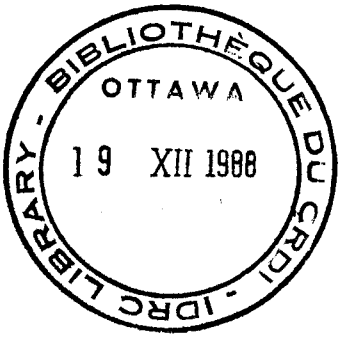
The Importance of Information Sharing in Developing Countries
Marine Science as an Example



by Kieran P. Broadbent

August, 1988

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Abstract

This paper examines issues encountered amongst developing countries in establishing information services in support of their marine science literature and the need to share and exchange information at the national, regional and global levels. The practical experience gained by one donor agency - IDRC - is related, showing how countries, by working together, can overcome some technical and human problems. The concepts of sustainability, useable information and new technologies are also discussed.

The International Development Research Centre (IDRC) was created by an Act of the Canadian Parliament in 1970. This institution was and still is considered special in terms of its power, structure and objectives. The IDRC Board is composed of a Chairman, President and not more than 19 other governors, eleven of which must be Canadian and 10 traditionally non-Canadian, usually scientists of world repute from the developing world. IDRC has been characterized thus: The Board is its Directors, its Shareholders, the Canadian public and its clientele, the world's rural poor.

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The main objectives, according to the Act, are to:

> ".....initiate, encourage, support and conduct research into the problems of the developing regions of the world and into the means for applying and adapting scientific, technical and other knowledge to the economic and social advancement of those regions...."

Within IDRC, there are five main program divisions: agriculture; food and nutrition; social sciences; health sciences; earth & engineering sciences; and information sciences. IDRC is considered unique amongst donor agencies for having a division dealing with Information Sciences. These Divisions all operate by responding to requests for assistance by project development in five key themes:

- skills enhancement
- physical wellbeing
- economic participation
- food security
- technological change

From the beginning, therefore, IDRC has had information handling and transfer to enhance development as one of its main objectives. Specifically, support for systems and services for the acquisition, processing dissemination and utilization of information. Information is a most important factor in the development process. To allay any charge that IDRC is dictating or orchestrating developing country priorities, IDRC resources are used to supplement locally supported activities. Therefore,

- the basic principle is self-help;
- the strategy is to support information flow from source to use; and
- the tactics are to provide the tools.

The specific objectives of the Information Sciences Division are:

- to improve systems and services and tools for managing and using information relevant to development research and change;

- to build indigenous capacity within developing countries for the effective management and application of information for development; and

- to foster cooperation and co-ordination in development research through information sharing.

The Information Sciences Division handles projects responding to the above objectives in a collaborative team approach, under various sub-programs dealing with:

- socio-economic information;
- information tools and methods; and
- science and technology information.

The latter sub-program for which I have responsibility looks at science and technology mainly in the following subject areas:

- science and technology information systems;
- agriculture and food science
- industry, technology and shelter;
- earth and marine sciences.

Earth and marine sciences (EMS) is a subject that is becoming increasingly important in the development context. Recognizing that development cannot be maintained if it is not environmentally sustainable, the objectives of EMS are:

- to improve national capacity to deal with problems of natural resources;
- improve access to services and tools;
- foster greater mutual exchange of information.

The areas which require our attention are: climate, forestry, land use, water management, mineral development, environmental conservation, fisheries, aquaculture and oceanography. The general subject scope of EMS is very large and IDRC does not have the financial resources to respond to the potentially vast amount of requests that would flood in for approval. The sub-program has to be very selective and prioritizes on those areas that:

- the developing itself prioritizes;
- that makes maximum use of local resources;
- that have impact;
- that have a multiplier effect;
- where costs are reasonable and benefits are high.

Generally speaking, the marine science component stresses living aquatic resources management and small-scale fisheries, both of which benefit the rural poor. This conference will include presentations from four of IDRC-supported projects in the area of marine science, namely:

- The Fisheries Management Information Services (FMIS), Trinidad and Tobago;
- The Indonesian Fisheries Information Service (INFIS);
- Selective Fisheries Information Services (ICLARM), Philippines;
- Fisheries Information, Cote d'Ivoire (CRO)

Each project represents specific areas of the program at IDRC. The FMIS project will support the analysis of data collected on pellagic fish stocks and will impact on fishing techniques as well as such areas as licensing agreements with neighboring countries in the Caribbean. It has also enabled Trinidad and Tobago to establish a workable national resource management plan. Although this is a national project, we expect it will have application to other parts of the developing world.

The INFIS project focuses on national bibliographic control of fisheries literature and dissemination of useable information to the small-scale fishermen. Some technologies and disciplines supported by the Information Sciences Division include informatics, expert systems telematics, storage technologies and CD-ROM. The project we support at ICLARM exhibits some of these technologies in its interstitial role to the global fisheries sector. At ICLARM we have supported the development of the technologies to enable greater access to global information at the national level.

The information service at CRO Cote d'Ivoire is designed to meet national needs. Much of the data handled will, by its very nature, relate to regional issues which can be expected to influence the ultimate performance of the system. In the case of CRO, the regional aspect is important because of the transnational nature of the subject e.g. fish stocks, consumer needs, etc. Each of these projects will, as they are explained, bring to you a taste of the range and scope of the information sciences program in different parts of the world.

Sustaining information projects is of considerable concern to IDRC. The second Law of Thermodynamics states that any system, if left to its own devices, will go from a state of order to a state of disorder fairly quickly. To prevent this, one has to put energy into the system. To understand this in relation to information systems, one has to consider the large investment in information infrastructure requires constant funding, continual devotion of effort and frequent updating. The rapidly changing information environment characterized by increasing flows of scientific information means if momentum is to be maintained and advances made, ever greater investments have to be made. Donor funding alone will not be sufficient and recipients will need to secure long-term commitments from their own governments just to survive. The information infrastructure of poorer countries, if it exists at all, is constantly under threat of failure.

It is a matter of great importance, therefore, to IDRC as a responsible donor agency to see that the projects it supports not only are viable in terms of local demand, but sustainable in the long term. How then, once established, can an information service serving marine scientists in developing countries be expected to meet user expectations and sustain itself? I list here the issues to be addressed:

PURPOSE

The subject scope of the information service must be tightly defined, both at the collective and individual level. There must be a group of beneficiaries who demand the service. Tight definition of subject scope will ensure that users receive a well targetted, credible service supplying useable information.

MANDATE

The service must have a nationally or regionally agreed set of objectives and consensus in order to reduce the possibility of duplication and overlap. If the service has a recognized mandate the chances of securing a long term government commitment will be much better.

COMPATIBILITY

In order to ensure rapid, rational transfer of information intra-program compatibility and adherence to international standards and guidelines is desirable.

MULTIPLIER

The possibility of generating economic development by the momentum gained in one service should be maximized.

TRAINING

Many developing countries are hindered by lack of human resources. Services are characterized by high expectations and low productivity. Early investment in quality staff is essential with continuous training to maintain the level of expertise.

PRIORITY

Local priorities are very important. If fishing is very important to the local economy, marine information service is more likely to receive government support than if fishing is just one activity amongst several others. A statement in national plans on sectoral activities also helps.

PLANNING AND FINANCE

Start-up costs are high and operational costs are subject to inflation. Recent studies indicate that one should expect a minimum of ten years to establish an information service. It is highly important, therefore, that planning any information activity takes account of that fact.

PROFITABILITY

Profits in information may be an illusory concept but the idea of long term funding is equally problematic. Information is a commodity which everyone considers a necessity but few expect to pay for. To be profitable outside the few large, commercial data bases is unthinkable, yet services have to think in terms of cost recovery where possible and efforts should be made to increase productivity, reduce costs and operate under the principle of self-reliance. Developing countries, libraries and information are not isolated from political turmoil and often suffer quite drastically under the

ensuing turbulance where general policy changes are the order of the day. Foreign exchange is unobtainable and public revenues are meagre. Under such conditions information sciences require a high level of ingenuity, acumen and dedication to exist. Mandate, purpose, local priorities and commitment are important factors for survival.

Finally, developing countries need support and encouragement from more developed countries. I see a role here for such organizations as IAMSLIC by helping bring in more developing country participants in the field of marine science to learn, listen and exchange ideas. I, therefore, extend my sincere thanks to IAMSLIC for inviting me for a second time to address one of their meetings and to be able to meet some of the projects we have supported and have them express their opinions in a world forum.

KPB/dsk
August/88