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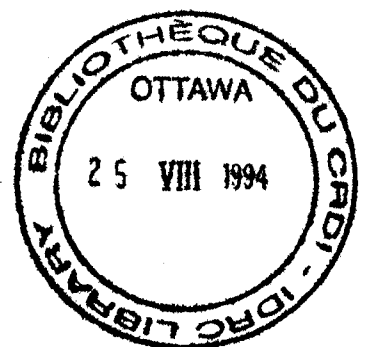
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ROUND TABLE ON
INFORMATION AND COMMUNICATION
FOR
ENVIRONMENT AND DEVELOPMENT

HELD IN NAIROBI MARCH 4, 1993.

Cecil Blake Ph.D
Information Sciences and Systems Division

assisted by:
Flora Shiroya



Regional Office for Eastern and Southern Africa
International Development Research Centre
Nairobi, May 1993.

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CONTENTS

1.	FORWARD	3
2.	WELCOME ADDRESS	6
3.	OPENING REMARKS	7
4.	SUMMARY REPORT	8
5.	ABSTRACTS	10
	LEARNING FOR CHANGE: CAPACITY BUILDING FOR SUSTAINABLE AND EQUITABLE DEVELOPMENT.	11
	IMPROVEMENTS IN THE COLLECTION, ANALYSIS, ACCESS, USE AND MARKETING OF INFORMATION.	12
	POLICY RESEARCH ON NATIONAL INFORMATION POLICIES AND SYSTEMS IN AFRICA.	13
	DEVELOPMENT COMMUNICATIONS	14
	IMPROVEMENTS TO THE TOOLS AND MECHANISMS FOR COLLECTING, ANALYZING, AND REPACKAGING INFORMATION FOR DIFFERENT TYPES OF DECISION MAKERS.	15
	IMPROVEMENTS IN THE COLLECTION, ANALYSIS, ACCESS, USE AND MARKETING OF INFORMATION.	16
	INDIGENOUS KNOWLEDGE, DEVELOPMENT, MEDIA & COMMUNITY - BASED COMMUNICATION.	17
6.	THE ISSD PROGRAM WITHIN THE CONTEXT OF THE POSITION PAPERS .	18
7.	RECOMMENDATIONS	20
8.	APPENDIX 1 Position Papers (unedited)	22
9.	APPENDIX 2 List of Participants	43

1.

FORWARD

ROUND TABLE ON INFORMATION AND COMMUNICATION FOR ENVIRONMENT AND DEVELOPMENT

The International Development Research Centre (IDRC) recently identified six themes that represent the key areas in which it would conduct work in response to the Agenda that emerged from the United Nations Conference on Environment and Development, commonly referred to as Agenda 21.

The IDRC response is quite significant since Prime Minister Brian Mulroney made a declaration on June 12, 1992 that marked a major turning point for IDRC in the development Agenda for the twenty first century. In his statement, the Prime Minister said: "...The mandate of the acclaimed Canadian International Development Research Centre will be broadened so as to deal specifically with the environment and related concerns. ...As a well established organization, IDRC can be active and productive quickly, particularly in the area of research and technology transfer, in building an international network of centres of excellence and in helping developing countries create the capacity they need to follow-up on the responsibilities that will flow from the Rio Conference and assist them as they implement Agenda 21." The mandate is not just clear but places a mammoth task on the shoulders of IDRC. With the declaration of the Prime Minister, IDRC became the first and major Agenda 21 agency concerned with its implementation.

Against the background above, IDRC has, since the conclusion of the Rio Conference, embarked upon a series of internal and external consultations that have now resulted in the identification of three strategic dimensions and six themes, that will constitute the program of work for the next several years. The strategic dimensions and themes are:

Strategic Dimensions

1. More Human Development.
2. Better Economic Management.
3. Sustainable Use of the Environment.

Themes

1. Information and Communication for Environment & Development.
2. Food Systems Under Stress.

3. Biodiversity.
4. Integrating Environmental, Social and Economic Policies.
5. Technology and the Environment.
6. Health and the Environment.

The theme of the Round Table, Information and Communication for Environment and Development carries content that requires a significant degree of reflection, planning and strategising. Essentially, this theme will cover the following:

a) Information Management

- improvements in the collection, analysis, access, use, and marketing of information.

b) Information and Communication Technologies

- research on the development, transfer, and utilization of new Information and Communication Technologies.

c) Information for Decision-Making

- improvements to the tools and mechanisms for collecting, analyzing, and repackaging information for different types of decision-makers, including, for example, evaluation indicators.

d) Development Communication.

- research and experimentation related to the role, processes, and effects of communication, including indigenous knowledge systems, development media, and community-based communication systems.

In addition to the above, the following issues will form part of the activities under the theme:

- Policy Research (National Information Policies).
- Learning for change: Capacity Building for Sustainable and Equitable Development.

Stemming from the above, the Centre is now developing various programs for its work in several regions of the world. Among the mechanisms that the Centre has adopted is the Regional Round Table. One such has been held already here in Nairobi in October, 1992, on "Environment and Sustainable Development".

OBJECTIVE

The Regional Round Table on Information and Communication for Environment and Development was the second in the series. The objective of this Round Table was to solicit the views, opinions and strategic responses of experts in information sciences and systems and others with related interests, that will be working with IDRC in the delivery of its program in the region, representing several sectors. In essence, the Round Table served as one instrument to validate the IDRC theme and program of work on information and communication as they relate to environment and development in the region, which has been put forward as a result of the enhanced mandate for sustainable and equitable development, following the Rio Conference.

PARTICIPANTS

The participants at the Round Table represented various sectors in the theme. They represented also a significant cross section of those involved with the delivery of the IDRC program in the region. The head-quarters of the International Development Research Centre was represented by the Director-General for the Information Sciences and Systems Division, Martha B. Stone and the Director for Program Co-ordination, Paul McConnell. (The full list of participant is included)

Eight participants presented a two page single-spaced position papers on the theme assigned to them followed by discussion. The papers addressed essentially, elements earlier outlined under the theme.

OUTCOME

The report that follows present the essential points raised in the Round Table, concluding with recommendations for future action on the theme covering issues on: National Information Policies; research capabilities and subsequent requirements; human resource needs and requirements; private ventures and prospects for the development of information industries in the region; management and marketing concerns in information; possible collaboration between like-minded organizations and institutions in the region on the theme of the Round Table; and strategies to enhance dissemination and utilization of research results for sustainable and equitable development through the uses of the new information and communication technologies in the region.

Cecil Blake

2.

WELCOME ADDRESS

Dr. Eva M. Rathgeber, Regional Director, International Development Research Centre (IDRC) Regional Office for Eastern and Southern Africa, opened the session with a welcome address during which she described the activities of IDRC in the Eastern and Southern Africa region, focussing on the role IDRC has played in assisting researchers and various institutions in the South.

She pointed out that during the past few years however, IDRC has been redefining its role, as a result of budgetary limitations. Given the above, it was necessary to sharpen its focus and develop more strategic partnerships.

She identified the six themes and three strategic dimensions that constitute the work of the organization, grounded on the broad principles that emanated from the Rio conference during which Agenda 21 issues were addressed.

She stated that the Centre is focusing on these six themes and looking into ways of how they could be addressed effectively. She informed the participants that efforts are being made in examining the themes through a pooling of experience from researchers and practitioners in the region, hence the Round Table.

3.

OPENING REMARKS

In her opening remarks Mrs. Martha Stone, Director General, Information Sciences and Systems Division, introduced the theme: Information and communication for Environment and Development: The IDRC Agenda 21 Mandate.

She informed the participants that following the announcement in 1992 that IDRC would be an Agenda 21 Organization, the Information Sciences and System Division was provided with an additional challenge to refine its activities relating to emerging issues on environment. By dedicating a chapter to information issues, Agenda 21 clearly recognized information as an integral part of the environmental development agenda.

She said that over the years, the Information Sciences and Systems Division has developed projects in the area of environment and development. Recent initiatives have focused on projects with specific environment and development components identified in Agenda 21.

In its response to Agenda 21, and faced with financial constraints, IDRC has had to make choices and in so doing identified six themes on which to focus. To guide the Division in its program, the following four key areas have been identified:

- Information Management, which includes improvements in the collection, analysis, access, use and marketing of information;
- Information and Communication Technologies comprising research on the development, transfer and utilization of new information technologies;
- Information for Decision-making, which includes improvement to the tools and mechanisms for collecting, analyzing and repacking information for different types of decision-makers;
- Development Communication comprising research and experimentation related to the role, process and effects of communication, including indigenous knowledge systems, development media and community-based communication systems. Additionally, policy research and learning systems will be addressed.

She said further that in conjunction with the Regional Offices, IDRC will review and assess the themes in light of such factors as regional applicability and usefulness to regional development needs, hence the need for a validation process through the roundtables. The round tables provide an opportunity to listen to the views and inputs from researchers.

The Director-General stated that IDRC will also be collaborating with the international donor community in the work to be carried out on environmental development issues.

4.

SUMMARY REPORT

Participants at the Round Table made presentations and held discussions on Information and Communication for Environment and Development covering the following areas:

- Capacity Building for Sustainable and Equitable Development;
- Methods, Tools, Techniques and Information Repackaging;
- Research Processes related to Communication, Indigenous Knowledge Systems and Development Media;
- Policy Research;
- Access and Marketing of Information.

Two components in capacity building were identified; the need to strengthen national institutions, and training of individual policy makers, and various target groups including women, for sustainable development.

Participants reviewed methods for collecting, analyzing and accessing and using information in decision making for the environment and development. It was emphasized that decision-makers need information that is relevant, timely, accurate and usable. Consequently, methods for information gathering, access and utilization need to be improved. Criteria for determining legitimacy and source of information were not often applied and, therefore, need to be refined. Participants examined developments in information technologies and their application in information exchange.

In discussing knowledge systems, the importance of indigenous knowledge was emphasized. The need to find ways of integrating the wealth of indigenous information from rural people into development was raised and the necessity to consider users at grassroots level as information producers as well. A major difficulty identified by the participants was how to integrate indigenous knowledge in various resource realms into "new" knowledge systems being used for development programs. Bridging the two knowledge systems is a critical issue on the research agenda in the theme being discussed.

There was discussion on the need to facilitate research processes related to communication for development as well as to find ways of tapping resources in this sector. It was pointed out that communication capacities were inadequate. It was necessary to improve capacity and promote information exchange and sharing.

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5.

ABSTRACTS

Presented below are abstracts of the position papers presented by participants at the Round Table who were assigned specific topics. Following after the abstracts is a response to the position papers from the perspective of the Information Sciences and Systems Division.

**TOPIC: LEARNING FOR CHANGE: CAPACITY BUILDING FOR SUSTAINABLE
 AND EQUITABLE DEVELOPMENT.**

AUTHOR: W. OLABODE AIYEPEKU

This paper examines approaches to capacity building for sustainable development. The paper suggests that in order to promote self sustaining communities, an effort should be made to build human resources aimed at empowering various target groups.

Consequently, diverse programmes for building capacity should be put in place. At the University level, research capacity needs to be improved and strengthened. Existing educational programmes within the tertiary educational institutions need to be evaluated with a view to identifying areas where students should update their skills and renew their knowledge especially in such areas as environment.

There is also need to educate the public at different levels so that they can be able to work together on developmental issues. Special attention needs to be paid to women who should be empowered to actively participate in community issues including those related to environment.

TOPIC: IMPROVEMENTS IN THE COLLECTION, ANALYSIS, ACCESS, USE AND MARKETING OF INFORMATION.

AUTHOR: HON. BETTY BIGOMBE.

This paper examines the importance of information in the context of policy making. It discusses the need for timely, appropriate information which provides a basis for making sound decisions for sustainable development.

Specific issues examined include assessment of user needs and marketing of information. The paper considers the demand for all types of information including indigenous knowledge; data collected at the national level and information generated by various international agencies. It cites the problems encountered in information marketing effectively to a wide range of users with different reading habits and user needs.

The author calls for further research and support for better management of information and associated technologies and development of technical skills for improved communication and decision making.

TOPIC: POLICY RESEARCH ON NATIONAL INFORMATION POLICIES AND SYSTEMS IN AFRICA.

AUTHOR: MS. NANCY HAFKIN

A seminar held in 1988 on National Information and Informatics Policies in Africa addressed the need for adoption of national information policies. Following the seminar, efforts were directed towards informing policy - makers about importance of incorporating national information policies in their national development plans and utilization of the information at all levels of decision - making.

This paper discusses further, advances and changes in information activities on the African continent, since 1988 at the sub-national and national levels. Specific information activities reviewed include the development of communication technologies, emergence of new forces in the areas of democracy and environment which highlight the role and importance of information in support of the new structures.

The author comments on the production and consumption of information and building of strategies for information policy research.

TOPIC: DEVELOPMENT COMMUNICATIONS

AUTHOR: POLYCARP OMOLO OCHILO

Communication is central to progress and development. Lack of communication can create major obstacles to development. This paper presents a brief overview of some key issues relevant to development communication.

Focussing on development, it argues that participation is essential in development and with participation comes the need for information and better channels of communication.

The paper suggests that to be able to communicate and articulate development problems and sensitize people to existing development issues such as those related to environment, there is need for freedom of the press within a democratic society.

Considering the importance of development communication, the paper proposes setting up of a co-ordinating secretariat. The secretariat would identify research priorities in development communication, funding sources and act as a co-ordinating and facilitating centre with IDRC.

TOPIC: IMPROVEMENTS TO THE TOOLS AND MECHANISMS FOR COLLECTING, ANALYZING, AND REPACKAGING INFORMATION FOR DIFFERENT TYPES OF DECISION MAKERS.

AUTHOR: CHARLES GRAVIOUS SAMKANGE

The role of scientific and indigenous information in decision making is discussed. The paper addresses the nature of different types of information, the processes by which it is generated, organized, preserved, retrieved, analyzed and disseminated to decision makers and other potential users for community action.

Modern information technology tools are reviewed which provide the means of tapping the variety of international resources including publications, databases, communication networks and other technical information sources.

However, a significant obstacle in utilizing indigenous information is the problem of organization, management, transfer and repackaging of the informal information. There is, therefore, need for research in developing indigenous knowledge capacity. Additionally, it is essential for this information to be repackaged appropriately in order to encourage effective use for improved communication and decision making.

TOPIC: IMPROVEMENTS IN THE COLLECTION, ANALYSIS, ACCESS, USE AND MARKETING OF INFORMATION.

AUTHOR: DR. WILSON K. SINTONIK

Information plays a vital role in the economic, socio - cultural and environmental needs of a country. Consequently, emphasis in effective management of information is required.

This paper outlines approaches for consideration in improving the quality of information for developmental purposes. The paper focusses on following areas: the need for developing improved appropriate data indicators for identifying correct priorities in the development process; systemizing methods for collecting, processing and analyzing data; developing measures and procedures for determining the credibility and integrity of information; providing alternative methods of analyzing, repackaging and marketing information, taking into consideration such basic needs as food, shelter and environmental awareness.

**TOPIC: INDIGENOUS KNOWLEDGE, DEVELOPMENT, MEDIA & COMMUNITY -
BASED COMMUNICATION.**

AUTHOR: ROB SINCLAIR.

It is evident that community action at the grassroots level is critical to sustainable development especially in the South.

At the grassroots level, communities have formed informal networks and groups which utilize indigenous knowledge in their development activities. The indigenous information forms a critical component of the development process and is controlled solely by local communities. But while it is true that the community makes important use of the indigenous knowledge, it is not especially true that those who control resources and make policy decisions enter into meaningful dialogue with the community about the role of such indigenous knowledge in socio-economic development.

This paper argues that there is a continuing need to explore modes of introducing indigenous knowledge into the discourse of development. Additionally, it is necessary to generate effective channels of communicating global activities to the grassroots level.

6. THE ISSD PROGRAM WITHIN THE CONTEXT OF THE POSITION PAPERS

PAUL McCONNELL

A recurring issue emerging in all the presentations and discussions is that of environmental concern. This illustrates agreement on the theme as conceived within the overall framework of programs of IDRC in general and specifically, the theme under discussion. An assessment of the Information Sciences and Systems theme and its sub-programs indicates areas of convergence. These include:

- repackaging, marketing and utilization of information within the Information Management sub- program;
- finding better ways of exploiting information technologies for the improvement of information in relation to the Information and Communication Technologies sub-program;
- reaching out to different types of decision-makers, selection of indicators for decision-making and creating awareness of the value of information within the Information for Decision-Making sub-program;
- mechanisms for reaching out to the people, role of the media, linking indigenous knowledge to research systems and collaborative approaches in development communication within the Development Communications sub-program.

Some of the other issues raised were not confined to specific sub-programs of the theme such as capacity building and information technology.

All participants introduced the word " environment " in their presentations. But there were differences of opinion in its definition as well as points of agreement which provided the basis for discussion.

Several research entry points especially from within the softer, social dimensions of the information communication field emerged from the discussions:

- concern and interest on issues related to the use and effectiveness of information by different groups of people;
- finding out better ways of linking research results to utilization;

- repackaging of information to suit and reach the right audience;
- better marketing skills to sensitize target groups at all levels on the value of information;
- improving the communication process at all levels;
- increasing efforts in reaching out to senior policy makers and politicians;
- recognizing the importance of indigenous knowledge and integrating it into development;
- improving the process of determining the legitimacy and source of information.

The context in which Information and Communication for Environment and Development has emerged can be examined in terms of some very basic issues contained in the strategy for Africa sector, of the Information Sciences and Systems Division. The strategy has been implemented over the past several years. It is gratifying to note that the theme under discussion was validated by participants at the Round Table.

The text of this report contains several concrete suggestions that are derived from the contributions of the participants at the Round Table. The recommendations presented herein summarize the key conclusions arrived at and presented to the Information Sciences and Systems Division for consideration in the delivery of the programme in the Eastern and Southern Africa region. The environment formed the basis for the recommendations in line with the theme.

The participants called for:

1. a major research agenda on the theme for the region encompassing the factors identified and discussed, such as research on information systems for the preservation of biodiversity, indigenous knowledge etc;
2. a catalytic function to be performed by Information Sciences and Systems Division in the region involving the promotion of dialogue with users ranging from politicians, policy makers, researchers, information industries and organizations that work at the grassroots level. The catalytic function would involve among other activities, sensitizing the various groups mentioned above on the importance of the information sector in the region; and promoting activities that would facilitate linkages with the private sector;
3. fact finding initiatives to establish a register of who is doing what, in the information sector in the region - a state of the art data-base;
4. strengthening of existing bodies that have potential to work and improve upon research, training, dissemination and utilization in the information sector in the region;
5. the setting up of a regionally-based consortium that would foster an integrated approach to institutional capacity building and linkages; identify areas for research and training activities; identify sources for resource generation and support; examine channels of communication and work towards the systematization of indigenous knowledge systems;
6. the development of information systems in various sectors including the environment;
7. setting up data-bases in collaboration with like-minded partners on water, shelter, solid waste disposal and other critical areas related to the environment;

8. the establishment of a panel of experts that would periodically look at the activities carried out under the theme in the region and;
9. a solid maintenance of balance between research and action-oriented activities on the theme.

Full text of position papers as presented (unedited)

LEARNING FOR CHANGE: CAPACITY BUILDING FOR SUSTAINABLE
AND EQUITABLE DEVELOPMENT.

W. OLABODE AIYEPEKU

'African Development Information Sources and Systems' is a compulsory course in the master's degree programme in information science at my university. During two years of teaching the course, I have encouraged each of my students to develop "A Perspective of Africa's Development Priorities". Two of the fourteen "Priorities which have been developed: "Environmental Harmony" and 'Sustainable and Equitable Development' have a direct bearing on both the subject of my presentation and the theme of this Round Table. The apparent meeting of minds between an African school of information science and the organizers of this meeting is not accidental and it should be actively nurtured. And although neither the theme of the Round Table nor the topic assigned to me displays an aiel bias, the points raised deal primarily with the African setting.

- I. The Challenge of Change: (a) Change is necessary and potent factor in the world of information and environmental studies. Schools of librarianship have over the years, evolved into schools of library and information studies, increasingly, into schools of information studies. (b) The recognition of research in information science as a potentially powerful change agent is a growing phenomenon. (The reconstituted Information Sciences and Systems Division of IDRC, with a clear emphasis on research, is a useful reminder of this important reality). The sensitization of most developing countries to recognize the magnitude of the environmental hazards they face and the corresponding change of attitude required is a monumental task (e.g., Philippines, Chad and Honduras - The Guardians, Feb. 15, 1993).
- II. Whose Capacity? Three target audiences are identified for capacity building:
 - (a) The General Public - Keeping the population abreast of developments on the environment through special programmes in various languages in the mass media; the targeting of special groups, especially women; and ensuring people's capacity to 'feed back' into some coordinating authority their experiences on environmental issues.

- (b) Public Institutions essentially at the national level, e.g., in Nigeria FEPA and NEST are obvious targets for organizing workshops, writing special feature articles, and doing multidisciplinary research on the subject.
 - (c) Tertiary Educational Institutions, with responsibility for the formal and informal training of information professionals, which share the functions of public institutions plus special courses on the environment (e.g. FSE 703 at ARCIS = Environmental Information Sources and Systems).
- III. Infrastructural Capacity Building. Most of Africa require the capacity building functions specified above because they are seriously deficient in: (a) appropriate policy frameworks and (b) telecommunications and computing infrastructures. We will not go very far without strengthening both types of infrastructure in order to play our part in the global communication network that is rapidly evolving on the subject.
- IV. The Management of Change. The drama of Earth Summit '92 is over; the management of the desired change has commenced, especially at the national level where Sustainable Development Networks are being set up to translate the Summit's global blueprint into concrete national action plans. What should be Africa's appropriate response?

There is no shortage of development initiatives in Africa: our quinquennial national development plans, two-or three-year rolling plans, etc., are all too familiar. Our Governments' lofty declarations of "Housing or Health For All by the Year 2000" reflect often genuine, if somewhat naive, intentions to spread the gains of development as equitably as possible among our teeming and growing populations. We must not allow our approach to the management of environmental information issues to suffer the same fate. In order to ensure that global, regional national and community efforts in this vital activity are both sustainable and equitable, the following measures may be considered: (a) Integrate environmental information into national health management, especially at the primary health care level; (b) Ensure an equitable commitment of resources to urban and rural environmental information concerns; (c) Mount a continuing education campaign, which uses more audio visual than graphic communication, to ensure an environmentally conscious population at all levels of every community; (d) Train development planners, policy and decision makers to inculcate the virtues of integrative planning and development as a vital prerequisite for promoting a harmonious environment, (e) Devise an effective reward system for outstanding achievements, especially those that could have multiplier effects in the Region; and (f) Regularly review performance comparatively at community and national levels.

POSITION PAPER ON INFORMATION MANAGEMENT
IMPROVEMENTS IN THE COLLECTION, ANALYSIS, ACCESS, USE AND
MARKETING OF INFORMATION

by

HON. BETTY BIGOMBE - UGANDA

Providing and improving access to timely, accurate, specific and the best information possible is necessary for better all round decision making. There is therefore need to facilitate the activities and efficiency of individuals or organizations engaged in data collection, analysis, monitoring, planning, marketing dissemination and use.

Analyses of the Current Situation

A poor natural information base still persists in Uganda and probably many developing countries. The existing geo-based products are not used widely and are themselves not adequate. There is little or no integration between Geographical Information Systems/Remote Sensing (GIS/RS) products and other data.

In almost all existing policies, little or no attention is paid to the need for continually gathering, compiling, analyzing, updating and disseminating information about resources and there are no budgetary provisions. The natural resources policies in Uganda re the responsibility of sectoral ministries and departments. The revision of natural resources information in Uganda is also largely the responsibility of the public sector. However, responsible institutions in this sector are not well equipped to perform this function. The role of the private sector here is minimal but is expected to grow with time.

All the natural resources policies should be brought up-to-date to reflect the current challenges in the management of these resources. The "bottom up" and "top down" information flow within government institutions themselves and between the policy formulation levels and the grassroots still persists.

Uganda, like most developing countries possibly spends about 0.1% of her GNP on information. All projects in the country should share the information they generate.

ACCESS TO INFORMATION

The law in Uganda is very vague on issues regarding access to information. It is therefore necessary that this area be further studies with the aim of advising

Government on the matter. The necessity of having a national information policy exists and should be supported.

Indigenous, traditional and local knowledge needs to be better integrated into decision making. There is need to facilitate increased use of locally available knowledge and expertise or experience for sustainable development. This should include locally generated and/or organized scientific information (socio-economic, and science and technology information). Early warning systems linked to local Stations build around communities, bringing together elders and all appropriate groups to share their wisdom and knowledge, and making this generally available are possible. However, in Uganda where the custodians of indigenous knowledge have been generous, this knowledge has been pirated and patented by foreigners.

ASSESSMENT OF USERS NEEDS

An assessment of the needs of users of natural resources information has been carried out in Uganda. The user needs were identified at the local, project, district, sectoral and national levels. It is envisaged that in the long term, the National Environment Information Centre should meet the needs at all these levels. However, in the short term, the national and district levels are the priority areas. In addition, there should be support to sectors, and existing projects which should be served on a cost recovery basis. The priority data sets identified include demographic data, agricultural information, information on energy, soils, protected areas and biological diversity. Intersectoral data sets such as climate, socio-economic information infrastructure, communication, basic maps etc. also fall under this category.

THE MARKETING OF INFORMATION IN UGANDA

1. Information, especially that is produced by the public sector has in the past been viewed as a public good which is produced using public funds. The popular notion has therefore been to regard it as a free good. On the other hand, information from private sources have always been offered at a cost. Private information generating firms have continued to exist; and the interests of the Clientele are known and specific.

Whatever the source, collection, analysis and dissemination of information of any kind of a cost exercise. Public institutions involved in this activity often find it difficult to continue investing in information without recovering at least a fraction of such investment. The main method of cost recovery is through selling the information. A lot of people understandably wave their arms in protest at the suggestion that public institutions should also be allowed to sell the information they possess. Those protests, however, die down in the faces of the alternative - i.e. not having information at all due to lack of investment

funds. The delicate issue remains - how much should be charged for information?

There are arguments which maintain that information should only be sold at a very low price because anything short of that would render it expensive, thus introducing the danger that those who use it for decision-making may opt to proceed in the dark. The counter argument is that free or cheap information is not taken seriously and is thus not handled with the care it deserves. The implication here is that cheap information may also be ignored. Information can only be sold if the users are willing and able to pay. There must be an efficient marketing system in place. This is uncommon with public sector institutions. The rational marketing approach for information in Uganda should follow the following proposal:-

- a) Those who have ability to pay for information and have made budgetary provisions for this should pay on a cost recovery basis. This included projects, Consultants, and private/Public institutions and individuals that make money through utilizing the information.
- b) Public Institutions that use the information for public good should have a special rate. If they require information on a regular basis, they should subscribe a standard fee to the information source.
- c) Some individuals and institutions which require the information for public good but have no ability to pay, should receive the information free of charge. This includes RCs, schools etc. However, they should be able to provide the medium on which information is provided.

There is still a lot of grey areas existing in marketing of information in Uganda. However, lack of funds has brought an urgent need for cost recovery and hence the vivid requirement for market research in this area. With the understanding that information is power, fixing a price on it and identifying those who should pay for it should happen without much complaint! We believe assistance should be given to the relevant institutions in the public sector so that they can provide the specialized information required for integration in the environment and development database. Private Companies in the field of data gathering, compilation, analysis and information dissemination should be encouraged, to assist in the establishment of joint ventures between North and Ugandan Firms. The former can help in strengthening Ugandan National Capacity.

International Development Research Centre
Round Table on Information and
Communication for Environment and Development
Nairobi, 4 March 1993

policy research on
national information policies and systems
in Africa

Nancy J. Hafkin, PhD.
Officer-in-Charge
Pan African Development Information System
United Nations Economic Commission for Africa
Addis Ababa, Ethiopia

The need for policy research on national information policies and systems is not new to Africa. In 1988 a major stocktaking on this issue took place with the organization of a Regional Seminar of National Information and Informatics Policies in Africa, jointly organized by IDRC and the Pan African Development Information System of the United Nations Economic Commission in Africa.¹ That seminar was the first of its kind to examine informatics and information policies for development in African countries. Among its conclusions were that a basic African information problem was the sectoral fragmentation of information, for which the holistic approach of national information policies would exercise a positive effect. None of the countries examined had yet adopted a full-fledged information policy, although several of them were in various stages of policy formulation or consideration of the issue.

However, a number of developments since that time underline the present need for further policy research on this issue. Four and one-half years have gone by since that seminar, with some major changes that call for re-examination of the question. The 1988 seminar examined only anglophone countries of eastern and southern Africa, with a passing glance at North Africa (mostly by way of example, because that part of the region had been in the lead in the adoption of information policies). Subsequent initiatives have been taken by a number of African countries, many of them outside of anglophone eastern and southern Africa, to adopt and/or update information policies. These include Burkina Faso, Burundi, Ethiopia, Guinea, Mali, Mauritania, Nigeria, Rwanda and Senegal. Information resource sharing, an important element in information policies, has become a reality through the founding with IDRC assistance of

¹ Held in Africa, Addis Ababa, Ethiopia (28 November - 1 December, 1988).

two regional information science schools in the region: the African Regional Center for Information Sciences (ARCIS) in Ibadan, Nigeria, and the School of Information Science in Africa in Addis Ababa, Ethiopia.

New forces have appeared that were barely, if at all, on the scene in 1988 which call for research to re-examine the content of existing information policies in light of these new realities as well as constraints to their adoption in countries which have not yet adopted them. These include (not necessarily in priority order:

1. **The increasing presence of information technology in African region.**

In 1988 affordable information technology had made its presence little felt in the Africa region. In a study undertaken in 1988 by ECA/PAID of 450 documentation and information centres in Africa, less than half had micro-computers and most had only one machine; these were being used mainly for bibliographic information management or for word processing; staff were poorly or little trained and some micro-computers were not being used at all because of lack of trained personnel² By 1993 that situation has changed greatly. The enormous fall in prices in information technology has made it affordable in the African region; mini-computer systems previously used for planning can be replaced by micro-computers at 1/20th the cost. Africa can leapfrog technological generations and acquire today's low-cost, high-powered information technology. The desktop computer in the office is becoming African reality, though still fraught with difficulties posed by the African situation. The ECA Conference of Ministers of Planning recognized this in 1992, the first time that they considered information issues on their agenda, with a resolution urging African States to adopt policies related to the acquisition and utilization of information technology.³ In order to assess how African countries are managing this new reality, PADIS is now undertaking an IDRC commissioned study in 10 countries to assess informatics policy instruments in 10 African French and English speaking countries. The rapid changes in information technology are creating new opportunities and new pressures in every area of information policy. These are seen especially in the pressures they put on information policy in developed countries, such as the USA, and which are now becoming part of African reality. That does not mean that African countries should adopt technology-led policies, as seems to be the situation in some developed countries, but rather that the dimension of informatics must be a serious consideration in information policies and the information systems that derive from them.

² ECA, "The use of micro-computers in documentation and information centres in Africa" (Addis Ababa, 1988).

³ Resolution 732 (XXVII); this same resolution also urged African States which had not yet done so to promulgate national information policies.

2. **Environmental awareness.** This was not here in 1988. Africa was the dumping grounds for the world's garbage, often with the complicity of African governments; its citizens denuded forests without regard for the consequences; the tobacco industry from developed countries found large new markets in Africa when their home sales dropped drastically.

This situation is changing with the importance given to environment and sustainable development in developing countries in Agenda 21. The basic equation for Africa is that sustainable development must be based on successful management of the environment, for which information is a sine qua non. Environmental information systems must become integral parts of national information systems as defined by national information policies. This involves not only scientific and technological information (and thus scientific and technological information systems, the mainstay of national information policies in many countries), but rather all the information needed to successfully manage the environment, much of which is social and economic in nature (i.e. information on population trends, prices, consumption patterns, marketing systems, land and property ownership, income distribution and other human factors which determine how physical and natural resources are used). National information policies and systems must be examined to determine the extent to which they take into account environmental information, and where they are found lacking, to be redesigned in order to incorporate this factor of inestimable value. It means as well as re-examination of the importance of social and economic information for development planning and decision making.

3. **Advancing forces of democracy in Africa.** The tendency towards democratization in Africa - a factor almost completely invisible and unforeseen in Africa in 1988, but one which is a major determinant today - has several implications for information policies and systems. One is the need for the protection of the free press, again a new but rapidly growing phenomenon in Africa, and of individual privacy. The other is in the democratization of information, the need to focus on user needs and to see information as a demand driven industry, developing products and services required by users, with proper attention to user education and decentralization of information services. This democratization of information is inextricably linked with environmental awareness. Through the democratization of information, a greater focus on environmental issues is inevitable.

Conclusion: Rapidly changing technology, and the presence of new forces, in the form of environmental awareness and democratization bring a need for African countries to adopt comprehensive national strategies for information policies that will serve them in the 1990s and beyond. Policy research on these changes will guide African countries and their people in determining necessary new directions.

A two page position paper on Development Communications:

research and experimentation related to the role, processes and effects of communication including indigenous knowledge systems, development media and community-based communication systems.

BY:

POLYCARP OMOLO CHILO

School of Journalism

University of Nairobi

P.O. Box 30197

Nairobi

PAPER PRESENTED AT THE INTERNATIONAL DEVELOPMENT RESEARCH CENTRE (IDRC) REGIONAL ROUND TABLE ON INFORMATION AND COMMUNICATION FOR ENVIRONMENT AND DEVELOPMENT IN NAIROBI, KENYA, 4TH MARCH, 1993.

THE VIEWS EXPRESSED ARE THOSE OF THE AUTHOR AND NOT THE (IDRC) AS THE ORGANIZERS OF THE ROUND TABLE

INTRODUCTION

Communication is so central in our view for mankind's progress and development and yet, it is so difficult and complicated to be understood fully by many for reasons of culture diversity and varied human socialization processes internationally. We feel therefore, obliged to attempt a brief definition of the concept; Development Communication. For our purpose here, we shall define Development Communication as communication strategy that relates to the entire society and its needs oriented to the population without necessarily, endangering the states management functional roles; while at the same time not being used to legitimize unjust authoritarian regimes (KUNCZIK, 1992:23). It may be understood as communication process that proceeds from the normative assumption, that the people affected must be actively involved in decision making, planning and implementation of development projects. Besides, it is both decentralized and participatory.

It is however, important to understand, that its proper functions are based on the normative theoretical assumptions that it is participatory and decentralized in terms of

ownership; is equally based on the understanding that the government in power is democratic, and that there is press freedom.

The position adopted in this paper is premised on the notion that Development communication has a critical role to play, in both the articulation of any development problem of global nature as the Environment, as well being able to demistify the various complexities that may be associated with a particular development question. This is important in different ways. First, in creating general awareness and sensitization, secondly, in creating focus and action oriented awareness and thirdly, in raising the basic questions on various aspects of policy issues that may be seen to be wanting, in as far as the problem in question may concern. As a consequence of the above, same strategies to deal with the problem may be formulated either locally, regionally, nationally, or international to deal with the problem in hand.

The linkages between Development Communication and research experimentation related to role, processes and effects of various forms of communication may be understood, through qualitative interpretation of the extent to which successful Development Communication tend to be linked to both the nature of the government in place and the extent to which the envisaged development communications components of planning, design, implementation and the materials development must be based on empirical data. This kind of linkages provides the justification for research agenda on a global problem as that of environment which is both complex and global in nature.

RESEARCH AGENDA

The various kinds of Research that may be undertaken in our view offers one of the most sure ways of getting the answers to the diverse and culturally complex environmental problems and the extent to which socio-cultural issues and human behaviour continue to affect the environment globally. (UN, 1988:). In this context however, the research agenda need as well to look at various aspects of communication and the resultant communication effects arising therefrom. But for this to happen, there is need for the academics to take a serious interest in broadening their conceptual understanding of the environmental problems down to communities and the role of the environmental and communication research on policy and cultural contradictions that tend to impede sustainable environmental development programmes in Africa and the rest of the world. This may create additional demands on academics to be much more open and positively sensitive to the environmental problems of various nature. (IDRC, 1989:1).

STRATEGY

1. There is need for establishing a small supportive secretariat composed of interested researchers to undertake the following:

- (a) Identify Research funding sources in order to establish Sub-grants for in-country or sub-regional research programmes on the Environment.
- (b) Identify Research priority topics on Environment and Communications as: Channels, type, Reach, Utilization modes, and community modes of communication and medium preference (For both modern and Traditional Media) Note some of these may be country specific or/regional specific.
- (c) Work out modalities of relevant research Institutional linkages and capacity building for along term goals.
- (d) Work of the modalities for previous reviews and appraisal modes of the agreed research programmes.
- (e) Act as co-ordinating and facilitation centre with links to IDRC.
- (g) Work out modalities for research findings exchange, utilization and dissemination, say through national or regional or sub-regional workshops and seminars.

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REGIONAL ROUND TABLE ON INFORMATION AND COMMUNICATION FOR
ENVIRONMENT AND DEVELOPMENT, NAIROBI, KENYA, 4 MARCH 1993

Information for Decision Making.

MR. CHARLES GRAVIOUS SAMKANGE

Senior Consultant in Information Technology

Eastern & Southern African Management Institute (ESAMI)

P.O. Box 3030

TANZANIA

Telephone: + 225-57-8383-8

Telefax : + 225-57-8285

Telex : 42076 ESAMI TZ

Improvements To The Tools And Mechanisms For Collecting, Analyzing, And
Repackaging Information For Different Types Of Decision Makers.

Individuals and institutions make decisions on the basis of whatever **knowledge** they possess and on their interpretation of the information available to them at the moment of making the decision.

Knowledge is that which is acquired over time from observation, experience, formal and informal learning processes, beliefs, attitudes, norms, culture and the environment. Rational people always make decisions which are logically sound within the scope of the knowledge they possess. **Information** is the present stimulus that triggers the decision making process. Information also serves to increase knowledge in that future decisions are based partly on an evaluation of the consequences of past decisions.

To facilitate the performance of decision makers, we need systems and mechanisms to improve both knowledge and information systems. We require knowledge systems which will ensure that decision makers have the correct perspective and awareness of environmental and developmental issues, are sensitive to the consequences of certain of their decisions when making decisions, and take into account the wide range of possible interactions between the environment and development. We also need information systems to ensure that decisions are based on complete and correct knowledge of the present situation and that the right decisions are taken at the right moment. Knowledge and information thus play complimentary roles in the decision making process. The systems, tools, techniques and approaches for handling knowledge and information are similar in some respects but with differences that need to be noted and appropriately treated.

The acquisition of knowledge about the environment is a long term and less formalized and understood process than the provision and use of information. Two distinct types of knowledge about the environment and development exist: **Scientific and Local (or Traditional)**

Scientific knowledge refers to that (formal) body of knowledge usually acquired through scientific research, data collection, analyses, surveys, etc. Setting up and maintaining scientific knowledge bases and systems requires:

- Appropriately sensitized practitioners who have capabilities in knowledge elicitation, engineering and management.
- Technological support especially where large bases (in volumes of facts and relationships) are involved.
- Sectoral, regional and global cooperation since decisions on environment and development are inter-sectoral as well as inter-national.
- Standardization of knowledge representation formats across platforms since inevitably the knowledge required will exist on various technological platforms.

Resources must be channeled into the provision of the necessary technological systems, developing technically competent staff, instituting systems and procedures for exchange of scientific knowledge and for making this knowledge available to those who need it. Such efforts are already in progress through various projects such as GRID, INFOTERA and ARCIS.

In addition to scientific knowledge, there exists a vast body of traditional knowledge has long been recognized as being critical to any system for environmental management as is highlighted in Principle 22 of the Rio Declaration on Environment and Development:

Indigenous people and their communities.. have a vital role .. because of their knowledge and traditional practices ..

Unfortunately this wealth of knowledge and practices has not been fully exploited; in fact it tends to be ignored and treated as irrelevant or even 'primitive'. More concerted efforts are required to capture, analyze, disseminate and, perhaps most importantly, preserve and perpetuate traditional knowledge and practices. In this region in particular, these efforts should be commenced as soon as possible if a vast amount of this knowledge is not to disappear with the passing generations, given the rapid urbanization of the populace and the tendency to shift to non-traditional approaches to environmental management, often encouraged on the basis of scientific knowledge

alone. In this regard, research projects should be initiated into the practices of the local population, especially those related with the maintenance of balanced ecosystems and bio-diversity.

The acquisition and processing of knowledge, scientific, important as it is, requires a lot of expertise and resources to execute. There are a number of reasons as to why this should be so:

- Knowledge is largely subjective and therefore requires a lot of personal interaction between the researcher and the subject(s) of research.
- Knowledge elicitation is a relatively slow process given the complexity of the variables involved and the inter-sectoral nature of knowledge.
- Knowledge is acquired and passed on more by informal than formal methods.
- Knowledge is not readily subject to scientific modeling. Knowledge engineering is still a relatively new field with very few, if any, experienced practitioners in the regional.
- Man-made systems that handle and process knowledge are still more of research tools than of practical use.

Knowledge systems are closely related to information systems. It is on information that knowledge is built and sustained. Knowledge has to be disseminated in much the same ways, and channels as information. Knowledge, like information, is a resource to be shared, as underscored in Principal 10 of the Rio Declaration on Environment and Development:

...Each individual shall have appropriate access to information concerning the environment...

Information should be made available to decision makers with the hope of achieving the following:

- For the information to trigger the decision making process and this in turn to lead to some action;
- To positively influence and enhance the quality of the immediate and future decisions
- To build up the decision makers' body of knowledge.

Information must possess several desirable qualities if it is to play a positive role in the decision making process. These have been described in various terms including the need for information to be timely, relevant, accurate, cost-effective and objective. Such information must be packaged in so that it facilitates its dissemination, comprehension, and contribute to the recipient's knowledge.

Tools for repackaging information must include facilities for collecting reliable and relevant data, accurately and cost effectively processing the data, timeously and timeously disseminating such information a format most appropriate to its intended users. Above all, these systems must be able to recognize the different types of decisions to be made, the differences in those called upon to make these decisions and the needs of these decision makers.

In the area of environmental management and development, decision makers include those responsible for making decisions at the global, national and sectoral levels on one hand and those who make decisions at the local levels. Information must be packaged accordingly.

Information technology offers a number of attractive tools for repackaging information. Their strength is build, among other things, on their ability to quickly extract the desired information, to the specified depth of detail and to make this available in the format most appropriate to the recipient. These include automated data collection and validation utilities, information management utilities, query handlers and data formatting facilities as well as cross-platform data transfer utilities. The level of sophistication of the tools actually used depends on a number of factors, including the resources available, the caliber of personnel involved, the volume of information involved as well as the types of decisions to be made.

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE'S

REGIONAL ROUND TABLE

ON

INFORMATION AND COMMUNICATION

FOR

DEVELOPMENT AND ENVIRONMENT

Topic: INFORMATION MANAGEMENT

DISCUSSANT: DR. W. K. SITONIK

Venue: IDRC CONFERENCE ROOM

INTRODUCTION: It has become increasingly clear that human activities have recently had dramatic negative effects on both air, land and water quality. Much of the warming effects and the change in the atmospheric composition, since 1900, occurred non-governmental bodies around the world.

INFORMATION REQUIREMENTS: In order to accomplish this responsibility, all those bodies charged with the duty to forecast, monitor, evaluate and plan for the appropriate actions must of necessity accumulate indicators on the environmental changes. Their coverage must include the extent of the rate of extraction and utilization non-renewable resources such as oil and minerals; the production, harvest, renewable and transformation of renewable resources such as forests, wildlife and agriculture; and thirdly, on the intensity of the environmental stress associated with the manufacturing, production, consumption and use of resources for development.

Appropriate indicators of planned projects, nature and behaviour of the resultant by-products, amounts and their disposal is of great significance in our ability to plan for sustainable economies, development and environment must be determined. Baseline information on the current quantities and locations on biodiversity and forest compositions should be maintained for subsequent use.

It has become increasingly evident that economic development and the quality of the environment are inextricably interdependent and is not restricted to political boundaries or physical geographic regions. Industrial and human activities generate wastes which traverse all boundaries to cause environmental degradation of major consequences if not carefully monitored and remedial steps taken.

DATA COLLECTION: To facilitate a clear understanding of climatic, environmental changes and development and to enable appropriate decisions to be made, data must be collected at pertinent time intervals, sites, groups, media and be of high quality and integrity. Such data can be collected through the traditional survey methods, as a routine or can be event-driven as on isolated incidents of species to be preserved and wastes disposal monitoring. Data collection must be properly targeted to facilitate focused programmes.

Unlike measurements in other activities, environmental activity is dynamic with little known of the resultant agents composition in the atmosphere, water soil or human development. Measurements of important environmental phenomena must, therefore, be made regularly as more waste products are released from industrial, human and the reaction of the substances produced.

Quantitative and qualitative evaluation of target environmental activities should be made to determine their response, degree of disturbance, limits of adaptability and resilience of the environment.

DATA ANALYSIS: In the effort to monitor the environmental changes caused by industrial and human activities, varied types of observations will be stored. Appropriate analytical methods to extract adequate information from the data must be developed. Due to the nature of the environmental activities, the methods developed must take into account the complexity and the environmental effects on the interactions of the resultant agents. An indication of the complexity involved is seen from the observation that methods and mechanisms by which some of the emitted pollutants like sulphur dioxide and nitrogen oxides among others are transformed into acidifying substances in both gaseous and liquid phases are complex and incompletely understood (UNEP, 1992). Observations made on development activities must augment analyses on environmental data.

DATA ACCESS: Due to the advent of the electronic media, equipment and their compatibility, it has become increasingly easier to transfer information from one media to another once captured. Any data collected on the environmental behaviour and status by any of the collaborating institution can be used by different interested parties. In some cases, data access, is selective in nature to cater for the different needs and confidentiality of the usage.

This in turn demands that standardized procedures for analysis be adapted for commonly collected observations. In monitoring the environment, UNEP uses services of several other agencies, one of which is Global Environmental Monitoring System (GEMS), in conjunction with other United Nations bodies regional and non-governmental bodies to collect, analyze and summarize appropriate data for transfer storage or decision making.

DATA USES: The main use of the data collected on environmental activities under the United Nations Conference on Environment and Development (UNCED) are for monitoring pollutants effects on global warming, ozone depletion, air and water pollution resulting in accelerated loss of biodiversity. Further, appropriate observations are used to determine development activities of various groups, siting of projects and industries. Such information would also be quite beneficial to the construction industry when deciding the commencement of the projects. Appropriately collected data can also assist in developing infrastructure for services and the intervention of adverse effects of destructive human activities on the environment.

MARKETING OF INFORMATION: Information collected by the various agencies can be useful to other bodies not adequately equipped to collect their own. Meteorological department collects information which benefits the aviation industry, construction firms and any other users of specialized data. Similarly, printed matter on collected information can be availed to large scale farmers and industrialists for farming scheduling and siting of projects. These information if of high quality and integrity can be marketed to the end users.

CONCLUSION: The purpose of the programme will be to maintain properly selected databases on human and environmental activities which can be used to achieve a sustainable economy and an environment that will continue to support the biodiversity and human development.

DEVELOPMENT COMMUNICATIONS:

Indigenous Knowledge, Development Media, & Community-based Communication

BY ROB SINCLAIR

**Co-Executive Director
Environment Liaison Centre International (ELCI)**

3/3/93

Community-level action is critical to sustainable development, and thus dialogues, research and experimentation in development communications must pay serious attention to the grassroots. Effective channels of communication with the two-thirds of humanity without whose participation the hope for a sustainable and equitable world is indeed vain; must be identified and used.

Provision of information from the North, or from the educated and "enlightened" of the South, to the non-literate, the impoverished, the disenfranchised, is imperative. What is required is for the South to obtain the means, the technology, and the skills to allow its own voice to speak, and its own rich cultures to devise authentic means to deal with its own world.

Indigenous knowledge is increasingly being seen as a vast, untapped storehouse of answers, or at least guideposts, on the route to a sustainable world. But how do we effectively bring indigenous knowledge into the discourse of development?

An important attribute of indigenous knowledge, aside from its degree of success in dealing with survival, is the fact of its ownership. Indigenous knowledge in agriculture, energy supply and conservation, bio-diversity, and even traditional culture, is important because it is believed in by its practitioners. The efficacy of technique is contingent on the confidence invested in it by the implementer. Technique supplied from an external source carries with it much social and psychological baggage. It may run up against traditional modes of behaviour that the recipient is not prepared to easily abandon, or it may simply not be workable in a given local context. Most of all it may not be trusted.

The implication of this observation is that effective communication would not be achieved by simply overcoming community-level resistance to externally supplied information, but rather by finding ways to facilitate the generation of appropriate technique from the community itself. Confidence in technique can only emanate from the willed participation of the practitioners.

The role of community organizations in this process is pivotal. Where grassroots organizations truly hold the trust of their constituency - usually where processes of participatory decision-making are practiced and are clearly accountable to the

constituency - they become a communication "node". Their awareness of and sensitivity to local knowledge and needs is necessarily strong, as the group itself would be a reflection of the community. Information received from external sources will always be filtered through a community perception. At the same time, the community will be less threatened by external knowledge that has arrived through a collective filter. The community organizations becomes at once the repository of indigenous knowledge and the disseminator/purveyor of external knowledge and information.

In understanding this phenomenon it is necessary to distinguish the different modes of external communication. The first is "macro to micro" level communication, where information on global activities or techniques are transferred to the grassroots level. Because this mode has been well-travelled by Northern international agencies and NGOs, it has developed a high-tech edge where we now see megabytes of information transferred globally through electronic mail and other media. ELCI among others has participated in the creation of information networks in Africa and elsewhere that connect NGOs with each other and with other parts of the world.

But computer and telecommunication don't reach very far towards the grassroots, and that is why excitement over this Northern technology must always be tempered by the need for media of far less technological sophistication, but perhaps of far more subtle design. Print media, where the subject is literate, television and radio where accessible, and most of all face-to-face interaction, through the agency of the community organization: working in the community, holding public meetings and workshops, even utilizing cultural media such as participatory theatre.

The second mode of external communication at the community level is "micro to micro" communication, or information exchange at the grassroots level. In our work with organizations throughout the developing world it has become patently clear that access to useful information, and skills in analysis and utilization of information provided, are severely lacking at the community level. But also lacking is the availability of appropriate knowledge at the macro level to meet this need. Often the only adequate source of information is that which is shared by other groups at the grassroots who have faced and dealt with similar needs. Here again the high-tech media cannot serve the need: the subtle low-tech is required. In this case it requires a variety of response, from the fostering of networks, facilitating exchanges of personnel to share experience first hand, to devising means of disseminating models and techniques to appropriate recipients.

This second mode of communication is being promoted by a growing number of southern networks and southern-focused agencies and international NGOs. ELCI's own experience has included activities such as development and exchange of models of alternative agriculture in Asia and Africa; and coordinating a group of researchers across Africa to exchange findings from their work on community-level issues involving

women and the environment, and developing communication strategies for disseminating and utilizing the findings.

A final mode of communication is dissemination through public media channels. Strategic attention to this mode has not been adequately pursued, yet the power of the media to raise awareness and effectiveness of action, argues for more attention. An increase in media understanding of the realities of community action and community-based communication is required. They must be better equipped to determine if information is characterized by a goal of internalized change and human resource development for sustainable action.

The media has an important role to play in supplementing the other two modes of external communication. It can assist in bringing global issues to the attention of local level activists, and it can serve to promote community-level action itself. Yet at the heart of it all is the imperative to recognize that the community is where the information flow begins and ends, where the key to development communication is stored.

[DEVCOM.ART/8 OCTOBER 1992]

9.

APPENDIX 2

LIST OF PARTICIPANTS

Wilson Aiyepku

Director, African Regional Centre for Information Sciences (ARCIS)

6 Benue Road

University of Ibadan

IBADAN

Nigeria

Position Paper on, Learning for Change: Capacity Building for Sustainable and Equitable Development.

Mr. Achola Awori

Director

Kenya Energy & Environment Organizations (KENGO)

P.O. Box 48197

Nairobi/Kenya

The Honourable Betty Bigombe

Minister of State

Prime Minister's Office

Kampala

Uganda

Fax: 258-722

Position Paper on, Information Management: Improvements in the collection, analysis, access, use, and marketing of information.

Dr. Kwame S. T. Boafo

African Council for Communication Education

University of Nairobi

P.O. Box 47495

Nairobi

Kenya

Position Paper on, Development Communications: Research and experimentation related to the role, processes, and effects of communication, including indigenous knowledge systems, development media, and community-based communication systems.

Nancy Hafkin
Officer-in-Charge
PADIS/ECA
U.N. Economic Commission for Africa
P.O. Box 3001
Addis Ababa

Mohamed Isahakia
Director
National Museums of Kenya
P.O. Box 40658
Nairobi
Kenya

Mr. Wo Yen Lee
INFOTERRA
The International Environ. Information System
Programme Activity Centre
UNEP
P.O. Box 30552
NAIROBI

Paul McConnell
IDRC
Ottawa

Kingo Mchombu
University of Botswana
Dept. of Library Studies
Private Bag 0022
Gaborone
Botswana

Charles Samkange
ESAMI, Kenya
P.O. Box 3030
Arusha
Tanzania

Position Paper on, Information for Decision-Making: Improvements to the tools and mechanisms for collecting, analyzing, and repackaging information for different types of decision-maker, including, for example, evaluation indicators.

Wilson Sitonik
Software Dev. Training, Economic Consultancy
Anniversary Towers, 20th Floor, South Wing
P.O. Box 55958
Nairobi

Position Paper on, Information Management: Improvements in the collection, analysis, access, use, and marketing of information.

Martha B. Stone
IDRC
250 Albert Street
P.O. Box 8500
Ottawa
Canada K1G 3H9

Paul Wagoola
African Assoc. for Adult Literacy & Soc. Kenya
P.O.Box 50768
Nairobi

Mr. Robert Sinclair
Director
Environment Liaison Centre International (ELCI)
P.O.Box 72461
Nairobi/Kenya

Potion Paper on, Development Communications: Research and experimentation related to the role, processes, and effects of communication, including indigenous knowledge systems, development media, and community-based communication systems.

Dr. Noeline Raondry
S/C Direction de L'Enseignement Supplieur
Ministere des Universites
Antananarivo
Madagascar

Observers

Wood Horton
Columbia Plaza
Suite 901
2400 Virginia Av. N.Y.
Washington, D.C. 20037
U.S.A.

Michel Menou
129 Av. P. Vaillant-Couturier
Gentilly, France

HE Ms. Lucie Edwards
Canadian High Commissioner
P.O.Box 30481
Nairobi

All EARO program officers

IDRC - Nairobi

Cecil Blake
Eva Rathgeber
Flora Shiroya

INVITED GUESTS

Dr. Laketch Dirasse
Resident Representative
Eastern & Southern Africa Management Institute (ESAMI)
P.O. Box 56628
NAIROBI
Tel: 441513, 441061
Fax: 442231

Mr. Harold L. Norton
Representative
Food and Agriculture Organization
P.O. Box 30470
NAIROBI
Tel: 725128, 725069, 725359
Fax: 727584

Dr. Arcot Ramachandran
HABITAT
United Nations Centre for Human Settlement
P.O. Box 30080
Nairobi
Tel: 230800, 520600

Dr. P. A. Sanchez
Regional Director
International Council for Research in Agroforestry (ICRAF)
P.O. Box 30677
Nairobi
Tel: 521450/7

Guy Antonine
Chief of Mission
International Finance Corporation
P.O. Box 30577
Nairobi
Tel: 224736/224726
Fax: 219980

Dr. W. N. Masiga
Director
Organization of Africa Unity (OAU)
Regional Office
P.O. Box 30786
Nairobi
Tel: 332046/338544

Mr. J. David Whaley
Ag. Director
UN Information Centre
P.O. Box 34135
Nairobi
Tel: 226168, 226378

Resident Representative
United Nations Development Programme (UNDP)
P.O. Box 30218
Nairobi
Tel: 228776/8/9, 330491, 225848
Fax: 331897

Ms. Elizabeth Dowdeswell
Executive Director
United Nations Environment Programme (UNEP)
P.O. Box 30552
Nairobi
Tel: 230800, 520600
Fax: 226886, 226890

Dr. Paul Vitta
Director
UNESCO Regional Office
P.O. Box 30592
Nairobi
Tel: 230800, 520600

Mr. Carrol Faubert
Director
United Nations High Commission for Refugees
P.O. Box 43801
Nairobi Tel: 443028

Mr. Vincent O'Reilly
Representative
UNICEF (Kenya Country Office)
P.O. Box 44145
Nairobi
Tel: 230800, 520600

Mr. Cole Dodge
Regional Director
UNICEF Regional Office for Africa
P.O. Box 44145
Nairobi
Tel: 230800, 520600
Fax: 215584

Mr. Atsen Ahua
Director
Union of Radio Television Network of Africa (URTNA)
P.O. Box 50518
Nairobi
Tel: 219661/332389-92
Fax: 219662

Dr. Paul Chuke
Regional Representative
World Health Organization (WHO)
P.O. Box 45335
Nairobi
Tel: 723069, 726487, 724818
Fax: 730050

Mr. Stephen O'Brien
Chief of Mission
World Bank
Regional Office for Eastern and Southern Africa
P.O. Box 30577
Tel: 228477

KENYA GOVERNMENT

Prof. P. Mbithi/Mr. W. Kimalat/Mr. P. M. Munene
Permanent Secretary
Office of the President
Harambee Avenue
P.O. Box 30510
Nairobi
Tel: 227411

Mr. Hussein Sharawe
Permanent Secretary
Office of The Vice-President and Ministry of Planning and Development
P.O. Box 30007
Nairobi
Tel: 338111
Telex: MAKAMU

Mr. M. G. Okeyo
Permanent Secretary
Ministry of Environment and Natural Resources
Kencom House, Moi Avenue
P.O. Box 30126
Nairobi
Tel: 229261

Dr. Sally Kosgei
Permanent Secretary
Ministry of Foreign Affairs and International Cooperation
Old Treasury Bldg, Harambee Av.
P.O. Box 30551
Nairobi
Tel: 334433
Telex: FOREIGN

Mr. D. K. Andere
Permanent Secretary
Ministry of Information and Broadcasting
Jogoo House A., Harambee Avenue
P.O. Box 30025
Nairobi
Tel: 228411, 223201

Mr. K. Mutahi
Permanent Secretary
Ministry of Research, Science and Technology
Utalii House, Uhuru Highway
P.O. Box 30568
Nairobi
Tel: 219420, 218637/9

NATIONAL ORGANIZATIONS

Rev. Jose Chipenda
General Secretary
All Africa Conference of Churches
Waiyaki Way, Westlands
P.O. Box 14205
Nairobi
Tel: 441483, 441338, 441339
Telex: 22175 AACC
Fax : (2542) 443241

Mr. C. Kahangi
Regional Representative
African Regional Development Bank
Regional Office
P.O. Box 52617
Nairobi. Tel: 723185-6, Fax: 714607

Mr. S. Felleke
Secretary General
African Regional Organization for Standardisation (ARSO)
P.O. Box 57363
Nairobi
Tel: 330882, 224561
Fax: 218792

Mr. J. M. Fileri
Head of Mission
Delegation of The Commission of European Countries
P.O. Box 45119
Nairobi
Tel: 333592
Fax: 215925

Dr. Calestous Juma
Executive Director
African Centre for Technology Studies
P.O. Box 45911
Nairobi
Tel: 744047, 744095
Fax: 743995

Mr. Achola Awori
Director
Kenya Energy & Environment Organization (KENGO)
P.O. Box 48197
Nairobi
Tel: 748281, 749747
Telex: 24222 KENGO KE
Fax: 749382

Mr. Aba Mpesha
Country Director
World Vision International
National Bank Bldg., 4th Floor
P.O. Box 50816
Nairobi
Tel: 334080, 331017, 224366-8
Telex: 23293 KENVIS
Fax: 334088

Dr. Charles Bailey,
Regional Director
The Ford Foundation
Office for Eastern & Southern Africa
P.O. Box 41081
Nairobi
Tel: 222298
Fax: 338565
Tlx:25135 FORDEAC

Dr. David Court
Regional Representative
The Rockefeller Foundation
Mama Ngina Street
P.O. Box 47543
Nairobi
Tel: 228061

Dr. Michael Stahl
SAREC
Embassy of Sweden
P.O. Box 30600
Nairobi
Tel: 229043

Dr. Michael Stahl
Head of SIDA/ASCU
Swedish Embassy
P.O. Box 30600
Nairobi

Mr. Jack Titsworth
Head of Development
Canadian International Development Agency (CIDA)
Canadian High Commission
P.O. Box 30481
Nairobi
Tel: 214804

Mr. Michael Sternberg
DANIDA Res. Representative
P.O. Box 40412
Nairobi

Mrs. M.L. Kiljunen
FINNIDA Representative
Embassy of Finland
P.O. Box 30379
Nairobi

Mr. Paul Wangoola
Secretary General
African Association for Literacy and Adult Education (AALAE)
Finance House, Loita Street
P.O. Box 50768
Nairobi
Tel: 222391/331512
Fax: 340849

Dr. S. T. Kwame Boafo
African Council for Communication Education (ECCE)
Executive Co-ordinator
University of Nairobi
P.O. Box 47495
Nairobi
Tel: 227043/216135/215270
Tlx: 25148 ACCE KE

Prof. Thomas R. Odhiambo
Director
ICIPE
P.O. Box 30772
Nairobi

Mr. D. Mey
Director
Deutsche Gesellschaft Fuer Technische Zusammenarbeit (GTZ) GMBH
Woodlands Road
P.O. Box 41607
Nairobi
Tel: 723193/562668/562670

Mr. M. Morimoto
Resident Representative
Japan International Co-operation Agency (JICA)
Mamlaka Road
P.O. Box 50572, Nairobi. Tel: 724121/2, 724877

Dr. Alex Tindimubona
Asst. Head of Programme
African Academy of Sciences
P.O. Box 14798
Nairobi
Tel: 884401-4
Fax: 884400
Tlx: 25446 AFACS KE

Mr. J. K. Gichangi
Director
National Council for Population and Development
P.O. Box 30478
Nairobi

Mr. Michael Hailu
ICRAF
P.O. Box 30677
Nairobi
Tel: 521450/7

Ms. Janic Brû
Secretary-General
Association of Manag. Training Inst.
of Eastern & Southern Africa
C/O ESAMI
P.O. Box 56628/Nairobi

Dr. Richard Turkson
Regional Director
IPPF
P.O.Box 30234/Nairobi

Dr. Sheilla Macrae
Country Director
United Nations Fund for Population Activities (UNFPA)
C/O UNDP
Kenyatta Conference Centre
P.O.Box 30218
Nairobi
Tel: 225848/338741/228776