RESEARCH NETWORKS:
TOOLS FOR DEVELOPMENT

final report of an evaluation internship with IDRC

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I. INTRODUCTION

The Evaluation Unit of the International Development Research Centre has been conducting a strategic study of research networks which the Centre supports in developing countries. As part of this study, the EU hired an intern to conduct a detailed review of the files of a sample of thirty networks, focussing on the project proposals and appraisals, and to meet with network coordinators and IDRC program staff. The objective of these activities was to determine what has been IDRC's experience and understanding of research networks: what they are, what they do, and how they do it differently from other forms of mechanisms for development. It is hoped that this kind of understanding will lead to more considered decisionmaking with regards to the establishment and design of future networks.

Categorization of research networks

When discussing research networks, it can be helpful to classify them -- or more accurately, to array them on a continuum -- according to their networking *intent*. This is a functional categorization which also helps to define more clearly the term network, based as it is on the kinds of objectives and structures that the range of networks entails. Having this continuum gives us an approach for thinking about networks, for comparing different networks and different aspects of them, for considering the multiple facets of networking as a concept.

In reading through and comparing the files of a large number of network projects, two main types become apparent: integrative networks and loose networks. The main distinction between the two is the extent to which the activities taking place within the network umbrella are integrated, or put another way, the degree of collaboration which is required of participants or members for it to be viable.

Integrative networks

Integrative networks are those in which collaboration and intentionality are high. They most often entail joint research on a single question or issue for which the network has been expressly constructed. Collaborative research and comparative sets of data across countries or

regions are sought for greater breadth and applicability of results. These networks operate at a highly integrated level: methodologies and workplans are jointly determined, and research results depend upon the input of all partners. A high degree of coordination is necessary, and the committed involvement of all partners is required for a successful outcome. Integrative networks are particularly common in the health sciences where epidemiological research over broad regions is especially useful. This approach can also work well in agricultural studies, as it permits, for example, testing of seed or methods in a variety of ecological settings.

Loose networks

Loose networks are those in which a variety of participants are linked by a common theme or subject matter, yet many different (though related) research questions are pursued as each member conducts its own independent project. Collaboration among parties is infrequent or intermittent; coordination can therefore be weaker and is more administrative than activity-based. The success of the network does not depend on the full participation of each member. Loose networks are more common than integrative networks, as they are the less intensive undertaking in these terms.

Often, loose networks are formalized or institutionalized around independent projects that have already had some kind of informal contact; in this sense, they are less *intentional*. The need is recognized for a more formalized coordination in order to share information and experiences, so as to avoid duplication of work and maximize the use, application, and dissemination of results. Information exchange and shared training activities are often the key objectives in this type of network.

Synthetic networks

Between these two ends of the continuum lie synthetic networks. While they are not as highly integrated as integrative networks, their members do share some greater commonality which makes them more cohesive than loose networks. This commonality might be a common frame of reference, methodological orientation, problem definition, investment in a joint outcome, or indeed some level of collaboration on research. While the individual

research projects of members of synthetic networks can stand alone, the intention usually exists for a synthesis of the subject matter for a broader understanding of issues or problems, input into policy, or some other combined use of the outputs.

Framework networks

Finally we have a category of networks that tends to defy categorization along this continuum, because they contain characteristics of both extremes. Framework networks serve almost as institutional substitutes; the network provides more of a fixed framework for activities of a certain nature, as opposed to the facilitative or fostering role it normally plays. They operate in subjects where there is little other institutional infrastructure, such as in newer academic disciplines (or "multi-disciplines"); and where there has been little or no occasion for interaction in the past among researchers in related fields.

The members of these networks are not particularly integrated -- as in loose networks, they carry on more or less independently of each other; yet there is a strong coordination to maintain cohesion and coherence and to keep network activities going. In this sense, the coordinating unit acts as an institution providing structure and services to a group which is more client than member.

Conclusion

In practice, networks can fall at various points on this continuum, depending on how they have been set up or have evolved, for what purpose, and how they actually function. So, for example, a network may be described as a loose network because its members consist mainly of independent national research associations who pursue their own research agenda, yet they display synthetic characteristics in that they do conduct some joint research as well.

II. RATIONALE FOR RESEARCH NETWORKS

Networks are becoming the development mechanism of choice both for researchers in developing countries and for the agencies which fund them. What do networks provide, or

what role do they play, that makes them so attractive? What can we gain through the networking mechanism that allows us to achieve more or different results in our attempts to foster research for development? (Note that the following discussion is based mainly on the examination of the thirty files reviewed during this project, informed by and confirmed by interviews carried out in the field.)

Cooperation

Networks provide an opportunity for collaboration and shared efforts in research and problem solving. Regional, South-South cooperation is an important component of advancing the capacities of developing countries to define and solve their own problems, and to lessen their dependence on the North for information and analysis that are not always applicable to Southern conditions. Shared efforts may include joint research, sharing of information or resources, increased coordination and communication among research sites, and the sharing and generation of regional know-how.

One network dealing with sustainable development in a complex environment describes its rationale for a collaborative approach. In the past, the project summary explains, considerable efforts have gone into research and development. The impact of these activities has been limited, though, especially from narrowly focused or isolated activities, given the complexity of problems and the situation in which environmental, economic, and social factors are closely linked. A strong collaborative program is needed, it says, that will promote the sustainable management of natural resources, by supporting holistic efforts, with the participation of key institutions and local populations. By working within a network framework, a more broadly-based and collaborative effort can be made to address problems which in magnitude and complexity are beyond the scope of any single institution.

In a network situation in which they can work together, researchers from disparate backgrounds can capitalize on comparative advantages and regional strengths, each contributing their particular strengths and abilities and those of their country or research institute. In turn, those abilities are available from which others can learn and benefit. The

less experienced researchers or groups can especially benefit from the constant contact afforded by collaborative research and the continuous exchange with other centres, thus increasing research capability.

Other reasons for collaborating and communicating on research include standardization of methodologies and techniques for improved quality and efficiency of research; comparability of results; more rapid generation and dissemination of results; and quicker extension and application of results for solutions to development problems. Research results can have a greater impact, particularly with respect to policymaking, when they come from a concerted effort.

Avoiding duplication

In an environment of limited resources, it can be important to consolidate research and avoid duplication of efforts. Without a networking or coordinating function, many researchers in developing countries do not know what their fellow researchers are doing, and duplication can occur. When resources are scarce, networks help to prevent a wasting of resources.

Duplication in a research environment may in fact be desirable for confirmation of results, depth of research, or simply for practicing and refining techniques and methodologies. As such, it would be not a waste of resources, but indeed a further investment. In a network situation, though, countries or institutions maintain their priority research agenda either within the network structure or outside of it, and they share responsibility and roles within shared research projects. In this way they can both conserve resources and benefit from the advantages that duplicate or similar research agendas can provide.

Weak research environments

The weak research and general infrastructure of developing countries means that networks can be particularly beneficial for the reasons already discussed. Poor communications tools, dysfunctional libraries and documentation centres, lack of equipment, etc., threaten the effectiveness of research in these countries. National and regional networks help buttress this

research environment by providing a forum for exchange and sharing. Brain drain is countered by the opportunities provided by networks and the research funding they make available which can help to keep experienced researchers in the region or draw them back from elsewhere.

Furthermore, networks respond to the serious problem of researcher isolation which arises from this weak research environment and limited research opportunities in developing countries. Networks provide a mechanism to link researchers who might otherwise work in isolation from their peers (giving rise as well to the duplication mentioned earlier), both within their own country and in the wider region. Networks help to create and sustain a critical mass of researchers which can provide for peer review and quality control through competition and peer pressure. By being associated with a network, researchers feel a greater sense of collegial ties, and they can maintain their professional enthusiasm when working on new ideas or in new fields when they feel they are not alone. As well, institutional linkages are formed which may not have existed previously.

Other constraints to research which arise from a weak infrastructure and poor research environment include staff shortages and high staff turnover; scarcity of information; lack of continuity of research efforts; scarcity of financial resources to support current research; and weak links between research and extension.

Multidisciplinarity

Another key motivation for the use of networks is the multidisciplinary environment which they can foster, and a more holistic perspective on the research problem. An important component of a collaborative network is the multi-centre research which is often carried out within it, or simply the membership and participation of diverse actors and institutions. This plurality of a network is so important because of the complexity and urgency of development problems and the regions themselves.

External/political environment

Networks can provide solutions to or ease external, politically-related tensions. A network can be well placed as an intermediary or buffer to the hostility and suspicion with which government and universities regard each other in some countries, because it brings together various actors from both environments to work together to solve joint problems. Furthermore, because networks are often international entities not subject to the same kinds of regulations as registered organizations within a particular country, researchers may be provided a measure of immunity or protection from potentially suspicious, hostile, or restrictive governmental actions.

Related to this point, networks can be a source of independent research when existing research is regarded with suspicion of bias. Such was the case in one network whose objective was to undertake research on structural adjustment as an independent counterpoint to the research done by proponents of the structural adjustment policies.

Other

Some final reasons for establishing networks include the efficiency with which they can provide advisory services to their members who are often scattered geographically; and information services such as management, dissemination, and -- equally important -- filtration to avoid information overload.

Discussion

Rationales and the continuum

Although earlier networks were arrayed on a continuum based on their various intents and level of collaboration, one finds that the basic rationales for creating networks cut across all distinctions. The fundamental problems and issues which networks try to address, such as a weak research environment, apply to most networks in most contexts. The broad functions that networks serve are overarching -- they apply in many contexts and situations and are relevant to all (or many) kinds of research. As such, the collaborative or sharing function that networks serve are as important in a highly integrated joint research network as in a

more decentralized information service network.

A notable exception, though, is the problem of researcher isolation and the improvement of the quality of research through collaboration. Integrative networks tend to cite this motivation infrequently or not at all, which is surprising given the force with which the point about the weakness of the research environment in developing countries is usually made. Complex multi-centre joint research is likely to be undertaken, however, only by the more experienced or sophisticated research institutions where the quality of research is already high and where researchers find themselves in good company. In this case, the need to address such problems is lessened.

Collaboration

One gets the impression from certain network files that just by creating a forum for interaction or collaboration, research and results on a particular subject will suddenly improve and be more effective; that an explosive synergy will spontaneously coalesce... One network, for example, claims that "the planned intensive interactions" among its five participating countries through workshops and exchange of visits "will rapidly and effectively bring about" the execution of preventive and control measures for the disease under study, as though it were enough to simply put researchers together in one room.

Related to this belief in a magic formula or bullet, is the impression also conveyed that bigger necessarily means better, that the more projects one can link together the more effective they will each be. In fact, there seems to be too little faith in smaller or more focused projects, in the impacts that an individual project on a smaller scale can have in the end.

Another network explains in its project summary that although specialized projects are important, small and dispersed efforts will not be able to produce considerable results either in the short or long term. It explains that projects and efforts in Africa need to share resources, not only human and material resources but also techniques and strategies;

horizontal and vertical cooperation are required.

While it can be true that collaboration and a broader scope can bring about much greater impacts, it can also become a convenient excuse for establishing networks without considering the alternatives. Smaller, more focused or localized projects, less ambitious yet well targetted and designed can also have important effects. Moreover, simply because a project is bigger or has a wider scope does not necessarily mean that it will be more effective. Networks tend to be so big, and try to address all problems and solutions at once, that one wonders whether they can actually succeed on every level on at every activity.

This hyping of networks emerges in large part from the need to justify their creation or existence, and the fear of admitting any potentially negative aspects once brought into that existence. In reading through a substantial number of IDRC project summaries, one finds that they are fraught with this kind of large language and sweeping claims, in order to justify the large amounts of funding and commitments which will be made to them. The long process of project development and consideration of alternatives is not necessarily reflected in the final proposal, when indeed a more forthright discussion of the positives and negatives in a particular project approach could be of great value. The network alternative might still emerge as the right and fruitful way to proceed; there must however, be a consideration that it is not the only way to proceed.

III. OBJECTIVES OF RESEARCH NETWORKS

If above we discussed the rationale for networks -- the broader reasons for which networks are created -- now we will examine some of their more specific purposes. What is it that research networks hope to achieve in their particular projects, and how does the network mechanism serve these objectives? Again, this discussion is based mainly on the review of thirty IDRC project summaries, focussing on the stated primary objectives of each network.

"Networking"

While somewhat of a tautological statement, it is not incorrect to say that the main goal of most networks is "networking" (as indeed some networks profess other kinds of principal goals). This means that most projects or network participants come together with the intention or desire for: coordination, complementarity, collaboration, and/or partnership among separate projects, institutions, countries, or individuals; exchange of experience, expertise, methodologies, and/or information; creation or synthesis of regional and/or comparative research and results; a collective voice and/or a broader scientific basis for policy input; an infrastructure or permanent mechanism to facilitate the above; etc. The benefits or advantages of this kind of collaboration or interaction have already been discussed.

Information exchange

Information exchange is another main network objective, as a component of the broader "networking" objective and in support of other kinds of network activities. In and of itself, though, the process of sharing or exchanging information and nothing else would not be sufficient to be considered truly networking. It does not adequately entail the degree of integration, investment, or intensity that networking connotes; the key aspect of collaboration, even at a relatively low level, would be missing. In other words, an undertaking or group engaged simply in data transfers or file exchanges, etc., would not really be creating a *network* between them; rather they would just be sharing a common source of information.

Research/knowledge creation

Networks also pursue other objectives which are not necessarily related to "networking" per se. The creation of new knowledge, the conduction, utilization, and dissemination of new research, and/or the review and synthesis of existing documentation are key elements of some networks, achieved through the network mechanism.

Collaborative research in a network context is advantageous in that it provides a larger or more diverse study base, comparability of data sets and results, and a greater range of experience or perspective among researchers. Non-collaborative research promoted, for example, through a small grants network mechanism can have the advantages of peer review, methodology sharing, common comsultants or advisors, etc. These kinds of research entail networking as a means for achieving the objective of research, rather than as an end in itself.

Capacity building

For a substantial number of networks, capacity building or infrastructure development, primarily for research, is the main objective. This can consist of at least three different forms or levels of focus:

(i) disciplinary development

The broadest or most ambitious form of capacity development is that where support is aimed at an entire discipline or subject of enquiry; multidisciplinary and "systems" approaches are common subjects for this kind of development. These networks focus on subjects which are weak in a particular country or region, or which are being introduced and adapted from other locations. For example, one finds a number of macroeconomic policy networks in Africa, as this is an area of inquiry which can have particularly important long-term policy implications, but which has been neglected because of its very lack of short-term or immediate results.

(ii) institutional strengthening

Efforts at capacity building are generally channelled through participating institutions in order to strengthen their capacities and basic infrastructure for the research or activity in question. This is also reflected in the fact that most network participation most often occurs at the institutional rather than individual level (a point which will be explored further in the next section).

(iii) individual training

Finally, networks also have the goal of training individual researchers and scientists. Capacity building is often concentrated on the training of trainers, so as to enable further training and a growing, self-perpetuating cadre of well-trained researchers.

One network, whose third phase placed particular emphasis on training and equipment, describes an important reason for capacity building. The data handling and analysis aspect of this project's research had been carried out by developed country institutions, and developing country institutions were gaining no experience in it. The network suggests that if participating centres are to retain control of their data and be able to conduct studies in their entirety, further strengthening in data handling and analysis will be required.

Networks are good channels for delivering training and capacity building because they can reach many people, institutions, and countries at once. There is a central coordination point which stays abreast of or solicits the needs of members, coordinates disbursement of funds, organizes training activities and workshops, etc. The argument of efficiency is commonly used in this case.

Discussion

Categorization

How do these objectives fit with the categorization of networks defined above? For loose networks, "networking" as an explicit objective is more important than for integrative networks. The greater degree of independence among loose networks means that the process of interaction will be more important; the need for it more explicit. Conducting research for new knowledge is seldom a concern of these loose networks. Indeed, the relatively loose association among these networks does not lend itself to the joint creation of new knowledge. These institutions still carry out their own research on an independent basis; the network among them, though, has other priorities.

In contrast, integrative networks are by definition highly collaborative, meaning that the activities and priorities of their individual members will already have been merged to some extent. In this case, "networking" is not an issue; participants are already "networked." They can thus concentrate their efforts on the difficult task of joint research across local or national boundaries.

For some integrative networks, the main goal of their collaborative research is capacity building, although the generation of research results is important as well. The reasoning is that researchers learn through doing, and that the association with other, more experienced research institutes is educational and developmental.

A highly integrated network, though, does not seem to be the most appropriate context for capacity building. Although it can incorporate some training activities, its main focus is a large, well-orchestrated research project. The expensive and intensive research and coordination which this entails does not leave much room for experimentation, practice, or mistakes. Others are waiting for and relying on timely and accurate results to feed into thieir own work or to build the final analysis of the research. It is for these reasons that the main vehicles for capacity building are indeed the less integrated synthetic, loose, and framework networks. In this last case, in fact, due to the institutional role which framework networks play, capacity building can be, almost by definition, a main priority, as they are concerned with the support of new ideas or disciplines.

Information exchange

The secondary importance of information exchange in most networks is an interesting point, given that information exchange has typically or traditionally been thought of as a main function of networks. This is true even for networks which are projects of the information sciences and systems division of IDRC; what we find is that even these networks are not simply about sharing and exchanging information. They are about creating the infrastructure and capacity to do this on a long term basis, to generate their own knowledge and disseminate it, etc. It involves more than just laying wires and cables and installing

computers; it involves collaboration and capacity building much more than a simple "information exchange."

Indeed, one of the most overwhelming impressions one receives when visiting Africa (and probably to a lesser degree other developing regions), is the near absolute inability of the average person to access information and share knowledge using the communications technologies which are becoming so commonplace elsewhere (or even through less fancy methods). In a world that has become (overly) globalized, interconnected, and non-national, how can people be expected to keep up if they lack even the most rudimentary access to or knowledge of the systems that bind everything together? One capacity building information network in Africa echoes a Talmudic proverb in its emphasis on information as the ultimate resource. It can be owned by few or many, and recombined in infinite ways; it cannot be lost, stolen or otherwise taken away. In today's world, knowledge and the ability to communicate it -- whether it is about research results or the weather -- is imperative. If the various regions and people's of the world are to ever be on equal footing, this is one capacity to which all must have equal access, and one which information networks are trying to address.

Capacity building

Networks are perhaps so good at carrying out capacity building and training, that they seem to be adopting the role that we normally think of as belonging to universities in the support of scientific enquiry. For example, networks provide a forum for debate and interaction, peer review and quality control, funding for research, etc. In fact, one network explicitly stems from the decision of a government ministry not to establish a particular unit, preferring that these duties be integrated into a national network instead, and from the past closures of the universities in this country. It may be important that researchers in developing countries gain additional skills and capacities, but we must also be careful not to substitute for or usurp the role of their national university systems.

Conclusion

The objectives of research networks are not so different from other kinds of projects or action research for development. In the end, they all strive for a better research environment in which developing country researchers and others can define and elaborate problems and methodologies for solving them, and apply results in a broad, equitable, and timely manner. Networks provide an alternative approach to this objective, an approach which is based on a philosophy of collaboration and shared responsibility that transcends individual, institutional, and political boundaries.

IV. STRUCTURES AND FUNCTIONS OF RESEARCH NETWORKS

Most research networks function along the same basic patterns: advisory and executive bodies; general assembly of members; periodic workshops and conferences for training, presentation of research, and networking; disbursement of research funds and grants; etc. This final section will now briefly examine two of the basic components of research networks -- membership and coordination -- which are the main implementation points of their objectives and activities. What are some of the important issues that affect how the network actually functions, what are some key elements to keep in mind, and how are they related to the intentional nature of the network?

Membership

The basic unit of a network is the members of which it is made up. It is this core group of participants around which the network revolves, for whom its main activities are designed, and who in fact implement them. The membership may be the same as, or may overlap with, the network's *client group*, i.e., those whom the activities of the network are intended to benefit.

Whether the membership and the client group are one and the same will depend on the *reach* of the network. So, for example, a network whose primary objective is training and development of individual and institutional members will have a limited reach, and its client

group will essentially be its members. However, most research-for-development networks have an ultimate intended beneficiary which extends far beyond its membership to include disadvantaged or other target groups, as well an influence on policy through a decisionmaking audience.

A network's membership base can be institutional; individuals representing institutions; individuals acting in their own capacity; or a combination thereof. Institutionally-based members are the most common, independent members being found mainly in framework networks where researchers may not have an institutional base from which to work. It can be desirable for members to belong to networks in a personal capacity; as such they are free to differ from the official government or institutional agendas which they might otherwise have to represent. One drawback, however, is that without an institutional basis or "home", finding additional financial support for the network or the individual's position within it can pose a problem.

Members may come from various backgrounds: private or public sector; government, universities, NGOs, industry, national and international research institutions, donor agencies, etc. Typically, the members of integrative networks which are engaged in joint, specialized research will all come from the same or similar background and subject area of inquiry. Conversely, a network whose intention is precisely to bring together a diverse group representing a broader cross-section of society for policy discussions, say, will of course be more varied.

It is agreed that a crucial aspect of network membership is to involve decisionmakers directly in network activities, so that from the outset policy considerations -- and the appropriate, relevant government concerns -- are taken into account. Policymakers are much more likely to take heed of recommendations that they have had a hand in defining and generating.

Finally, networks may take a "network of networks" form, in which the membership of a regional network is composed of the national and local level networks or associations which

feed into an integrated structure. In some cases, there may not be enough researchers on a given subject within a country to sustain such a multi-level structure; the regional network is the sole or primary forum (and therefore an important one in terms of researcher isolation and related concerns).

Coordination

The general administration of networks and the running of their day-to-day activities are carried out by a network coordinator in a small supporting secretariat. In theory, the coordinator implements the wishes and decisions of network members as articulated through the network steering committee or advisory board. In reality, it is often the coordinator who holds the whole thing together through sheer dynamism and charisma.

It is for this reason that the choice of coordinator is particularly crucial, for it can be the defining factor in the success or failure of the network, both internally vis-à-vis organization of activities, member relations, etc.; and externally, in terms of raising funds and the network's profile in various settings. To ensure the proper choice, the position of coordinator must be filled by competitive recruitment, rather than by appointment, rotation, or association with a particular office.

The secretariat may be housed at a university or research institution, at an IDRC regional office, or, the network may have its own offices if it is registered as a legal organization. To be legally registered can be useful, as the network becomes an official entity capable of entering into agreements and handling its own financial affairs, including seeking other funding sources.

Official status, however, can be hard to establish in some countries which are averse to the expansion of civil society. It can also entail certain regulatory hardships or limitations which an international entity can avoid, not being subject to local laws laws regarding nationally recognized organizations. Moreover, by establishing such a permanent base or secretariat with registered legal status, the option of rotating the network administration is virtually

eliminated. Coordinator rotation over a period of years or project phases can contribute to the more fluid or flexible nature of a network as compared with an established institution, and allows for executive responsibilities to be shared among members or countries over the long term.

Not every network, of course, needs or wants a rotating coordinator. In an integrative network, it would hinder joint research activities which require continuity and close coordinating attention. Framework networks too, where the coordination is the keystone, would not do well with a rotating secretariat. Loose and synthetic networks could, however, function well in this manner, due to the lesser importance of a strong central body.

Housing the network secretariat within the IDRC at a regional office is another option that should be well deliberated. On the one hand, this can give a network a reasonably secure logistic base and facilitate its activities, for example by providing it access to a good communications system.

Coordinators and program officers will point out the drawbacks of being an "in-house" network, though. Like a child past the age of majority living in its parents' home, the network must abide by the rules of the house, despite its ability to make its own decisions. Independence is hindered by such a close association with the donor; IDRC program staff may supervise too closely for comfort, and the network begins to take on the colour of the Centre. This can be especially important when multiple donors are involved, and the project wants to avoid being associated too closely with any single donor.

Remuneration levels within networks can also be significant to the long-term functioning of a network. Often, the coordinator is paid a Northern salary, although the network is based in a developing country. The coordinator may be an ex-patriot, or may be based in an international agency where such salaries are the norm. The problem arises when international funding of these networks is terminated, and local resources are not sufficient to cover what has become an expected level of remuneration.

Discussion

This problem of divergent expectations and precendent setting is relevant not only to salary levels, but to the equipment and operation more broadly of the secretariat and general network activities. International per diems for travel and conferences, high-tech communications systems, luxury office space -- such trappings will be nearly impossible to maintain once the network must depend on its own internal resources or limited local or national government financing. The question of long-term feasibility -- if indeed the network has long-term intentions -- is one that must be raised and planned for from the outset.

Networks are in fact beginning to struggle with such questions of planning for their own financial future. They are considering such options as defining and marketing services and products for sale, charging user fees for services and information, hiring themselves out as consultants or project executors, etc. The question of self-sustainability is a difficult one to grapple with, though, as research networks mainly serve the public domain, cannot charge rents (or charge enough) on many of their services or outputs, and are fundamentally too expensive in their present incarnations to completely auto-finance, even with an income.

It is thus imperative that networks have the commitment and involvement of national research institutes and local or national governments from which they can seek sponsorship. Even internationally funded and operating networks must be grounded in a national reality; donor fatigue will eventually set in. National structures must be willing to take ownership of and responsibility for activities which are intended to benefit their citizenry. Furthermore, they are more likely to implement and support them if they have been involved in and have contributed to these activities at many or all stages. The creation of a sense of ownership is thus critical to the success of a network both in the short and long term.

Conclusion

While the structure and operating patterns of each network must be designed to suit its particular context and objectives, there are certain lessons which have been learned that should be kept in mind more generally. Some will apply to a specific kind of network -- for

example, whether a rotating coordinator applies -- but others transcend differences, such as the need for a network to keep in mind its future financial situation if indeed it intends to have a long-term time horizon. This section has not been able to deal with all the possible operating concerns that multi-faceted entities like research networks may face, but it can serve as a foundation or starting point for considering other questions of a related nature.

V. FINAL CONCLUSIONS

Networking is here to stay; this is the impression of those who are intimately involved with IDRC-supported research networks. They do stress, however, that networks are just one of many development approaches, and that they cannot be the singular solution or panacea to every development ill.

As IDRC restructures and reorients itself to a changing fiscal environment, it has begun to emphasize networking even more -- among projects, among donors, among its own program officers. Yet it is not always clear what is meant exactly by these new directives, nor what the implications are for activities that do not or should not fit into this mold. It is hoped that this treatment of IDRC research networks will contribute to further defining our intentions.

One aspect of networks that we must treat with caution is their training or capacity building function. Faced with indigenous weaknesses in this area, internationally funded research networks may respond with the creation of alternative or parallel opportunities for education and training. It is crucial that these not supercede, but rather that they enhance already existing indigenous systems and structures such as national universities. Otherwise, a two-track system may be created, and worse, the weaker track may be neglected when faced with this external alternative.

The role of internationally supported networks in this case is not to allow national responsibilities to be shirked by providing parallel services, but to integrate them into their activities; to support them and challenge them to do better. It is to this end that the

"networking" function aims. The African Economic Research Consortium, for example, has created a program wherein African universities have joined forces to offer a collaborative masters degree in economics. Rather than providing this training itself (although it does also offer grants to individual researchers), the AERC network supports the combined efforts of the national universities to provide an advanced, specialized degree of a quality that was not previously available. In addition, by creating a marketable program which is more and more in demand, its chances of long-term success and self-sustainability are enhanced.

An alternative perspective might point out, however, that developing countries have adopted -- relatively unsuccessfully -- the Western model of the university, whose disciplinary and theoretical basis is inappropriate to the local context. It might, indeed, be preferable to create other options and opportunities for training and experience, with networks perhaps serving as one approach or mode of delivery.

It certainly does not seem very economic, though, to establish a new framework or infrastructure for activities which can be carried out by already existing institutions; a network can be an expensive way of providing someone with some additional training. One thing networks can do well is to serve as a grant-making mechanism. Research networks act as a distibution centre for funding, working on a much smaller scale than can the IDRC as a donor. The secretariat becomes, in effect, an intermediary for IDRC, screening candidates, disbursing funds, providing guidance and assistance, communicating on a regular basis with recipients, etc. -- tasks which an IDRC program officer cannot do on an individual basis with grantees of $5000. In effect, the network structure allows IDRC to make grants of a much smaller and more intimate nature than would otherwise be the case.

Even this function has some negative aspects, of course. IDRC program officers warn that while research grants can be effectively distributed to less experienced scientists through the network mechanism, these small grants programs can also have the effect of diminishing the calibre of the research being conducted. Senior researchers, who may be used to being handed consultancies and contracts, can be put off by the application and peer review process

of a grants program oriented to capacity building. Unless they can be incorporated into the network, say as research advisors, they may be pushed away and lost as an important resource.

Furthermore, with the tendency to use research grants for training, the emphasis on quality and usefulness of research results may be downplayed, particularly if there is little integration between the various individual projects. While process is important -- giving younger researchers the opportunity to practice their craft -- output should not be sacrificed, especially considering the limited availability of resources. Although practitioners are quite divided on this issue, research networks cannot afford this luxury and must strive for some kind of balance between the two aspects of research, i.e., capacity building internal to the network, and external impact of results.

It is for this reason, too, that integrative networks make clumsy vehicles for capacity building, the process occasionally taking on far more importance than the outcome. The collaborative research of these networks is usually quite significant, yet the results may not be obtained in the best manner or may disappoint as participants struggle with methods, equipment, analysis, or basic coordination across institutions and national boundaries. This incompatibility provides a clear example of the need for close consideration of the intent of a research network, the objectives it will aim for, and the manner in which these objectives will be carried out.

These concerns of having well and appropriately functioning networks are often related to the question of finances: research networks are not cheap to establish and maintain, so we -- the collective we -- must ensure that we are doing the best we can with our investment. We also might try to find cheaper ways of doing networking. The donor's investment must be justified, but also the commitment of national support must be ensured, as discussed earlier. Not only is this to ensure long-term viability of a process that will not continue to receive outside support. More importantly, it is because it is human nature to undervalue that which we receive for free. External efforts will never be recognized or utilized as fully as those

which come from within.

In a sense, the international donor community has been complicit in holding up the "process of development" -- in the relative lack of change compared with the efforts and investments made -- by failing to demand this indigenous ownership in the projects and activities which it funds ("demand" not in the sense of a conditionality, but in the sense of a preexisting condition). Though criticisms have long been made about the way "development" has been practiced, it takes a personal visit to a region like Africa to be confronted with this reality in full force. Development practitioners there (Africans and ex-pats alike) say that if something is important enough, local resources can and should be found to commit to it; if not, it demonstrates a lack of local engagement. If the effort is only external, no matter how strong, it will not succeed.

Not only donors but recipient governments and institutions must be prepared to commit resources and efforts. This is where networks can play an appropriate role: as a catalyst or facilitating mechanism, providing the needed push to allow local initiatives to gather their own momentum. Indigenous involvement and participation are imperative for a network -- indeed any supposedly empowering activity -- to begin to achieve what we can truly call development.

Appendix 2:
Networks examined in the file review

AFRICA

- West and Central Africa AIDS Research Network (Reseau africain de recherche sur le SIDA) IDRC file number 90-0331
- Economic Policy Equity and Health Network 90-0133
- Economic Research Forum for the Arab Countries, Turkey, and Iran 94-8603
- Education Research Network for Eastern and Southern Africa (ERNESA) 93-8482
- Capacity Building in Electronic Communications for Development in Africa (CABECA) 92-0616
- African Feed Resources Network 90-0185
- Women and Natural Resource Management Network (WEDNET) 88-0200
- West African Farming Systems Research Network (WAFSRN) 89-0202

ASIA

- Health Systems Research (Sri Lanka) 91-0271
- Fertility Research Network (Southeast Asia) 80-0024
- Southeast Asia Research Review Advisory Group (SEARRAG) 87-0207
- Technology Import and Transfer (China) 90-1027
- Development Information Network for South Asia (DEVINSA) 92-0617
- Asian Fisheries Social Sciences Research Network 93-8019
- International Network for Bamboo and Rattan (INBAR) 92-1400

LATIN AMERICA

- Heavy Metal River Pollution 85-1030
- Psychosocial Support and Pregnancy Outcomes 87-0232
- Economic Research Consortium (Peru) 93-0404
- Education and Work Network 91-0067
- Community Information Network (Ecuador) 92-0615
- Caribbean Technological Consultancy Services Network 84-0142
- Latin American Foundry R&D Network 88-1021
- Sustainable Andean Development Consortium (CONDESAN) 94-0114
- Community Management of Fishery Ecosystems (Chile) 93-0041
- Latin American Chemical Technology Network 88-1047
- Agroindustry Networks 92-0025
- Caribbean Rice Network 85-0081

GLOBAL

- Leishmaniasis Control Network 92-0223
- Rural Energy Technology Assessment and Innovation Network (RETAIN) 84-0291
- Mollusc Culture Network (Coastal Resources Research Network CoRR) 90-1032

Appendix 3
List of Respondents

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Prof. Souleymane Mboup - Réseau africain de recherche sur le SIDA
Prof. Pape Léopold Sarr - West Africa Farming Systems Research
Sidiki Coulibaly - UN Population Fund
Cedrick Hess - Arid Lands Information Network (not an IDRC project)

Abidjan
N'guessan Jérémie Kouadio - Réseau des politiques sur les langues nationales

IDRC Regional Office for Eastern and Suthern Africa (Nairobi)
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Nairobi
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Dr. Ruth Nduati and Dr. Frank Plummer - Network of AIDS Researchers of Eastern and Southern Africa
Prof. Anthony J. Rodrigues - Eastern and Southern Africa Network
Mr. Charles F. L. Mbakaya - East Africa Pesticides Network
Ms. Cecilia Kinuthia-Njenga - WEDNET
Protus Muteshi and Makau Ngola - African Environmental NGO Electronic Networking Node Development
Dr. Daniel Sifuna - Educational Research Network of Kenya/ERNESA
Dr. Titus Adeboye - African Technology Policy Studies
Dr. Samson Chema, Ozzie Schmidt, James M. Mbwika - Vegetable Oils and Protein System Improvement Network
Peter T. Ewell - Programme regional pour l'amélioration de la culture de la pomme de terre et de la patate douce en Africque centrale et de l'est

Tanzania
Ms. Vera Ngowi - East African Pesticides Network
Jonathan Otto and Erwin Protzen - TPRESS
Roger A. Kirkby - Eastern African Beans Research Network
Dr. Hasa Mlawa - East Africa Technology Policy Studies

Others
Silvio Gomez-Arango
Eglal Rached
Hugo Li-Pun and Philip English (casual conversations)