.9952	164
NO_ORG	5.7027	2.9189	111
NO_ORG	4.8679	3.1011	53

Missing Cases = 35

Analysis of Variance:

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	24.9975	1	24.9975	2.8176	.0952
Within Groups	1437.2647	162	8.8720		

Eta = .1307 Eta Squared = .0171

Table 24: Summary of INTPUB, number of international publications and BACKGR_3: Count

Variable	Label	Mean	Std Dev	Cases
Entire Population		5.7868	8.1488	197
BACKGR_3	Cameroon	13.4286	18.0172	7
BACKGR_3	Cote d'Ivoire	3.6667	3.8110	15
BACKGR_3	Ethiopia	1.2222	1.9861	9
BACKGR_3	Ghana	20.1250	16.8560	8
BACKGR_3	Kenya	5.8529	6.7740	34
BACKGR_3	Nigeria	5.7576	5.3387	33
BACKGR_3	Senegal	5.3684	6.0755	19
BACKGR_3	Sudan	5.5333	5.6929	15
BACKGR_3	Tanzania	4.8846	6.9474	26
BACKGR_3	Uganda	3.8333	9.3636	18
BACKGR_3	Zimbabwe	3.7692	3.4917	13

Missing Cases = 2

Analysis of Variance:

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	2455.6263	10	245.5626	4.3255	.0000
Within Groups	10559.4194	186	56.7711		

Eta = .4344 Eta Squared = .1887

Table 25: Summary of INTPUB, number of international publications and BACKGR_4: Highest degree

Variable	Label	Mean	Std Dev	Cases
Entire Population		5.8163	8.1591	196
BACKGR_4	Lic.	.0000	.0000	1
BACKGR_4	MA/MS	3.1296	4.6946	54
BACKGR_4	DEA/DESS	.7500	.9574	4
BACKGR_4	Ille Cycle	4.7692	6.3791	13
BACKGR_4	Ph.D	7.1442	9.1582	104
BACKGR_4	Dr. d'Etat	7.4375	6.7525	16
BACKGR_4	Other	11.0000	19.3735	4

Missing Cases = 3

Analysis of Variance:

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	873.4634	6	145.5772	2.2724	.0385
Within Groups	12107.9243	189	64.0631		

Eta = .2594 Eta Squared = .0673

Table 26: Summary of INTPUB by proportion of international publications and BACKGR_7: Type of discipline

Variable	Label	Mean	Std Dev	Cases
Entire Population		5.8763	8.1797	194
BACKGR_7	SOCIAL SCIENCES	7.0099	9.5053	101
BACKGR_7	ECONOMICS	4.6452	6.2618	93

Missing Cases = 5

Analysis of Variance:

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	270.7505	1	270.7505	4.1119	.0440
Within Groups	12642.2804	192	65.8452		

Eta = .1448 Eta Squared = .0210

Table 27: Summary of INTPUB, number of international publications and NO_ORG: user/non-research network services

Variable	Value	Mean	Std Dev
Entire Population		5.6716	8.1075
NO_ORG	.00	5.3030	6.5545
NO_ORG	1.00	6.3768	10.4784

Total Cases = 199

Analysis of Variance:

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	52.2467	1	52.2467	.7940	.3740
Within Groups	13094.0817	199	65.7994		

Eta = .0630 Eta Squared = .0040

Table 28: Summary of DOMPUB, number of domestic publications and BACKGR_3: Country

Variable	Label	Mean	Std Dev	Cases
Entire Population		5.4772	7.3842	197
BACKGR_3	Cameroon	8.7143	16.8198	7
BACKGR_3	Cote d'Ivoire	1.5333	1.8848	15
BACKGR_3	Ethiopia	2.0000	2.0616	9
BACKGR_3	Ghana	10.0000	12.6942	8
BACKGR_3	Kenya	6.1176	7.8229	34
BACKGR_3	Nigeria	9.5758	6.7223	33
BACKGR_3	Senegal	2.6316	5.9274	19
BACKGR_3	Sudan	2.8000	4.3293	15
BACKGR_3	Tanzania	5.3077	5.3574	26
BACKGR_3	Uganda	4.3333	6.4717	18
BACKGR_3	Zimbabwe	5.0000	6.7823	13

Missing Cases = 2

Analysis of Variance:

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	1436.0358	10	143.6036	2.8872	.0022
Within Groups	9251.1114	186	49.7372		

Eta = .3666 Eta Squared = .1344

Table 29: Summary of DOMPUB, number of domestic publications and BACKGR_4: Highest degree

Variable	Label	Mean	Std Dev	Cases
Entire Population		5.5051	7.3926	196
BACKGR_4	Lic.	.0000	.0000	1
BACKGR_4	MA/MS	5.4074	6.2601	54
BACKGR_4	DEA/DESS	1.0000	2.0000	4
BACKGR_4	Ille Cycle	1.7692	2.3507	13
BACKGR_4	Ph.D	6.7212	8.3392	104
BACKGR_4	Dr. d'Etat	2.8750	6.4692	16
BACKGR_4	Other	3.7500	6.8496	4

Missing Cases = 3

Analysis of Variance:

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	570.2367	6	95.0395	1.7808	.1050
Within Groups	10086.7582	189	53.3691		

Eta = .2313 Eta Squared = .0535

Table 30: Summary of DOMPUB, number of domestic publications and BACKGR_7: Type of discipline

Variable	Label	Mean	Std Dev	Cases
Entire Population		5.5619	7.4095	194
BACKGR_7	SOCIAL SCIENCES	5.6931	7.7068	101
BACKGR_7	ECONOMICS	5.4194	7.1114	93

Missing Cases = 5

Analysis of Variance:

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	3.6274	1	3.6274	.0658	.7979
Within Groups	10592.1303	192	55.1673		

Eta = .0185 Eta Squared = .0003

Table 31: Summary of DOMPUB # of domestic publications and NO_ORG: user/non-user of research network services

Variable	Value	Mean	Std Dev
Entire Population		5.3682	7.3501
NO_ORG	.00	6.0985	8.2257
NO_ORG	1.00	3.9710	5.0526

Total Cases = 199

Analysis of Variance:

Source	Sum of Squares	D.F.	Mean Square	F	Sig.
Between Groups	205.0945	1	205.0945	3.8505	.0511
Within Groups	10599.6617	199	53.2646		

Eta = .1378 Eta Squared = .0190

Table 32: Adequacy of resources by category, as indicated by respondents.

Resource	Adequate % resp.	Inadequate % resp.	Moderately Adeq./inad.	Total %
Personal resources	19%	16%	65%	100%
Admin. resources	26%	73%	1%	100%
Prof. resources	24%	21%	55%	100%
Organiz. resources	15%	16%	69%	100%

Table 33: Of the respondents using libraries, percentage accessing each information source a adequacy of availability of these sources (in libraries).

Source	Source most often accessed	Inadequate Availability
Books	95%	62%
Scientific Journals	83%	68%
Government Documents	65%	33%
Theses/dissertations	65%	25%
Trade Journals	40%	43%
Interlibrary Loan	17%	37%

Table 34: Ready access to information and other technologies by users and non-users of research network organization services*

Technology	Number respondents having IT access	
	Users	Non-users
Telephone	75%	91%
Fax machine	59%	72%
Typewriter	58%	82%
Printer	68%	75%
Photocopier	67%	79%
Personal computer	72%	77%
Email	42%	63%
Databases	40%	49%

* Users and non-users of research network organization services.

Table 35: Number of days per week respondents spend on research and teaching.

Days per week	Teaching	Research
1-2	49 (30%)	96 (53%)
3-4	99 (61%)	62 (34%)
5-6	15 (09%)	24 (13%)
TOTAL	163 (100%)	182 (100%)

Table 36: Total scientific meetings attended and number of papers prepared and number of these that were published.

Category meeting	Total meetings	No. papers prepared	No. papers published
National	161	150	109
African	126	116	73
Int'l	108	78	52
TOTAL	395	344	234

Table 37: Number and percentage of individuals attending scientific meetings over the past years in the three categories; and the average number of meetings attended in each category

Category and average no. of meetings attended	Number of respondents attending *
National Meetings	
1 - 5	116 (77%)
6 - 10	23 (15%)
12 - 26	12 (08%)
TOTAL	151 (100%)
African Meetings	
1 - 5	102 (89%)
6 - 12	13 (11%)
TOTAL	115 (100%)
International Meetings	
1 - 5	84 (97%)
6 - 10	3 (03%)
TOTAL	87 (100%)

* There was considerable overlap in attendance; a total of 165 individuals attended meetings combined categories.

Table 38: Number of users and non-users attending scientific meetings in the three categories

Category of meetings	Users	Non-users	Total
National/African/Int'l.	69 (62%)	21 (40%)	90
National & Int'l.	11 (10%)	10 (19%)	21
African & Int'l.	1 (01%)	-	1
Only International	1 (01%)	-	1
National & African	16 (14%)	11 (20%)	27
Only National	13 (12%)	12 (22%)	25
TOTAL	111 (100%)	54 (101%)	165

Table 39: How papers from professional meetings were published.

Category meetings	No. papers published	Int'l publication	Res. Net. Org publication	Domestic publication
National	109	19 (29%)	26 (34%)	64 (69%)
African	73	23 (35%)	33 (43%)	17 (18%)
Int'l	52	23 (35%)	17 (22%)	12 (13%)
TOTAL	234	65 (99%)	76 (99%)	93 (100%)

Table 40: The number of published papers (from scientific meetings) disseminated to university libraries; nationally; internationally and by research network organizations for each category of meeting*.

Category meetings	Total papers published	Distribution of Published Papers from Meetings			
		To Univ. libraries	Nationally	Int'l.	By Res. Net. Org.
National	109	48 (67%)	31 (76%)	38 (42%)	33 (50%)
African	73	11 (15%)	6 (15%)	30 (33%)	24 (36%)
International	52	13 (18%)	4 (10%)	22 (24%)	9 (14%)
TOTAL	234,	72 (100%)	41 (101%)	90 (99%)	66 (100%)

* Publications were also variously disseminated by direct mail, to participants or by "other" means.

Table 41: Number of scientific meetings indicated as being (co)organized by one or more of the participating research network organizations in each category.

Category meeting	Number meetings	Res. network organized
National	161	30 (33%)
African	126	61 (67%)
TOTAL	287	91 (100%)

Table 42: Research activities during the past five years according to initiator, field, orientation & research type, and orientation.

Initiator and Field	Orient.	Research type	Number Activities
Self:			
Econ.	I	B/S	20
Econ.	R	B/S	1
Econ.	I	A/M	6
Soc. sci.	I	B/S	12
Soc. sci.	N/R	B/S	3
Soc. sci.	I	A/M	1
Int'l organizations:			
Econ.	I	B/S	3
Econ.	I	A/M	3
Soc. sci.	I	B/S	8
Soc. sci.	I	A/M	1
National & int'l org.:			
Econ.	I	B/S	1
Econ.	N/R	B/S	2
Econ.	I	A/M	2
Soc. sci.	I	B/S	4
Soc. sci.	I	A/M	2
National org.:			
Econ.	I	B/S	1
Econ.	N	B/S	1
Soc. sci.	I	B/S	4
Soc. sci.	N	B/S	1
Int'l & regional org.:			
Econ.	I	B/S	1
Econ.	I	A/M	2
Soc. sci.	I	B/S	2
Soc. sci.	I	A/M	1
Regional organizations:			
Econ.	I	B/S	1
Soc. sci.	I	B/S	1
Incomplete information			49
TOTAL			133

Orientation: I = Int'l. or combined with regional and/or national

N/R = National and/or regional

N = National only

R = Regional only

Research Type: B/S = Basic and/or Strategic

A/M = Adaptive or combined with applied and/or methodology

Table 43: African Journals of importance indicated by respondents and the number registered and indexed.

Discipline	Number African Journals	Number	
		Registered	Indexed
Anthropology	2 (05%)	1	-
Economics	8 (19%)	2	-
Education	4 (09%)	1	-
Gen. development	7 (16%)	2	1
History	3 (07%)	1	-
Info./Lib. Sciences	-	-	-
Lit./Ling./phil.	2 (05%)	-	-
Envir./Agri./health	2 (05%)	-	1
Poli. Sci.	7 (16%)	4	-
Psychology	-	-	-
Sociology	8 (19%)	2	-
TOTAL*	43 (101%)	13	2

* Excluded from this total are those journals indicated by incomplete titles or acronyms that could not be identified; or journal titles that could not be located.

Table 44: Number of international and domestic journals indicated as important to research, and in which respondents have published.

Category of journals	Number in which respondents have published		
	Number Registered	Number Indexed	Total
International	7 (47%)	30 (100%)	40 (66%)
Domestic	8 (53%)	-	21 (34%)
TOTAL	61 (100%)	15 (100%)	30 (100%)

Table 45: Total number of respondents publishing in the categories "economic" and "other social sciences, by country for the period 1990-(mid)1996 (grey literature, domestic and international publication).

	Economics	Social Sciences
Cameroon	1 (01%)	4 (05%)
Cote d'Iv.	9 (12%)	1 (01%)
Ethiopia	4 (05%)	5 (07%)
Ghana	6 (08%)	1 (01%)
Kenya	10 (13%)	8 (11%)
Nigeria	14 (18%)	18 (24%)
Senegal	7 (09%)	8 (11%)
Sudan	3 (04%)	5 (07%)
Tanzania	11 (14%)	9 (12%)
Uganda	9 (12%)	9 (12%)
Zimbabwe	3 (04%)	8 (11%)
TOTAL	77 (100%)	76 (102%)

Figure 46: Total number of publications produced by respondents in the categories "economic" and "other social" sciences, by country for the period 1990-mid 1996 (grey literature, domestic and international publication).

	Number of Publications Produced By Respondents					
	International Econ.	Social	Domestic Econ.	Social	Grey Econ.	Social
Burkina Faso	1	10	1	4	2	15
Cameroon	12	1	19	-	16	2
Cote d'Ivoire	-	7	6	11	1	5
DRC	8	4	11	-	13	-
Ethiopia	7	8	7	6	14	2
Ghana	33	36	124	100	134	115
Guinea	9	17	14	22	29	10
Kenya	13	10	4	9	4	4
Madagascar	21	29	39	42	22	18
Mali	14	31	26	35	103	68
Mozambique	13	11	10	11	42	37
TOTAL	131	164	261	240	380	276

Figure 47: Average number of publications per category "economic" and "other social" sciences, by country for the period 1990-mid 1996 for the responding population.

	International		Domestic		Grey		Total average per country
	Econ.	Social	Econ.	Social	Econ.	Social	
Burkina Faso	1.0	2.5	1.1	1.0	2.0	3.8	11.4 (06%)
Cameroon	1.3	1.0	2.1	-	1.8	2.0	8.2 (05%)
Cote d'Ivoire	-	1.4	1.5	2.2	.3	1.0	6.4 (04%)
DRC	1.3	4.0	1.8	-	2.2	-	9.3 (05%)
Ethiopia	.7	1.0	.7	.8	1.4	.3	4.9 (03%)
Ghana	2.4	2.0	8.9	5.6	9.6	6.4	34.9 (20%)
Guinea	1.3	2.1	2.0	2.8	4.1	1.3	13.6 (08%)
Kenya	4.3	2.0	1.3	1.8	1.3	.8	11.5 (06%)
Madagascar	1.9	3.2	3.5	4.7	2.0	2.0	17.3 (10%)
Mali	1.6	3.4	2.9	3.9	11.4	7.6	30.8 (17%)
Mozambique	4.3	1.4	3.3	1.4	14.0	4.6	29.0 (16%)
TOTAL	20.1	24	29.1	24.2	50.1	29.8	177.3 (100%)

Table 48: The relationship between COMTECH (availability of information technologies); DBS (accessibility of databases); LIBDIST (distance to library) and UNICLOS (the regular occurrence of university closure) and the three dependent variables representing information flow (DOMPUB; INTPUB; and INDJOUR):

(OBJECTIVE ENVIRONMENT)	INDJOUR	DOMPUB	INTPUB
COMTECH	n.s.	n.s.	n.s.
DBS_ACC	+	n.s.	n.s.
LIBDIST	-	-.25 *	-.24 *
UNICLOS	+	+.44 *	+

*) Indicates a significant relationship at .05 level.

Table 49: The relationship between perceptions about the environment and the three dependent variables representing information flow (DOMPUB; INTPUB; and INDJOUR) +:

(PERCEPTIONS ENVIRONMENT)	INDJOUR	DOMPUB	INTPUB
LACK_FUND	n.s.	+.30 *	+
BOOK_INAD	n.s.	+	+.25 *
SCAL_PERS	+	n.s.	n.s.
SCAL_AD1	-.26 *	n.s.	n.s.
SCAL_AD2	n.s.	n.s.	+
SCAL_PRO	n.s.	-	n.s.
SCAL_ORG	n.s.	n.s.	n.s.

+ "*" indicates a significant relationship. The + or - sign indicates, respectively, a positive or negative relationship that is not significant. A relationship was deemed significant if the T-value was larger than 1.76.

Table 50: The relationship between orientation and the three dependent variables representing information flow (DOMPUB; INTPUB; and INDJOUR):

(ORIENTATION)	INDJOUR	DOMPUB	INTPUB
INT_PERS	-	n.s.	+ .27 *
DOM_PERS	-.24 *	n.s.	n.s.
ACAD	n.s.	n.s.	n.s.

+ "*" indicates a significant relationship. The + or - sign indicates, respectively, a positive or negative relationship that is not significant. A relationship was deemed significant if the T-value was larger than 1.76.

Table 51: The relationship between behaviour and the three dependent variables representing information flow (DOMPUB; INTPUB; and INDJOUR):

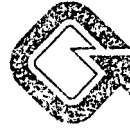
(BEHAVIOUR)	INDJOUR	DOMPUB	INTPUB
DOM_CONF	n.s.	+ .36 *	+
AFRIC_CONF	+ .24 *	n.s.	+ .25 *
NONAF_CONF	n.s.	n.s.	+ .36 *
LIB_USE	n.s.	n.s.	n.s.
DBS_USE	+ .26 *	n.s.	n.s.
RES_DAYS	n.s.	+ .30 *	+ .21 *
USE_NETW @	+ .29 *	+ .25 *	n.s.

+ "*" indicates a significant relationship. The + or - sign indicates, respectively, a positive or negative relationship that is not significant. A relationship was deemed significant if the T-value was larger than 1.76.

@ The sign for the relationship of the three variables with NETW_USE has been reversed because the variable no_org (=NETW_USE) has a 0 for users and 1 for non-users.

APPENDIX I

Field Study Questionnaire



**THE FLOW OF SCIENTIFIC INFORMATION, NORTH/SOUTH,
SOUTH/SOUTH, SOUTH/NORTH: THE CASE OF SOCIAL SCIENCE
RESEARCH IN SUB-SAHARAN AFRICA**

Landleven 5
P.O. Box 800
9700 AV Groningen
The Netherlands
fax: +31 53 393 38 30

Date: **May 20, 1996** Telephone: **+31-503633482** Your ref.: Our ref.:

Subject:
Participation in Interview

Dear Sir or Madam,

You are being asked to participate in a questionnaire based interview. This questionnaire is part of a collaborative research project designed to develop strategies for improving the flow of scientific information, north/south, south/north, and south/south. More specifically, the project is concerned with improving the flow of social science research results to, from, and within sub-Saharan Africa. The research is being sponsored by the Netherlands Ministry of Foreign Affairs, Directorate General for Development Cooperation.

Four organizations are participating in the realization of this project: the research network organizations AERC (African Economic Research Consortium), CODESRIA (Council for the Development of Economic and Social Research in Africa), and OSSREA (Organization for Social Science Research in Eastern and Southern Africa), and the University of Groningen (the Netherlands). The sample for this study was drawn from the combined registries of the three participating research networks. Your name was extracted from this registry.

Requisite to realizing the objectives of this project, it is important that we are able to identify:

- i) the nature of the research produced by social scientists in sub-Saharan African universities;
- ii) the means by which social scientists in sub-Saharan African universities obtain and use scientific information, and disseminate their research results;
- iii) the role that the various sources of scientific information play in the research process.

In addition, we are interested in identifying how research networks can strengthen, improve access to, and the disseminate social scientific information.

We hope to gain as broad an indication as possible of the information needs of social scientists in sub-Saharan Africa, and the extent to which this information is accessible (and by what means). It is for this reason that the project is simultaneously being conducted in twelve (12) sub-Saharan African countries. The same questionnaire will be used in the interviews conducted in each country.

The questionnaire is divided into three sections:

Background information: your educational background and area(s) of specialization.

Employment: your academic employment and area(s) of specialization.

Research activities: the nature of your research activities; the media in which your research results appear, and their distribution; the extent of your access to research related information sources.

In the interests of gaining as broad an overview as possible of information needs and access, we would like to request that you answer all of the questions included in the questionnaire, even those

which may seem unimportant to you.

For our part, we will keep all information you give confidential. Of course, the interview is voluntary. Should we come to any question which you do not want to answer, please let the interviewer know and s/he will move on to the next question.

The interviewer will read each question exactly as it is worded so that every respondent in the survey is answering the same questions. You will be asked to answer two kinds of questions. In most cases, you will be given a list of answers and asked to choose the one that fits best. In a few cases, you will be asked to answer in your own words. For those questions, the interviewer will write down your answers word for word.

If at any time during the interview you are not clear about what is wanted, be sure to ask the interviewer.

Should you wish to receive a copy of the results of this study, please provide the interviewer with your business card or write your name and address on a separate sheet of paper. Alternatively, please feel free to make your request to any one of the undersigned individuals.

If you have any questions about the study that the interviewer is unable to answer, please feel free to contact one of the three senior researchers, or one of the undersigned.

We would like to thank you for consenting to participate in this study.

Sincerely yours,



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Instructions for Interviewers

- 1. Each respondent should be asked to provide a curriculum vitae or at least a formal list of publications (to include reports) that they have produced in the past five years.**
- 2. It is very important that the identification code of each respondent be indicated on the questionnaire.** The code numbers can be found on the population listing provided. These are indicated by country.
- 3. Give the introductory letter provided to each respondent to keep.** This letter explains the purpose of the study. It also contains contact address should the respondent have any questions that need to be directed to the organizers of the study.
- 4. Please consult with your senior research about where interviews are to take place and how these are to be conducted.** For example, whether you are to formally conduct an interview; or that each respondent is to be asked to fill in the questionnaire him/herself in your presence primarily or solely in the workplace of each respondent; or that you deliver the questionnaire to each respondent and collect it the next day; or some combination hereof, and so on.
5. If, for some reason, you want to use a tape recorder, please ask permission prior to use.
- 6. If you need more space to answer any of the questions please use the back of the last page of the questionnaire or a blank piece of paper. Please be sure to indicate the question (by number) to which the additional information applies.**
- 7. Ask ALL of the questions: do not skip or omit any questions unless they do not apply.** If your respondent is to fill in the questionnaire him/herself, please instruct them accordingly.
- 8. Ask the questions in the order given and be sure to complete each question (unless it does not apply).** If your respondent is to fill in the questionnaire him/herself, please instruct them accordingly.
9. If you are instructed by the senior researcher to conduct a formal interview please ask only one question at a time. Wait for the answer before going on the second part of the question or the next question.
10. If you conduct a formal interview and are unclear about the answer to a given question, please repeat the question. Alternatively, summarize the answer and ask the respondent if that is what was meant.
- 11. At the end of the interview** please complete the interviewer observations section on the back of this sheet and attached it to the completed the questionnaire.

Identification Code: _____

Country Code: _____

01 Cameroon	05 Kenya	09 Tanzania
02 Cote d'Ivoire	06 Nigeria	10 Uganda
03 Ethiopia	07 Senegal	11 Zimbabwe
04 Ghana	08 Sudan	12 Zaire/Congo

Date of interview: _____ (day) _____ (month)

Time interview began _____ (Code using 24 hour clock: 1:15 PM is 13:15)

Name Interviewer: _____

SECTION I: BACKGROUND

1. Date of birth (month/year): ____/____ male: ____ female: ____

2. Country of citizenship: _____

3. In which languages are you fluent:

Speaking	Writing	
____	____	a. English
____	____	b. French
____	____	c. Other: please specify _____

4. Educational institution where you receive your highest degree:

4.1 Highest degree (check one):

____ 01 Lic.	____ 06 DEA/DESS
____ 02 BA/BS	____ 07 IIIe Cycle
____ 03 Ing.	____ 08 Ph.D
____ 04 Maitrise	____ 09 Dr. d'Etat
____ 05 MA/MS	____ 10 Other: _____

4.2 Major discipline or field of study (classify in one of the following categories):

Anthropology	Economics	
____ 01 cultural	____ 09 agri. econ.	____ 16 monetary economics
____ 02 linguistics	____ 10 environm. econ.	____ 17 international econ.
____ 03 medical	____ 11 econometrics	____ 18 org. & mgmt. of enterpr.
____ 04 social	____ 12 econ. systems	____ 19 industrial org./public policy
____ 05 gender	____ 13 econ. of technol. change	____ 20 fiscal policy & public fin.
____ 06 political	____ 14 econ. theory	____ 21 other: _____
____ 07 economic	____ 15 labour econ.	
____ 08 other: _____		

Education

- 22 basic education
 23 higher education
 24 educational admin.
 25 policy
 26 educ. foundations
 27 curriculum plan.
 28 theory & methods
 29 gender
 30 other: _____

Political Science

- 31 int'l relations
 32 pol. theory & methods
 33 public admin.
 34 polit. systems
 35 public policy
 36 other: _____

Sociology

- 37 social inequality
 38 social planning/policy
 39 indus./labour relations
 40 urban/rural sociology
 41 social theory
 42 organiz./indust. sociology
 43 research methods/soc. stat.
 44 demography & population
 45 gender
 46 social work
 47 other: _____

Other Disciplinary Area

48 _____

SECTION II: EMPLOYMENT

5: Employed prior to joining any academic research unit of current employer? **Yes = 1 No = 0**

If YES, name and country of most recent previous employer:

Name organization: _____

Country: _____

6: Date of first academic appointment: (month/year) ____ / ____

7: Date of appointment to current position ____ / ____

8: Official grade or title in current position:

- | | |
|--|--|
| <input type="checkbox"/> 01 Professor | <input type="checkbox"/> 06 Maitre assistant |
| <input type="checkbox"/> 02 Associate Professor/Reader | <input type="checkbox"/> 07 Lecturer |
| <input type="checkbox"/> 03 Maitre de Conferences | <input type="checkbox"/> 08 Assistant |
| <input type="checkbox"/> 04 Assistant professor | <input type="checkbox"/> 09 Instructor |
| <input type="checkbox"/> 05 Senior lecturer | <input type="checkbox"/> 10 Other: _____ |

9: Is this a permanent position? **Yes = 1 No = 0**

10: Is it a full time position according to your contract? **Yes = 1 No = 0**

11: Do you undertake any other income generating activities? **Yes = 1 No = 0**

12: Primary specialization in your present position: (classify in one category below)

Anthropology

- 01 cultural
 02 linguistics
 03 medical
 04 social
 05 gender
 06 political
 07 economic

Economics

- 09 agri. econ.
 10 environm. econ.
 11 econometrics
 12 econ. systems
 13 econ. of technol. change
 14 econ. theory
 15 labour econ.

- 16 monetary economics
 17 international econ.
 18 org. & mgmt. of enterpr.
 19 industrial org./public policy
 20 fiscal policy & public fin.
 21 other: _____

08 other: _____

Education

- ___ 22 basic education
- ___ 23 higher education
- ___ 24 educational admin.
- ___ 25 policy
- ___ 26 educ. foundations
- ___ 27 curriculum plan.
- ___ 28 theory & methods
- ___ 29 gender
- ___ 30 other: _____

Political Science

- ___ 31 int'l relations
- ___ 32 pol. theory & methods
- ___ 33 public admin.
- ___ 34 polit. systems
- ___ 35 public policy
- ___ 36 other: _____

Sociology

- ___ 37 social inequality
- ___ 38 social planning/policy
- ___ 39 indus./labour relations
- ___ 40 urban/rural sociology
- ___ 41 social theory
- ___ 42 organiz./indust. sociology
- ___ 43 research methods/soc. stat.
- ___ 44 demography & population
- ___ 45 gender
- ___ 46 social work
- ___ 47 other: _____

Other Disciplinary Area

___ 48 _____

SECTION III: ANNUAL WORK ACTIVITIES

13. For the most recent employment year at your academic institution, please estimate the number of days per week, on average, you spend on research: _____ days

13.1 Did you experience university closure in the most recent academic year? Yes = 1 No = 0

13.2 If YES, in what research activities did you engage during the period of closure?

14. For the most recent employment year at your academic institution, please estimate the number of days per week, on average, you spend on teaching activities: _____ days

15. In your present position, what do you think are the three most important factors for your professional advancement? (1 = most important; 2 = 2e most important; 3 = 3d most important)

- | | |
|---------------------------------------|---|
| ___ 01 academic qualification | ___ 07 seminar/conference attendance |
| ___ 02 experience | ___ 08 organizing seminars/conferences |
| ___ 03 peer or supervisor evaluation | ___ 09 professionalism (motivation; initiative) |
| ___ 04 research results reported | ___ 10 organizational policies/attitudes |
| ___ 05 international publications | ___ 11 political contacts |
| ___ 06 impact/use of research results | ___ 12 other: _____ |

SECTION IV: RESEARCH ACTIVITY QUESTIONS

16. Of the time spent on RESEARCH, please estimate the percentage of time by type:

- ___ a. Basic (generate new understanding)
- ___ b. Strategic (application oriented/background research)
- ___ c. Applied (create new technology or new application)
- ___ d. Adaptive (adjust technology/application to specific needs)
- ___ e. Methodology (develop new methods)
- ___ f. Other: _____

22: Please identify the five most serious limitations to your research.

- a. lack of a clear research agenda
- b. lack of clear research priorities
- c. lack of research funds
- d. lack of personal interest or motivation
- e. lack of adequate incentives and rewards for doing research
- f. lack of opportunity to define research problems
- g. insufficient or lack of access to scientific literature and/or libraries
- h. lack or limited availability of supplies and equipment (e.g., paper, printers, photocopy machines)
- i. lack or limited availability of administrative (e.g., secretarial or technical) assistance
- j. lack or limited availability of information technology (e.g., electronic mail)
- k. excessive administrative duties
- l. excessive consultancies
- m. family commitments
- n. religious and/or politically imposed restrictions
- o. other: _____

22.1 Now please rank these five limitations in order of importance (please indicate the letter code of each of the limitations in the space provided).

- | | |
|--|--|
| <input type="checkbox"/> most serious | <input type="checkbox"/> fourth most serious |
| <input type="checkbox"/> second most serious | <input type="checkbox"/> fifth most serious |
| <input type="checkbox"/> third most serious | |

23. Do you have access to scientific databases? Yes = 1 No = 0

23.1 IF YES, to which of the following types of databases, and in which domain do you have access:

- | PUBLIC DOMAIN: | PRIVATE DOMAIN (for a fee - institutional or individual): |
|---|---|
| <input type="checkbox"/> a. publications | <input type="checkbox"/> e. publications |
| <input type="checkbox"/> b. projects | <input type="checkbox"/> f. projects |
| <input type="checkbox"/> c. statistical data | <input type="checkbox"/> g. statistical data |
| <input type="checkbox"/> d. other data: _____ | <input type="checkbox"/> h. other data: _____ |

24. In the last two years, have you used scientific databases for your research? Yes = 1 No = 0

24.1 IF YES, please list the databases used:

24.2 IF NO, please indicate why.

25. How far (in kilometers) are you from the nearest library relevant for your research activities? _____

26. How often do you visit the library? 01 daily 04 rarely
 02 weekly 05 never
 03 monthly

26.1 IF rarely or never, please indicate why.

27. Have you used - or accessed literature from the library in conjunction with your research activities in the past two years?

Yes = 1 No = 0

27.1 If YES, are you able to request literature from the library via electronic mail? Yes = 1 No = 0

27.2 Please indicate which information sources you access from the library:

- a. books
- b. trade journals*
- c. databases on CD-ROM
- d. government documents
- e. scientific journals
- f. catalogue listings (subject and/or author)
- g. interlibrary loan services
- h. theses/dissertations
- i. other: _____

* Trade journals: implies journals used by, serving or intended for a particular trade or profession, for example law. Such journals are often non-academic, that is, non-peer reviewed journals.

27.3 Please indicate which of the following information sources are ABSENT from the library:

- a. books
- b. trade journals
- c. databases on CD-ROM
- d. government documents
- e. scientific journals
- f. catalogue listings (subject and/or author)
- g. interlibrary loan services
- h. theses/dissertations
- i. other: _____

27.4 Please indicate which of the following information sources are INADEQUATE in the library:

- a. books
- b. trade journals
- c. databases on CD-ROM
- d. government documents
- e. scientific journals
- f. catalogue listings (subject and/or author)
- g. interlibrary loan services
- h. theses/dissertations
- i. other: _____

28. Please list up to five scientific journals in order of their importance that you have used in the past five years for your research.

Please list only journals that have been of theoretical and/or empirical value to your own research activities (please list titles as fully as possible):

1. _____
2. _____
3. _____
4. _____
5. _____

28.1 How do you gain access to these journals?

- a. the university library
- b. private subscription
- c. donation
- d. international photocopy service
- e. institute, faculty or department
- f. research network circulation
- g. interlibrary loan
- h. other: _____

29. How important are personal contacts as a primary source of information about relevant scientific literature.

Very important					Not important
1	2	3	4	5	6

30. How many professional meetings (conferences, workshops, etc.) have you attended in the past two years?

- a. Number held inside your home country (where you are employed)? GO TO QUESTIONS 31 -31.10
- b. Number held in other African countries? GO TO QUESTIONS 32 - 32.10
- c. Number held outside Africa? GO TO QUESTIONS 33 - 33.9

31. MEETINGS INSIDE HOME COUNTRY

31.1 Of those held inside your home country, please list the organiser(s) of these meetings.

31.2 How many of these meetings focused on your specific research field(s)? _____

31.3 Did you prepare papers or posters for presentation at any of these meetings? Yes = 1 No = 0

31.4 Were the results of these meetings published? Yes = 1 No = 0

31.5 IF YES, how were these results published?

- a. proceedings d. by a research network: please specify _____
- b. journal e. other: _____
- c. book articles

31.6 In what language were these results published? a. English b. French c. Other: _____

31.7 Who published these results?

- a. self production e. a research network: please specify _____
- b. university press
- c. national publisher
- d. international publisher f. other _____

31.8 How were these publications disseminated?

- a. direct mail e. internationally
- b. to participants f. via research network to members and affiliates
- c. university libraries
- d. nationally g. other: _____

31.9 Did any of these meetings result in the publication of your research activities? Yes = 1 No = 0

31.10 IF YES, where were these results published?

- a. as grey* literature e. book (international publication)
- b. national journal f. by a research network: please specify _____
- c. international journal
- d. book (domestic publ.) g. other: _____

* Grey literature includes, for example, unpublished reports, texts, research proposals.

31.11 Did any of these meetings result in subsequent research collaboration? Yes = 1 No = 0

31.12 Did any of these collaborations result in publications? Yes = 1 No = 0

31.13 IF YES, where were these results published?

- a. as grey literature e. book (international publication)
- b. national journal f. by a research network: please specify _____
- c. international journal
- d. book (domestic publ.) g. other: _____

32. MEETINGS HELD IN OTHER AFRICAN COUNTRIES

32.1 Of those held in other African countries, please list the organiser(s) of these meetings and the countries where they were held.

32.2 How many of these meetings focused on your specific research field(s)? _____

32.3 Did you prepare papers or posters for presentation at any of these meetings? Yes = 1 No = 0

32.4 Were the results of these meetings published? Yes = 1 No = 0

32.5 IF YES, how were these results published?

- a. proceedings d. by a research network: please specify _____
 b. journal special issue
 c. book articles e. other: _____

32.6 In what language were these results published? a. English b. French c. Other: _____

32.7 Who published these results?

- a. self production e. a research network: please specify _____
 b. university press
 c. national publisher f. other _____
 d. international publisher

32.8 How were these publications disseminated?

- a. direct mail e. internationally
 b. to participants f. via research network to members and affiliates
 c. university libraries
 d. nationally g. other: _____

32.9 Did any of these meetings result in the publication of your research activities? Yes = 1 No = 0

32.10 IF YES, where were these results published?

- a. as grey* literature e. book (international publication)
 b. national journal f. by a research network: please specify _____
 c. international journal
 d. book (domestic publ.) g. other: _____

* Grey literature includes, for example, unpublished reports, texts, research proposals.

32.11 Did any of these meetings result in subsequent research collaboration? Yes = 1 No = 0

32.12 Did any of these collaborations result in publications? Yes = 1 No = 0

32.13 IF YES, where were these results published?

- a. as grey literature e. book (international publication)
 b. national journal f. by a research network: please specify _____
 c. international journal
 d. book (domestic publ.) g. other: _____

33. MEETINGS HELD OUTSIDE AFRICA

33.1 How many of these meetings focused on your specific research field(s)? _____

33.2 Did you prepare papers or posters for presentation at any of these meetings? Yes = 1 No = 0

33.3 Were the results of these meetings published? Yes = 1 No = 0

33.4 IF YES, how were these results published?

- a. proceedings d. by a research network: please specify _____
 b. journal special issue
 c. book articles e. other: _____

37. Do you believe that your research results over the past five years have benefitted any of the following?

	YES	NO
General public	1	0
Rural residents	1	0
Local or state govern. agencies	1	0
NGOs	1	0
Foreign institutions or governments	1	0
Donor organizations	1	0
Scientists in own discipline	1	0
Other scientific disciplines	1	0
Other: _____	1	0

38. In conducting research, a number of resources are necessary. Below is a list of such resources. Please indicate how important each resource is for the success of your research. Then please circle the appropriate number to indicate how adequate each of these items are for your current research activities.

38.1 Personal: factors which will demotivate or dissatisfy researchers if they are not adequate.

	Important		Adequate						Inadequate					
	YES	NO	1	2	3	4	5	6	1	2	3	4	5	6
Financial support for self and family	1	0	1	2	3	4	5	6	1	2	3	4	5	6
Suitable living conditions	1	0	1	2	3	4	5	6	1	2	3	4	5	6
Job security	1	0	1	2	3	4	5	6	1	2	3	4	5	6

38.2 Administrative: factors required to successfully support a research activity.

	Important		Adequate						Inadequate					
	YES	NO	1	2	3	4	5	6	1	2	3	4	5	6
Operating supplies and materials	1	0	1	2	3	4	5	6	1	2	3	4	5	6
Transportation	1	0	1	2	3	4	5	6	1	2	3	4	5	6
Office and laboratory facilities	1	0	1	2	3	4	5	6	1	2	3	4	5	6
Scientific literature/library	1	0	1	2	3	4	5	6	1	2	3	4	5	6
Availability of research assistants	1	0	1	2	3	4	5	6	1	2	3	4	5	6
Quality of research assistants	1	0	1	2	3	4	5	6	1	2	3	4	5	6
Availability of advice from experienced researchers	1	0	1	2	3	4	5	6	1	2	3	4	5	6

38.3 Professional: factors which positively motivate researchers.

	Important		Adequate						Inadequate					
	YES	NO	1	2	3	4	5	6	1	2	3	4	5	6
Freedom to determine research problems	1	0	1	2	3	4	5	6	1	2	3	4	5	6
Contact with other scientists	1	0	1	2	3	4	5	6	1	2	3	4	5	6
Opportunities for advanced education	1	0	1	2	3	4	5	6	1	2	3	4	5	6
Opport. for professional advancement	1	0	1	2	3	4	5	6	1	2	3	4	5	6
Opport. to gain scientific recognition	1	0	1	2	3	4	5	6	1	2	3	4	5	6

	Important		Adequate				Inadequate	
	YES	NO	1	2	3	4	5	6
Opport. for promotion based on merit	1	0	1	2	3	4	5	6
Opportunities for training people who work under your direction	1	0	1	2	3	4	5	6
Opportunities for practical implementation of outputs	1	0	1	2	3	4	5	6
Suitable working conditions	1	0	1	2	3	4	5	6
Opportunities to publish research findings	1	0	1	2	3	4	5	6
Freedom to publish research results without asking permission	1	0	1	2	3	4	5	6

38.4 Organizational: factors which influence performance by creating expectations.

	Important		Adequate				Inadequate	
	YES	NO	1	2	3	4	5	6
Scientific training or management	1	0	1	2	3	4	5	6
Management's reputation for scientific achievement	1	0	1	2	3	4	5	6
Organization's reputation for scientific achievement	1	0	1	2	3	4	5	6

39: Are you aware of the services offered by research network organizations in Africa? Yes = 1 No = 0

39.1 Have you ever received a research grant from -- or participated in any of the activities organized by AERC, CODESRIA, or OSSREA (for example, in workshops, seminars, conferences, national or international working groups, and so on)?

Yes = 1 No = 0

39.2 IF YES, through which of these organizations: ___ 01 AERC ___ 02 CODESRIA ___ 03 OSSREA

39.3 Have you ever participated in the activities (for example, in workshops, seminars, conferences, national or international working groups, and so on) of any other African social science research network?

Yes = 1 No = 0 IF NO, go to question 40.

39.4 IF YES, please indicate which ones:

- ___ a. AAS (African Academy of Science)
- ___ b. CASA (Cons. African Sociol./Antrop.)
- ___ c. CIEREA (Conf. Doyens, Dir. Fac. d'Ecoles Sciences Econ. d'Inst./Gen. Rech. d'Afr. Noire Francophone)
- ___ d. ESAURP (Eastern & Southern African Univ. Research Programme)
- ___ e. MANSCI (Mgmt. of S&T for development in Africa)
- ___ f. RESO (industrial policy network)
- ___ g. TWF (Third World Forum)
- ___ h. Others: please specify in the space provided below

40: Has a research network funded all or part of your research in the past five years?

Yes = 1 No = 0

IF NO, PROCEED TO QUESTION 41

IF YES, please indicate below the title(s) of the research activity; the research network(s) that funded the research; and where the results were published.

40:1 Title Research Activity: _____

Name of funding research network: _____

Where were the results published:

- | | |
|---|---|
| <input type="checkbox"/> a. as grey literature | <input type="checkbox"/> e. book (international publication) |
| <input type="checkbox"/> b. national journal | <input type="checkbox"/> f. by a research network: please specify _____ |
| <input type="checkbox"/> c. international journal | |
| <input type="checkbox"/> d. book (domestic publ.) | <input type="checkbox"/> g. other: _____ |

40:2 Title Research Activity: _____

Name of funding research network: _____

Where were the results published:

- | | |
|---|---|
| <input type="checkbox"/> a. as grey literature | <input type="checkbox"/> e. book (international publication) |
| <input type="checkbox"/> b. national journal | <input type="checkbox"/> f. by a research network: please specify _____ |
| <input type="checkbox"/> c. international journal | |
| <input type="checkbox"/> d. book (domestic publ.) | <input type="checkbox"/> g. other: _____ |

Please indicate any additional research activities on a separate sheet of paper.

41. Apart from directly funding research, have any research networks been important to your research activities during the past five years?

Yes = 1 No = 0 IF NO, PROCEED TO QUESTION 42

IF YES, please indicate how (by what activities or services).

41:1 Name Research Network: _____

- a. financially supported all or part of research related travel abroad
- b. organized meetings (workshops/conferences, etc.) relevant to your research
- c. provided policy advice
- d. provided technical advice
- e. provided funding advice
- f. provided relevant literature, documentation or other information
- g. other: _____

41:2 Name Research Network: _____

- a. financially supported all or part of research related travel abroad
- b. organized meetings (workshops/conferences, etc.) relevant to your research
- c. provided policy advice
- d. provided technical advice
- e. provided funding advice
- f. provided relevant literature, documentation or other information
- g. other: _____

42. Has your affiliation with a research network(s) been important to your teaching activities in the past 5 years?

Yes = 1 No = 0 IF NO PROCEED TO QUESTION 43

If YES, please specify which activities in which research networks:

42.1 Name Research Network: _____

- a. financially supported your thesis or dissertation (for M.A. or Ph.D or equivalent)
- b. provided technical advice for teaching/training activities
- c. provided funding advice for teaching/training activities
- d. provided training/teaching relevant literature, documentation or other information
- e. provided travel funds for training/teaching related courses, seminars, etc.
- f. organized training/teaching relevant workshops, seminars, conferences
- g. other: _____

42.2 Name Research Network: _____

- a. financially supported your thesis or dissertation (for M.A. or Ph.D or equivalent)
- b. provided technical advice for teaching/training activities
- c. provided funding advice for teaching/training activities
- d. provided training/teaching relevant literature, documentation or other information
- e. provided travel funds for training/teaching related courses, seminars, etc.
- f. organized training/teaching relevant workshops, seminars, conferences
- g. other: _____

43. Have you received research funding from organizations other than a research network?

Yes = 1 No = 0 IF NO, PROCEED TO QUESTION 44.

43.1 IF YES, please specify which organizations:

43.2 Was this funding granted before or after your research grant from a research network?

a. before b. after

43.3 If after, do you think that having received a prior research grant from a research network was an important contributing factor?

Yes = 1 No = 0

44. External to your own institution, have you had any professional attachments in the past 3 years?

Yes = 1 No = 0 IF NO, PROCEED TO QUESTION 45.

44.1 IF YES, was affiliation with a research network beneficial or instrumental in acquiring these attachments?

Yes = 1 No = 0

44.2 IF YES, by what means?

- a. it was the result of research done by you as a research network grant recipient;
- b. the research network provided travel and/or other personal support funding;
- c. the research network provided access to relevant professional contacts through workshops, etc.
- d. other: _____

45. In your opinion, have your research activities been used -- or had impact in the economic, social, or political context?

Yes = 1 No = 0 IF NO, PROCEED TO QUESTION 46.

45:1 IF YES, please indicate how you think this occurred

a. because the topic of your research was directly relevant to a specific policy issue?

IF ANSWERED, PLEASE INDICATE THE TITLE OF THE RESEARCH ACTIVITY: _____

b. because your research had come to the attention of the institution involved and they sought your expertise on this particular issue?

c. your involvement resulted from a personal contact

d. because you offered your services to a number of institutions

e. other: please specify _____

46: Did your affiliation with a research network contribute to your ability to produce research that was used in, or impacted on the economic, social or political policy context?

Yes = 1 No = 0 IF NO, PROCEED TO QUESTION 46.3

46:1 IF YES, specify which network(s): _____

46:2 For what reason was this affiliation beneficial? Was it because

a. the research activity was (or had been) sponsored by a research network

b. your involvement resulted from a personal contact made during a research network sponsored activity

c. involvement in research network activities had helped you gain a better understanding of the linkages between research and policy making.

d. the policy making institution knew of you through your research network affiliation.

e. other: please specify _____

46:3 IF NO, have any of the following factors impeded your active involvement in economic, social or political policy making (some of these questions relate to research network affiliated research):

a. the research network thematic focus does not apply to relevant key issues in my country

b. my research network related research is too theoretical; is too technical

c. policy-makers are not interested in research or researchers

d. my research network related research takes too much of my time and is not policy relevant

e. my teaching commitments take too much of my time

f. my university would not approve of my involvement in policy making.

g. in my country national policy decisions are not made on the basis of objective analysis.

h. international agencies are not interested in policy input from local researchers in my field

i. I have no desire to be actively involved in policy making

j. other: please specify _____

47: Do the network organizations with which you are affiliated have a documentation centre/library for members?

Yes = 1 No = 0 IF NO, PROCEED TO QUESTION 48

47:1 IF YES, how close (in kilometers) are you to these facilities? _____

47:2 How often do you use these facility? a. Frequently b. Occasionally c. Seldom d. Never

In the following, please identify the three most important RESEARCH ACTIVITIES within the past five years.

IF RESPONDENT HAS HAD NO RESEARCH ACTIVITIES DURING THIS PERIOD, STOP INTERVIEW HERE

48. Research Activity I:

Faculty: Department:

48.1 Title of research activity:

48.2 Start year: 19 ____ Expected duration: ____ years/months

49. Research Activity II:

Faculty: Department:

49.1 Title of research activity:

49.2 Start year: 19 ____ Expected duration: ____ years/months

50. Research Activity III:

Faculty: Department:

50.1 Title of research activity:

50.2 Start year: 19 ____ Expected duration: ____ years/months

51. Initiator of research activity: Using the list provided, please indicate the initiator of each of these activities.

_____ Research Activity I	_____ Research Activity II	_____ Research Activity III
01 The researcher him/herself	10 Your university faculty/department	
02 International research organization	11 Other faculties at your university	
03 National research organization	12 Other universities	
04 Development projects (with res. activities)	13 Government: central/regional/local	
05 International donors/organizations	14 Political parties	
06 International networks	15 Labour unions	
07 National networks	16 Parastatal organizations	
08 Private enterprise/employers associations	17 Other: please specify _____	
09 NGOs		

52. Main research type: Using the list provided, please indicate the main research type of each of these activities.

_____ Research Activity I	_____ Research Activity II	_____ Research Activity III
01 Basic (generate new understanding)	05 Methodology (develop new methods)	
02 Strategic (application oriented/background research)	06 Other: please specify _____	
03 Applied (create new technology or new application)		
04 Adaptive (adjust technology/application to specific needs)		

53. Main area of specialization: Using the list provided, please indicate the main area of specialization of each of these activities.

Research Activity I Research Activity II Research Activity III

Anthropology <input type="checkbox"/> 01 cultural <input type="checkbox"/> 02 linguistics <input type="checkbox"/> 03 medical <input type="checkbox"/> 04 social <input type="checkbox"/> 05 gender <input type="checkbox"/> 06 political <input type="checkbox"/> 07 economic <input type="checkbox"/> 08 other: _____	Economics <input type="checkbox"/> 09 agri. econ. <input type="checkbox"/> 10 environm. econ. <input type="checkbox"/> 11 econometrics <input type="checkbox"/> 12 econ. systems <input type="checkbox"/> 13 econ. of technol. change <input type="checkbox"/> 14 econ. theory <input type="checkbox"/> 15 labour econ. <input type="checkbox"/> 16 monetary economics <input type="checkbox"/> 17 international econ. <input type="checkbox"/> 18 org. & mgmt. of enterpr. <input type="checkbox"/> 19 industrial org./public policy <input type="checkbox"/> 20 fiscal policy & public fin. <input type="checkbox"/> 21 other: _____	Sociology <input type="checkbox"/> 37 social inequality <input type="checkbox"/> 38 social planning/policy <input type="checkbox"/> 39 indus./labour relations <input type="checkbox"/> 40 urban/rural sociology <input type="checkbox"/> 41 social theory <input type="checkbox"/> 42 organiz./indust. sociology <input type="checkbox"/> 43 research methods/soc. stat. <input type="checkbox"/> 44 demography & population <input type="checkbox"/> 45 gender <input type="checkbox"/> 46 social work <input type="checkbox"/> 47 other: _____
Education <input type="checkbox"/> 22 basic education <input type="checkbox"/> 23 higher education <input type="checkbox"/> 24 educational admin. <input type="checkbox"/> 25 policy <input type="checkbox"/> 26 educ. foundations <input type="checkbox"/> 27 curriculum plan. <input type="checkbox"/> 28 theory & methods <input type="checkbox"/> 29 gender <input type="checkbox"/> 30 other: _____	Political Science <input type="checkbox"/> 31 int'l relations <input type="checkbox"/> 32 pol. theory & methods <input type="checkbox"/> 33 public admin. <input type="checkbox"/> 34 polit. systems <input type="checkbox"/> 35 public policy <input type="checkbox"/> 36 other: _____	
Other Disciplinary Area <input type="checkbox"/> 48 _____		

54. Please list the name of any other university department or external institution which is linked to your research activities and describe the type of linkage (codes are provided on following page).

Research Activity I.

Code	Name Institution	Type of linkage
1.	_____	_____
2.	_____	_____
3.	_____	_____

Research Activity II

code	Name Institution	Type of linkage
1.	_____	_____
2.	_____	_____
3.	_____	_____

Research Activity III

code	Name Institution	Type of linkage
1.	_____	_____
2.	_____	_____
3.	_____	_____

Code Institutions:

- 01 Other universities
- 02 International research organizations
- 03 National research organizations
- 04 Development research projects
- 05 International donors/organizations
- 06 Government: central/regional/local
- 07 Political parties
- 08 International networks
- 09 National networks
- 10 Private enterprises/employers associations
- 11 NGOs
- 12 Labour unions
- 13 Parastatal organizations
- 14 Other (specify)

Types of linkage:

01 PARTNERSHIPS/COLLABORATIVE PROFESSIONAL ACTIVITIES

- 01.1 joint problem identification
- 01.2 joint priority setting/planning
- 01.3 joint research contracts
- 01.4 joint research activities
- 01.5 joint review committees and meetings
- 01.6 joint theses committees
- 01.7 joint supervision of theses
- 01.8 joint fund raising
- 01.9 other: _____

02 EXCHANGE OF RESOURCES

- 02.1 exchange of personnel
- 02.2 joint facilities (library, laboratory)
- 02.3 use of foreign facilities
- 02.4 joint financial resources
- 02.5 receiving financial resources
- 02.6 contract for services
- 02.7 staff rotation
- 02.8 other: _____

03 DISSEMINATION OF KNOWLEDGE AND INFORMATION

- 03.1 joint publications
- 03.2 joint reports
- 03.3 joint demonstration trials/field work
- 03.4 joint seminars and workshops
- 03.5 other (specify)

55. With which of the above listed departments/institutions would you like to strengthen cooperation? / indicate the type of linkage you would suggest (please use codes provided above).

Research Activity I

Code	Name Institution	Type of linkage
1.	_____	_____
2.	_____	_____
3.	_____	_____

Research Activity II

Code	Name Institution	Type of linkage
1.	_____	_____
2.	_____	_____
3.	_____	_____

Research Activity III

Code	Name Institution	Type of linkage
1.	_____	_____
2.	_____	_____
3.	_____	_____

INTERVIEWER OBSERVATIONS

ANSWER THESE QUESTIONS YOURSELF AFTER LEAVING

1 How long was the interview? _____ hours

2 Respondent's sex 1 = Male 2 = Female

3 What was the respondent's attitude about being interviewed?

- ____ a. volunteered information easily
- ____ b. somewhat reluctant, but did not object
- ____ c. somewhat suspicious at first, but later cooperated
- ____ d. refused to give information
- ____ e. didn't refuse but I thought s/he held back

4 Was anyone else present during the interview? Yes = 1 No = 0

If so, who? _____

5 Where was the interview conducted? _____

If it was conducted in the researcher's office, please answer the following:

5.1 In what condition was the researcher's office & equipment?

01 = good 02 = acceptable 03 = poor condition

5.2 In what condition was the building in which the researcher works?

01 = good 02 = acceptable 03 = poor condition

5.3 Was this a

01 = private office 02 = shared office 03 = large office with partitions

APPENDIX II

Organizational Questionnaire

NETWORK ORGANIZATIONAL QUESTIONS

1. In general, how would you characterize (individual or organizational) affiliation with (research organization name) with respect to research activities? Would you say affiliation:

- is fundamental to conducting research activities
- has an important supplemental function for research
- is incidental to research activities

2. Please indicate those policy areas in which (research organization name) is particularly active.

- | | |
|---|--|
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Labour Policy |
| <input type="checkbox"/> Civil Rights | <input type="checkbox"/> Law Enforcement |
| <input type="checkbox"/> Consumer Rights | <input type="checkbox"/> Social Welfare |
| <input type="checkbox"/> Domestic Economic Policy | <input type="checkbox"/> Cultural identity |
| <input type="checkbox"/> Education | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Environmental Policy | _____ |
| <input type="checkbox"/> Health care | _____ |
| <input type="checkbox"/> Housing | _____ |
| <input type="checkbox"/> International Trade | _____ |

3. How would you characterize (research organization name) activities during the past five years?

- sponsored or otherwise stimulated research in a specific area/theme
- acted as a clearing house for information
- formulated policy advice
- stimulated academic/policy dialogue
- provided technical advice
- advocated a policy or political position
- collaborated with other organizations
- mobilized public opinion using one or more media outlets
- mobilized opinion at the grass roots level
- other (please specify)

4. Would you please list all of the organizations involved in social science and economics research with which (research organization name) regularly and routinely collaborates on research or policy questions. Please also indicate which of these initiated the collaboration.

NO.	NAME ORGANIZATION	INITIATOR

5. On which organizations does your organization regularly rely as sources of policy and social scientific information? (Please list by number).

6. Organizations sometime have a need for staff or facilities that are not readily available, but that another research organization does have. If applicable, please list the names of those organizations that allow your organization (and/or its "members") to use their staff and/or facilities.

Are these organizations affiliated with (research organization name) in some way?

Yes No

7. Most organizations have someone who is responsible for its dealings with national government and with other organizations about national research policy matters that potentially affect (research organization name). Who is the principle person responsible for this activity at (research organization name)?

8. Does (research organization name) have any staff members whose regular task involves monitoring the government about national policy issues of interest to it?

Yes No

9. Does (research organization name) support a central information/documentation centre/library for its members/affiliates?

Yes No

If YES, over the past three years, how often on average, and by what means (on-line, personal visits, mailed requests) would you judge that the majority of members/affiliates make use of this facility?

- weekly
- on-line personal visits
- monthly
- personal visits
- annually
- mailed requests
- other (specify)
- other (specify)

10. Does (research organization name) have a data base information system that it makes available to its members/affiliates?

Yes No

11. Does (research organization name) make other database information systems available to its members/affiliates?

Yes No

12. In your judgement, does (research organization name) function as an information gatekeeper for the social scientific community (does it contribute to or organize the flow/distribution of scientific information to its affiliates)?

Yes No

If YES, how does it do this?

- publication of scientific research
- publication of newsletters
- publication of journal(s)
- distribution of published research
- organization of scientific meetings
- other (please specify)

13. On the average, which of the following activities does (research organization name) organize per annum?

ACTIVITY	NUMBER PER ANNUM
<input type="checkbox"/> national conferences	_____
<input type="checkbox"/> regional conferences	_____
<input type="checkbox"/> international conferences	_____
<input type="checkbox"/> workshops	_____
<input type="checkbox"/> seminars	_____
<input type="checkbox"/> other (please specify)	_____

14. Does (research organization name) financially support the research of individuals?

___ Yes ___ No

If YES, according to what criteria?

15. Does (research organization name) have a designated individual or group that is responsible for public relations?

___ Yes ___ No

16. How is the concept "membership" defined by your organization?

:"

17. Who qualifies for "membership"?

_____ individuals only

_____ organizations only

_____ both

18. How many individuals have, on average, been members/affiliates per annum over the past five years?

19. How many organizations have, on average, been members/affiliates per annum over the past five years?

20. If possible, please estimate what percentage of all eligible individual researchers in those countries where (research organization name) is active have opted for affiliation with (research organization name) in the past five years?

COUNTRY **% SOCIAL SCIENTISTS**

21. If possible, please estimate what percentage of all eligible research organizations (to include universities and research institutions) in those countries where (research organization name) is active have opted for affiliation with (research organization name) in the past five years?

COUNTRY **% RESEARCH ORGANIZATIONS**

22. If possible, please estimate what percentage of all eligible NGOs in those countries where (research organization name) is active have opted for affiliation with (research organization name) in the past five years?

COUNTRY **% NGOs**

27.2 How is this board appointed?

by funding agencies

by vote of membership

other (please specify)

27.3 How long is one term of office?

27.4 For how many terms can an individual hold office?

27.5 How often does the board meet?

twice annually

annually

other (please specify)

28. Are there any standing committees?

Yes No

If YES, what tasks do these committees fulfill?

29. Does (research organization name) have an elected body of representatives other than a board of directors?

Yes No

If YES, how often does this body meet?

twice annually

annually

other (please specify)

30. Does (research organization name) fund research?

Yes No

If YES,

30.1 Please specify at which level(s):

graduate MA/MSc. or equivalent level research

___ graduate Ph.D or equivalent level research

___ post-doctoral research

___ other (please specify)

30.2 Can an individual or organization receive research funding from (research organization name) more than once?

PART II

INDIVIDUAL REPORTS

SOCIAL SCIENCE RESEARCH NETWORKS IN SUB-SAHARAN AFRICA: INDIVIDUAL REPORTS

INTRODUCTION

NOAH S.M. NSUBUGA

In 1996 AERC, CODESRIA and OSSREA agreed to collaborate in a case study to be conducted in conjunction with the project *The Flow of Scientific Information North/South, South/North, South/South*, funded by the DST/SO department of the Directorate General for International Cooperation of the Netherlands Ministry of Foreign Affairs. The project was based on the following rationale:

1. That the research activities of scientists in developing country universities could be enhanced, increased, and made more relevant to the development process if these scientists had (better) access to research results produced in developed, and other developing countries.
2. That research networks can play an important role in strengthening and improving access to -- and the dissemination of, scientific information.
3. That donors and technical agencies can play an important role in helping research networks achieve these goals.

The general and long term goal of the project was to identify what steps should be taken to stimulate and/or enhance the flow of scientific information to, from and between developing countries.

In the short term this goal required increased insight into the problems associated with the limited and fragmented access developing countries currently have to scientific information exchange media. A case study focused on the social sciences was subsequently agreed upon.

Three research network organizations (the African Economic Research Consortium (AERC), headquartered in Nairobi, Kenya; the Council for the Development of Economic and Social Research in Africa (CODESRIA), headquartered in Dakar, Senegal; and the Organization for Social Science Research in Eastern Africa (OSSREA), headquartered in Addis Ababa, Ethiopia), formed the medium of investigation.

Among the case study's expected outcomes were the identification of the target areas (media of information access, distribution and exchange) needing improvement or support, and the form such support should take in each of the (11) countries studied.

To this end, the three participating research network organizations cooperated to conduct a field survey of academically employed social scientists in each of the target countries. A division of labour was agreed upon by the three participating organizations. Each of the three research teams was assigned a group of target countries to survey; in which they would survey the entire listing of the users and

non-users of the services of all three participating networks. AERC's coverage was Kenya, Uganda and Zimbabwe. CODESRIA covered Senegal, Ghana, the Ivory Coast, Nigeria, Cameroon. OSSREA covered Ethiopia, Sudan, Tanzania.

In addition to the general case study goals, each research network organization's special interests were addressed. In order to do this, the survey results were segregated according to research network organization affiliation.

**SOCIAL SCIENCE RESEARCH NETWORKS IN
SUB-SAHARAN AFRICA**

AERC REPORT

NOAH S.M. NSUBUGA

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List of abbreviations

AAS	African Academy of Sciences
ADB	African Development Bank
AERC	African Economic Research Consortium
APNET	African Publishing Network
BDC	Book Development Council
CASA	Cons. African Sociol./Antrop.
CD-ROM	Compact Disc - Read Only Memory
CEPR	Centre for Economic Policy Research
CIEREA	Conf. Doyens, Dir. Fac. d'Ecoles Sciences Econ. d'Inst./Cen. Rech. d'Afr. Noire Francophone
CODESRIA	Council for the Development of Economic and Social Research in Africa
CREPLA	Centre for the Promotion of Children's Publication in Kenya
CSAE	Centre for the Study of African Economies
DGIS DST/SO	Directorate General for International Cooperation, Dutch Ministry of Foreign Affairs (DST/SO has recently changed to DCO/OZ)
EALB	East African Literature Bureau
EAPH	East African Publishing House
ESAURP	Eastern and Southern African University Research Programme
fte	full time equivalent
IFLA	International Federation of Library Associations
IMF	International Monetary Fund
MA	Master of Arts
MANSCI	Management of Science and Technology for Development in Africa
NCEMA	National Centre for Economic Management
NGO	Non-governmental organization
OAU	Organization of African Unity
OSSREA	Organization for Social Science Research in Eastern Africa
Ph.D	Doctor of Philosophy
RESO	Industrial Policy Network
SPSS	Statistical Package for the Social Sciences
TWF	Third World Forum
UAP	Universal Availability of Publications
UNECA	United Nations Economic Commission for Africa
UNESCO	United Nations Educational Social and Cultural Organization

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EXECUTIVE SUMMARY

The research project funded by the Dutch ministry of Foreign Affairs was aimed at "improving the knowledge base and identifying trends, needs and possibilities for donor support". Sub-Saharan social and economic science networks AERC, CODESRIA and OSSREA were selected as participants in the project related case study, which was intended to provide insights as to what is actually happening on the ground in relation to the flow of scientific information. The study also offered an opportunity for AERC to review certain aspects of its activities. In light of the general project goal and the specific network interests the following were the selected objectives of the AERC case study:

- i) The degree to which AERC sponsored research is being utilized in the policy context
- ii) The impact of AERC sponsored research on policy development
- iii) The thematic mapping of non-AERC related publications of AERC participants
- iv) The thematic mapping of AERC sponsored research (at the M.A. and Ph.D level)
- v) The identification of policy relevant (African generated) research that can be used in graduate training programmes (for the production of textbooks and readers)
- vi) The identification of methods to improve the publication and distribution of social science research (both sponsored by, and produced external to the research network)
- vii) The identification of 'distinguished scholars' (in the African and international contexts).

The research was largely exploratory. The methodology was a combination of questionnaire based interviews of a population of network users and non-users, and desk research largely comprising bibliometric investigation. The major findings and recommendations are summarized hereunder.

The contribution of networks with special reference to AERC.

Provision of funds and research facilities

. The results indicate that a significant amount of ongoing socio-economic research within the region is funded by AERC.

Funding and facilitating research in sub-Saharan Africa is a major objective of AERC. For the first of two research activities undertaken by users within the past five years, 29 (51%) of the users got funding from AERC; for the second activity AERC funded 12 (21%) of the research projects. A number of other network organizations such as OSSREA and CODESRIA and funding agencies complement and sometimes collaborate with AERC in the funding of social science research in sub-Saharan Africa.

. In spite of the efforts of AERC and other research funding and facilitating agencies the same results show that researchers in the region continue to find lack of research funds to be their biggest problem. About half of the network users and 55% of the non-users ranked it first among their problems.

. Apart from funding of research, networks contribute to research activities in other important ways through various activities and services. Although 17 users (30%) did not find networks important beyond direct funding, twice as many (61%) indicated that the networks were important. The dominant reason for the importance of networks is that networks assist in understanding the linkages between research and policy.

. Besides funding the importance of AERC to researchers is attributed to three major factors: its organization of regular professional meetings, giving technical advice to researchers and provision of relevant literature, documentation and information. Comparative data suggested that AERC is possibly the lead institution in these areas.

Linking research and policy

. There are four major findings in relation to linking research and policy. First, the research network is an important facilitator for researchers to contribute to policy. The network does this mainly by assisting researchers to understand the linkage between research and policy and providing the required funds for the research. Second, in spite of the first conclusion, a significant proportion of researchers (between 40% and 50% both users and non-users) are able to contribute to policy without the network's assistance. Third, the most important impediments to the utilization of research results and research facilities are largely user-oriented and exogenous to the network. Decisions are being based on political and other subjective considerations. Fourth, the results reflect the universities as passive in regard to the encouragement of impact and use of research results. The universities do not openly oppose the application of their researchers' findings in policy but neither do they offer incentives for it.

Capacity building for teaching

. The majority (about 60%) of users indicated that their affiliation with research network(s) is important to their teaching. Generally networks would appear to be playing a critical role enhancing teaching at regional institutions of higher learning. AERC was specifically credited by 16 users for availing relevant literature, documentation and information; by 15 for organizing relevant meetings; by 11 for technical teaching and training advice; by 9 for funding travel to relevant meetings; and by 6 for the sponsorship of theses. It would appear that AERC is playing an important role in enhancing teaching at the institutions of higher learning in the region.

Publication and dissemination

. The results reflect AERC as a major agent of publication and dissemination of research. For instance, it is indicated that AERC assists 64% and 44% of the users to publish their research as grey literature in their first and second research activities respectively over the last five years. The network also facilitates over 55% of the users to publish in international journals. As media of publication AERC and other networks are indicated to have hitherto been relatively more effective on publication within Africa than outside.

Perceived problems facing researchers

. Second to scarcity of research funds the most highly ranked impediment to research is lack of access to scientific literature. Fourteen respondents (11%) ranked it first while 48% put it among the first three limitations. Other important problems are: lack of incentives; excessive administrative duties; lack of research agenda (a problem for 18% and 14% of the users and non-users respectively); and lack of research priorities.

Utilization and impact of AERC research in policy

. Policymakers are perceived to be significant recipients and users of AERC research results. Over 46% of the users informed policymakers about their research results. About 72% of the users have had some professional interaction with government ministries during the previous two years. Although 14% of the users never interacted with government ministries it would appear that in both relative and absolute terms policymakers constitute a significant percentage among those whom the researchers had professionally interacted with.

. Over 60% of AERC researchers make impact in policy by their research activities mainly because of the relevance of their research to policy and their expertise. However a significant proportion of research activities apparently do not impact on policy. About 37% of the users and 60% of the non-users did not perceive any impact from their research activities in policy.

Thematic mapping of research

. The mapping shows that in its award of Ph.D research grants AERC has adhered strictly to its base discipline -- economics. Within the discipline however four themes are shown to dominate the theses. These are: fiscal policy and public finance taking 23%; monetary economics 19%; econometrics 15%; agricultural economics 15%; and industrial organization and public policy 11% of the projects. Data on MA projects were scattered across respective awarding universities and could therefore not be assembled within the time and budget of this case study. Of the 37 publications that were published by AERC users but not sponsored by the network only 19% fell outside economics. Thus the results show that researchers generally stick to their normal fields of specialization even when their

research is not funded by the network.

The flow of scientific information

The preponderance of grey literature

. It is indicated that over 40% of the publications were published in international media. Over a third of the research results are published as grey literature. If however, grey literature were redefined to include all unpublished materials such as consulting reports, conference reports and training courses its proportion would be much higher than it is indicated. The data also indicates low productivity among both users and non-users. About 63% of either group do not seem to have published any international scientific articles over the years 1990-1996.

Although most of what is written by African researchers is published within Africa a fairly good proportion of the information gets onto the international circuit. It would appear nevertheless, that the output sent into the international market may be too scanty to have recognizable impact. Furthermore the majority of the output both domestic and international is grey literature, theses, conference reports etc., materials that normally do not circulate widely if they are published at all or find their way into indexes.

Meetings as vehicles of dissemination

. Meetings have various limitations as vehicles of information dissemination. If their occurrence is predictable any particular researcher's attendance cannot be guaranteed because of funding and other problems. However findings suggest that conferences are the channel most used by the researchers to disseminate research results. Meetings are shown to be significant not only for encouraging origination of information through the preparation of papers and related collaboration but also in publishing such papers. Meetings are also indicated to be pivotal in the dissemination of information especially through the participants who presumably often not only present invited papers but bring and share other publications. Meetings are also known to facilitate personal contact and the so-called invisible colleges. The results however, do not reflect meetings as important vehicles for getting research published in journals outside Africa. Their publishing scope is largely monographic in form (with a preponderance of grey literature), and domestic or intra-African in outlook.

Language of communication

. As expected the results show that English is the dominant language in both groups. Over 80% in both groups can publish in English while only 25% of the users and 15% of the non-users can publish in French. About 70% of the respondents use English only and about a tenth are limited to the use of French.

Sources of information

. Scientific books published internationally and the international scientific journal are indicated as the priority sources of information for researchers. They are followed by personal contact with national scientists in researcher's field and unpublished reports. Paradoxically it was observed that the international journal and book ranked low among the carriers of the respondents' research results. Three possible explanations are: the northern educational background of many of the researchers, the fact that sources in the North are more indexed than those in the South and the relative difficulty of getting to publish in them.

. Despite the well documented paucity of academic libraries in sub-Saharan Africa, they are still the most important source of information for the majority of scientists.

Information technologies

. A good proportion of researchers use databases but the majority (about 60%) do not have such facility. As far as information technologies such as telephone and computers and related resources are concerned, contrary to common thinking, the majority of scientists appear to be well catered for.

Distinguished African scholars and training materials

. In an attempt to reconcile the often conflicting quantity and quality, productivity data was combined with citation scores to get what is called the productivity/impact score. Authors were ranked according to this latter score to identify 'the top 50 scholars and potential authors of graduate teaching materials'.

Recommendations

. In relation to research funding AERC and other networks, governments and institutions that dependent on donor funds should seek and find answers to the inevitable eventuality of a decrease or possible drying up of such funds.

. Policymakers as users or non-users of research results need further investigation than the current study whose findings are largely based on the one-sided view of researchers. Meantime however, policy workshops and other kinds of ongoing activities to enhance communication between researchers and policymakers should be kept in rhythm or strengthened.

. As a major outlet of information for researchers grey literature should be subject to systematic bibliographic control to facilitate retrieval. It is therefore suggested that AERC should consider collaboration with other social science networks on a project to generally expand their publication and dissemination capacity and particularly to index and abstract the plethora of grey literature for the benefit of

both researchers in the North and the South.

. It is recognized that already AERC is involved in a considerable number of scientific and other meetings. However, in view of the critical role of meetings in the dissemination of information indicated by this study, AERC and other research networks should where possible increase the number of scientific meetings and endeavour to involve young and upcoming researchers.

. Most of the social scientists were indicated to have access to the modern information technologies. Apparently this did not necessarily mean usage. Ways and means should therefore be found to encourage researchers to use these technologies to share scientific data and information. For instance demonstration workshops of the possibilities opened by such technologies could be held for researchers either separately or as appendages to other meetings.

. AERC and other networks should explore the feasibility of opening a web site on the Internet to post their information, data and publications. This would open a major window through which the North and the South can share information.

. To reduce the communication gap created by language differences networks should regularly produce other language abstracts of their publications and where necessary undertake full translations.

. To assist home institution libraries of social scientist networks and other research funding agents might want to look into the possibility of including in their grants a proportion that would go to the home institution library towards social science journal subscriptions or assist the library to serve the social scientists better.

. The libraries and documentation centres of the major networks and institutions of higher learning should endeavour to establish regular ways and means by which the researchers can access journals such as those identified by this study to be of critical importance to the social scientists.

. The idea of regularizing the exercise of identifying distinguished scholars should be considered not only because authors pass from productivity to barrenness and lack of impact but also because it could be an additional encouragement to researchers. Awards may be attached to this ranking. The exercise may even be done for smaller groupings such the researchers on a theme, in a subdiscipline or network.

SOCIAL SCIENCE RESEARCH NETWORKS IN SUB-SAHARAN AFRICA

AERC REPORT

NOAH S.M. NSUBUGA

I. AERC: background information and case study objectives

Background Information

AERC was founded in 1988 against a backdrop of retrograde sub-Saharan African economies. Although most of the countries had had over 20 years of political independence they found themselves threatened by the external debt burden, capital flight, an undiversified production base, expanding populations, disease and inflation. Consequently by the mid-80s it was the regional consensus that the countries needed to re-examine and improve on their public policies if they were to achieve sustained growth. The establishment of AERC was one response. The network organization was established with funds from private foundations, bilateral aid agencies and international organizations to support macroeconomic "policy-oriented" research. Its target region is sub-Saharan Africa where individual researchers, university and other research institutions, parastatals and government departments from 21 countries are currently involved in its research, training and other activities. The countries are: Botswana, Cameroon, Cote d'Ivoire, Ethiopia, Ghana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Sudan, Tanzania, Uganda, Zambia, and Zimbabwe.

Specific goals and objectives

The founding of AERC was based on the twin logic that the improvement of economic policies in the region is a necessary condition for sustained economic growth, and that, economic policymaking depends significantly upon locally-based research conducted largely by highly qualified and motivated resident national economists.

Therefore AERC's core concern is the development and enhancement of sub-Saharan African research capacity in economic policy research. The specific objective is to create a critical mass of researchers that could conduct independent research into problems pertinent to the management of economies in sub-Saharan Africa. Responding to the special regional needs, AERC aims to improve the technical skills of local social scientists, facilitate the region to set the research agenda and enable closer ties between researchers and policymakers.

Governance

AERC organizational structure comprises:

- A 12-member *Board of Directors* elected by donors agencies (which form the Consortium) for an indefinite term to set policy and support a multi-year programme of activities and approve an annual plan of work and budget. Those who hold offices have limited terms, for instance the Chairman serves only terms. The executive which handles financial matters meets twice a year while the full board meets once a year.
- An *Advisory Committee* with representatives from the sub-Saharan African research community and policymakers and international resource persons. Its members are subject to review by the Board. This committee meets twice a year to set the research agenda and recommend to the Board an annual programme of work and advise the secretariat on grants for research and training.
- A small *Secretariat* headed by an executive director in Nairobi, Kenya, to administer the programme and provide technical support to researchers. The AERC has 23 fulltime equivalent paid staff.

Backstopped by the principle of networking, AERC operationalizes its goals through four functional elements, namely, research; conferences, workshops and seminars; institutional support and training; publication and dissemination; and collaboration.

Research

The research programme networks individual researchers in the region supported by resource persons to carry out research on selected themes pertinent to policy needs. The research is targeted towards the academic community and decision-makers in sub-Saharan African governments as well as professionals within and outside Africa. The policy areas of major concern have hitherto been domestic economic policy and international trade but there are plans to move into other areas such as labour policy in future. The general corporate view is that individual or organizational affiliation with the network is fundamental to conducting research on sub-Saharan African socio-economics.

The research programme comprises a research support system (in the form of peer review, workshops, literature and library services), and a small grants programme. In the latter, small grants averaging about US\$15,000 are offered to groups of individuals from academic and policy institutions to conduct research in specific thematic areas. Those working in one thematic area constitute a network. Individuals or teams of researchers interested in the grants must submit research proposals which are first assessed by the Research Coordinator and recommended for external review. For the review the proposal is first presented to a workshop of the relevant network and then assessed by a panel of economists drawn from the Advisory Committee. Depending on their quality one of three things may happen to a proposal during review. The proposals may be accepted straight away or sent

for revision and resubmission, or withdrawn. There is no limit officially set to the number of research grants one can get from AERC but it is one at a time.

The themes in the current three year cycle include, External Balance and Macroeconomic Management; Trade, Trade Policy and Regional Integration; External and Internal Debt Management and Domestic Resource Mobilization. In exceptional cases however, non-thematic grants may occasionally be awarded to enable researchers to explore promising new areas or issues of immediate concern to their respective economies.

Conferences, Seminars and Workshops

Four different kinds of meetings are supported:

- *periodic workshops* of researchers participating in the different networks. Depending on need two to five such workshops are held every year.
- *An annual conference*, usually held in the first half of December, on a general theme related to economic management.
- *Seminars* organized and run by the national associations of economists to discuss economic policies and identify research problems.
- *Occasional meetings* on topics of common analytical or methodological interest.

In total four national, two regional and at least one international conferences are held every year. In addition two to five workshops, one seminar and dissemination meetings for collaborative projects are also conducted annually.

Institutional Support and Training

Although the first priority has always been given to research, AERC provides modest awards towards for the following purposes:

- To assist university teaching departments, research centres and economic associations in sub-Saharan Africa;
- to support graduate thesis research by African scholars
- to help finance institutional attachments for African and non-African scholars

A major crystallization of AERC's efforts in training is the anglophone *Collaborative MA Programme* in economics. The programme curriculum is determined by an Academic Board with membership drawn from participating universities (currently 20 from 15 countries). Under this programme universities with adequate capacity to offer core courses and meet other mutually agreed standards accept students from less endowed universities. The universities also collaborate in offering electives at a joint facility -- the Joint Facility for Electives managed directly by the Secretariat in Nairobi.

Ph.D fellowships are also offered through a staff development programme intended

to enhance the universities' teaching capacity. To date 104 Ph.D grants have been awarded, about 85% of which have been completed. Studies are currently in progress on the feasibility of an in-Africa Ph.D programme similar to the Collaborative MA Programme.

Publication and dissemination

Publication and dissemination activities are directed at two goals, -- first, the production of research results and distributing them to professional economists all over the world and to makers of public policy particularly in sub-Saharan Africa; and second, morale and capacity building in the economics profession in sub-Saharan Africa. These activities have either been undertaken directly by the AERC Secretariat or financed through grants to third parties.

In addition to its organization and sponsorship of meetings mentioned above, AERC perceives itself as an information gatekeeper through the publication of scientific research, newsletters, and distribution of published research. Modest support is also extended to national and regional professional economics associations and regional journals.

A multiphased plan of operationalizing the above objectives is now in its third phase. The publication programme has so far generated several books, over 20 special papers and about 50 research reports together with related executive summaries and abstracts. A growth rate in productivity of 60% over 1994 publications is recorded in the 1995/96 annual report. A mailing list with about 1200 entries and still growing, is maintained for the distribution of the publications.

In a bid to attract the readership of policymakers, research reports are stepped down into executive summaries. The purpose is to indicate the nature of the problem being investigated, the results of the research and the policy implications to attract the policymakers to read the full version. These summaries are translated into other languages for a wider regional audience.

Among recent efforts to strengthen the dissemination of research results to policymakers and further afield are the new fora -- the Senior Policy Seminar established for communication with policymakers, and the Publication Workshops that assist the researchers to prepare their reports for publication in international journals.

A *library* is maintained for staff members and affiliates. According to the library management the library database has about 7,000 items 80% of which are reprints of journal articles, the rest being books and monographs. Except for a few periodicals such as *The Economist* for staff use, the library does not subscribe to scientific journals. Regular users mostly from Kenya the host country, make personal visits once a week on average but requests also come from elsewhere through the post, facsimile and e-mail. The library experiences peak periods during

the biannual research workshops in May and December. In addition to e-mail arrangements are at an advanced stage to install a full online facility and to avail inhouse and CD-ROM databases for direct interrogation by the users.

Collaboration

AERC regularly and routinely collaborates with national and other regional and international organizations involved in social science and economics research and information especially that related to policy. Most of the above-mentioned conferences are co-sponsored through collaboration. Such collaborating partners include: CSAE, CEPR, UNECA, ADB, OAU, CODESRIA, OSSREA, IMF and the World Bank.

Generally such collaboration is mutually initiated but in some cases such as the ADB and OAU, the initiative was taken by AERC. One direct benefit of collaboration is that sometimes AERC has been allowed to use human and other resources that are not found at AERC but are available in partner institutions. For instance the IMF and the World Bank have from time to time allowed AERC to use their staff and facilities.

Statement of the problem and AERC case study objectives

As a principle the AERC management periodically subjects its work to both internal and external review. The joint *Programme on the Flows of Information* provided another opportunity for such evaluation and review. Therefore, besides the general case study goals and objectives, AERC specified the following institutional interests in the project.

- i) The degree to which AERC sponsored research is being utilized in the policy context.
- ii) The impact of AERC sponsored research on policy development.
- iii) The thematic mapping of non-AERC related publications of AERC participants.
- iv) The thematic mapping of AERC sponsored research (at the MA and Ph.D levels).
- v) The identification of policy relevant (African generated) research that can be used in graduate training programmes (for the production of textbooks and readers).
- vi) The identification of methods to improve the publication and distribution of social science research (both sponsored by, and produced external to the research network).
- vii) The identification of 'distinguished scholars' (in the African and international contexts).

Significance of the Study

The study is expected to complement earlier review studies of AERC's activities and identify target areas (media of information access, distribution and exchange)

for improvement. It is hoped that the research will provide empirical insights needed for strategic planning of research and the dissemination and utilization of research results in policy, enhance relevance and impact as AERC completes its first decade. It will also offer a special reference for the treatment of the general case study objectives.

II. Review of literature

There is a wealth of literature both normative and empirical touching on the various issues of interest to the current study. AERC itself has commissioned and published some strategic and evaluative studies on some of its activities. This section gives a brief and selective review of the literature to contextualize the study.

On utilization and impact of research in policy

The debate on utilization and impact of research results in policymaking begins in conceptualization. Caplan (1975), Lynn Jr. (1978) Weiss (1978) Boeninger (1982) and Durrant (1995) have variously dealt with the conceptualization of utilization and impact of research in policy. They have proposed utilization/impact criteria ranging from tangible proof that the study in question has been incorporated into policy to the mere presence of scientific merit in the study. At this lower end lies Weiss's enlightenment model which postulates that social science research does not directly solve problems but provides an intellectual setting of concepts, proportion, orientation, and empirical generalization. Therefore no one study has much effect but over time concepts and ideas filter into the consciousness of policymakers and the public.

If there is no agreement in the literature over the definition of utilization and impact there is almost absolute consensus on its importance. According to Ojameruaye and Soyibo (1995) wrong decisions made due to lack of data or use of faulty data can be quite costly in both social and economic terms. Indeed the two authors proceed to argue that the availability and efficient use of reliable data can now be regarded as the fifth factor of economic growth and development, after capital, labour, land and enterprise.

The utilization of information by policymakers has however, often been found wanting. In a study on the perception and utilization of information by policy-makers in Nigeria, Aiyepoku (1989) found that 58% of the 384 respondents (policy-makers in the civil service) interviewed did not identify relevant information sources in analyzing new decision situations while 82% did not seek information sources that they recognized as relevant to a decision situation, but which for some reason were not available, when they did.

Among the major causes of the poor use of data in public policy was the poor quality of available data, the unwillingness of policy-makers to use available data, ignorance and the preponderance of political considerations.

On thematic mapping

The AERC annual reports have consistently given thematic maps of the grantee publications using the AERC traditional themes:

- A External Balance and Macroeconomic Management
- AT Trade, Trade Policy and Regional Integration
- B External and Internal Debt Management
- C Financial Management and Domestic Resource Mobilization

Thorbecke (1996) gives elaborate detail of the characteristics of AERC funded proposals by theme, geographical areas, linguistic distribution and grant size for the period 1988-1994/95. He points out however that the four research themes are not adequately expressive of the topics that come under their respective classes. Thorbecke goes on to furnish a very comprehensive review of the AERC research programme.

On Training Materials

One of the earliest justifications of the need to originate textbooks based on African truths and realities is found in Kitamura (1975). He evaluates contemporary economics in terms of its utility for planning and policy in developing societies. He examines the conditions in Third World countries, the logic of planning, and the assumption underlying orthodox economic theories, and finds a lack of fit among the three.

Ajayi (1990) Ajayi & Kanashie (1991) recommends the fostering of research on domestic issues and textbook writing. They argue that there is need to provide funds for scholars to work on their home economics by providing stipends and sponsoring of textbooks that are pertinent to Africa.

However, northern materials would always be relevant and valuable to southern researchers and vice-versa, at least to facilitate basic and comparative studies. Unfortunately these publications are largely unavailable in sub-Saharan African libraries. In three AERC special papers that resulted from empirical surveys of graduate teaching and learning environments of African institutions of higher learning in both Francophone and Anglophone areas, the paucity of the situation is demonstrated (Pegatienan, 1990; Mukras, 1990; Mukras, 1991). The pictures drawn of the Universities' libraries in sub-Saharan Africa only vary in degrees of gloom.

Publication and Dissemination

Publication and dissemination in sub-Saharan Africa has largely been documented as another disappointment. In 1981, with 10% of the world's population, Africa produced only 2% (14,000 titles) of the global book output. In 1993 Africa's population was 12% of the world's but its book production was down to 1.2% and

this percentage continues to decline (UNESCO: 1983, 1994). Over 50% of the books produced are school textbooks mostly directed at the limited but relatively captive market.

A whole gamut of problems faces African publishing. This includes the attitude of dependence caused by the colonial background, the unreading culture, the neocolonial domination of the industry by western multinationals that want to compete for the limited book market, lack of trained professional publishers, language problems, low literacy rates, shortage of paper, and lack of national policies and commitment by the governments (Altbach and Gopinath: 1985, Okwanya: 1985, Chakava: 1996). Altbach and Gopinath observe that 80% of the world's knowledge industries are in the North.

Efforts at the international level such as UNESCO's idea of Book Development Councils (BDC), Universal Availability of Publications programme (UAP) of the International Federation of Library Associations (IFLA) and regional ones like the East African Literature Bureau (EALB), East African Publishing House (EAPH), the Centre for the Promotion of Children's Publications in Africa (CREPLA) the African Publishing Network (APNET) and the Bellagio Publishing Network intended to promote indigenous publishing and dissemination in Africa have only had nominal impact in Africa because of the above problems (Chakava:1996).

The social sciences do not seem to have departed from this general picture of African publishing and dissemination. Indigenous social science books have for long lacked in quantity if not quality. For example according to data provided by Chakava (1996), on average only 4% of the books produced in Kenya, are social science titles.

Most of the social science journals that were started under the defunct East African Community in the 60s and 70s by regional publishers such as the EALB and EAPH have ceased for lack of a benefactor when the community broke up in 1971.

Arboleda (1985) refers to distribution as the neglected link in the publishing chain in the Third World. He observes that there are many statistics on manufacturing and production of publications but hardly any on their distribution and warns that the publishing enterprise is likely to continue ailing if the critical elements of marketing, distribution and utilization continue to be neglected.

III: Research instruments

The methodology was a combination of desk research and questionnaire based in-depth interviews of social scientists particularly users of the three networks. The interviews were conducted in 11 sub-Saharan African countries, both anglophone and francophone. These were: Cameroon, Coté d'Ivoire, Ethiopia, Ghana, Kenya, Nigeria, Senegal, Sudan, Tanzania, Uganda and Zimbabwe.

Desk research

The desk research on databases and publications was to determine the degree to which African researchers (i) use information from the North, (ii) publish in the south, (iii) were visible or had their research results used in other countries (in the south). Results would be supplemented by a search in the northern databases to determine the degree of visibility of the researchers in the north.

The results of desk research were expected to determine the answers to AERC's questions (iv), (v), (vi) and (vii) and to supplement the survey data especially on publications.

It ought to be pointed out that although this study makes statements on utilization and impact of research in the policy context, seeking the views of policymakers could not be accommodated given the primary scope of the study. Therefore the data and conclusions in this regard are mainly based on the perceptions of researchers.

Field study

The Field Study Goal was to (i) supplement information already gathered by research networks, (ii) determine the rate and nature of information technology access, and frequency of use, (iii) determine the rate and nature of research related productivity, i.e. reports and publications.

The field survey was designed to provide insights into AERC's special interests (i), (ii) and (iii). The questionnaire (see Appendix I, Composite Report) had 55 main questions and was divided into three sections:

Background information: the respondent's educational background and area(s) of specialization.

Employment: their academic employment and area(s) of specialization.

Research activities: the nature of their research; the media in which their research results appeared, their dissemination, and the extent of their access to research related information services.

The Population

The initial population of 410 for the study was extracted from the registries of the three participating network organization (AERC, CODESRIA, OSSREA). However, following testing and cleaning done in May/June 1996, the total population (N) for all the three participating networks was adjusted to 376 persons. The population included only individuals with at least an MA (or equivalent) who were affiliated with a university or research institution. The country distribution of the adjusted population is shown in table 1.

Two groups were taken from the registries. *The first* group was of those persons

who have benefitted from an AERC research grant or in some significant way been affiliated to the network organization. *The second* group included social scientists who have had no affiliation with AERC or any other network organizations at least during the previous three years. For purposes of this report the first group will be referred to as the users and the second group as the non-users.

Field work organization

The AERC share of the field work was carried out in three countries (Kenya, Uganda and Zimbabwe). One senior researcher assisted by three field researchers [one for one month full time equivalent (fte) and two for a half-month fte] for Kenya, two field researchers hired for a half-month full time equivalent (fte) for Uganda, and one field researcher hired for one month fte for Zimbabwe were engaged to conduct the field survey. All field researchers were at masters level, most of them with field research experience and working as lecturers in economics at local universities. An administrative assistant was also engaged to assist the senior researcher in the coordination of the field researchers and doing the desk research. Data pertaining to respondents in the other eight countries was collected under the supervision of senior researchers for OSSREA and CODESRIA.

Problems encountered

This sub-section on problems is mainly based on the experience of field researchers during the field survey in Kenya, Uganda and Tanzania.

The field research problems

Problems included relocation or mobility, death, fatigue of respondents and sometimes outright refusal to answer the questionnaire. Quite a number of respondents complained that the questionnaire was too long. Indeed in some cases the data was not collected by the interview method. Respondents found it difficult to offer the more than one hour required for the interview. Instead, the questionnaire would sometimes be left with the respondent to be collected later.

One possible cause of non-response was that the population was of a category of largely busy middle class people and above, who could hardly spare time to be interviewed or to fill in a questionnaire. Field researchers had to visit some of them several times to get a response if at all. Some would-be interviewees only afforded to hand over a cv and/or a list of their publications. In a few cases the researchers did not succeed to collect back the questionnaires they had handed over to respondents. Three people in each of Kenya and Uganda and two in Zimbabwe could just not be traced. Unfortunately one would-be respondent in Kenya and another in Uganda, had died.

Half of six who declined to respond gave the reason that they were too busy. Of those indicated to be abroad over 60% had relocated to work in other countries.

In Kenya of the ten indicated out of the country three had gone to work abroad, three had relocated to work in other African countries and four were on sabbatical or study leave. In Zimbabwe seven were out of the country and a similar pattern was reported. Although the Ugandan report of nine people out of the country left out the reasons, the pattern was likely to be the same.

Delays that led to the exclusion of part of the responses in this report (see note on table 1) is an indication that similar problems may have been encountered by researchers in the other countries.

Desk research problems

During the desk research the AERC collection and a number of other libraries including the University of Nairobi Library, the Institute of Development Studies, the Rockefeller Foundation Library were visited. The university libraries were particularly disappointing. Materials of interest identified in the catalogues and indexes were hardly found on the shelves. Most of the journal runs stopped before 1990 and made a mockery of the project focus on publications within the 90s.

Survey response rate and desk research recall

In spite of the above field problems the study achieved an overall response rate of about 50%. The results of the desk research were used to compensate for some of the gaps in the field survey. Table 1 shows the field survey response rates.

Data was collected on three major aspects of the population:

- Background biodata
- Employment records
- Annual work activities and patterns
- Research activities and patterns including the publication, and dissemination, utilization, meetings and other information seeking and sharing behaviour

The desk research identified and described over 220 for the general publications research and 26 main textbook material items and for productivity and citation analysis.

Limitations of the study

The field survey data presented is based on non-probability sampling which often leaves many variables uncontrolled and may make it difficult to assess how representative the data are. The population was taken from institutional lists which may have been incomplete especially as there is no AERC membership registry in the ordinary sense of the word. This could have contributed to the failure to locate and interview some of the candidates. In addition biases in the lists would be incorporated in our data. Another point to bear in mind is that the population is small and reduced further by unforeseen factors such as mobility of respondents

and failure to respond to some questions.

The desk research depended on names and, in difficult cases, addresses of authors as well a decision about whether an author was African or non-African. Obviously there could have been errors if an African had a non-African name and vice versa. The use of citations to gauge impact and distinguished scholarship without analysis of the reasons behind each citation could in some cases cause false impressions of impact and scholarship. For instance an article may be cited as an example of academic fraud or for some other unedifying reason. Errors could also occur in thematic mapping of publications not only through the failure to accurately analyze subject content using titles but also when multifaceted or multidisciplinary studies are forced into a linear classification.

IV. Data analysis

The discussion in this section is centred on the group of 57 AERC users with a comparative view based on the group of 65 non-users as defined in section IV. The data is analyzed for its relation to the goals and objectives of AERC as outlined in section 1 and of course for their relation to the case study objectives. The analysis is largely descriptive comprising the interpretation of frequency tables and crosstabulation using SPSS.

Characteristics of AERC users and non-users

Age and Gender

The period of birth and sex distributions of the respondents are indicated in tables 2. About 70% of the network users who indicated their year of birth were 40 years old and above. The corresponding percentage for non-users was about 80%. An obvious gender imbalance pervades the statistics¹. The country distribution of the female users was: Coté d'Ivoire one, Ghana one, Kenya three, Tanzania one and Uganda two. For the non-users it was: Kenya two, Nigeria one, Sudan two, and Zimbabwe two.

The citizenships and highest educational qualifications of the two groups are shown in table 3. All respondents had masters degrees or equivalent, and over 50% of either group had attained Ph.Ds. The highest qualifications of the female users were five masters degrees, one Ille Cycle (MA equivalent) and two Ph.Ds. The female non-users had two masters degrees, four Ph.Ds and one Dr. d'Etat (equivalent to Ph.D).

Employment

Over 90% of the respondents in both groups had fulltime and permanent positions most of them in academic institutions of higher learning particularly universities. Close to 60% of the respondents had worked for over ten years since their first appointment. Fifteen percent of users had worked for 10 or more years in their

current appointments whereas the corresponding percentage for non-users was 18%. In both groups about two-thirds were appointed in their current jobs within the 90s. The statistics quoted here draw a picture of a reasonably experienced population of academicians and researchers.

About 80% in both groups were lecturers and above with about a third having attained professorship. Forty-two percent of the AERC participants and little over a half (52%) of the non-AERC participants undertook other income generating activities. Strikes that result in university closures, a phenomenon that normally boosts such extracurricular activities, have been experienced on average, by a third of each group.

Respondents were asked how they staggered their time between teaching and research. Table 4 summarizes the results. AERC users are on average indicated to be spending as much time on research as on teaching whereas the non-users generally spend more time teaching than doing research. Over 60% of the users spend more than two days a week on research whereas the corresponding percentage for the non-users is about 40%.

Table 5 shows the distribution of time by the various types research activities undertaken by respondents. Each column juxtaposes the percentage for users (U) and that of non-users (NU). To reduce possible terminological uncertainty over the research type categories, definitions were included in the questionnaire as follows: *basic* (generate new understanding); *strategic* (application oriented/background research); *applied* (create new technology or new application); *adaptive* (adjust technology/application to specific needs); *methodology* (develop new methods).

It is notable that 11% of non-users do not do any basic research whereas another 12% devote over 50% of their time to basic research. Similarly 12% of the non-users do not undertake any strategic research but another 8% in the group spends over 50% of their time on strategic research.

Further analysis of the data showed that none of the users does basic research only but three non-users were indicated to be doing so. Thirty-eight users (67%) and 29 non-users (45%) are involved in more than two types of research. Half the users and about a third of the non-users undertake more than three different types of research activities and some as many as six different activities.

Subject fields and specializations

The respondents' fields and primary specializations are featured in table 6. As expected about 80% of the users are in some branch of economics, the dominant branches being econometrics, monetary economics and international economics. The data shows an apparent shortfall of specialists in labour economics, fiscal policy, economics of technological change and industrial organization. The non-users are more evenly distributed over the various disciplines with 22% in anthropology 41% in economics 16% in education, and 8% in each of political

science and sociology.

Participation in other networks and professional associations

Users of AERC participated in other networks as follows: AAS (4), CIEREA (2), CODESRIA (19), ESAURP (4), MANSCI (1), OSSREA (12), RESO (4), Other unspecified networks (20). It is notable that none of the users participate in CASA and TWF. CODESRIA and OSSREA are AERC's regional partners in the social sciences. Thirty-three (58%) of the users subscribed to professional associations.

Results in relation to AERC mandate

The purpose of this subsection is to make a brief statement on the work of AERC based on the findings of the field survey in relation to the goals and objectives of the network. This statement will be selective as the survey did not cover every aspect of the network organization.

Funding of research

By the definition all the 57 users (group one) have benefitted from a research grant or some other kind of funding from AERC. Indeed when asked whether they had received a grant from networks, as expected, the return was 100% affirmative on AERC.

When asked about two research activities undertaken within the past five years, for the first activity 29 individuals (51%) of the users had been funded by AERC; for the second activity AERC funded 12 (21%) of the research projects. Thus a significant amount of ongoing socio-economic research within the region is funded by AERC.

When respondents were asked whether apart from direct funding of research, networks were of any importance to the respondents' research activities, 17 users (30%) answered in the negative but twice as many (61%) indicated that the networks were important beyond direct funding. Indeed 11 users (19%) indicated that their affiliation to the network had been instrumental in getting grants from other sponsors. About 50% of the users received money from other agencies. Only 5 (9%) thought that the network played no role in their subsequent grant awards from elsewhere. Eleven users (19%) got their non-AERC grants before the network awarded them any grant but about 28% of the users got other grants after being grantees of AERC.

The rest of this subsection discusses in more detail the results in relation to the importance of the network beyond funding.

Facilitation and capacity building for research

Against a list of network activities and services users were asked to indicate how

(by what activities or services) specific networks had facilitated their (users') research over the preceding five years. The results specific to AERC were as follows (the percentages are based on those who answered): 12 users (55%) indicated that AERC provided financial support for travel; 17 (57%) credited AERC for organizing meetings; 8 (50%) received technical advice while 15 (56%) indicated that the network provided relevant information. Only one person indicated that the consortium provided policy advice to them. It was observed that the proportion of researchers who got assistance from other networks through any activity or service did not exceed 25%. This would suggest that in facilitating research AERC is possibly the most important network for these researchers.

Only about 7% of the users indicated that networks initiated the research activities they had undertaken in the previous three years. About 40% of the respondents initiated their own research activities. This apparent paradox could be the result of the AERC principle to facilitate the setting rather than determine the region's research agenda.

The type of research undertaken within the users three recent research activities the results is indicated as follows: Basic research is the dominant type being undertaken by 33% in activity1, 19% in activity2 and 16% in activity3. Strategic research is next in rank. Its corresponding percentages are 18%, 30% and 24%. The corresponding percentages for methodological research are 9%, zero and 5%.

The pattern of research shows low returns on adaptive and methodological research. This finding does not settle well with the hours indicated to be invested in this type of research in table 5. However the findings here may carry more weight as they are based on known projects rather than guesstimates. It would then suggests that the users' research activities over the last five years have been essentially deductive most likely using already existing methodologies. This is a point Thorbecke (1996) discusses more competently.

Importance of AERC to teaching activities

About 60% of the users indicated that their affiliation with a research network(s) had been important to their teaching activities. About 32% specifically responded in the negative.

Against a list of network activities and services the users were asked how (by what activities or services) specific networks had been important to their teaching activities over the last five years. The results specific to AERC were as follows (the percentages are based on those who answered): 6 users (60%) indicated that AERC provided financial support for theses or dissertation; 11 (85%) credited AERC for technical teaching and training advice; 5 (83%) received funding advice for teaching and training; 16 (76%) indicated that the network provided relevant literature, documentation and other information; 9 (82%) indicated that AERC provided travel funds for training/teaching related courses and seminars; 15 (79%) credited the network for organizing meetings relevant to teaching and training.

According to these findings AERC seems to be playing a critical role in enhancing teaching at regional institutions of higher learning especially through the sponsorship of theses, giving technical advice and providing relevant information.

Linking research and policy

In order to find out how much networks assisted the linkage of research and policy respondents were asked to indicate whether or not and why their affiliation with a research network contributed to their ability to produce research that was used in or impacted the social, economic or political policy context. The results could not be segregated according to specific networks. Among the users 51% answered 'yes' and 39% responded in the negative.

The corresponding percentages for non-users were 14% and 45%. Since the non-users group was selected on the basis of not having any affiliation with any network over the previous two years, it is possible that the unexpected 14% of non-users (9 individuals) indicating that a network had contributed to their production of research that is useful for policy, related to contributions of more than two years previously.

The dominant reason for the importance of networks for both users and non-users was that the network assisted in understanding the linkages between research and policy. It was cited by 42% of the users and 11% of the non-users. The second most important reason was sponsorship ranked so by 16% of the users and 6% of the non-users. Other reasons were: that policymakers got to know the researcher through the network given by 9% of users and 5% of non-users; and personal contact during research cited by 7% of users and 5% of non-users.

Users who found the networks unimportant in contributing to policy identified two dominant deterrents: first, that policymakers are not interested in research; and second, that there is no objective basis for policy making. These two deterrents share the second positions among the rankings by non-users. The most important reason cited by 17% of the non-users is that teaching takes too much time to allow them to do research that is useful in the policy context. This particular reason is also cited by 9% of the users but shares third position with 'the uninterest of international agencies' in the ranking by users. Other impediments include lack of interest among international agencies, and irrelevance of research themes to key issues. A few researchers just do not want to be involved in policy.

It should be pointed out that in spite of its nomination in the questionnaire as a possible impediment no respondent indicates that the university would not approve of their involvement in policy related work. However when asked to rank the three most important factors for their professional advancement only 9% of the users and 20% of the non-users include "impact and use of research results" among the first three factors. In that ranking academic qualification, international publication and reported research results are the top three factors in that order.

Four major conclusions can be made from the results in relation to linking research and policy. First, the research network is an important facilitator for researchers to contribute to policy.

The network does this mainly by assisting researchers to understand the linkage between research and policy and providing the required funds for the research. Second, in spite of the first conclusion, a significant proportion of researchers (between 40% and 50% both users and non-users) are able to contribute to policy without the network's assistance. Third, the most important impediments to the utilization of research results and research facilities are largely user-oriented and exogenous to the network. Fourth, the results tend to show that the universities tend to sit on the fence in regard to the encouragement of impact and use of research results.

Impediments to research

In spite of the efforts of AERC and other research funding and facilitating agencies some problems persist.

Lack of funds is indicated to be the most serious limitation to research. About half of the users and 55% of the non-users ranked it first among their problems. The second most highly ranked impediment is lack of access to scientific literature. Fourteen individuals (11%) of the respondents ranked it first while 48% put it among the first three limitations. Another important problem though ranked first by only three from either group, is the lack of incentives. About 44% of the users and 40% of the non-users rank it among the first three impediments making it the third most daunting problem among researchers. Lack of research agenda is a problem for 18% and 14% of the users and non-users respectively. About 16% of the users and 9% of the non-users have not sorted out their research priorities. It is also noteworthy that 8 individuals (7%) from the respondents rank excessive administrative duties first and that 18% rank it among the first three limitations perhaps pointing to a normal albeit nuisancical concomitant to professional and academic advancement.

Publication and Dissemination

The mandate of AERC is not only to support economic policy research but also to publish and disseminate the research results as widely as possible. What do the survey results suggest in regard to this mandate?

Table 7 shows the overall distribution of publication media by the users' two recent research activities and the proportion specifically catered for by the AERC. For instance, it is indicated in the first row that AERC assists 64% and 44% of the users to publish their research as grey literature in their first and second research activities respectively. The network facilitates over 55% of the users to publish in international journals. The statistics reflect AERC as a major contributor in the publication and dissemination of research.

Through the function of meetings networks are also indicated to play the role of media, publisher, and disseminator of information.

Research networks as publishers, are indicated to assist 23% of the users to publish in their home country, 32% to publish within Africa and 11% of the users to publish outside of Africa. As carriers of research results the corresponding percentages are 12%, 19% and 4% while as publishers of results of collaboration the corresponding data is 9%, 11% and 4%. In the dissemination of information networks assist 23% users to disseminate in their home country, 25% within Africa and 11% outside Africa.

Like other African media and publishers research networks are indicated to have been relatively more effective on publication within Africa than outside.

Further evaluative information relating to AERC and other networks may be found in the subsequent discussion of utilization and impact of research results in the policy context and the flow of information in general.

Results in relation to AERC special interests

This subsection analyses the data and discusses the results in the perspective of the case study interests of AERC as outlined in section II.

Utilization of AERC sponsored research in the policy context

The following research questions were used to assess the utilization of AERC research results in policy:

- (i) Have policymakers been recipients of information about research results? (To whom and/or to what institutions are published materials distributed?)
- (ii) Have there been any professional contact between researchers and policy-makers?
- (iii) Have research results been perceived by researchers to benefit any agents of policy?

It was expected that answers to these questions would indicate the extent to which the research results are disseminated to and used by policymakers.

Policymakers as recipients of research results. Respondents were asked to identify groups or organizations to which they had provided information about the results of their research in the previous five years. The distribution of the recipients by the researchers who provided the information is shown in table 8.

The policymakers take fifth position among the rankings of recipients. This position is shared with researchers in the same field outside Africa. It is observed that two categories of recipients -- policymakers and government agencies, may not be mutually exclusive. If there are any policymakers among government agencies (indicated as recipients by 51% of the users) then the percentage of researchers

that informed policymakers about research results would be higher than 46%. The ranking of policymakers among recipients of AERC research results would then be higher than fifth position. Policymakers would then be more significant recipients of research results than depicted by the current segregation of the data.

Policymakers as beneficiaries of AERC research. Table 9 shows the distribution of the various beneficiaries by the frequency and percentage of AERC participants who perceive them as beneficiaries of research results.

Assuming that among the listed beneficiaries policymakers are best represented by the category, "Local or state government agencies", then policymakers rank second among the beneficiaries. Over 61% of the respondent users perceive them as beneficiaries. They are second to scientists in the researcher's discipline who are inevitably the first beneficiaries. The position of policymakers among the beneficiaries would be further strengthened if one considers the beneficiaries categorized as, "Foreign institutions and governments" and ranked fourth. This category could indicate the use of research by policymakers in governments outside the respondent's country.

Simple listing of policymakers and government agencies among recipients and beneficiaries as perceived by researchers does not conclusively establish that the research results have been utilized. As a way of cross checking, the respondents were asked to indicate how frequently within the previous two years, they had had professional discussion with, among others, government ministries. Table 10 shows the group distribution by the frequency rating of contact with researchers. A point of caution on this data is that the respondents were left to make their own interpretations of the three terms - 'frequent', 'occasional' and 'seldom'. There may have been variations in their interpretations.

Among the rankings of the groups that the respondents 'frequently' have professional discussion with the government ministries come fourth. Furthermore among those with whom the respondents have 'occasional' professional interaction government ministries share second position with NGOs. In absolute terms however, 72% of the users have had some professional interaction with government ministries during the previous two years. Although 14% of the users have never interacted with government ministries it would appear that in both relative and absolute terms policymakers constitute a significant percentage among those whom the researchers professionally interact with.

The impact of AERC sponsored research on policy development

To assess impact the study used the following criteria:

- (i) Perceived utilization or impact in the economic, social, or political context
- (ii) What policy related activities have resulted from recipients of AERC research results?
- (iii) Did researcher's network affiliation assist? How or for what reason did the

affiliation to AERC assist?

- (iv) What problems did scientist identify or experience in getting actively involved in policy-making?

It should be understood that because utilization and impact are closely related the findings relating to utilization are also relevant at least as background to the discussion of impact.

Gauging impact. To answer the first question respondents were asked if they perceived their research activities to have had impact in the economic, social, or political policy context, and if so how this occurred. About 63% of the users answered in the affirmative as compared to 40% of the non-users. As possible confirmation of impact and use 27 users (47%) specify as many titles of research projects that have been used in policy. Twenty-one non-users (32%) also specify a title each. Table 11 features the perceived causes of the impact ranked by both users and non-users.

Table 11 shows that there is no difference in the ranking of the causes by users and non-users. Relevance of research is indicated to be the most important cause of utilization and impact of research in the social, economic and political policy context followed in second position by expertise reflected through the reported research. Actually since expertise must also be relevant the second reason can be viewed as an enhancement of the first one. Further evidence of impact was the respondents specification of the research activities that had actually been used in policy. Twenty-seven such research activity titles by as many users and 21 titles again by as many non-users were listed by the respondents.

In summary these results indicate that over 60% of the network researchers make impact in policy by their research activities mainly because of the relevance of their research to policy. However a significant proportion of research activities apparently do not impact on policy. It must however be kept in mind that, these results are based on the perceptions of researchers.

Thematic mapping of AERC sponsored research at Ph.D level

The thematic mapping was initially intended to cover the MA and Ph.D grant awards for the period 1988-1996. Unfortunately data on the research topics undertaken by masters scholars was not available at AERC. Such information would possibly be found scattered across the various hosting universities and could not be retrieved within the time available for this project. Therefore the mapping could only be done for the Ph.D theses. The titles of the projects and scholars' countries were taken from an inhouse database maintained by the AERC training programme. The mapping uses the study's more detailed and specific subject classification scheme. Table 12 shows the home countries of the scholars and the scattering of their Ph.D theses across the economics sub-disciplines.

Although the mapping is more specific than that traditionally applied by AERC it should be pointed out that subjects of papers and other kinds of publications hardly ever fall cleanly in discrete classes. The mission or integrated approach often

demanded of today's authors and the fact that knowledge grows by fusion and fission makes any subject classification relatively superficial and temporary.

Two theses, one in medical anthropology and another in urban and rural sociology fell outside the mainstream subject areas of AERC. As indicated earlier in exceptional cases AERC awards so-called non-thematic grants to enable researchers to explore promising new areas or issues of immediate concern to their respective economies.

Otherwise the mapping shows that in its award of Ph.D research grants AERC has adhered strictly to its base discipline -- economics. Within the discipline however four themes are shown to dominate the theses. These are: fiscal policy and public finance taking 23%; monetary economics 19%; econometrics 15%; agricultural economics 15%; and industrial organization and public policy 11% of the projects.

A number of imbalances are reflected by table 12. The country distribution of the awards illustrates the preponderance of Nigeria which took twice (about 30% of the total awards) as much as the next country -- Tanzania. A regional imbalance is indicated with West Africa taking about half of the awards and East Africa about another quarter. Francophone areas got only 13 of the awards indicating yet another imbalance. Not indicated by the table is the gender skew. Basing on the scholars' names, it was estimated that of the grantees, only about 12% are women. These data should however be taken cautiously. It would require further study to differentiate real from apparent bias. For example the indicated country imbalance may be due to differing frames of reference. For instance Nigeria has 34 universities whereas Tanzania has only three. AERC targets graduate level scholars. Women or men, in one country/region or another must exist at this academic level to be within the AERC scope.

African generated research results for graduate training

Through desk research this study sought to identify locally authored materials that could be used to compile textbooks for graduate training. The following research questions were used.

- (i) Which African authors are cited in the current policy relevant graduate teaching materials and textbooks?
- (ii) What is their productivity rate as reflected in the policy relevant graduate teaching materials and textbooks
- (iii) What is the citation rate and ranking of African authors in the available policy related teaching materials and textbooks
- (iv) What is the productivity/impact score and ranking of these authors?

Use of names as the basis for identification of African authors has obvious problems. African authors that carry unAfrican names would be missed and conversely non-Africans who have African names would be included. Affiliation and address were used to supplement names in the identification but this reduced rather than eliminate the possible errors.

The use of citation as a measure of impact was discovered in the 60s but continues to be a debatable tool to this day. Authors cite one another for reasons ranging from the belief in the cumulative growth of knowledge to the less elevated so called "narcissus tendency" that may lead to excessive self-citation. Due to the existence of a variety of reasons for citation this study did not choose to pick on self-citation and penalize authors on it as is often done. Indeed there are sometimes good reasons for authors to cite themselves for example if an author is a pioneer or an expert in an area.

To answer the research questions, 26 teaching materials that included books, research reports and journal articles were selected with particular reference to the reading lists of the MA Programme of Electives run by the AERC. The list of such materials is included in appendix III. The materials are all authored (or co-authored) by Africans and were analyzed for cited African authors who would be evaluated on account of research productivity and impact.

Scoring for research productivity among authors is based on the frequency and ordinal position of authorship. A single authored article receives one unit of credit for the author. Individual credit in multi-authored articles is divided proportionately among authors according to the following formula developed by Howard et al., (1987):

$$\text{individual credit} = (1.5^{n-i}) / \sum_{i=1}^n 1.5^{i-1} \quad (1)$$

where n represents the total number of authors, and i is the particular author's ordinal position. Thus, the second author in a two-author article would receive .40 credit; the third of three authors would receive .21 credit and so on.

This argument is supported by the findings by Vinkler (1992). In a study on the activity shares in different types of research work for coauthors of scientific papers, he found for example that first authors performed about 70% of the total work needed for papers with two authors, which decreased to 34% for papers with five authors.

The results are tabulated in Appendix I. The research productivity score and citation score are calculated according to the above formula. In these two columns the higher the score the higher the ranking of an author. The third column features the productivity/impact score which is the sum of authors rankings in column one and two. The final ranking varies inversely with the productivity/impact score. In the ranking, if two authors tie on a rank that rank and the next rank are added together and divided by two. The result will be the rank for either of the two. It can be seen in the table that the first position is shared by Anyanwu and Ndulu each of whom scores 1.5 i.e. $(1 + 2)/2$.

The first panel of the table in Appendix I shows the first 50 authors ranked according to productivity/impact score, the second panel adds those that were

ranked among the first 50 according to citation scores but were dropped during the final ranking.

Publication and dissemination of research results

The discussion in this subsection is intended to facilitate the identification of methods to improve the publication and distribution of social science research (both sponsored by, and produced external to the research network).

The earlier discussion of utilization and impact identified the audience or the various categories of users to whom respondents direct and distribute their research results. In order to improve the flow of social science research to those and other users it might be instructive to investigate the social scientists' information generation, dissemination and seeking behaviour.

In this regard the study sought answers to the following questions.

- (i) To what extent do social scientists conduct research? and publish results?
- (ii) What media do the scientists use to publish?
- (iii) In what language(s) can/do they publish?
- (iv) From what sources do the respondents get their information?
- (v) How accessible are the media of publication and the sources of information?
- (vi) How accessible are libraries and information technologies?

What and where social scientists publish

In the desk research an attempt was made to recover and describe as many social science publications by Africans as time and availability allowed. The author's name was the main instrument used to identify Africans from other authors. Obviously Africans with non-African names could have been left out and non-Africans with African names could have been included. In difficult cases the author's affiliation and address were also used to reach a decision. Table 13 indicates the country, the category and number of publications produced over the period 1990-1996 which were recovered during the desk research.

Users are indicated to produce eight times as many domestic publications as non-users. There are two likely explanations for this seemingly big difference. First, the statistics for domestic publications for the users could have been boosted by the fact that during the publication count the AERC research reports and special papers published locally in Nairobi were treated as domestic publications. Second, the desk research was mainly based at the AERC library which as expected would hold more of the AERC publications than others. Other libraries as earlier mentioned did not yield much published during the study's focus period 1990-1996.

It would therefore be hasty to conclude that users publish more domestic materials than non-users. In fact the field survey where the respondents were asked to list their publications in the various categories as summarized in table 14 indicated no significant difference in the publication trends of users and non-users.

In table 14 the researchers' average number of publications in various categories are indicated. Each average is based on the number that responded to the particular question. By default each average ended up with a separate N, which for clarity is included in parenthesis. For instance the average featured for users' domestic conference reports is 5.6 and was based on a total output of 21 respondents. This brings to light the increasing statistical misrepresentation as N decreases.

Another problem could have been differences in the definition of the various categories. For instance the decision whether a publication is international or domestic may not have been as simple for the respondents as it sounds. In any case, it is not likely to have been made uniformly by all respondents.

Notwithstanding such flows the data in tables 13 and 14 indicate that over 40% of the publications were published in international media. Almost a third of the research results are published as grey literature. If grey literature were redefined to include all unpublished materials such as consulting reports, conference reports and training courses its proportion would be much higher than it is indicated.

The data also indicates low productivity among both users and non-users. If 23 users as indicated produced the mean of 2.6 international books then the remaining 34 users in the group apparently produced no international books. Similarly 63% of either group seem to have published no international scientific articles over the years 1990-1996. The annual productivity rates are also poor. For the domestic grey literature where users are supposedly prolific the annual rate is just about one unit.

In summary the above results indicate that most of what is written by African researchers is published within Africa. However, a fairly good proportion of the information gets onto the international circuit. It would appear nevertheless, that the output sent into the international market may be too scanty to have recognizable impact. Furthermore the majority of the output both domestic and international is grey literature, theses, conference reports etc., materials that normally do not circulate widely if they are published or indexed at all.

Communication channels

Respondents were asked to indicate the channels of communication they use to disseminate the results of research over the previous two years. Personal contact (which includes telephone contact and correspondence) ranks high among channels used by researchers.

Asked to assess it as a source, 62% of the respondents rated personal contact as an important primary source of information about relevant scientific literature. External non-academic lectures are also used by 35% of the total respondents. However, conferences which actually include an element of personal contact are the dominant channel. Of the total respondents 79% used conferences to disseminate their research results. Electronic mail and audio-visual methods of

distribution were used only by a very small proportion of both groups.

It would appear that conferences are the channel most used by the researchers to disseminate research results. It is followed by personal contact and external non-academic lectures.

Meetings as channels of communication

Following the apparent statistical endorsement of meetings as one of the most important channels of communication, the question remains: how much use is made of meetings in the flow of scientific information? Do scientists attend them? And do the meetings result in publications?

Attendance of meetings: The survey found that 76 individuals (62%) of the respondents had attended one to six meetings in their country of residence, and a similar number of conferences was attended by 66 (51%) within Africa and 52 (42%) outside Africa.

It was also indicated that 72% of the meetings attended at home, 82% of those attended within Africa and 79% of those abroad were in the researchers' fields of specialization. No significant difference was found between network users and non-users in the attendance of meetings.

Publication through meetings: Table 15 shows the pattern of activities that were undertaken through meetings. Among users 42% prepared papers for meetings outside Africa while 34% did so among the non-users. However only 23% of the users and 28% of the non-users got such papers published. There is a publication failure rate of between 20% to 30% as shown by the third and fifth row. The data indicates no significant difference in the publication success or failure rates between users and non-users. On average 40% of the researchers get their papers published through meetings. However, only about a quarter have their papers published outside Africa.

The proportions are less for research published through meetings. On average 32% of the users and 24% of the non-users get their research published through meetings but only about 17% of either group get their research results published outside Africa. As the table shows collaboration born at meetings also leads to publication particularly among the users.

Other data on meetings shows that only nine individuals (7%) of the respondents got their papers published in non-African journals through meetings. Three persons (5%) published their papers in international books and a similar percentage published outside Africa through research networks. Research networks as publishers are indicated to assist about 11% of the users and somehow about 8% of the non-users to publish their papers outside Africa. Like the majority of African media and publishers, research networks are indicated to be relatively more effective on publication within Africa than outside.

Although meetings are indicated as very important facilitators of the flow of

information among researchers they have inherent limitations. Conferences, seminars and workshops are so ceremonious and expensive that only a limited number and for a limited number can be held or attended within any specific period. As the data suggests researchers, and often not all of them, hardly get to attend meetings that are not closely related to their field of specialization. Other than personal interest or lack of it, the explanation may be in the normally attendant difficulty of obtaining official or donor support to go for such meetings.

Meetings are also normally institutionally organized and out of the control of any one researcher. As a result the use of conferences, seminars and workshops by the researcher for the dissemination of information becomes somewhat parochial and largely opportunistic.

However, the results illustrate that meetings are an important link in the flow of social science information. Meetings are shown to be significant not only for encouraging origination of information through the preparation of papers and related collaboration but also in publishing such papers. Meetings are also indicated to be pivotal in the dissemination of information especially through the participants who presumably often not only present invited papers but bring and share other publications. Meetings are also known to facilitate personal contact and the so-called invisible colleges.

The data however, does not reflect meetings as important vehicles for getting research published in journals outside Africa. Their publishing scope is largely monographic in form (with a preponderance of grey literature), and domestic or intra-African in outlook.

Language of communication

As expected the results show that English is the dominant language in both groups. Over 80% in both groups can publish in English while only 25% of the users and 15% of the non-users can publish in French. About 70% of the respondents use English only and about a tenth are limited to the use of French. There are two users and one non-user who use another language presumably Portuguese. One of the two users uses neither French nor English which the data confirms as the main languages of communication.

Importance of various information sources among researchers

Respondents were asked to identify five information sources that had been of greatest importance for their research activities during the past two years and to rank them. The results can be summarized as follows: 39 individuals (32%) from the combined group ranked international book in the first three positions with 14 (11%) giving it first rank; 39 persons (32%) ranked the international scientific journal among the first three with 10 (8%) giving it first position; 38 individuals (31%) ranked published reports among the first three positions and 12 (10%) giving it first position; 35 persons (29%) ranked personal contact with national scientists in the same field with 10 (8%) giving it first position; 33 respondents (27%) ranked unpublished reports (i) in the first three positions with 10 (8%) giving

it first position; and 31 (25%) similarly ranked personal contact with researcher's field internationally with 11% giving it first rank.

It would appear that scientific books published internationally and the international scientific journal are the priority sources of information for researchers. When respondents were asked to identify and rank journals important for their research activities the following titles emerged as important to both groups: *American Economic Review*, *Journal of Development Studies*, *Journal of Economic Literature*, *Revue Economique*, *Revue Francaise de Gestion Industrielle*, and *World Development*. The *Nigerian Journal of Policy and Strategy* is the only African journal that ranked among this top group.

Journals are followed by personal contact with national scientists in researcher's field and unpublished reports. Paradoxically it was observed earlier that the international journal and book ranked low among the carriers of the respondents' research results. Why do African scientists seek information from international media and yet do not publish their research there? A possible explanation within the results of the survey may lie in their educational background. All fifteen users whose data was available got their degrees from universities in the North and would perhaps be more familiar with sources in the North. In addition the sources in the North are more indexed than those in the South. Publishing in those journals is however, a different issue that would certainly demand more than familiarity with or reading the journals.

Means of accessing journals

To answer the fourth research question the respondents were asked to indicate how they got to the information in journals. Table 16 shows the distribution of the various means of access. University libraries as sources are discussed further in the next subsection.

Suffice it here to note that despite their afore-mentioned paucity they are the top means of access to journals for the respondents. About 60% of both the users and non-users put it at the top. The second most important means is through private subscriptions indicated to be used by about 40% of the respondents. For the users the research network is the next most utilized means for accessing journals whereas for the non-users it is donations before the network. The institute, faculty or department is also indicated to be another important means for about 30% of the respondents. The dismal role of international photocopying services and interlibrary loans is noteworthy.

Utilization of libraries: It is interesting to note that the library is at the top of the list in table 16 in spite of the paucity of journal holdings in African academic libraries attested to by Pegatienan (1990) and Mukras (1990, 1991) and actually experienced by the researchers during the desk research. The current author could not locate over 60% of the materials he wanted from the university libraries in Nairobi although most of it was indicated as available by their catalogues. It becomes more difficult to explain when one looks at the data on use of interlibrary loans which means the researchers were not getting their materials through such

loans. A plausible explanation could lie in the fact that the near collapse of the academic libraries in the region started in the mid-80s when their budgets and foreign exchange allocations were drastically cut. There may therefore still be a good supply of earlier materials which could still be valuable to the social scientists. It is estimated that about 50% of the citations by African authors examined during the desk research were pre-1986 possibly reflecting the age of stock available in sub-Saharan academic libraries.

Respondents were asked for their verdict on whether the various library materials were available, inadequate or completely absent in their libraries. The results are summarized in table 17.

The absence and inadequacy pattern of materials seem to confirm Mukra's and Pegatienan's findings. Nonetheless the data in the ok column is somewhat more encouraging. For instance through their libraries 75% of the population of users and non-users could access books and 64% could access scientific journals. As indicated earlier the access to journals is not likely to be through the interlibrary loan schemes but possibly through the continued reference to old materials. The other access channels listed in table 16 could be filling the gap for current materials.

Further interesting results came out when respondents were asked how far they were from the nearest library relevant to their research activities. Forty-three percent of the respondents were within 10 kilometers of the library. However of the users 11 persons (19%) were over 500 kilometers away from their library; indeed seven of them indicating they were as much as 6,000 kilometers away. Some of the distances indicated could have been an artifact of confusion during response. Remotely it could suggest dependence on libraries outside of Africa. In spite of the distances however, 81% of the users and 77% of the non-users utilized literature from the library. Using SPSS only a very weak negative correlation ($r = -0.001$) in a one-tailed test was found between distance and use of the library. A similarly weak negative correlation was found between distance and researchers' personal visits to the library. Of the entire population of respondents 13% (6 users, 10 non-users) visited the library daily, 39% (25 users, 22 non-users) visited weekly, 14% (6 users, 12 non-users) monthly, and 20% (13 users, 12 non-users) rarely. One person from either group indicated that they never went to the library.

In conclusion the data suggests that despite the paucity of libraries in sub-Saharan Africa, they are still the most important source of information for the majority of researchers.

Access to databases and information technologies

The access and use of databases was also investigated. While 20 of the users (35%) indicated that they had access to databases 23 (40%) were indicated to be using them. This apparent discrepancy of the data could be

explained by the possibility of having databases that are not accessible to users but are indirectly used by the readers through the librarian, such as is currently the case at AERC. The corresponding statistics for the non-users were 27 (42%) and 22 (34%). The most patronized type of databases by both users and non-users were the publication and statistical databases. The two types were used both in the public and private domains. For other types of data such as project data the private databases were largely eschewed.

Respondents access rate to various information technologies and related resources was also investigated. The most available resources were telephones, photocopiers, computers and secretarial assistance. For both groups 80% had access to a telephone, 66% had access to a photocopier, a computer and printer, and secretarial assistance, 62% had access to a facsimile machine, 51% had access to a typewriter, 44% had access to e-mail, 26% had access to a telex and only 7% to a mainframe. Asked whether they used e-mail to access the library 14 (11%) indicated so. Individual group statistics relating to these resources did not differ significantly.

Generally the results suggest that a good proportion of researchers use databases but the majority (about 60%) do not have such facility. As far as information technologies such as telephone and computers and related resources are concerned, contrary to common thinking, the majority of researchers appear to be well catered for.

Non-users

The main discussion has highlighted the role of network organizations in the research, teaching and information activities of their users. The question would then be, how do non-users get their research funded and facilitated? What problems do they face? Do their research results get utilized in policy? How do they access and disseminate information?

The results show that the main institutions linked to non-users research activities were universities (for 12% of non-users), international research organizations (12%), international donors (5%), international networks (5%) and government agencies (2%). Within these categories 24 different organizations were specified as the sources of funds for the non-users' research activities. The international networks are likely to have been cited because of their contributions outside of funding. Like their counterparts affiliated to AERC the majority of non-users initiate their research. Again as is the case with users, lack of research funds and access to scientific literature are their biggest impediments to research in that order.

About 40% of the non-users indicated that their research has been used in policy. Indeed 21 titles by as many researchers were specified as having been utilized in policy.

Although they did not benefit from research funds of networks non-users found

networks useful in other ways. About 22% indicated that networks are important for their teaching activities. About 15% benefit from information available from networks, a similar proportion got financial support for professional travel and about 15% benefitted from meetings organized by networks.

Tables 13-17 and related discussion give and compare data on both users and non-users in relation to publication and dissemination. Of the 272 publications recovered during the desk research 48% are from non-users. Their publication through meetings is lower (though not significantly) than that of users perhaps corresponding to the number of meetings attended. It was found that of the non-users 28% did not indicate to have attended any meetings in home country, 52% in Africa and 58% outside Africa. The corresponding percentages for users are 24%, 32% and 39% - thus indicating that non-users attended less meetings than users. Generally however it appears there is no significant difference in the information handling behaviour of users and non-users and the resources available to them.

Identification of distinguished scholars

Distinguished scholars are assumed to be social scientists that are academically qualified (with at least a masters degree or equivalent) productive, visible and of impact.

The identification of distinguished scholars is based on the same principle of productivity and visibility but south to south visibility i.e. the citation of African authors by other African authors. The results are tabulated in Appendix II. The table ranks the authors by their productivity score, citation score and productivity/impact score. The scores are computed using formula (1) that was used in the sub-section on training materials and are tabulated as those in Appendix I. The data here is based on 220 items recovered during the desk research. For any citing document to be counted it has to have been published in the 90s and for a citation to be counted it has to have been published in or after 1986. These limits are aimed at ensuring currency and contemporariness of both materials and scholars.

As Howard and Day (1995) argue, productivity studies ought to contend with the question of quantity versus quality. It is for this reason that the data for productivity is combined with citation scores to get the productivity/impact score. Except in a minority of cases authors are cited because of the impact of their work. The cited work may be provocative, innovative and of high quality. Assuming such are the reasons behind the citations scored in the table then the authors catalogued would be the current 50 African socio-economic science scholars of eminence in the order they are listed.

This identification of distinguished scholars should not be a one-time exercise but one that ought to be repeated from time to time. Authors pass on not only from life but from productivity to barrenness and lack of impact. At the same time others

come on board.

V. Conclusions and recommendations

This subsection summarizes the major conclusions following from the foregoing analysis and discussion. Finally recommendations based on these findings are made.

The contribution of networks with special reference to AERC.

Provision of funds and research facilities

. Funding and facilitating research in sub-Saharan Africa is a major objective of AERC. With a similar goal a number of other network organizations such as OSSREA and CODESRIA and other funding agencies complement and sometimes collaborate with AERC in the funding of social science research in sub-Saharan Africa. For the first of two research activities undertaken by users within the past five years, 29 (51%) of the users got funding from AERC; for the second activity AERC funded 12 (21%) of the research projects. The findings indicate that a significant amount of ongoing socio-economic research within the region is funded by AERC.

. Networks do not only avail their own funds but are indicated as well to be instrumental for some researchers in attracting funds from other sources.

. In spite of the efforts of AERC and other research funding and facilitating agencies the same results show that researchers in the region continue to find lack of research funds to be the most important impediment to research. About half of the users and 55% of the non-users ranked it first among their problems.

. Apart from funding of research, networks contribute to research activities in other important ways through their various activities and services. Although 17 users (30%) did not find networks important beyond direct funding, twice as many (61%) indicated that the networks were important. The dominant reason for the importance of networks is that networks assisted in understanding the linkages between research and policy.

. Besides funding the importance of AERC to researchers is attributed to three main factors: its organization of regular professional meetings, giving technical advice to researchers and provision of relevant literature, documentation and information. Comparative data suggested that AERC is possibly the lead institution in these areas.

Linking research and policy

. There are four major findings in relation to linking research and policy. First, the

research network is an important facilitator for researchers to contribute to policy. The network does this mainly by assisting researchers to understand the linkage between research and policy and providing the required funds for the research. Second, in spite of the first conclusion, a significant proportion of researchers (between 40% and 50% both users and non-users) are able to contribute to policy without the network's assistance. Third, the most important impediments to the utilization of research results and research facilities are largely user-oriented and exogenous to the network. Decisions are being based on political and other subjective considerations. Fourth, the results reflect the universities as passive in regard to the encouragement of impact and use of research results. The universities do not openly oppose the application of their researchers' findings in policy but neither do they offer incentives for it.

Capacity building for teaching

. The majority (about 60%) of users indicated that their affiliation with research network(s) is important to their teaching. Generally networks would appear to be playing a critical role enhancing teaching at regional institutions of higher learning. AERC was specifically credited by 16 users for availing relevant literature, documentation and information; by 15 for organizing relevant meetings; by 11 for technical teaching and training advice; by 9 for funding travel to relevant meetings; and by 6 for the sponsorship of theses. It would appear that AERC is as mandated playing an important role in enhancing teaching at the institutions of higher learning in the region.

Publication and dissemination

. The results reflect AERC as a major agent of publication and dissemination of research. For instance, it is indicated that AERC assists 64% and 44% of the users to publish their research as grey literature in their first and second research activities respectively. The network also facilitates over 55% of the users to publish in international journals. As media of publication AERC and other networks are indicated to have hitherto been relatively more effective on publication within Africa than outside.

Perceived problems facing researchers

. Besides the scarcity of research funds discussed above there are other problems faced by researchers. The second most highly ranked impediment to research is lack of access to scientific literature. Fourteen individuals (11%) from both groups ranked it first while 48% put it among the first three limitations. Other important problems are: lack of incentives; excessive administrative duties; lack of research agenda (a problem for 18% and 14% of the users and non-users respectively); and lack of research priorities.

Utilization and impact of AERC research in policy

. Over 46% of the users informed policymakers about their research results. About 72% of the users have had some professional interaction with government ministries during the previous two years. Although 14% of the users never interacted with government ministries it would appear that in both relative and absolute terms policymakers constitute a significant percentage among those whom the researchers had professionally interacted with. Therefore policymakers are perceived to be significant recipients and users of AERC research results.

. Over 60% of AERC researchers make impact in policy by their research activities mainly because of the relevance of their research to policy and their expertise. However a significant proportion of research activities apparently do not impact on policy. About 37% of the users and 60% of the non-users did not perceive any impact from their research activities in policy.

Thematic Mapping of research

. The mapping shows that in its award of Ph.D research grants AERC has adhered strictly to its base discipline -- economics. Within the discipline four themes are shown to dominate the theses. These are: fiscal policy and public finance taking 23%; monetary economics 19%; econometrics 15%; agricultural economics 15%; and industrial organization and public policy 11% of the projects.

The flow of scientific information

The preponderance of grey

. It is indicated that over 40% of the publications were published in international media. Over a third of the research results are published as grey literature. If however, grey literature were redefined to include all unpublished materials such as consulting reports, conference reports and training courses its proportion would be much higher than it is indicated. The data also indicates low productivity among both users and non-users. About 63% of either group do not seem to have published any international scientific articles over the years 1990-1996. Although most of what is written by African researchers is published within Africa a fairly good proportion of the information gets onto the international circuit. It would appear nevertheless, that the output sent into the international market may be too scanty to have recognizable impact. Furthermore the majority of the output both domestic and international is grey literature, theses, conference reports etc., materials that normally do not circulate widely if they are published at all or find their way into indexes.

Meetings as vehicles of dissemination

. Meetings have various limitations as vehicles of information dissemination. If their occurrence is predictable any particular researcher's attendance cannot be

guaranteed because of funding and other problems. However findings suggest that conferences are the channel most used by the researchers to disseminate research results. Meetings are shown to be significant not only for encouraging origination of information through the preparation of papers and related collaboration but also in publishing such papers. Meetings are also indicated to be pivotal in the dissemination of information especially through the participants who presumably often not only present invited papers but bring and share other publications. Meetings are also known to facilitate personal contact and the so-called invisible colleges. The results however, do not reflect meetings as important vehicles for getting research published in journals outside Africa. Their publishing scope is largely monographic in form (with a preponderance of grey literature), and domestic or intra-African in outlook.

Language of communication

. As expected the results show that English is the dominant language in both groups. Over 80% in both groups can publish in English while only 25% of the users and 15% of the non-users can publish in French. About 70% of the respondents use English only and about a tenth are limited to the use of French.

Sources of information

. Scientific books published internationally and the international scientific journal are indicated as the priority sources of information for researchers. They are followed by personal contact with national scientists in researcher's field and unpublished reports. Paradoxically it was observed that the international journal and book ranked low among the carriers of the respondents' research results. Three possible explanations are: the northern educational background of many of the researchers, the fact that sources in the North are more indexed than those in the South and the relative difficulty of getting to publish in them.

Despite the paucity of academic libraries in sub-Saharan Africa, they are still the most important source of information for the majority of scientists.

Information technologies

. A good proportion of researchers use databases but the majority (about 60%) do not have such facility. As far as information technologies such as telephone and computers and related resources are concerned, contrary to common thinking, the majority of scientists appear to be well catered for.

Distinguished scholars and training materials

. Productivity studies ought to contend with the question of quantity versus quality. It is for this reason that the data for productivity is combined with citation

scores to get the productivity/impact score. Except in a minority of cases authors are cited because of the impact of their work. The cited work may be provocative, innovative and of high quality. Assuming such are the reasons behind the citations scored in table 26 then the authors catalogued would be the current 50 African socio-economic science scholars of eminence in the order they are listed. Using the same method fifty authors have been ranked according to productivity/impact scores based on the analysis of current teaching materials. Such authors or their materials could be used to compile socio-economic policy related graduate training textbooks.

Recommendations

- . If possible elsewhere, eradication of the shortage of research funds is not even tenable as a principle in developing countries. It is however important that what has been started is sustained. One recommendation in relation to the funding of research would be that AERC and other networks, the governments and institutions dependent on them should seek and find answers to the inevitable eventuality of a decrease or possible drying up of donor funds.
- . In relation to linking research to policy the AERC and its partners may want consider a campaign to institutions of higher learning particularly those they collaborates with to include utilization and impact of research into their rewarding systems.
- . Policymakers as users or non-users of research results need further investigation than the current study whose findings are largely based on the one-sided view of researchers. Meantime however, policy workshops and other kinds of ongoing activities to enhance communication between researchers and policymakers should be kept in rhythm or strengthened.
- . It is commendable that already steps are underway at AERC to deal with the gender bias. This study has identified albeit inconclusively, country, geographic region and linguistic region as other areas that the network organization might want to investigate for possible bias.
- . The uncontrolled production of grey literature could on one hand cause the publication of low quality papers and on the other lead to the loss of qualitative and valuable materials into the so called paper explosion. Nonetheless this paper does not advocate curbing but bibliographic control of grey literature because it is a major outlet for researchers in the region. Unfortunately even when it is produced in the North such materials hardly ever get into indexes and abstracts. There is therefore a lack of systematic means of accessing and retrieving this literature. It is therefore suggested that AERC should consider collaboration with other social science networks on a project to generally expand their publication and dissemination capacity and particularly to index and abstract the plethora of grey literature (in the widest sense of the word) for the benefit of both researchers in

the North and the South.

. It is recognized that already AERC is involved in a considerable number of scientific and other meetings. However, in view of the critical role of meetings in the dissemination of information indicated by this study, AERC and other research networks should look for more means and ways to increase the number of scientific meetings and endeavour to involve young and upcoming researchers.

. Most of the social scientists were indicated to have access to the modern information technologies. Ways and means should be found to encourage researchers to use these technologies to share scientific data and information. For instance demonstration workshops of the possibilities opened by such technologies could be held for researchers either separately or as appendages to other business meetings.

. AERC and other networks should explore the feasibility of opening a web site on the Internet to post their information, data and publications. This would open a major window through which the North and the South can share information.

. Networks and other research funding agents should explore the possibility of assisting home institution libraries of their users. In this regard they might want to consider the feasibility of including in their grants a proportion that would go to the home institution library towards social science journal subscriptions or assist the library to serve the social scientists better.

. The libraries and documentation centres of the major networks and institutions of higher learning should strive to establish regular ways and means by which researchers can access journals such as those identified by this study to be of critical importance to the social scientists. In this regard the AERC library may want to revisit its decision not to subscribe to journals.

. The idea of regularizing the exercise of identifying distinguished scholars should be considered not only because authors pass from productivity to barrenness and lack of impact but also because it could be an additional encouragement to researchers. Awards may be attached to this ranking. The exercise may even be done for smaller groupings such the researchers on a theme, in a subdiscipline or network.

Closing remarks

As the findings show AERC has distinguished itself in many positive ways around its mandate. In the information science networks have proved to be one of the best infrastructures for the exchange of information. Today when information has become so important as to be counted among the factors of production the AERC and other networks should brace to embrace it with the seriousness it deserves. When labour was the critical factor of production Africans were the slaves, the era

of capital seems to have passed the continent by, the information age must not be let to do the same.

NOTE

1. At the time of this report AERC is taking steps to put in place affirmative action policies to facilitate systematic intervention. Further detail is found in an AERC report titled: *Addressing Gender Bias*.

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APPENDIX I

Ranking of authors of materials usable in teaching by productivity and impact scores

Author	Productivity Score Rank	Citation Score Rank	Productvty/Impact Score Rank
Anyanwu, J.C.	11.30 (1)	13.90 (3)	4 (1.5)
Ndulu, B.J.	10.24 (2)	18.41 (2)	4 (1.5)
Bagachwa, M.S.D.	8.90 (4)	22.80 (1)	5 (3)
Oyejide, T.A.	9.60 (3)	8.90 (8)	11 (4)
Omari, C.K.	7.60 (6.5)	11.50 (5)	11.5 (5)
Mbughuni, Patricia	7.30 (8)	13.80 (4)	12 (6)
Wangwe, Samuel M.	7.63 (5)	8.53 (10)	15 (7)
Mbilinyi, M.	5.90 (13)	10.70 (6)	19 (8.5)
Obadan, Mike I.	6.80 (10)	8.80 (9)	19 (8.5)
Ukwu, I. Ukwu	6.90 (9)	7.90 (11)	20 (10)
Elbadawi, Ibrahim	7.60 (6.5)	5.70 (16)	22.5 (11)
Iwayemi, Akin	6.30 (11)	7 (13)	24 (12)
Mtatifikolo, F.P.	4.90 (17.5)	6.90 (14)	31.5 (13)
Ndekwa, E.C.	3.40 (28)	10.40 (7)	35 (14)
Ewusi, Kodwo	5 (16)	5 (20)	36 (15)
Mbanefoh G.F.	5.80 (14)	4.90 (23)	37 (16)
Onimode, Bade	4 (23.5)	4 (25.5)	49 (17.5)
Soyibo, Adedoyin	4.10 (20)	3.30 (29)	49 (17.5)
Ojo, M.O.	3 (33)	5 (20)	53 (19)
Ajakaiye, D.O.	6.10 (12)	2.90 (43)	55 (20)
Maliyamkono, T.L.	2.22 (45.5)	7.46 (12)	57.5 (21)
Mkandawire, T.	4 (23.5)	3 (37)	60.5 (22)
Aryeetey, E.	5.77 (15)	2.37 (46)	61 (23)
Olofin, S.	3.40 (28)	3 (37)	65 (24)
Hyuha, M.	2.77 (38)	3.17 (30)	68 (25)
Koda, Bertha	2.72 (39)	3.14 (31)	70 (26.5)
Olopoenia, R.	3 (33)	3 (37)	70 (26.5)
Ojameruaye, E.O.	4.90 (17.5)	2 (54)	71.5 (28)
Kimambo, R.H.	2 (53)	5 (20)	73 (29)
Osoro, Nehemiah E.	1.90 (60.5)	5.80 (15)	75.5 (30)
Mkandawire M.L.C.	3.20 (30)	2.40 (45)	75 (31)
Iyaniwura, J.O.	4 (23.5)	2 (54)	77.5 (32)
Ajayi, S. Ibi	2 (53)	4 (25.5)	78.5 (33)
Chungu, A.S.	1.90 (60.5)	5 (20)	80.5 (34)
Ogiogio G.O.	3.40 (28)	2 (54)	82 (35)
Kerre, H.	1.12 (70)	5.12 (17)	87 (36)
Wagao, J.H.	1.90 (60.5)	3.80 (27)	87.5 (37)
Kouassy, Oussou	2.90 (36)	1.90 (62.5)	98.5 (38)
Adedeji, Adebayo	2 (53)	2 (54)	107 (40)
Jonah, Kwasi	2 (53)	2 (54)	107 (40)
Mwega, F.M.	2.47 (41)	1.47 (66)	107 (40)
Mushi, R.	1.90 (60.5)	1.90 (62.5)	123 (42)
Ogun, Oluremi	4.40 (19)	1 (107.5)	126.5 (43)
Kapunda, S.M.	1.28 (68)	1.28 (68)	136 (44)
Juma, C.	3 (33)	1 (107.5)	140.5 (45.5)
Adejube, M.O.A.	3 (33)	1 (107.5)	140.5 (45.5)
Ikiara, G.K.	2.80 (37)	1 (107.5)	144.5 (47)
Ikpeze, N.	1 (130)	5 (20)	150 (48)
Adeyemo, Remi	2 (53)	1 (107.5)	160.5 (50.5)
Masai, S.	2 (53)	1 (107.5)	160.5 (50.5)
Ninsin, Kwame A.	2 (53)	1 (107.5)	160.5 (50.5)

Olukoshi, A.O.	2 (53)	1 (107.5)	160.5 (50.5)
Ndanshau, M.O.	0.32 (247)	4.12 (24)	271 (153)
Milimo J.	0.90 (197.5)	3.60 (28)	225.5 (78)
Aiyepetu, W.O.	1 (130)	3 (37)	167 (56.5)
Fosu, A.K.	1 (130)	3 (37)	167 (56.5)
Muro, Assemy	1 (130)	3 (37)	167 (56.5)
Nkebukwa, Anna	1 (130)	3 (37)	167 (56.5)
Odozi, V.	1 (130)	3 (37)	167 (56.5)
Oni, Bankole	1 (130)	3 (37)	167 (56.5)
Songsore, Jacob	1 (130)	3 (37)	167 (56.5)
Makange, A.A.	0.90 (197.5)	2.70 (44)	241.5 (144)

APPENDIX II

Ranking of authors by productivity and impact scores

Author	Productivity Score Rank	Citation Score Rank	Productvty/Impact Score Rank
Ndulu, B.J.	11.64 (1)	48.47 (1)	1 (1)
Bagachwa, M.S.D.	10.80 (3)	35.65 (2)	5 (2)
Oyejide, T.A.	9.60 (4)	33.82 (3)	7 (3)
Soyibo, Adedoyin	9.37 (6)	26.74 (7)	13 (4)
Elbadawi, Ibrahim	7.60 (9.5)	32.10 (5)	14.5 (5)
Wangwe, S.M.	9.53 (5)	16.03 (10)	15 (6)
Anyanwu, J.C.	11.30 (2)	13.90 (14)	16 (7.5)
Aryeetay, E.	8.67 (7)	16.64 (9)	16 (7.5)
Ajayi, S. Ibi	6.37 (16)	33.27 (4)	20 (9)
Omari, C.K.	7.60 (9.5)	11.50 (16)	25.5 (10)
Mbughuni, Patricia	7.30 (11)	13.80 (15)	26 (11)
Mwega, F.M.	5.88 (20)	20.09 (8)	28 (12)
Osoro, Nehemiah E.	6.90 (13.5)	11.90 (17)	30.5 (13)
Chipeta, C.	6.97 (12)	11.30 (19)	31 (14)
Obadan, Mike I.	6.80 (15)	11.80 (18)	33 (15)
Mbilinyi, M.	5.90 (19)	10.70 (21)	40 (16)
Ogiogio, G.O.	5.40 (22.5)	11 (20)	42.5 (17.5)
Ajakaiye, D.O.	3.90 (36.5)	29.91 (6)	42.5 (17.5)
Mwase, N.	8 (8)	7 (38.5)	46.5 (19)
Ukwu, I. Ukwu	6.90 (13.5)	7.90 (33.5)	47 (20)
Iwayemi, A.	6.30 (17.5)	9 (30)	47.5 (21)
Ndekwo, E.C.	3.40 (39)	14.40 (12)	51 (22)
Ogun, Oluremi	6.30 (17.5)	7 (38.5)	56 (23)
Mtatifikolo, F.P.	4.90 (27)	7.90 (33.5)	60.5 (24)
Dordunoo, C.K.	3.90 (36.5)	10 (25.5)	62 (25)
Ekpo, A.H.	2.90 (53.5)	14.50 (11)	64.5 (26)
Hyuha, M.	3.14 (43)	10.58 (22)	65 (28)
Kasekende, L.A.	3.20 (42)	10.47 (23)	65 (28)
Mkandawire, M.L.C.	4.20 (29)	7.40 (36)	65 (28)
Onimode, Bade	4.90 (27)	6.90 (40.5)	67.5 (30)
Sowa, N.K.	3.12 (44)	9.05 (29)	73 (31)
Mbanefoh G.F.	5.80 (21)	4.90 (56)	77 (32)
Maliyamkono, A.L.	2.22 (66.5)	14.16 (13)	79.5 (33)
Mbelle, A.V.Y.	2.80 (58.5)	9.40 (27)	85.5 (34)
Lyakurwa, W.M.	3 (47.5)	6.60 (42)	89.5 (35)
Odedokun, M.O.	5 (24.5)	4 (65.5)	90 (36.5)
Ewusi, Kodwo	5 (24.5)	4 (65.5)	90 (36.5)
Ahmed, S. A.	3.40 (39)	5 (52.5)	91.5 (38)
Olomola, A.S.	2.90 (53.5)	6.27 (44)	97.5 (39)
Kidane, A.	4 (32.5)	4 (65.5)	98 (40)
Mkandawire, T.	4 (32.5)	4 (65.5)	98 (41)
Taiwo, I.O.	3 (47.5)	5 (52.5)	100 (42.5)
Ojo, M.O.	3 (47.5)	5 (52.5)	100 (42.5)
Fosu, Y.K.	2 (75.5)	10 (25.5)	101 (44)
Iyoha, Milton A.	4 (32.5)	3.90 (69)	101.5 (45)
Adenikinju, F.A.	2.30 (64)	6.90 (40.5)	104.5 (46)
Kwanashie, Mike	5.40 (22.5)	2.78 (85)	107.5 (47)
Soyode, A.	2.40 (62)	6.01 (47)	109 (48)
Lele, U.	1.90 (85.5)	10.22 (24)	109.5 (49)
Kerre, H.	2.12 (68)	6.12 (45)	113 (50)

APPENDIX III

Select Graduate Teaching Materials

1. Ajayi, S. Ibi. 1991. *Macroeconomic approach to external debt: the case of Nigeria*. Nairobi: AERC. Research Paper 8. ISBN:9966-42-031-2
2. Anyanwu, J.C. 1993 *Monetary economics: theory, policy and institutions*. Onitsha, Nigeria: Hybrid Publishers Ltd. ISBN: 978-2116-74-2
3. Aryeetey, E. ed. 1992. *Planning and African growth and development: some current issues*. Proceedings of the ISSER/UNDP International Conference on Planning for Growth and Development in Africa, March 13-17, 1989, University of Ghana, Lagon. Accra: Assemblies of God Literature Centre. ISBN: 9964-75-000-5
4. Atsani, A., S. Wangwe and A. G. Drabek. eds. 1994. *Economic policy experience in Africa: what have we learned?* Nairobi: AERC. ISBN: 9966-900-24-1
5. Bagachwa, M.S.D. ed. 1994. *Poverty alleviation in Tanzania: recent research issues*. Dar-es-Salaam University Press. ISBN: 9976-60-248-0
6. Bagachwa, M.S.D. and A.V.Y. Mbelle. eds. 1993. *Economic policy under a multiparty system in Tanzania*. Dar-es-Salaam University Press. ISBN: 9976-60-181-6
7. Coughlin, Peter and Gerrishon K. Ikiara. eds. 1991. *Kenya industrialization dilemma*. Nairobi: Heinemann Kenya. ISBN: 9966-46-688-6
8. Elbadawi, I. A. and B. J. Ndulu. 1995. Long-term development and sustainable growth in sub-Saharan Africa. In Lundahl, M. and B. J. Ndulu. eds. *New directions in development economics: growth, environmental concerns and government in the 1990's*. London: Routledge. ISBN: 0-415-12121-3
9. Elbadawi, I. A. (1994) World Bank adjustment lending and economic performance in sub-Saharan Africa: some indicative results. *Eastern Africa Social Science Review*, vol. 10 No. 1
10. Hyuha, M., M.O. Ndashau and J.P. Kipokola. 1993. *Scope, structure and policy implications of informal financial markets in Tanzania*. Research Paper 18. Nairobi: AERC ISBN: 1-897621-13-2
11. Iwayemi, A. 1995. *Macroeconomic policy issues in an open developing economy: a case study of Nigeria*. Ibadan: NCEMA. ISBN: 978-2785-199
12. Lundahl, M. and B. J. Ndulu. eds. 1995. *New directions in development economics: growth, environmental concerns and government in the 1990's*. London: Routledge. ISBN: 0-415-12121-3
13. Maliyamkono, T.L. and M.S.D. Bagachwa. 1990. *The second economy in Tanzania*. London: James Currey. ISBN: 0-85255-121-5
14. Migot-Adholla, S., P. Hazell, B. Benoit and F. Place. 1991. Indegenous land rights systems in sub-Saharan Africa: a constraint on productivity? *World Bank Economic Review*, vol. 5, no. 1 pp. 155-175.
15. Mkandawire T. 1995. Stylizing accumulation in African countries and the role of the state in policymaking. In, Lundahl, Mates and Benno J. Ndulu. eds. *New directions in development economics: growth, environmental concerns and government in the 1990's*. London: Routledge. ISBN: 0-415-12121-3
16. Ndulu, B. J. and N. van de Walle. 1995. *Agenda for Africa's economic renewal*. New Brunswick: Transaction Publishers. (U.S.-Third World Policy Perspectives No. 21) ISBN: 1-56000-

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TABLES

Table 1: Response rate of adjusted population

Country	Overall Adjusted (was)	Overall Responded	AERC Adjusted	AERC Responded
Cameroon*	15 (17)	7	4	1
Coté d'Ivoire	18 (18)	15	12	11
Ethiopia	12 (20)	8	6	2
Ghana	11 (14)	7	10	4
Kenya	72 (78)	34	22	12
Nigeria*	98 (98)	23	59	5
Senegal	20 (18)	19	7	4
Sudan	21 (23)	15	3	-
Tanzania	56 (64)	26	15	11
Uganda	30 (34)	20	11	3
Zimbabwe	23 (27)	13	16	3 1
Total	376 (417)	188 (50%)	165	57(35%)

* The results from Cameroon and Nigeria were not received in time to be included in the present report.

Table 2: Distribution by year of birth and gender of the respondents

Period of Birth	AERC Users		Non-users	
	Female	Male	Female	Male
1939-1949	1	10	2	20
1950-1957	1	21	1	23
1958-1966	5	12	4	8
Total	7	43	7	51

Table 3: Distribution by highest qualification of respondents

Country	Users		Non-users	
	MA/Equiv.	PhD/Equiv.	MA/Equiv.	PhD/Equiv.
Cameroon	0	1	0	1
Coté d'Ivoire	5	6	0	3
Ethiopia	2	0	2	2
Ghana	1	3	0	1
Kenya	7	5	5	6
Nigeria	1	4	3	5
Senegal	0	4	3	5
Sudan	0	0	0	6
Tanzania	1	10	0	6
Uganda	1	1	4	6
Zimbabwe	2	1	2	3
Total	20	35	19	44

Table 4: Days spent on teaching and research by the respondents percent

Number of days	Percent Users N ₁ =57		Percent Non-users N ₂ =65	
	Research	Teaching	Research	Teaching
0	0	7	2	5
1	11	14	14	2
2	28	21	42	8
3	23	30	17	29
4	16	18	6	26
5	9	0	5	14
6	4	0	5	0

Table 5: Percentage time spent by respondents by type of research

Per Cent Time	Type of Research (%)											
	Basic		Strategic		Applied		Adaptive		Method		Other	
	U	NU	U	NU	U	NU	U	NU	U	NU	U	NU
0	0	11	0	12	4	6	0	2	0	2	2	2
01 - 10	12	9	14	8	14	8	28	11	12	14	14	3
11 - 20	12	14	14	20	21	11	14	6	23	14	4	3
21 - 30	19	9	21	11	7	11	11	3	11	3	0	5
31 - 40	12	9	7	0	4	5	0	3	4	3	0	0
41 - 50	7	3	5	5	4	3	0	3	4	2	0	0
Over 50	9	12	7	8	5	2	0	3	0	0	0	2

U = Users, NU = Non-users

Table 6: Fields and specializations of the respondents

Field Code & Name	Users		Non-users	
	Field freq.	speclztn freq.	Field freq.	speclztn freq.
01 cultural anthrop.	-	-	1	1
02 linguistics	-	-	3	3
03 medical anthrop.	-	-	1	2
04 social anthrop.	2	-	2	1
05 gender	-	1	-	-
06 political anthrop.	1	-	1	1
07 economic anthrop.	3	-	2	-
08 other anthrop.	1	-	4	3
09 agri. econ.	4	2	5	6
10 environm. econ.	3	2	-	1
11 econometrics	7	6	2	2
12 econ. systems	2	2	2	2
13 econ. of technol. ch.	1	1	1	1
14 econ. theory	4	5	2	1
15 labour econ.	-	1	3	-
16 monetary economics	8	8	-	1
17 international econ.	6	5	3	3
18 org. & mgmt. of entpr	2	2	-	1
19 industrial org./p.p	-	1	1	1
20 fiscal p.& publ fin.	1	-	-	-
21 Other econ.	3	4	6	5
23 higher educ.	1	1	1	1
24 educ. admin.	-	-	1	2
25 educ. policy	-	-	1	-
26 educ. foundations	1	1	1	2
27 curriculum plan	-	-	-	1
29 gender	-	-	-	1
30 other educ.	-	-	1	1
31 int'l relations	-	-	3	4
33 public admin.	-	-	2	2
35 public policy	-	1	-	-
37 social inequality	-	-	1	2
38 soc. planning/policy	1	1	1	2
39 indus./labour reltns	-	1	-	-
40 urban/rural sociol.	1	1	3	1
44 demography & popltn.	-	-	3	3
47 other sociology	1	-	2	1
48 Other Discipln Area	1	2	3	3

Table 7: Distribution of publication media by members research activity showing AERC's contribution

Publication media	Activity1 #	AERC contribtn1 #	Activity2 #	AERC contribtn2 #
Grey literature	14	9	9	4
National journal	2	2	2	2
International jnl.	8	5	6	3
Domestic book	1	1	2	1
International book	2	2	4	2
By network	17	14	10	7
By others	9	2	3	0

Table 8: Recipients of Information about Research Results by the AERC users

Recipients of research results	Users	
	Frequency	Percentage
Science journalist	8	14%
Government agencies	20	51%
National research networks	21	37%
International research networks	28	49%
National researchers in same field	32	56%
Researchers in same field (Africa)	27	47%
Researchers in same field (out Africa)	26	46%
NGOs	17	30%
Business firms	9	16%
Donors	21	37%
Policymakers	26	46%
Consulting agencies	19	33%
Other	1	2%

Table 9: Beneficiaries of AERC Research Results

Groups of Beneficiaries	Users	
	Frequency	Percentage
General public	12	21%
Rural residents	12	21%
Local or state govt. agencies	35	61%
NGOs	24	42%
Foreign institutions and govts.	32	56%
Donor organizations	34	60%
Scientists in researcher's discipline	39	68%
Other scientific disciplines	10	18%
Other	1	2%

Table 10: Distribution of groups by rate of interaction with users

Professionally discussed with	Frequent %	Occasional %	Seldom %	Never %
Res in own organztn.	65	19	2	0
Researchers abroad	23	53	12	0
Postgrad. students	49	16	18	2
Govt. ministries	21	28	23	14
Business & industry	11	23	35	12
NGOs	12	28	23	19
Other	2	2	2	18

Table 11: Distribution of causes of impact by respondents

Cause of impact	Users	Non-users
Relevant Research	42 (74%)	29 (45%)
Expertise sought	30 (53%)	25 (38%)
Personal contact	12 (21%)	11 (17%)
Offered services	12 (21%)	8 (12%)
Other reasons	4 (7%)	5 (8%)

Table 12: Thematic mapping of PhD theses awarded 1988-1996

COUNTRY	ECONOMICS SUB-DISCIPLINES												OTHER		Row total
	09	10	11	12	13	14	15	16	17	18	19	20	03	40	
Cameroon	1							1				2			4
Coté d'Ivoire								1	1						2
Ethiopia	1		2					1				1			5
Ghana			1	1		1		3			1	1			8
Kenya	2						1				1		1		5
Malawi											1	1			2
Mozambique	1														1
Namibia								1							1
Nigeria	1		6			2	1	5	2	1	3	8		1	30
Rwanda	1									1	1	3			6
Senegal								1							1
Sierra Leone	1							2			1	1			5
South Africa												1			1
Sudan			1			1									2
Tanzania	1			1	1			3		1	3	5			15
Uganda	3		1												4
Zambia	2							1							3
Zimbabwe	1		4				1			1					7
Column total	15		15	2	1	4	3	19	3	4	11	23	1	1	102

The subject codes used are the same as those used in table 6

Table 13: Number of publications produced by African social scientists for the period 1990-1996

Country	Users			Non-users			Total
	Grey	Dom.	Int'l	Grey	Dom.	Int'l	
Cameroon	1	1	1	0	0	0	3
Cote d'Ivoire	1	1	3	2	0	7	14
Ethiopia	0	3	2	0	0	6	11
Ghana	1	9	3	5	0	4	22
Kenya	3	7	3	6	2	22	43
Nigeria	17	19	12	20	2	12	82
Senegal	1	0	0	2	0	1	4
Sudan	0	0	0	1	0	0	1
Tanzania	3	10	5	2	3	13	36
Uganda	2	2	2	5	1	3	15
Zimbabwe	0	1	1	1	0	3	6
Other countr.	3	11	4	5	0	12	35
Total	32	64	36	49	8	83	272

Table 14: Average number of publications produced by respondents

Type of Publication	Users		Non-users	
	Mean output Dom.	Int'l	Mean output Dom.	Int'l
Books and bk. chapters	2.4 (20)	2.6 (23)	2.4 (19)	3.8 (22)
Articles in sc. jnls.	2.9 (19)	3.1 (21)	2.8 (16)	7.6 (24)
Articles in trade jnls.	1.6 (6)	2.2 (5)	1.9 (9)	5.0 (6)
Grey literature*	5.0 (23)	4.3 (17)	4.4 (20)	2.6 (18)
Research reports	2.8 (17)	2.8 (22)	2.7 (23)	3.5 (16)
Research abstracts	0.0	1.5 (2)	2.0 (1)	1.5 (2)
Res./training software	2.0 (1)	1.0 (1)	2.0 (1)	3.0 (1)
Articles in pop. media	2.5 (12)	3.0 (3)	5.7 (14)	2.3 (3)
Consulting reports	4.1 (22)	3.5 (16)	4.4 (20)	3.3 (15)
Training courses	5.4 (9)	1.5 (2)	5.0 (11)	2.3 (6)
Thesis supervision	4.6 (20)	4.0 (4)	5.1 (25)	2.3 (11)
Conference reports	5.6 (21)	4.6 (18)	4.4 (19)	3.8 (16)
Other products	7.0 (1)	3.0 (1)	1.5 (2)	2.0 (1)
Total Products	664	440	697	564

* Grey literature includes unpublished reports, texts, research proposals

Table 15: Activities through meetings attended by respondents

Activity via Meetings:	Users (%)			Non-Users (%)		
	Home	Africa	NonAfrica	Home	Africa	NonAfrica
Prepared pap.	84	70	42	65	42	34
Pap. publsd.	54	42	23	57	31	28
Not publsd.	30	32	25	20	17	14
Res. publsd.	42	35	18	34	20	17
Not research	33	21	21	34	19	15
Collaboration	48	39	21	29	20	12
Collab ->publ	21	14	7	14	8	8

Table 16: Ways by which journals were accessed

Access via:	Users	Non-users
University library	32 (56%)	39 (60%)
Private subscription	23 (40%)	25 (38%)
Donation	12 (21%)	19 (29%)
Internat. photocopy service	5 (9%)	8 (12%)
Institute, faculty, dept.	18 (32%)	16 (25%)
Research network circulation	21 (37%)	14 (22%)
Interlibrary loan	1 (2%)	3 (5%)
Other means	8 (14%)	9 (14%)

Table 17: Availability of materials in libraries used by respondents

Materials	Users			Non-users		
	Ok	Inadeq.	Absent	Ok	Inadeq.	Absent
Books	45	35	4	46	31	3
Trade journals	19	24	8	19	21	8
CD-ROM	9	13	31	9	25	31
Govt. documents	30	20	6	31	18	8
Sci. journals	39	36	6	39	36	11
Catalogues	24	14	1	16	10	4
Interlib. loans	11	22	19	7	20	22
Theses	29	18	4	31	7	14
Other	2	1	1	0	1	1

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Appendix I: Special field related problems

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Introduction

This study is aimed at identifying how and under what conditions scientific information is produced and circulates to, from and between developing countries and what steps are to be taken in order to stimulate its flow.

Three sub-saharan social science research networks were involved in the investigation:

- the African Economic Research Consortium (AERC), headquartered in Nairobi, Kenya;
- the Council for the Development of Economic and Social Research in Africa (CODESRIA), headquartered in Dakar, Senegal;
- and the organization for Social Science Research in Eastern (and Southern) Africa (OSSREA), headquartered in Addis-Ababa, Ethiopia.

Data and information used for the survey were collected in eleven countries by the network organizations. CODESRIA was responsible for: Senegal, Ghana, Ivory Coast, Nigeria, Cameroon, Zaïre and Congo.

The case study's expected final and specific outcome was the identification of target areas needing improvement or support and the form such support should take in each of the eleven countries studied. To this end, the three participating research network organizations cooperated to conduct a field survey of academically employed social scientists in each of the countries they were assigned. However, in order to address individual research network organizational goals, the survey results were separated according to research networks affiliation.

This report is related to CODESRIA's participation. It is divided into three sections. The first part provides background information about CODESRIA and outlines its specific objectives during the study (Section I). The second outlines field work procedures used for conducting the investigation (Section II). The last one provides an analysis of questionnaire results and publications of individuals affiliated with CODESRIA. This information is simultaneously compared to data about individuals not found to be affiliated with any of the three participating research network organizations (Section III).

Section I: CODESRIA: Background Information and Case Study Objectives

1. Structure, Function, Services of CODESRIA

1.1 Background Information

CODESRIA is a Panafrican network active in the following policy issues: civil rights, governance, economic development in general, labour policy and cultural processes. During the past five years its activities took place in different areas that include research, policy debates and some grass-roots mobilization efforts.

The members are individuals or institutions. Membership is formal and includes fees and participation at general assemblies. Individual members are often all those who have participated in CODESRIA activities and have registered their membership. Institutions are mainly social science research institutions, faculties and networks. Thus, there are some restrictions with respect to who qualifies for membership.

1.2 Governance

CODESRIA has an elected board of directors with eleven members. Board members have a three-year appointment. An individual can hold office for two terms. The board meets at least twice annually. The executive secretary is in charge of dealing with national governments and other organizations about national research policy matters that potentially affect CODESRIA.

The Network has three standing committees. The scientific committee approves programs and lays out policies for scientific activities. The finance and administrative committee provides policy for administrative and financial issues. The selection committee focuses mainly on the small grants for theses and dissertation program.

1.3 Research

Research is central to CODESRIA activities. The Network funds research at MA/MSc and Ph.D levels, post-doctoral research, and various forms of mainstream research projects. Since 1991, over 880 grants have been given for the theses program. Of these over the past five years 480 individuals sponsored by the Network have completed their theses and dissertations.

Funding is made available to individuals and research institutions without extraneous conditionality, except that only one funding can be given at a time. The criteria used for funding are the scientific validity and the quality of research proposals, in addition to disciplinary, linguistic and gender spread and balance factors. Up to now, funding has mostly been given to research proposals related to economics, political economy, governance issues, academic freedom and human rights, and social and policy questions.

To facilitate and promote research among African social scientists the Network has a central information and documentation center open to the users of CODESRIA services and also to the general public (i.e., students). The center is used in various ways, from direct visits to mailed requests. A data base information system is also available to "users". Experience shows that affiliation to the network has been central to many individuals and organizations' research activities.

1.4 Conferences, seminars, workshops

The Network organizes annually national conferences, regional conferences, international conferences, workshops, seminars and institutes. These are

organized in different countries and are often related to specific projects. Institutes take place generally at CODESRIA's headquarters in order to allow participants to extensively use the documentation center and data bases.

1.5 Publication and dissemination

CODESRIA is an information center for the social scientific community: it is open to users, receives information and makes it available to its affiliates and other researchers through newsletters, books, various periodicals, meetings, etc. To meet its objectives concerning dissemination, the network relies on its own services (journals, books, bulletins) and on international ones.

1.6 Collaboration

On many issues related to research and policy, CODESRIA collaborates with various organizations. Among these, the most important are: UNESCO, ECA, UNRISD, CLASCO/EADI/ADIPA, the EEC and the European Commission, SAPES Trust and AAPS. Not all of them are systematically relied on as source of information. This is because CODESRIA is selective and utilizes information as it suits its specific needs.

In its collaboration with these organizations, CODESRIA may use their staff and facilities. This is the case of AAPS and SAPES Trust. Generally, these organizations are CODESRIA's affiliates and participate in general assemblies, research projects and other events.

2. Case Study Objectives

As a coordinating body supporting and stimulating social science research throughout Africa, CODESRIA's objectives with respect to this study were:

- a) the thematic mapping of CODESRIA related (and/or sponsored) publications over time;
- b) the thematic mapping of CODESRIA sponsored research (at the MA and Ph.D levels);
- c) the identification of (African generated) social science research that can be used in graduate training programmes in terms of textbooks and readers;
- d) the identification of methods to improve the publication and distribution of social science research both sponsored by CODESRIA and produced externally to it;
- e) the identification of distinguished scholars in the African and the international contexts.

Section II: Field Work

1. Research Instruments

The research methods involved desk research and field study (survey). Although

both instruments were used simultaneously, a priority was given to the desk study at the beginning for practical reasons, namely as a result of difficulties in starting the field study.

1.1. Desk research

It involved a bibliometric survey aiming at achieving the following three objectives:

1. To analyse selected samples of research publications
2. To identify the representativeness of researchers and research institutions associated with CODESRIA in recognized African national journals in two disciplines: Political Sciences and Sociology as well as in related disciplines
3. To identify and compare the recurrence of African and non-African references in the selected samples of research publications.

Instruments used during the desk research included:

- the data bank of CODICE which are: LIBRI (CODESRIA internal bibliography not on CD-ROM), INTELEC-DOC, BGF and BOOKS IN PRINT PLUS on CD-ROM.
The tasks involved identification of useful documents based on the requirements of the project and « itemizing » them in the form of a selective bibliographical list
- CODESRIA library for manual research. Tasks involved the identification of all documents on the list and their grouping according to descriptive bibliographical elements (title author, source, and so on).

1.2 Field survey

A questionnaire (see Appendix, Composite Report) was used to conduct a survey based on interviews in five countries: Senegal, Ivory Coast, Nigeria, Cameroon, Zaïre, Congo and Ghana. The questionnaire was divided into four sections:

- information on the interviewees' backgrounds
- interviewees' employment situation and institutional affiliation
- interviewees' annual work activities
- (the most important) extensive information on interviewees' research activities.

The questionnaire as discussed and elaborated at the Nairobi April 1996 meeting was pretested by the three network organizations. CODESRIA pretested the questionnaire in Dakar (Senegal) where the senior researcher was based. After, suggestions resulting from the tests were sent to the project coordinator in the Netherlands for the completion of the final version.

Despite its length (very often criticized by interviewees), the questionnaire was a useful tool for the collection of information on African social scientists'

research activities.

The survey plus the desk research were expected to allow the identification in each country of constraints limiting:

- access of African social science researchers to scientific information produced in and out of the Continent, and
- the distribution of their own scientific research results both at home and elsewhere.

2. Sample Design

The cases to be studied were Senegal, Ivory Coast, Nigeria, Ghana, and Cameroon. Social science researchers were the targeted population. The latter was identified and extracted from CODESRIA's registry. Only individuals with at least an MA (or equivalent) and employed at a university or affiliated research institute were included in the population.

For each research network organization two samples were extracted. In the case of CODESRIA, the first one (sample 1) included individuals affiliated with it. The second one (sample 2) included individuals with no affiliation to CODESRIA. Together the two samples represented a population of 171 individuals distributed as follows:

Cameroon 15; Ivory Coast 18; Ghana 14; Nigeria 98; Senegal 20; Zaïre and Congo 6.

3. Fieldwork Organization

Zaïre and Congo were finally excluded from CODESRIA coverage. Attempts were made to have a correspondent able to do both Zaïre and Congo. However, according to our contact person, distances separating universities where survey were to be conducted were too extensive (2000 kilometers) and would thus make the field work too costly. So, both countries which represented only 3.5% (6/171) of the initial sample were dropped.

Field work in other countries involved:

- the senior researcher who was also responsible for conducting the survey in Senegal;
- a correspondent at the University of Abidjan for Ivory Coast; he is from the Faculty of Business and Economics
- a correspondent from the University of Ghana Legon for Ghana; he works at the Department of Political Sciences;
- one from the University of Jos for Nigeria, who works at the Center for Development Studies;
- one from the University of Yaounde for the survey in Cameroon, working at the IRIC/GRAP.

The field work involved no traveling on the part of the senior researcher. We used the following procedure. Except for Ivory Coast where exchanges with the correspondent were made through mailing, in the cases of Ghana, Nigeria and Cameroon, contacts were made with the three contact persons in Dakar, in July and August during CODESRIA Summer workshops and seminars. Once we identified contact persons, we organized two or three workshops with them on the project and its objectives. Then, questionnaires were given to them in sufficient number. To keep up with the surveys' progress in each country we made intensive use of CODESRIA's fax and e-mail equipment.

In all countries, field work problems were related to the mobility of university researchers. This mobility was even higher during the field work due the fact that the survey occurred during student and faculty summer vacations. The Nigerian case was made worse by the closing of universities and internal communication problems which at some point made contacts with our correspondent impossible. Problems encountered in Nigeria considerably reduced our response rate given that more than 57% of individuals included in CODESRIA's coverage were from that country.

Questionnaires completed were sent to us by our contact persons through DHL, checked, reported on the English version when the survey was conducted on the basis of the French questionnaire, and finally sent through DHL to the project coordinator in the Netherlands. Reports of the English version had to be stopped when we began to realize that we could not meet the deadlines due to field work problems in various countries.

A detailed analysis of problems encountered during the survey in each country is presented in Appendix 1.

4. Survey Response Rate

For each country the response rate was the following:

- Cameroon: out of 15 we interviewed 7. Response rate: 47%.
- Ivory Coast: out of 18 we interviewed 15. Response rate: 83%.
- Ghana: out of 14 we interviewed 8. Response rate: 57%.
- Nigeria: out of 98 we interviewed 33. Response rate: 34%.
- Senegal: out of 20 we interviewed 19. Response rate: 95%.

All pieced together, this is a response rate of 48% (82/171). These response rates are calculated based on the initial sample, not the adjusted one. Because it is quite certain that adjusted samples will be less, we expected to reach response rates higher than those presented here.

Because each network had in its sample individuals who belonged to other networks, a recomposition of the people interviewed was necessary in order to allow each network to do the data analysis of its respective "user" group. Based on that, it was found that among all interviewees 58 were CODESRIA "users"

and were to constitute the focus of our analysis.

Section III: Data Analysis

The target of the data analysis were CODESRIA members. They were 58. However, an examination of the 65 interviewees who were members of none of the three networks was made in order to compare their research performances to the users of CODESRIA services, and eventually to better understand how central networks are to their users activities.

This section includes first a presentation of the methodology used in the data analysis, then the analysis itself.

1. Data Analysis Approach

Two sets of data on SPSS based on field surveys were sent to us by the project coordinator. The first set relates to interviewees who are CODESRIA users. The second set concerns non-users. *In the rest of the report we will call CODESRIA users "members" and individuals who do not belong to any of the three networks involved "non-members"*. There were 58 "members" and 65 non-"members". The data were organized into four sections: following the structure of the questionnaire:

- interviewees' backgrounds
- interviewees' employment
- interviewees' annual work activities
- interviewees' research activities.

We used a two-step procedure. The first one is descriptive and provide a simple interpretation of frequency tables. The second step focuses on CODESRIA's organizational goals during this project and uses them as a point of departure for cross-tabulations. It consists in the identification of relationships among given variables which were not identifiable from the frequency tables. For that purpose, cross-tabulations are relied on when needed.

2. Data Analysis

2.1 Characteristics of the Sample

2.1.1. Age and Gender

Among people interviewed, 58 were CODESRIA users and 65 non-users. The network (CODESRIA) is male-dominated since almost 90% of the 58 were males; a large number of them (48%) being between age 39 to 46. The data is about the same for non-users even though the percentage of those being age 39 to 46 is lower (41%).

2.1.2. National origins

The data allow us to speculate that most CODESRIA services and activities are respectively offered to and realized by Nigerians, Tanzanians and Senegalese in order of importance. The three nationalities represent 45% of users interviewed. We may think that the relatively high percentage of Senegalese is related to the location of CODESRIA's headquarters in Dakar. However, the fact that the percentage of Senegalese among non-users is the same as the percentage of Nigerians does not support this argument. Nevertheless, high percentages of Nigerians and Tanzanians among CODESRIA users and of Kenyans and Ugandans among non-users is perhaps an indication of more dynamic research activities in English-speaking Africa. Actually, the fact that 90% of CODESRIA users interviewed speak and write in English and that only around 37% of them speak and write in French reinforces this argument. Percentages are similar for non-users.

2.1.3. Education and Area of Specialization

The majority of users interviewed exhibited the following characteristics. They were either PhDs (50%) or Ma/Ms (19%) and did their education in economics (40%) and anthropology (24%). This was coherent with the fact that at their present positions, most users interviewed specialized in economics, anthropology, political sciences, sociology and education in order of importance. Non-users exhibited almost identical characteristics. But, they included more Ph.Ds (57%) and more MA/MS (24%). The greater number of Ph.Ds may explain the greater percentage of professors and associate professors among them (respectively 9% and 20% against 3% and 10% for users). In general, in both groups, highest categories (professors, associate professors and assistant-professors) were less represented than lecturers or senior lecturers who constituted 33% of users and 40% of non-users interviewed. There may be one explanation to that: African researchers have difficulties to reach the top level in their academic career or do so very late given that in both groups almost half of the individuals interviewed are between age 39 to 46 years old.

2.1.4. Employment

Regardless of their category (professors, associate professors, etc.), almost all interviewees have a permanent job (80% for users and 93% for non-users) and work full-time (95% for users and 98% for non-users). Quite often though, their present position does not correspond to their first appointment: for 40% of members for example, the second half of the 1980s was the period of their first appointment, and 48% of them have been at their present position between 1994 and 1996.

2.1.5. Teaching and Research

At their present positions, the percentage of users who spend most of their weeks doing research (6 days a week) is very low (4%). Although they do not

constitute the majority it is fair to say that users who spend 2 days per week on research and 2 to 4 days per week on teaching are the most representative. University closure seems to be relatively frequent in Africa since only 57% of CODESRIA users did not experience it in the most recent academic year. The patterns are similar for non-users except that only 33% of them experienced university closure during the most recent academic year.

To sum up, the typical CODESRIA user is a male who is 39 to 46 years old, is anglophone, has a Ph.D or MA/MS, was educated in and is presently specialized in economics, anthropology or related fields, is a permanent and full time employee belonging to the lecturer or senior lecturer categories and who spends two days of his weeks doing research and two to four days teaching. These characteristics also apply to non-users.

2.2. Research Activities

2.2.1. Contribution to research

Few users (5%) are involved exclusively in one type of research or spread their efforts over the five types listed in the questionnaire (3%). These five types are: basic research, strategic research, applied research, adaptive research and methodology. Those who spend 20% of their time doing three types of research are the most representative (24%). The types of research mostly concerned are basic, strategic and methodological research. Most of this research has been published in English.

Domestically, users' research comes out as articles in trade journals, grey literature, theses and dissertation supervision, consulting reports in order of importance. Books and book chapters as well as scientific articles are not as much relied on. While only 12% and 7% of users interviewed respectively published two books/book chapters and one scientific article, percentages were 43% and 12% for those who respectively published two articles in trade journals and three grey documents during the past five years. However, at the international level it is interesting to see that 41% and 44% of users published respectively one book/book chapter and a scientific article; at this level trade journal articles and grey literature are much less relied on than domestically. This suggests two possible explanations. The first one is that users found international journals and books more credible than domestic ones especially for their professional promotion; thus, they targeted them for their most important research. The second one might be the absence of sufficient (in number) scientifically established journals in Africa. However, the fact that the percentages of members who published 10 books/book chapters at the domestic level and 6 of them at the international level are identical (3.4%), suggests that the best African researchers publish both internationally and domestically.

2.2.2. Research activities during the past five years

Most research activities undertaken by users during the past 5 years started during the 1990s and were expected to last at least one year. Interviewees were the initiators of their projects in more than 50% of cases interviewed. Then, came as initiators in order of importance: international research organizations and international donors organizations.

Most of the research done by users during the past five years focused on basic (on the average 40%) and strategic (24% on the average) research and occurred in the following areas of specialization: economics, anthropology and political sciences.

During this period, although interviewees defined their research project themselves, they relied on various institutions for support. The latter were in order of importance university departments, international research organizations and international networks. Contrary to what one could expect, the contribution of these institutions to interviewees' research was more technical (joint research contracts: 23% of the cases; joint research activities: 23% of the cases; joint problem identification: 25% of the cases) than financial. Thus, institutions' contribution to users' research activities during the past five years was more about partnership and collaborative professional activities than about exchange of resources.

Patterns were very similar among non-users. There were a couple of differences. There was no pattern as for areas of specialization for non-users' research activities; the data was scattered. Also, institutions linked to their research activities included international donors but not international networks.

2.2.3. Dissemination of research results

Communication channels have been used very differently by users for the dissemination of their results: 78% of them used conferences, workshops and seminars, while 45% used mostly personal contacts to make their work known. However, external lectures and public media (radio and TV) as ways of linking up with the general community were much less relied on. The e-mail system has been barely utilized.

Patterns were similar among non-users; but there were some differences. Non-users gave more importance to applied research than users. They seemed to publish more than users both at the domestic and international levels. For each type of domestic publication except for research abstracts, software and grey literature, at least 20% of non-users had something published during the last five years. Compared to users, the relatively low percentage (17%) of non-users who published grey literature can be an indication of a search for high quality in their (non-users') research efforts. At the international level, patterns were similar.

The explanation for this difference that immediately comes to mind is the presence of a greater number of professors and associate professors among non-users; but this is only tentative. The last difference is that non-users were more in touch with the general community than users: 34% relied on external

lectures to make their results known.

2.3. Working conditions of researchers

2.3.1. Access to basic information technologies

Although users possess the basic technologies for good research, there are some problems. A great number of them (between 50% and 68%) had a fax, a telephone, a typewriter, a personal computer, a copy machine, an e-mail and could use the services of a secretary or an assistant in their work (most of them did not have a telex, mainframes and CD-ROM technologies). This is particularly important given the fact that most users interviewed saw international information sources as central to their research. In effect, during the past two years they (users) saw in order of importance international scientific journals, personal contacts at the international level and international scientific publications as their key information sources.

2.3.2 Access to Libraries

However, these technologies were not adequately accompanied by existing information systems. Libraries were not difficult to reach (25% of users had it at less than one kilometer). Nevertheless, users interviewed did not visit them frequently (44% and 22% visited libraries respectively once a week and once a month). The main reasons for this may be that in addition to the lack of access to databases, CD-ROM and interlibrary loans, though users recognised that most services were offered by libraries, none of these services (except for government documentation) was useful given the research in which they were involved.

We ought to mention in passing that this critique of information system calls for some moderation because the data indicate that for the most important scientific journals they used during the past five years, users interviewed relied mostly on libraries, private subscriptions, institute/faculty/departments and research networks. Thus, libraries are cited among important sources of scientific information. The five scientific journals referred to in order of importance are those to which the following codes were allocated: 1st: *World Development*; 2nd: *African Anthropology*, *J. Modern African Studies* and *Review African Political Economy*; 3d: *World Bank Economic Review*; 4th: *Development and Change* and *Annales Faculte des Let. & Scien. Hum. de Dakar*; 5th: *Africa Development*.

Thus, as the data shows, the most serious limitations to their research were not users' incapacities to define their research agendas and priorities. They were in order of importance funding problems, lack of external motivations (incentives and rewards), literature and library problems, lack of information technologies and limitations in the availability of supplies and equipment. On issues related to conditions of work, there are differences between users and non-users. On the average, more non-users than users have had access to

information technologies. For example, while 14% of users had access to mainframes, 74% of non-users did.

It may also be important to keep in mind the following differences in the further examination of the data despite the fact that patterns were similar between the two groups. More users than non-users go to libraries once a week. More users than non-users have access to library books, trade journals, scientific journals and catalogue listings. The reverse is true for inter-library loans. However, more users than non-users find books, trade journals, scientific journals, catalogue listings, theses and dissertations inadequate in the libraries they visit. In other words, users are more frequent in libraries, have greater access to materials, but often, this materials is not what they need.

2.4. Meetings: Participation, Publication and Dissemination

Professional meetings, whether at home, in other African countries or outside Africa were an important part of users' and non-users activities during the past two years. This high level of participation is not surprising given the fact that these meetings generally offer opportunities for personal contacts which are considered very important by interviewees. The number of users who attended home meetings was greater than the number of those who went to meetings in other African countries and outside Africa.

2.4.1. Participation at home meetings

During the past two years 23% of users interviewed went to four home professional meetings and 18% attended five of them. Almost all home meetings focused on topics that members who attended were specialized in. This is somehow confirmed by the fact that 92% of those who attended prepared a paper.

2.4.2. Publication and dissemination

Although most of these papers were published (70%), a fairly good number of them were not (30%). That only 45% of those published appeared in national journals or books (43% were in proceedings) seems normal given that many people tend to bring to those meetings papers that they could not publish in scientific journals or papers which require further work for publication. It was also normal that publishing and dissemination were essentially done through national channels. However, reliance on 'participants' was the preferred (and probably the most natural) way of disseminating meeting results, because all participant to such meetings are supposed to receive all papers presented. Home meetings were important to CODESRIA users because they later offered opportunities for the publication of their research for 47% of those who attended and resulted in research collaboration for 52% although this collaboration resulted in a publication in only 31% of the cases. Publications were mostly grey or national. Most of them were written in English (47% against 17% in French).

Users' percentages were higher than non-users' regarding: papers prepared for

meetings (92% against 65%), results published (70% against 60%), meetings which resulted in research collaboration (52% against 29%); collaboration that resulted in publications (31% against 14%); and meetings which resulted in the publication of research activities (47% against 34%). Furthermore, to publish, non-users tended to rely more on grey literature and less on networks than users.

2.4.3. Participation in meetings in other African countries

Professional meetings in other African countries were as important to CODESRIA users as home meetings. The majority of them (60%) attended 1 to 8 meetings during the past two years in other African countries which focused on their specific fields of research. This is supported by the fact that 93% of those who participated prepared a paper.

2.4.4. Publication and dissemination

The percentage of those who had their papers published was lower than in the case of home meetings (58% against 70%). As to where the paper were published, who were the publishers and how they were disseminated, there are some differences between home meetings and meetings in other African countries. In the latter case, research networks are more involved in providing support for publication. The reverse is true of their participation in dissemination. The other difference is that for dissemination, national means are barely used for publications resulting from meetings held in other African countries.

Meetings held in other African countries offered more opportunities for publication of interviewees' research activities (59% against 47% for home meetings) and for research collaboration. However, when we looked at effective publication (i.e. where the papers were actually published), the data are more favorable to home meetings.

We may conclude that from a practical viewpoint (effective publication) users gained more from home meetings than they did from meetings held in other African countries during the past two years.

Comparison of data related to users and non-users concerning meetings held in other African countries shows the following: more users than non-users prepared a paper for meetings; more users than non-users had their papers published as an outcome of these meetings. The same is true of research collaboration. Finally, non-users did not greatly rely on networks in their research activities.

Most publications were in English.

2.4.5. Participation in meetings outside Africa

These did not seem to be the best way of promoting publications among users during the past two years. The percentage of professional meetings held outside Africa which focused on users' areas of specialization was similar to the

percentage of home meetings and meetings in other African countries which did so. However, the percentage of users who prepared a paper for meetings outside Africa was much lower (77% against more than 90% in the two other cases).

2.4.6. Publication and dissemination

The percentage of papers published was higher in the case of home meetings and similar between the two other types of meetings.

Proceedings were also in this case the outlet mostly used for publication.

International outlets were mostly relied on for dissemination (after 'participants') in the case of meetings outside Africa. The relative weakness of meetings outside Africa in promoting interviewees' publications appeared clearly in the area of research collaboration. In effect, although 45% of those who went to these meetings got involved in collaborative efforts, only 22% had a publication which resulted from these efforts.

Most publications were in English.

To sum up (for users):

1. Home country meetings seemed more stimulating regarding publications;
2. Proceedings were the outlet mostly used for publication;
3. English was the dominant language for publication;
4. The nature of publishers depended on the nature of meetings: national for home meetings and international for meetings in other African countries and outside Africa;
5. 'Participants' was the preferred (probably the most natural) way of disseminating publications. Then, came national and international outlets depending on whether meetings were held at home or not;
6. Generally, meetings (all included) resulted in the publication of members' research. Here, there is no clear pattern, although international sources (journals and books) seemed to be more important than domestic ones in cases of meetings outside Africa and meetings in other African countries. Grey literature is very much relied on in general;
7. Research networks are not as strongly involved as expected in publication and dissemination activities;
8. Most meetings led to research collaboration and publication. But, here again the role of research networks is on average weaker than the role of grey literature, national and international supports.

2.5. The Impact of Research

2.5.1. Who receives researchers' results?

During the past five years CODESRIA users communicated the results of their research to all groups/Organizations listed in the questionnaires, namely science journalists, government agencies, research networks at the national and international levels, other researchers (in the same field of research as

interviewees) in and outside Africa, NGOs, business firms, donor organizations, policy makers, and consulting agencies.

However, this occurred much more through international research networks and researchers (national and international) in the same field of research.

Communication with government agencies and policy makers came after communication with international and national researchers. Communication of results to other practitioners (e.g. firms, consulting agencies) was the weakest. This was strongly reinforced by the fact that during the past five years members had frequent discussions mostly with researchers and students, and only occasionally with government ministries and barely with business and industry. However, despite weak contacts with the larger communities, users think that their research was beneficial to most social groups, not just to scientists.

2.5.2. Does social sciences research affect economic, social and political contexts?

Many (47%) of the users interviewed believe that their research has contributed to policy making, although the number of those who did not believe so was not negligible (36%).

The impact of network affiliation on how users perceived their contribution to policy making through research was not great (36%). For users interviewed, this impact on policy making was more related to their research topic and to their individual expertise than to their affiliation to a research network.

It is interesting to see that users who thought that their research had no impact on policy making tended to externalize the causes for this failure. According to them, two reasons were central to this perceived lack of impact: first, there was the fact that policy makers are not interested in research, and second was the fact that policy decisions are not made on the basis of objectives analysis.

While percentages of users and non-users who thought that their research had an impact on policy making were close (40% for non-users and 47% for users), more users (36%) than non-users (14%) believed that affiliation to a network made their contribution to policy making possible.

In both groups, it is important to notice that interviewees recognized that networks allowed for a better understanding of the relationship between research and policy making.

2.6. What do networks do?

2.6.1. Role of research networks in users' and non-users' research and teaching activities

In general, research networks and the services they offered were well known by users. Almost all of them have been involved in these networks' activities, received funding from them or did both.

Most CODESRIA users were at some point in contact with other research networks, AERC being the most important to them. In other words, being a user of a network is compatible with being involved in research activities with other networks.

So during the past five years, the majority of CODESRIA users (67%) received network funding for their research. Concerning the titles of research activities funded, the names of funding networks and publication support, the pattern seemed to be the following.

Taking titles' key words as a criterion for regrouping research activities funded, it appears that themes were very scattered, thus making it hard to identify a thematic focus. Funding came essentially from networks who were allocated the code numbers 1 (AERC) and 2 (CODESRIA) in order of importance. These research activities generally came out as grey literature, international publications in books and network publications in order of importance.

When we compared percentages on network funding and percentages on other research services provided by networks during the past five years, the balance was in favor of other research services. CODESRIA and AERC were the greater providers of documentation, travel and technical advice opportunities offered by networks.

The contribution of networks to teaching skill improvement is not negligible since 48% of CODESRIA users said that networks were important to their teaching activities during the past five years. Networks which were the most cited regarding research support, namely CODESRIA and AERC ranked also first in the provision of teaching support. This support generally took the form of meetings /workshops, access to documentation and financial support of theses and dissertations. The smaller (compared to users) number of non-users who received network funding just confirms previous results on non-users' weak reliance on network support. For example, only 23% of them had a " title research activity " funded by a network. Like users, non-users took more advantage of travelling opportunities, meetings, document and technical advice than they did of networks' funding.

2.6.2. Does network affiliation facilitate contacts with other organizations?

In addition to being CODESRIA users and working with other network, interviewees also received funding from other types of organizations: 40% did; 60% also had some attachments with institutions different from their own during the past three years.

Although not absent, the impact of network affiliation on users' ability to receive funding from other organizations or to have attachment with other institutions was rather weak. In other words, research networks were not very instrumental in allowing their users to extend their support sources.

This is not very surprising actually because in previous users' responses regarding network support service, funding advice were among the weakest and technical advice came last among the most important non-funding services. On average, there was a positive impact of network affiliation on members' ability to get funding from other organizations and to have attachment with other institutions for about only 15% of CODESRIA users.

Non-users received more funding from other organizations than users did (53% against 40%). However, they had less professional attachment than users (40% for users against 26% for non-users). The majority of them believed that

networks were not instrumental in obtaining other organizations' funding and institutional attachment.

2.6.3. On the availability of research networks' documentation centers?

Although most users interviewed (69%) acknowledged the existence of a relatively closely-located documentation center, attendance was rather weak because only 19% of them frequently used these centers and 31% did so occasionally. Only 23% of non-users acknowledged the existence of closely-located documentation centers. Like members, they did not use them frequently.

3. CODESRIA'S Organisational Goals

CODESRIA had five organisational goals during this project:

1. The thematic mapping of CODESRIA related (and/or sponsored) publications overtime.
2. The thematic mapping of CODESRIA sponsored research (at the MA and Ph.D level).
3. The identification of (African generated) social science research that can be used in graduate training programmes in terms of textbooks and readers.
4. The identification of methods to improve the publication and distribution of social science research both sponsored by CODESRIA and produced externally to it.
5. The identification of distinguished scholars on the African and international contexts.

For each objective we first rely on analyses made from frequency tables, then we perform some cross-tabulations whenever needed and possible.

3.1. Thematic Mapping of CODESRIA Related Publications

This mapping was realized through the bibliometric survey. The results of this survey are in Appendix 2.

3.2. Thematic Mapping of CODESRIA sponsored research

The field survey brought information on CODESRIA sponsored publications. The data (especially section 2.6.1. of the data analysis) showed the following. The majority of users (67%) received network funding for their research. The percentage of users' research activities funded by AERC was also important. This means that during the past five years many users collaborated with AERC in their research. This was probably related to two factors. First, an important percentage of CODESRIA members are Economists (40% against 24% for Anthropologists, the second largest group). Second, AERC is the most important funding source for research in Economics in Africa. So, it was normal that many of CODESRIA users relied on AERC for support in their research activities.

It appeared that themes of research activities funded by networks were very scattered.

These conclusions concern research activities which took the form of grey literature, publications in national journal, international journal and books but not theses and dissertations. This is because the questionnaire did not allow to identify cases of theses and dissertations funded. However, information on theses and dissertation funded by CODESRIA can be found in the results of the bibliometric survey (Appendix 2) as well as in the introductory section of this report.

3.3. The Identification of (African Generated) Social Science Research Relevant to Graduate Training Programs

We started from the idea that the greater the number of social science books or book chapters published, the more important the contribution of social science research to graduate training programs. Two previous sections identified this contribution, although the data did not allow a differentiation to be made between books which can be used as textbooks or readers and those which can not. These sections are:

- section II 2. on users' contribution to research and publications
- section II 4. on users' participation at home meetings, meetings in other African countries and meetings outside Africa.

Concerning their general publication patterns (section II 2), during the past five years, domestically, users published far more in trade journals and under the form of grey literature than they did in books/book chapters. However, trends are reversed at the international level: almost half of them published a book/book chapter or a scientific article. Clearly, as we indicated earlier, international publication seemed to be more valuable (thus attractive) than domestic one. However, at the same time, international books or book chapters run the risk of being less related to domestic or national issues which may constitute the focus of graduate programs.

These conclusions are supported by the data on publications which resulted from meetings that users attended. The data show that as we move towards international meetings (outside Africa) researchers rely more on books than on grey literature for publication.

So, the contribution of social science research to graduate programs in Africa is not absent. However, because of its international orientation, it may not be sufficiently 'African Generated'.

In order to bring more specifics to our conclusions we tried to identify areas of specialization which were leaders in book and training course production during the last five years. To do so, we first (step 1) looked at percentages of users who published domestic and international books during the last five years. Then (step 2), we tried to identify in which areas of specialization users who produced those books (we did not consider training course here) were involved by cross-tabulating results obtained in step one and data collected on users' areas of specialization.

For step 1, the data show that 41% of users published domestic books during the last five years. Among them, 29% published two books, 21% published 3 books, 13% had four books and 8% published 10 books. At the domestic level, only 23% of users produced training courses. Among them 46% generated two courses, 18% produced three courses and 9% had five training courses. The percentage of users who had international books published is 50%, thus higher than in the case of domestic books. Among them, 41% had one book-published, 21% had two books published, 14% produced 3 books and 3.4% had 6 books published. However, the percentage of users who published international training courses was negligible (3 members out of 58). When we performed the cross-tabulation matching users who published books and their area of specialization, it appeared that the leaders in the production of domestic books were involved in order of importance in the fields of Political Sciences, Public Administration, Labour Economics, Social Studies and Education. Concerning international books, the most prolific users were in the following areas in order of importance: Economic Theory, Political Sciences, Sociology of Work, Culture Studies and Urban Sociology.

3.4. Identification of Methods to Improve the Publication and Distribution of Social Sciences Research

The least we can say is that networks like CODESRIA ought to reinforce their role in stimulating the publication and dissemination of social science research:

- Applied research comes after basic, strategic and methodological research. But, this is an issue that requires confrontation;
- The focus on the international level for the publication of books and book chapters calls for more efforts at the domestic level;
- The data clearly reveals the poverty of our libraries. They are easy to access but do not have the material needed for good research;
- It is not normal that only 34% of CODESRIA users rely on external lectures to make their research known given that CODESRIA's mission includes contributions to policy issues;
- The same is true of the fact that only 12% of them rely on radio and TV (this actually reveals their insufficient orientation toward applied research);
- All meetings attended by users put together, it appears that networks should play a greater role in dissemination.

3.5. Identification of Distinguished Scholars

If we refer to section II.2 of the data analysis and use high standards as criteria, namely, the number of books/book chapters published at the international and national levels, we may conclude the following. Among CODESRIA users, distinguished scholars at the African and international contexts are those who represent 3.4% of the members. On the average, they published during the past five years 10 books/book chapters at the domestic level and six books/Book chapters at the international level.

Conclusions

As a leading Panafrican social network, CODESRIA has played a major role in the development of various disciplines, institutions and individuals. Because this developmental contribution is central to CODESRIA's mission, the data collected during this survey leads us to two conclusions:

- As a network, CODESRIA has made major achievements.
- Nevertheless, more needs to be done for the advancement of social science research in Africa.

In the following sections we provide a summary of achievements and problems on the basis of the data collected.

Contribution to the creation of an adequate environment for African researchers

Funding of MA. and Ph.D theses and dissertations has been important to those who received them. In fact, 67% of CODESRIA's users received network funding during the past five years.

Interestingly, funding is not the most important contribution of the network to African social scientists' research activities. In effect, during the past years, this contribution took place more through meetings, documentation, travel and technical advice. However, more needs to be done. It seems that technical advice provided by the Network has not been as useful as expected to African scholars in their contacts with other organisations; only 15% of users saw CODESRIA as instrumental to their success in getting funding from other organisations.

Despite CODESRIA's efforts during the past years to improve its documentation center, efforts need to be made to understand why users still see lack of documentation as an impediment to their research.

Finally, if we define applied research as research directly related to problems facing African societies at the grass-root level, we may point out that African social scientists do not pay enough attention to such problems given their orientation towards methodological, strategic and basic research.

Publication and Dissemination

CODESRIA is known as a major contributor to the publication and dissemination of social science research. This is done through its journal *Africa Development*, through the publication of several books and grey literature.

Improvements have to be made at several levels. First, a large number of publications of African social scientists is grey; this is an indication that the latter do not go far enough in their research efforts if we assume that grey literature is a first step toward publication in a scientific journal. Second, the percentage of publications coming out as books is relatively low, thus reducing the contribution of African social scientists to the production of readers; reader

production is an important objective in CODESRIA's activities. Third, too few researchers are in touch with the community at large to make their results known not just to specialists; this is probably related to the small share given to applied research in their activities.

On research and policy

The data show that social scientists recognise that networks allow for a better understanding of the relationship between research and policy making. For 47% of users interviewed, their research contributed to social policy.

This is an indication that the network is meeting its objectives given that social policy questions are among the most funded research issues during the past years.

Recommendations

1. Given the fact that other networks are known for their contribution to the development of research and publication in economics in Africa, it may be to the advantage of CODESRIA to focus on its comparative advantage in fields such as sociology, anthropology, political sciences and related fields. This may improve funding distribution, thematic focus and dissemination
2. The fact that African researchers publish too much grey material may be related to some methodological weaknesses. Lack of knowledge in methodology is always an important impediment to publication given scientific journals' requirements. It may be valuable to small grants applicants to receive some methodological training in addition to the grant either simultaneously (when recipients demonstrate some weaknesses) or in post-doctoral form for research skill improvement (if recipients are methodologically advanced when they receive the small grant). Experience shows that English-speaking researchers are somehow more advanced than their French-speaking counterparts. Thus, a particular focus on the latter may be required although not systematically. It may be interesting to see how CODESRIA could develop in various African universities methodological seminars in targeted social science fields. Teams of methodologists (not limited to Network's members) can be built for that purpose
3. Dissemination is not a natural preoccupation among researchers who are mostly concerned with the publication of their results in one targeted outlet (journal, book or others). Dissemination must result from voluntaristic attitudes among them and on the part of networks. Thus, it ought to be based on a strategic approach based on what is known as the marketing of scientific research. We do not have enough space to elaborate on this issue. Suffice it to say that researchers themselves have generally been unable to combine research activities and the marketing of their results. They have often relied on independent structures.
4. Meetings whether at home, in other African countries or outside Africa are central to African researchers' activities. They also mean to them great

opportunities for publication and collaborative efforts. Among people interviewed, very few did not attend meetings related to their specialisation during the past years. Also, " participants " was the dissemination approach most frequently used.

Because networking is about connecting people with each other, it seems that CODESRIA ought to put an emphasis on meetings as a way of promoting publications (although most of it has been grey so far) and personal contacts which appear central to researchers as a source of documentation.

TABLES

Table 1: Gender

	% Users	% non-Users
Total sample	47,15	52,85
Male	89,5	88,9
Female	10,5	11,1

Table 2: National Origins

Country	Members (%)	Non-members (%)
Cameroon	10,3	1,6
Côte d'Ivoire	10,3	4,8
Ethiopia	3,4	6,3
Ghana	5,2	1,6
Kenya	8,6	17,5
Nigeria	19,0	12,7
Senegal	12,1	12,7
Sudan	5,2	9,5
Tanzania	13,8	9,5
Uganda	3,4	15,9
Zimbabwe	8,6	7,9

* Only highly represented countries are selected.

Table 3: University degree (Ph.D, MA)

Degree	% User	% Non-users
Ph.D or equivalent	50	57,1
MA or equivalent	19	23,8

Table 4: Primary Specialization

Specialization	% users	% non-users
Economics	39,7	40,3
Anthropology	24,1	22,6
Sociology	12,1	16,1
Political science	13,8	8,1
Education	6,9	8,1
Others	3,4	4,8

Table 5: Number of Days spent on Research

Number of days/week	% Users	% Non-users
1	13	15,5
2	33,3	46,6
3	22,2	19
4	14,8	6,9
5	11,1	5,2
6	3,7	5,2

Table 6: Number of Days spent on Teaching

Number of days/week	% Users	% Non-users
1	5,9	1,9
2	27,5	9,3
3	29,5	35,2
4	19,6	31,5
5	9,8	16,7

Table 7: Users' Time Spent by Type of Research

% of time	Basic %	Strategy %	Applied %	Adaptive %	Methodology %	Others %
100%	6,8	-	-	-	-	-
95%	-	-	-	-	3,7	-
80%	-	2,9	4,2	-	-	-
50%	-	-	-	8	-	-
20%	20,5	28,6	-	-	25,9	-
10%	-	-	25	36	-	66,7
5%	-	2,9	-	-	3,7	-

Table 8: Non-users' time spent by type of research

% of time	Basic %	Strategy %	Applied %	Adaptive %	Methodology %	Others %
100%	6,4	-	-	-	-	-
80%	-	7,3	-	-	-	-
75%	-	-	3,4	-	-	-
60%	-	-	-	10	-	14,3
50%	4,3	7,3	6,9	10	4,2	-
30%	-	-	17,2	-	-	-
20%	14,9	24,4	17	-	-	28,6
10%	-	-	-	15	25	-

Table 9: Communication Channels used for the Dissemination of Results

Communication channels	% Users	% Non-users
Channels	-	-
Electronic mail	5,2	9,2
External lectures	17,0	33,8
Personal contact	45,0	41,5
Conferences/Work	77,6	76,9
Shops/Seminars	-	-
Radio/Tv/Video	19,0	12,3
Others	1,7	4,6

Table 10 Ready Access to Information Technologies

Type of equipment	% Users	% Non-users
Telephone	67,3	91,7
Telex	20,9	21,5
Typewriter	56,3	80,9
Fax	54,9	72,5
E-mail	68,1	64,4
Personal computer	65,5	78
Printer	60,8	76
Mainframe	14,3	73,7
Photocopy machine	56,9	79,6
Secretarial Assistant	69,4	82,4

Table 11: Attendance to Meetings

No. Of Meetings	Home	Meetings	Meetings in other African countries		Meetings outside Africa	
	% User	% non-Users	% Users	% non-Users	% Users	% non-Users
1	10.4	6	22.7	38.7	25	40.7
2	16.9	24	20.5	25.8	32.5	33.3
3	8.3	22	18.2	12.9	10	7.4
4	22.9	18	9.1	6.5	2.5	3.7
5	18.8	6	11.4	3.2	2.5	-
6	6.3	8	2.3	-	2.5	-
7	2.1	-	-	3.2	-	-

Table 12: Publications Resulting from Meetings

No. of Publications	Home Meetings		Meetings in other African countries		Meetings outside Africa	
	% Members	% non-Members	% Members	% non-Members	% Members	% non-Members
Proceedings	43.1	43.1	24.1	24.6	13.8	16.9
Journal	19	13.8	6.9	1.5	1.7	10.8
special issue						
Book articles	25.9	16.9	8.6	7.7	12.1	-
Research network	5.2	1.5	13.8	3.1	5.2	3.1
Other	6.9	7.7	8.6	1.5	6.9	1,5

Table 13: Support used for Dissemination of Publications resulting from Meetings

Type of support	Home Meetings		Meetings in other African countries		Meetings outside Africa	
	% Members	% non-Members	% Members	% non-Members	% Members	% non-Members
Direct mail	10.3	6.2	10.3	4.6	6.9	4.6
Participants	37.9	43.1	20.7	23.1	19	20
University-libraries	29.3	20	6.9	4.6	1.7	10.8
Nationally	15.5	13.8	-	4.6	1.7	3.1
Internationally	25.9	13.8	20.7	7.7	15.5	7.7
Via Research Network	17.2	12.3	10.3	7.7	5.2	1.5
Other	3.4	6.2	3.4	-	1.7	-

Table 14: Persons and Institutions who Received Members' Research Results

Persons and Institutions	% Of Users
Science Journalists	13.8
Government Agencies	36.2
Research Networks (national)	34.5
Research Networks (International)	51.7
Researchers in your Field (National)	44.8
Researchers in your Field (within Africa)	43.1
Researchers in your Field (outside Africa)	37.9
NGOS	32.8
Business Firms	8.6
Donor organizations	25.9
Policy Makers	36.2
Others	1.7

Table 15: Beneficiaries of Users' Research Results (according to users themselves)

Beneficiaries	% of Users
General public	73.8
Rural Residents	38.1
Local or State Government Agencies	70.5
NGOs	55.8
Foreign Institutions or Government	63.4
Donor Organizations	65.8
Scientists in Own Discipline	87
Other Scientific Disciplines	58.8

Appendix 1 : Special Field Related Problems

For each country we provide successively information on obstacles encountered and on the availability of sample members.

Ivory Coast

Interview and related problems: According to most interviewees, the questionnaire was too long. It took in many cases two meetings to fill up the questionnaires. Three respondents who are not professionally involved in academia found the questionnaires irrelevant. Three respondents were out of the country.

Ghana

Interview and related problems: Most respondents took the questionnaire with the promise to return it. This was because most of the time the instrument was considered too long. Not all of them returned it.

On Sample Members' Availability: We know only two of the reasons why some people could not be interviewed. The first one was related to the length of the instrument. The second was that a similar project had been carried out in Ghana. We do not have individual information on sample members' availability.

Cameroon

Interview and Related Problems: Problems were mostly related to members' availability.

On Sample Members' Availability: Some people could not be reached because they were out of Cameroon. Others could not be interviewed because they were unaccessible; August and September corresponded to campus vacations; or faculty members who came back for special courses were too busy to be interviewed.

Senegal

Things went well in Senegal except for one person for whom no surname was registered.

Nigeria

Interview related problems: Most of our problems came from interviews in Nigeria. One major problem encountered in the administration of the questionnaire in most of the university campus had to do with the absence of many subjects from their station because of the prolonged strike action of the

Academic staff. So, morale was very low; salaries were not paid and most of Academic staff members were threatened by authorities to vacate both their offices and official residence. In these circumstances it was not easy to track down subjects, especially in those universities in the Southern Nigeria where the strike was quite successful (University of Ibadan and OAU). And even where one was lucky to meet some on the campus, they were only willing to cooperate after a lot of persuasion. Usually you could be asked to come back after three or four days. In most cases you returned only to be presented with so many reasons why the interview could not be held until another time, or you would be asked to leave the questionnaire with them. Usually they would promised to fill and send it to you.

The other obstacle related to the delay in the release of fund for the administration of the survey in Nigeria. There was sense in which the availability of fund would have made the process a little faster.

Finally, there was a gap in communication which had to do with the situation in Nigeria. Virtually, all the means of communication were unreliable. Telephone lines can be down for weeks with serious consequences for those expecting messages through the electronic mail system. This was what actually happened in the correspondence with Dakar on the survey.

Appendix II: Report on Bibliometric Survey

Work of the bibliometric survey was spread over a period of just over one month. It was conducted by information specialists with the participation of the assistant of the senior researcher. The entire job was carried out within the premises of, and the equipment (computers and other research materials) of CODESRIA.

I. The Three Major Objectives of the Survey

The bibliometric survey aimed at achieving the following three objectives:

1. To analyse samples of research publications selected for the project.
2. To identify the representativeness of researchers and research institutions associated with Codesria in recognised African national journals in two disciplines: Political Science and sociology as well as in related disciplines.
3. To identify and compare the recurrence of African and non-African references in samples of the research publications.

The realisation of the first objective will be treated separately in this report. The second and third objectives will be handled jointly. In each case, we will first of all present the methodology before presenting the results of the research.

II. Analysis of Sample Publications

A. Methodology

The work method involved the following steps:

- *The documentary research:* This involved extracting information from the data bank of **CODICE** which are: **LIBRI** (CODESRIA Internal bibliography not on CD-ROM), **INTELEC-DOC**, **BGF**, and "**BOOKS IN PRINT PLUS**" on CDROM. This involved identification of useful documents based on the requirements of the project and "itization" them in the form of a selective bibliographical list. A manual search was made of documents available in **CODESRIA** library. This follows the establishment of a list of documents retrieved from the data bank (**LIBRI**). This involved identification of all documents on the list and grouping them according to descriptive bibliographical elements (rating, title, author, source...). This exercise was repeated for as many times as there were publications. We focalised on the period from 1991 to 1995, covering five years.
- *Confection and multiplication of input sheets:* Beginning with the information provided in the project (RNO, ID...PJP...), we found it necessary to conceive an input sheet which, while integrating these information, provided four new areas which appeared indispensable for the physical and intellectual description of the documents.

These four new field areas were incorporated to those in the original

project document. They were proposed to Dr. Hicks and comprise ISBN, ISSN, the status of the author and pagination.

The sheet was then introduced into the PAO (Computer Assisted Programme), before 150 copies were printed for use in the processing of documents.

Preparation of a manual for the processing of documents: The manual specifies items introduced into certain field areas whose titles could be confusing. Thus, we have

TTL 1: The content may be the title of a book as indicated by the initial project document. It may also have to do with the generic theme of an intellectual event (conference, colloquium, seminar, workshop...). In the two instances, **TTL 2** corresponds to the article or presentation (working paper, research paper,) targeted by the samples. When the processed document was neither selected from a piece of work or intellectual event, **TTL 1** is not filled in.

DIS: This field area is reserved for the discipline. It refers not to the specialisation of the author but to the material treated in the document in question, because a sociologist, for example, could write on economic or environmental issues, etc.

AUTHOR'S STATUS: This field area was proposed to overcome the problem cited above and the sheet at the same time included a column for the specification of the status of each author.

LAN: We inserted FRE for French and ENG for English.

Processing of documents: This was a fastidious task which took up the essential period of the work. Utilisation of sheets facilitated the work. However, the diversity of the documents and certain imprecisions contained in the project document raised some problems which we tried to overcome by preparing the manual which was mentioned earlier.

B. Difficulties encountered in the establishment of the method

The first problem had to do with availability of computers at CODICE. The best performing machine was the one which should have made it possible for us to read the CD-ROM. Its was occupied most of the time with urgent work of the centre: electronic mail, reading of CD for the needs of documentation... This led to delays in the location and selection of documents.

The second problem concerned the availability of the photocopying machine. It was not always usable or in good working condition for the production of documents. Besides, staff concerned with reproduction of documents closed work earlier than those of CODICE. This made it impossible to use the machine during periods when it was not being used for Codesria work.

C. Results of the research

In the first instance, from LIBRI and the INTELECT-DOC data bank, 117 documents were processed. This work features on the 117 "input sheets". We then consulted the two CD-ROM put at our disposal by of CODICE's

specialists.

The first CD comprised the BGF (Francophone Bibliography). In this CD, the documents identified were in their overwhelming majority those which we had already located and processed on INTELEC-DOC. The rare new CD-BGF documents did not meet the selection criteria. They were either produced before 1991-1995, or were published by authors who did not feature in the project samples. However, we insisted on effecting all useful verifications.

The second CD *BOOKS IN PRINT PLUS* contained as many Anglophone and francophone documents, as opposed to BGF which was specifically Francophone. In spite of its richness, our researchers did not reach results different from those obtained from BGF. The reasons mentioned about BGF are therefore valid for *BOOKS IN PRINT PLUS*.

After this phase of identification, selection and treatment of the documents, we tackled other objectives which we achieved with the help of the manual cited earlier.

III. Representativeness and References

The objective here was to portray the representativeness of Codesria researchers in the two domains - Political Science and Sociology - and to examine the extent to which they rely on African and non-African references. Here also, we present the methodology and results successively.

A. Methodology: Manual of criteria

The following criteria were chosen after long discussions on the objectives of the project.

- *With regard to references* the procedure adopted was as follows: selection of a sample from the 117 documents treated during the realization of the first objective (see above). This sample was made up of 19 review articles, 3 theses, 2 monographs, 10 working papers. In addition to the African and non-African references, this stage of the work was complicated by the fact that the project documents, in defining the objectives, did not specify what it meant by "African references" and "non-African references", if reference is taken to mean back-up (review, journal, thesis...) to the article cited. To fill this gap, we decided that:
 - the reviews will be classified under "African references" category when they are published in Africa with articles produced by African researchers. Thus, when a review is published outside Africa with articles produced by non-Africans and Africans but on African issues, they are classified under the "non-African" category (ex. *African Politics*).
 - when a review (or a journal) is controlled by Africans with its contents essentially centered on Africa, the review or the journal is classified as "African reference" even if it is published outside Africa (ex *Jeune*

Afrique).

- when the review contains African subjects but is published outside Africa, it is considered to be non-African (ex *World Development Report*).

- *With regard to books*: a book is classified under "African reference" when its author is African, with the place of publication having only a commercial importance in the same way as the publishing house. For example, a book by Luc Sindjoun edited by Khartala, in Paris is classified under "African reference".

- *For Theses and long essays* the decisive factor is not the location of the university where it was defended but the nationality of the author of the thesis or long essay. For example, a thesis produced by an African researcher on Africa and defended in London or Atlanta is classified under "African reference".

- *The criteria for local reviews in Political Science and Sociology with the aim of identifying the representativeness of Codesria researchers*: The main criteria have been the place of publication, identity of the publishers of the review and the year of publication.

B. Results of the Research

We will first of all present the results on the comparison between African and non-African references which feature in the publications of researchers in the project samples. This is then followed by findings on the representativeness of CODESRIA researchers in local Political Science and Sociology journals.

1. The references: Our work consisted in systematically itemising the bibliographical references. The results are presented in the section initially reserved for "abstracts" on the "input sheets".

In addition, at the end of the work, we photocopied the references of all the publications of the researchers in the treated samples during the course of the accomplishment of the first objective. When the input sheets are not accompanied with photocopies of the references, this could be due to the following two reasons: either the document itself had no reference, or the references were distributed in the texts in the form of infra-footnotes. This makes it impossible to produce photocopies since this would require photocopying the entire document.

2. Representativeness: The results obtained were poor. The reviews identified were essentially published outside Africa. Another reason for the poor results is that most of the journals classified in CODICE were published before 1991, whereas, our work covered the period 1991-1995. The third explanation lies in the fact that the African national journals were not thematic, but rather pluridisciplinary.

Thus, among the few journals identified, CODESRIA member researchers were poorly represented.

The objective of comparing the publications of members and non-members of CODESRIA was complicated by the fact that the list of CODESRIA researchers made available to us by the accounting service was incomplete, because it contained only the names of members who had paid their contributions for 1995-96. In addition, it was not easy to find out the criteria used to determine the status of members of CODESRIA.

We therefore simply worked on a list of contributions for the comparison required. This considerably diminished the weight of the results achieved. To overcome these shortcomings, we prepared a list of subjects/themes published by some 50 researchers without considering the institutions to which they belong. This list is completed by the subject/themes list published by CODESRIA members included in the sample.

IV. Conclusion: Some Suggestions

The first is of a general nature and underlines the need to provide, for this type of distant work, more precise information on all aspects of the work which could lead to contradictions.

For example, it would be better to know from the beginning, the meaning of "African reference".

The second suggestion is linked to all the problems encountered in the course of the work, and which leads us to believe that it would be better for the team which initiated the project, to include at least a professional in information and communication.

V. Technical Summary

Nature and location of work: Bibliometry - CODICE (Dakar)

Period - duration: from 01 July to 08 August

Context of Work: University of Groningen (Netherlands)/CODESRIA (Senegal) project

Senior Researcher: Bassirou Tidjani

Consultants: Amadou Mansour Diouf, DEA es Lettres (MA Letters), Conservator-Documentalist; Assane Khalifa B. Mboup, DEA ed Histoire (MA, History), Conservator/Documentalists.

Assistant: Seynabou Diop, Masters Degree in Applied Foreign Languages

Number of documents treated: 119 documents

Data Base consulted: 3 CD-ROM: BGF, BOOKS IN PRINT PLUS, INTELEC-DOC

Number of page references photocopied: 398 pages

Number of unidentified documents in the data banks of CODICE of whose authors were targeted in the samples: 04.

Number of documents for which references had not been photocopied: 15

Number documents without any reference: 01

**SOCIAL SCIENCE RESEARCH NETWORKS IN
SUB-SAHARAN AFRICA**

OSSREA REPORT

Dessaiegn Rahmato and Mekonnen Tadesse

Background

This case study is based on a survey of social scientists in eastern and southern Africa who consider themselves users of OSSREA services; are associated with the organization in one way or another; or have benefitted from the OSSREA services. For comparative purposes we have included data gathered from non-users of OSSREA services. The researchers are based in the six countries listed in Table 1 below.

The study is one of three case studies launched in 1996 examining the flow of scientific information North-South, South-South, and South-North. The main objective of the study was to investigate the existing state of affairs with regard to such information flows, to identify key bottle-necks and constraints, and to design strategies whereby donor organizations can improve the flow of information resources to, from, and between the countries of Sub-Saharan Africa (SSA). Some of the important assumption that informed the investigation are the following:

- i) that the work of social scientists in the research institutions of the SSA countries could be improved and made more relevant to the development process underway in their respective countries if these social scientists had better access to research results produced in the countries of the North and South;
- ii) that research networks such as OSSREA should be the key actors in the flow of scientific information and the dissemination of research results in their respective regions; and
- iii) that donors can play an important role in helping research networks strengthen their ability to provide the users of their services access to information on the one hand, and in improving their capacity to disseminate the research results of users and associates to a much wider readership both in the South and in the North on the other.

The OSSREA Network

OSSREA, which was established in 1980 and which is located in the main campus of Addis Ababa University, is a regional "membership"¹-based organization focusing on research in the social sciences. Its "membership" now includes social scientists in ten countries in eastern and southern Africa (the term "social scientist" should here be employed in the broad sense). "Membership" is open to individuals, and not to organizations or government agencies. It is estimated that some 15% of social science researchers in the countries where it is active are "members" of OSSREA.

The main objective of OSSREA is to promote and support research among academics and researchers in the region, and to stimulate collaborative ventures among the users of its services as well as with international research institutions. Most of the beneficiaries of its research support have been academics and

government-based specialists. Among its core activities are holding periodic workshops and conferences on relevant subjects, conducting training activities for researchers and civil servants, and representing the research community in the region in international conferences. On the average, OSSREA organizes three to four regional conferences and workshops every year. Typically, a conference attracts some sixty participants while workshops are limited to thirty individuals.

OSSREA's publications include the Eastern Africa Social Science Research Review (a bi-annual journal with a wide readership), the OSSREA Newsletter, social science research abstracts, special monographs, and books. It has recently started publishing the research results of its grantees. OSSREA's sources of support are international donors and membership fees.

OSSREA is not an advocacy organization, and does not monitor policy issues or government activities in its member countries. It sponsors individual research, and collaborative ventures with other organizations. It funds mostly individual researchers who are selected on the merits of their research proposals by a jury of selectors. Researchers requesting funding must be from national research institutions, and must hold at least an M.A. degree.

OSSREA does not have a central documentation centre (or library) for the uses of its services; nor does it maintain an information data-base. Its contribution to the dissemination of scientific information among the social science community in its member countries is through its publications, and the period organization of conferences, workshops and training programmes. It hosts several regional workshops annually.

The research has attempted to identify constraints limiting:

- researchers' access to scientific information generated locally and internationally;
- the production of research output;
- the distribution of their own research results both locally and internationally.

On the other hand, OSSREA's specific interests with respect to the research is:

- to build up an active membership and expanding body of high calibre research based on the findings of the research;
- capacity building based on the gaps identified by the research;
- to strengthen collaboration with other institutions and researchers continent-wide, and not just within the target region of OSSREA; and,
- to be able to disseminate OSSREA's publications to wider network.

Sample and Field Survey

OSSREA's membership and users (respectively, fee-paying registered individuals

and non-member social scientists who have benefitted from its activities or who are, in some way, closely affiliated to it) are distributed in 12 countries of Eastern and Southern Africa (Ethiopia, Sudan, Kenya, Uganda, Tanzania, Malawi, Zambia, Zimbabwe, Botswana, Lesotho, Swaziland, and the Republic of South Africa). Of these, only six countries - Ethiopia, Sudan, Tanzania, Kenya, Uganda and Zimbabwe - were selected and both users and non-users of network services in these countries were covered in the study. The field study in the first three countries (including coverage of AERC and CODESRIA network users) was undertaken by OSSREA, while the latter three countries were surveyed by the AERC.

The target user population in the selected countries was identified and extracted from the registry of OSSREA. OSSREA's data base information as well as those of the other two networks also includes non-user social scientists; these were used to compile the non-user population. Both populations included only social scientists with a Masters degree or above who were affiliated with university academic departments or research centres and institutes. The first group included 159 social scientists of which 47 were successfully sampled, while the latter included 199 potential respondents of which 65 participated in the survey. This is a coverage in both cases of about 30% of the target populations but falls far short of the initially planned sample. This is because a number of the individuals identified initially were unavailable for the interview because some were out of the country or could not easily be reached, and others were deceased. The distribution of the target population and the sample in the selected countries is given in Table 1.

The main instrument of the field study was conducting in-depth interviews with the sampled respondents based on a structured questionnaire. The questionnaire was designed to solicit information on the background of respondents (relevant personal details, educational background and field of specialisation), their employment record, annual work activities (allocation of time between research and teaching) and, most importantly, their research activities (type of research, sources of information, dissemination media, access to information technology (IT)).

A draft of the questionnaire was tested in a pilot survey undertaken early in 1996 after which it was improved and refined. The revised and final version of questionnaire was administered in June, July and, in a few cases, August of 1996. In the three countries covered by OSSREA, the questionnaire was completed by each respondent at his/her convenience. In each of these countries, research assistants were hired to approach identified respondents and explain the objectives of the survey and then to deliver the questionnaire and explain its content to respondents, to collect the completed ones, and to ensure that all questions were properly answered. Furthermore, we felt it would be easier to collect bibliometric data from the respondents themselves if each was requested to list his/her publications and related relevant information in a form annexed to the questionnaire. This made some of the desk-work involved

unnecessary. OSSREA users and non-users in the countries covered by the AERC, on the other hand, were interviewed directly by designated research assistants. The bibliometric data, however, was collected through desk research.

Findings of the Survey

Background

As was to be expected, the great majority of the respondents are male; women make up less than 15 % of the responding population, both users and non-users (see Table 2). Considering the fact that almost all the respondents are academics, the population was relatively "young"; nearly two-thirds were less than 46 years old and may thus be said to be "in their prime". Over 60% have PhD degrees, and the disciplines which are most represented both in terms of educational specialization and research interest are economics, sociology, anthropology, and education. In all cases, the medium of research and publication is English, though some respondents also use local languages (e.g., Arabic in the Sudan).

Employment

A majority of respondents (over 61%) have had other employment prior to their current academic or research jobs, which in most cases is a permanent position. Almost all respondents stated that their current job is a full time one. Nevertheless, some 60% undertake other income generating activities. It is evident that for many their current jobs either do not provide enough income for a decent livelihood, or they have compelling reasons to seek additional employment. While we do not know what kind of supplementary employment is involved, one suspects that such employment may take time away from their research endeavour.

On the other hand, only about a quarter of users and about one-third of non-users have the rank of assistant professor and above, with the rest senior lecturers and below. In other words, the majority of the sample population is of junior rank in their jobs; indeed, more than half of them have secured their present posts very recently, from the end of the 1980s.

Work and Research Activities

Research is an important component of the responsibilities of the respondents, and it was also given significant weight for professional advancement. For a majority of respondents, teaching takes up between two to three days per week while research between two to three days. Academic qualification, publication in international forums and reporting the results of one's research were regarded as the three most important factors for career advancement.

Table 5 shows the distribution of research activities carried out by respondents. Basic research involves research to generate new understanding, strategic research is application oriented; the others are adaptive, and methodological. The table indicates that most of respondents time is spent on basic research.

Research in the three target countries is heavily dependent on international flow of intellectual resources. Contacts with international research personnel, and international scientific and academic publications were regarded as important sources of research endeavour. This is to be expected and the findings simply confirm what is taken for granted: the flow of scientific information continues to be dominantly from North to South. However, the findings also show that personal interaction among local researchers in the same field, and access to national journals, books and research output were also found to be important sources of information.

The extent to which respondents publish the results of their research is shown in Table 6 below. As used here, the term "publications" covers a wide variety of written output. In the category of "domestic and international publications", we have grouped books, chapters in books, articles in journals, research reports and conference papers, while in the "grey literature" category are placed all unpublished or secondary texts including research abstracts, consultancy reports, training manuals, software and articles in the popular media (we have excluded thesis supervision because no written output is involved).

Clearly, a considerable %age of respondents' publications falls in the category of grey literature. In the other two categories, the three main outputs consist of research reports, conference papers, and books. It is also worth noting that the number of the "most significant" users' publications both domestic and international, viz. books and book chapters and articles in scientific and trade journals, totals 178, which makes up about 20% of all publications. On the average, each respondent has produced four publications (including grey literature) per year in the period under review. It is also interesting to note that more books and book chapters are published internationally, probably because of lack of qualified domestic publishers. This holds both for users and non-users. Users however publish less journal articles but more grey literature per head than non-users. Furthermore, respondents regarded conferences (workshops and seminars) as the most important medium for the dissemination of research results.

In answer to the question about access to various forms of information technology (IT), 68% of respondents said they have access to personal computers, 75% to photo-copying machines, 61% to fax, and 44% to e-mail. It thus appears that access to IT is not a major constraint to research, although it is not quite clear just how easily and frequently respondents have access to these technologies. However, it should be noted in this connection that only 41% and 46% respectively of the responding population have access to, or have used scientific data-bases.

On the other hand, the three main problems to research were in the area of research funding, access to scientific literature, and research management. The lack of research funding, and of adequate (financial?) incentives to researchers were regarded as the two most important limitations, followed by problems of access to scientific literature. In the third category, the bottlenecks given weight were lack of clear research agenda, and insufficient administrative support. All user respondents depend on the library for their research activities, and most use it regularly; 70% said they visit the library daily or weekly. However, the libraries are considered inadequate for their research needs for the following reasons:

- Slightly over 54% said the library does not carry CDROMs;
- 64% said the library does not carry sufficient research books;
- 66% complained of lack of sufficient scientific -- and 40% of sufficient trade journals in the library.

Researchers therefore rely on research institutes, private subscriptions and donations to make up for the deficiencies of their libraries. On the other hand, only 13% of respondents said they turn to research networks to gain access to research journals.

Flow of Information

The flow of information and research is facilitated through personal contact and participation in conferences and seminars. Most of those who prepared papers for the conferences and meetings and them published in various mediums and by various institutions, but research networks' contribution to the publication effort was very limited. Moreover, the most important mechanism of dissemination of the research results in this context was direct dissemination to conference participants. The salient facts are as follows:

- 68% of user respondents have attended 1-6 conferences held locally in the last two years;
- 60% have attended 1-6 conferences in other African countries;
- 51% have attended 1-4 conferences outside Africa.
- 58% of the papers presented at all three conference venues were published, and of these only 8.5 % were published by research networks.

Table 7 provides data on the dissemination of research results outside of the conference context. Evidently, most of respondents' research results is provided to government agencies and to fellow researchers working in the same field. Research submitted to scientific journals is quite limited.

Furthermore, almost all respondents have had frequent or occasional professional discussions with fellow researchers, researchers from abroad, postgraduate students, government ministries, business and industry, and NGOs; it is quite likely that these could have been important occasions for exchange of information and the sharing of experiences.

Research Awareness

Respondents believe that their research is of benefit to a wide variety of agencies and institutions, including government bodies, donor organizations, NGOs, foreign institutions, and the general public. However, the number of respondents who thought their research was of benefit to the rural population was the lowest among all these. This perhaps indicates that the content of much of the research undertaken by respondents was much less concerned with rural issues.

All respondents are aware of the services offered by the main African research network organizations. Everyone one of them stated that they have received grants from or participated in some of the activities of OSSREA; the comparable figure for AERC and CODESRIA was 26 and 28 % respectively. Furthermore, respondents have also participated in the activities of regional or Africa-wide research networks such as AAS, ESRAUP, CASA, and Third World Forum. 52% of the respondents said they received funds from the research networks for all or part of their research in the last five years, however, few of the research output so funded was published by the networks themselves.

Apart from funding, research networks have played an important part in the research and teaching activities of most of the respondents. Their main contributions here have been organizing meetings, providing access to documentation and information, and offering support for thesis and dissertation work. Table 8 contains the relevant data.

Half of the responding population has received research funding from sources other than the research networks. However, it does not seem that receiving grants from the networks has played a significant role in funding by other organizations. Moreover, more than two-thirds of respondents believe that their research has been used, or has had impact in the socio-economic or political context. It is not quite clear however whether this can be taken to mean that the research output was used as a direct input in policy decisions; such direct impact on policy matters is difficult to determine accurately anyway. The main reasons given for this outcome were that the research was relevant, and that the work had come to the attention of the authorities concerned. At the same time, some 46 % of respondents believe that their affiliation with a research network contributed to the said outcome.

Conclusions

The findings of the survey suggest that research networks have not played a strong enough role in the dissemination of scientific information in the regions where they are active. It is evident that information flow occurs largely through informal channels -- by means of personal contact, conferences and through person-to-person communication. Much of the research output of social scientists is published, not by OSSREA but by national and international publishers. On the other hand, a good deal of the research work done by social scientists ends up as "grey literature" (which may be of limited value).

Most of the social science respondents in the three countries where the survey was conducted placed higher value on information flow from the North than from the South. At the same time, the flow of information South-South is less robust than that of North-South; there is also very limited information flow South-North.

OSSREA does not provide library or data-base services to the users of its services, and researchers rely on their institutional libraries which are for the most part inadequate, especially with regard to important scientific publications. Thus, for most social scientists, access to information, and in particular to international research publications, is not provided by OSSREA. While more investment in IT goods (PCs, faxes, etc.) may improve access to information, it does not seem that the main constraint is the lack of such "hardware". The main problem was identified by respondents to be the lack or paucity of scientific information available for researchers. In other words, it was not so much the technology as the information resource that was not sufficiently available.

The main activity of the research network is funding individual research and hosting conferences and workshops. Its collaborative efforts are for the most part with donor organizations, and with research groups in the region or from Northern countries. There seems to have been very little collaboration work with local or regional research institutions. Such collaboration could play an important role in the South-South flow of information. On the other hand, researchers identified access to research funding, and the lack of incentives to research as serious limitations to research. We do not know the funding capacity of OSSREA, but it is safe to assume that with greater capacity more research funds could be made available to social scientists.

While the subjects of research fall within the broadly defined boundaries of the social science; and while most may be considered "development-oriented", there is no mechanism to promote more policy relevant research. Individual researchers are funded on the strength of their proposals, and not on how "policy oriented" the proposals are. This limits the dissemination of research output to policy planners and decision makers. Greater access to research results by government officials, a desirable objective by itself, could promote the greater dissemination of research results within the social science community and the general public.

African research networks should promote the flow of information south-south and within their regions. Such information flow should benefit the social science community as well as policy planners and the general public. This means not only organizing better conferences and training programmes but also expanding network publication activities and distributing these publications to a much wider audience locally, regionally and internationally. In this connection, it is important to ensure that network publications improve their reputability and standards so that they can compete with international research publications. Networks should do more to encourage researchers to publish their work, and to

ensure that research efforts are not lost as grey literature. They should also play a more active role in the dissemination of information north-south, and south-north. One way of doing so is to maintain information data-bases and to make these available to the research community. This will improve access to information for many social scientists. Investing in such IT-based information resources, a much easier and more cost-effective undertaking than building up a documentation centre or library, is well worth the effort. On the other hand, social scientists in many African countries do not have access to the information resources of the internet, and any support in this area could improve the flow of information.

Another way of improving access to information is for research networks to establish greater working relationships and institutional linkages with research institutions in their regions (universities, research institutes, etc). At present the networks have affiliation with individual researchers and not with research institutions. For example, only five African research organizations have participated in OSSREA's activities in the last five years. Through such working linkages, the networks could support programmes to improve the information resources of the institutions concerned. Furthermore, the sharing of information data-bases and co-ordination of research activities between the networks and the institutions could improve researchers' access to information as well as the flow of scientific information. Whether or not the networks should establish similar working relationships with government agencies, business firms and/or NGOs needs to be considered carefully.

Note

1. See the "Introduction" of the composite report for a discussion concerning the difficulties of defining "membership" in sub-Saharan African research network organisations.

TABLES

Table 1: Target Population and Sample by Country

Country	Users		Non-users	
	Population	Sample	Population	Sample
Ethiopia	13	3	18	4
Kenya	47	13	66	11
Sudan	21	7	20	6
Tanzania	50	13	49	6
Uganda	18	5	23	10
Zimbabwe	10	5	23	5
Other	-	1	-	23
TOTAL	159	47	199	65

Table 2: Percentage Distribution of User and Non-user Respondents by Sex, Education and Discipline.

	Users	Non-Users
Sex:		
Male	87%	89%
Females	13%	11%
Highest Degree:		
MA/MS	37%	24%
Ph.D	61%	57%
Other	2%	19%
Discipline:		
Anthropology	15%	23%
Economics	41%	40%
Education	15%	8%
Political Science	7%	8%
Sociology	17%	16%
Other	4%	5%

Table 3: Percentage Distribution of Network Users and Non-users by Official Academic Rank.

Rank	Users	Non-Users
Professor	9%	10%
Associate Professor	9%	21%
Assistant Professor	9%	3%
Senior Lecturer	22%	21%
Lecturer	30%	21%
Assistant	11%	5%
Other	11%	18%
TOTAL	101%	99%

Table 4: Percentage Distribution of Primary Specialization

Discipline	Users	Non-users
Anthropology	17%	18%
Economics	33%	39%
Education	20%	13%
Political Sci.	13%	10%
Sociology	17%	15%
Other	-	5%
TOTAL	100%	100%

Table 5: Distribution of Time Spent on Research by Type of Research.

Type research	% time spent				No. respondents
	<25	25-50	50-75	≥75	
USERS:					
Basic	29%	54%	14%	3%	35 (74%)*
Strategic	45%	26%	29%	-	31 (66%)
Applied	50%	15%	30%	5%	20 (43%)
Adaptive	78%	22%	-	-	18 (38%)
Methodol.	82%	18%	-	-	22 (47%)
Other	100%	-	-	-	7 (15%)
NON-USERS:					
Basic	47%	26%	19%	9%	47 (72%)
Strategic	63%	17%	12%	7%	41 (63%)
Applied	90%	10%	-	-	29 (45%)
Adaptive	100%	-	-	-	20 (31%)
Methodol.	79%	17%	4%	-	24 (37%)
Other	71%	14%	14%	-	7 (11%)

* Percentage of sample respondents.

Table 6: Total number and distribution of publications by Users and Non-users by publication category (1991-95).

Publication Category	USERS				NON-USERS			
	Dom	Int'l	Total	Mean	Dom	Int'l	Total	Mean
Books/book chapters	37	65	102	2.17	45	84	129	1.98
Jour. art.	26	50	76	1.61	61	111	172	2.64
Res. rep.	69	42	111	2.36	63	56	119	1.83
Conf. pap.	98	121	219	4.65	84	60	144	2.21
Grey lit.	326	151	477	10.1	260	112	372	5.72

Table 7: Distribution of Research Results of Users by Recipient Group

	Number	Percent
Science journalists	12	26%
Government agencies	26	55%
Nat. res. network	18	38%
Int'l. res. network	23	49%
Res. in same field (nat.)	24	51%
Res. in same field (in Africa)	19	40%
Res. in same field (int'l.)	22	47%
NGOs	20	43%
Business firms	5	11%
Donor organizations	22	47%
Policy makers	22	47%
Consulting agencies	17	36%
Other	2	4%

Table 8: Importance of Networks to Users' Research and Teaching Activities

Type of research support	%
Financial sup. travel abroad	17%
Organizing relevant meetings	43%
Policy advice	6%
Technical advice	19%
Funding advice	4%
Relevant literature, documentation	34%
Other	9%
Type training support	%
Financial support for thesis	21%
Technical advice for teaching	19%
Funding for teaching/training	11%
Funding travel	13%
Organized training workshops	21%
Relevant literature	19%
Other	-

PART III

RECOMMENDATIONS

PART III

RECOMMENDATIONS

1. Introduction

The composite results of this study indicate that there is a clear need in sub-Saharan Africa to improve:

A. The publication and distribution of i) research results; and, ii) resource materials for teaching (at the tertiary level), that have been produced by sub-Saharan African researchers in the social and economic sciences (south-south flow).

B. The availability of scientific literature produced elsewhere as a resource for conducting social and economic science research (north-south and south-south flow).

C. The international visibility of sub-Saharan African researchers (e.g., the access they have to participation in international scientific meetings); of their research results (their potential to publish in international media; and the intra-African and international availability of the media in which they do publish (south-south and south-north flow).

Moreover, the combination of the results of this study and the relatively instability of universities in sub-Saharan Africa indicates that there will continue to be serious limitations to the generation of viable research agendas and individual research opportunities in public institutions of higher learning.

To some extent -- and for a small number of social and economic scientists, the participating research networks have supplemented the role of universities with respect to partial or full financing of theses, dissertations and post-doctoral research; providing selected training at various stages of the research process (i.e., proposal preparation, research methodology; publication of results); partially or completely financing travel to scientific meetings.

The results of the present study also indicate that these organizations play an important role in ensuring the flow of social and economic science information at the national and regional level. For example, they have organized half of the national and African scientific meetings attended by all respondents during the past two years. They also form an important outlet for the publication and dissemination of research results.

As a result, central to developing our recommendations has been the future role of sub-Saharan African research network organizations in improving and expanding i) formal communication channels (indexing, publishing and disseminating research results); and, ii) informal communication channels (e.g., the organization of scientific meetings).

2. Summary of the Recommendations

1. It would be in the best interests both universities and research networks to collaborate in developing strategies designed to strengthen and encourage increased cooperation between themselves in the areas of research, research training and teaching (see I. below).

2. Our central recommendation is that an *Information Services Consortium* (ISC) be formed by the three participating research network organizations, in cooperation with other social and economic research network organizations throughout sub-Saharan Africa (see II. below).

3. There is a need for greater coordination between research network organizations. It is our recommendation that donor organizations facilitate joint planning meetings between research network organizations (see III. A below).

i) A separate funding system should be generated for textbook development for use at the tertiary level; and that a project be generated to identify textbook needs and relevant companion literature from the north (see III. B below).

ii) Research networks should collaborate in the identification of distinguished scholars and the organization of activities around them (see III. C below).

iii) Research networks should collaborate on the development of a database on human resources in public institutions in the social and economic sciences in all African countries where such data is available (see III. D below).

iv) Research networks should collaborate to prepare an in-depth status report on the social and economic sciences in sub-Saharan Africa (see III. E below).

4. Research networks (individually and collectively) should expand the number of scientific meetings they organize at the national and regional level. Donor organizations should extend support to ensure greater participation of African researchers in international conferences (see IV. below).

5. A needs assessment study should be generated to determine how best to strengthen the documentation centres of research network organizations (see V. below).

3. Recommendations

In the following, each of these recommendations is considered in greater detail.

I. Individually, research networks are in close contact with universities. However, this primarily occurs through the medium of the researchers who

constitute the users of their respective services. In light of the historical background of universities in sub-Saharan Africa and the results of this study, *it would be in the best interests of both the university and research network organizations to collaborate in developing strategies designed to strengthen and encourage increased cooperation between themselves in the areas of research, research training and teaching.* For example, coordinating organized training courses designed to build capacity in research and technical writing skills will help to improve both the quality of the research that is being done, and the reporting of that research.

The preparatory stages of our study indicated that countries having few researchers, or those in linguistic (e.g., Lusophone Africa) or politically (e.g., Zaire) generated isolation from mainstream African, could benefit from research network organization services. This would enable them to participate in both formal and informal communication channels. In this context, we also recommend that research network organizations develop their role of ensuring the participation in research network activities of such researchers.

Both of these elements are especially important in the context of *our central recommendation -- that an **Information Services Consortium (ISC)** be formed.*

II. Although research network organizations have individually played an important role in the publication and dissemination of research results produced in the context of network activities, these services could be greatly enhanced and expanded by the development of an information services consortium (ISC) for the social and economic sciences in Africa.

It is recommended that such a consortium be established by the three research network organizations participating in the present study, in cooperation with other social and economic research network organizations throughout sub-Saharan Africa.

Participating organizations could collaborate to combine, expand and increase the efficiency and quality of their publication and dissemination services. This would involve, for example,

- an in-depth look at the current publication and dissemination programmes within each organization; and
- an examination of existing mechanisms in place in sub-Saharan Africa (or serving SSA) for publishing and disseminating social and economic science research; determining their capacity and mandate.

The proposed organization could ultimately become the central information clearing house for the social and economic sciences in sub-Saharan Africa:

i) It would be the combined publisher and distributor of the research, documentation and information services currently produced and offered by each individual research network organization. Each participating organization would retain the autonomy and integrity of its respective publications ([text]books, journals, research papers, newsletters, and so on). However,

they would collaborate to form a *separate umbrella organization (the ISC) charged with the publication and distribution of these products.*

ii) The results of the present study indicate that the large amount of grey literature produced by social and economic researchers in sub-Saharan Africa warrants its systematization. The ISC would be charged with *indexing this grey literature*, to include unpublished theses and dissertations. Initially, indexing would be restricted to the research results produced by the users of research network services. This information would be made available on-line, on CD-ROM, and in annually printed registries.

The database of grey literature developed for the present study could provide the basis for this index.

Each research network organization would review all relevant material to determine suitability prior to submitting it to the ISC for indexing. In this way, the research networks can collaborate to set criteria for determining which material qualifies for indexing. Not only will this make *grey literature* more accessible, both within and external to Africa, it may also aid in reducing the stigma attached to this form of disseminating research results (i.e., grey literature is generally considered to be of little or no scientific value).

iii) The ISC would also *generate a database (on-line and on CD-ROM) of domestically published social and economic research* produced by users of research network services. The database developed for the present study could also form the basis for the index of domestic publications.

Ultimately, this database could be expanded to include all domestic publications in the social and economic sciences within Africa. Availability of the database would be based on subscription. Its distribution (and that of the grey literature index) could be made available both within and external to Africa (subscription fees would be determined accordingly). In both cases (grey and domestic literature), *abstracting services would have to be developed*. This will be particularly important with respect to literature that is produced in a language not easily accessible to a wide international and African audience (e.g., literature from Francophone and Lusophone Africa; that written in a regional or national language).

iv) The *ISC would have a Web site*. It would also encourage those research networks not already having a site to acquire one. The ISC web site would provide information on, e.g., a) upcoming conferences at the national, African and international levels; b) training programmes; c) information about funding agencies; d) annotated bibliographies of state of the art literature and new publications; e) the activities of all African research network organizations and other relevant research organizations. If it proves feasible, the ISC could generate book and journal sales via the web site.

All information included on the Web site would be provided by the research networks and other relevant organizations.

v) The *ISC would publish and disseminate its own newsletter* incorporating the information provided in the Web (links) site. This newsletter would outline the information provided in the Web site with period updates.

vi) The ISC could contribute to solving the problem of the limited or lack of availability of scientific literature produced outside Africa (i.e., *improving north-south communication*). The ISC could contract with international publishers and distributors to purchase publications and other relevant materials in bulk form and make these materials available to client organizations and individuals within Africa in printed form or on CD-ROM. The ISC could develop distribution nodes in selected regions to disseminate these materials within each region.

Where this involves copyright fees, the possibility could be explored of effecting an exchange of copyright fees for supplying foreign publishers with their own publications on CD-ROM (in this way the ISC could develop a commercial spin-off industry).

vii) The ISC could contract with universities and other relevant organizations to supply them with research network related publications and scientific publications produced outside Africa.

The proposed ISC would be developed in two phases:

Phase 1: Representatives from the respective network organizations would form a council. This council could be sponsored by donor funding to develop:

- i) A proposal designed to commission a feasibility study that would incorporate plans for operationalization and the identification of relevant services already offered by other agencies.
- ii) A terms of reference with respect to the development of a business plan, financing, and so on.

Phase 2: The consortium could be developed as a non-profit organization, separate from the individual research network organizations, but under the direct control of the ISC council (comprising the executive secretaries/directors of participating research networks and/or their designates). The ISC council would be responsible for setting up the organization and commissioning the necessary studies to determine the infrastructural needs and the establishment of distribution nodes. The council would also determine where the headquarters of the ISC should be located.

III. The functions with which the proposed ISC will be charged would, by definition, encompass "do-able" solutions to a number of other issues raised by the results of this study.

A. Both the preparatory stages of our study and the results indicated a need for

greater coordination between research network organizations. It is our recommendation that donor organizations facilitate joint planning meetings between research network organizations. The primary goal of such meetings would be the development of strategies designed to enable these organizations to better coordinate and stimulate south/south research collaboration. Additional objectives of these meetings would include the coordination of, for example:

- Mailing lists to avoid possible duplication and, more importantly, to develop a regularly updated listing of social and economic scientists throughout the African continent; to include information about their fields of specialization, relevant background information, organizational affiliation, and so on.
- Meetings and other activities in order to i) reach (and include) as wide an audience as possible in these activities; and ii) identify supplementary activities based on the expertise of each participating research network.
- Developing shared strategies for facilitating contact between the research community, policy-makers, target populations, and the general public.

In this way, comparative advantage could be taken of the core competence of the respective research networks.

B. Our study verified the important role played by research networks in *teaching activities*. The study also indirectly indicated a need to i) systematize and stimulate the production of African textbooks in the social sciences; and, simultaneously ii) identify relevant companion resource literature produced in the north. For example, in addition to the limited access respondents have to scientific literature, there seems to be little or only negligible use made of textbooks written by African authors.

It is our recommendation that *a separate funding system be generated for textbook development for use at the tertiary level; and that a project be generated to identify textbook needs and relevant companion literature from the north.*

C. Although some research network organizations are already actively engaged in the identification of distinguished scholars, this activity should be systematized. More importantly, there needs to be *coordination between research networks in the identification of such scholars and the organization of activities around them.* For example, research networks could collaborate to develop:

- i) the generation of a funding pool to allow distinguished scholars to take sabbaticals become visiting lecturers/professors; write textbooks, and so on.
- ii) Annual African conferences should be organized for each social science discipline (to include economics), dedicated to the presentation of graduate level research in progress -- or just completed. Distinguished scholars would give keynote addresses in thematically organized conference subdivisions and act as chairpersons or discussants for organized sessions. This would provide a systematic informal networking system for graduate students to interact with distinguished and other senior scholars.

These conferences could be organized individually or collectively (where relevant) by the three research networks participating in the present study.

D. One of the most serious problems identified at an early stage of the present study was the lack of statistical information about human resources in public institutions. While such information does exist, it has not been systematized. Moreover, its validity is questionable in light of the effects of university closures on the employment stability of research staff. Nevertheless, in light of the paucity of information in this regard, we feel that a project should be generated through collaboration between the three research networks to identify, consolidate and systematize data from existing sources (empirical research projects and archival work) into a *database on human resources in public institutions in the social and economic sciences (universities and related research organizations), in all African countries where such data is available.*

E. The present study could only provide limited information in reply to the question "*does affiliation with a research network make a difference?*". However, we feel that this question is only one part of a more pressing need; that is, for a status report on the social and economic sciences in sub-Saharan Africa.

We recommend that an in-depth study be commissioned that is designed to address both issues. Such a study could be in two phases:

- In phase one, a comparison could be made of the experiences of long-term and more recent users of research network services. The study would be evaluative by nature; its objectives would be to determine whether research network organizations make a difference to the research and teaching activities of social and economic scientists in Africa over the long term; if the services offered have been expanded and/or improved; if the needs of users have changed over time.
- Phase two would involve a longitudinal study, both of the users and non-users of research network services; their backgrounds, employment histories, research and teaching activities, and so on.

IV. Respondents considered scientific meetings one of the main channels of information flow. In order to encourage and expand participation, we recommend that individually -- and in collaboration, the participating research networks:

- *increase the number of meetings* they organize at the national and regional level; and that
- donor organizations should develop more adequate systems for *ensuring greater participation of African social and economic researchers in international conferences*. This will, by definition, increase the international visibility, both of researchers and their research results.

V. As a result of the steady decline of university libraries in sub-Saharan

African countries, the documentation centres of research networks are coming under increasing strain in their effort to provide scientific literature and other information resources for researchers. We recommend that *a needs assesment study be generated to determine how best to strengthen these documentation centres* so that their services are in tandem with the recommended development of an *Information Services Consortium*.