

THE NATURE OF RESEARCH AT IDRC

REPORT OF RESEARCH AD HOC COMMITTEE OF THE BOARD

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Phase 1 of Research Ad Hoc Committee of the IDRC Board

The present report (Phase 1) is a response to the perceived need for clarification of the variety of research emphases and methodologies employed by IDRC. In particular, governors have been asking for greater clarity and explicitness so that they can evaluate the role of research in the whole knowledge system and so that they can come to clearer understanding of the criteria by which to judge some of the research findings.

Phase 2 of the Ad Hoc Committee's work, should the Board so approve, might well be a consideration of the balance of activities within the knowledge system that IDRC can support consistent with its mandate. This, in turn, leads to a consideration of IDRC's place in the broader scholarly and R and D community in Canada and internationally. We note that such a discussion has already been initiated by the President through the presentation by Dr. Clark at the last Board meeting.

We acknowledge the substantial assistance of John Hardie and the research staff at IDRC. Dr. Joan Foley rescued the text from grammatical infelicities and errors of emphasis. Any errors of fact or interpretation are the responsibility of Olav Slaymaker.

TABLE OF CONTENTS

Executive Summary

- A. Research Relevant Concepts and Definitions
- B. The Classical and Critical Rationalist Models of Research
- C. Contested Understandings of Research
- D. The Evolution of Science Policy in Canada
- E. A Historical Review of Research at IDRC
- F. The Role of Wisdom, Vision and Culture
- G. The Need for Clarity and Explicitness Within a Pluralist Framework
- H. A Redefinition of the Social Contract
- I. Towards a Policy Relevant Research Agenda

LIST OF REFERENCES

Appendix A
Appendix B

Executive Summary

Research is a way of reducing ignorance; by increasing understanding, it contributes to empowerment. The report attempts to clarify and define the wide range of understandings of the activity of research. A brief review of the ways in which IDRC has interpreted research is based on material provided by John Hardie. Some areas of possible neglect are considered and some thoughts on the importance of subjective and non-quantifiable factors are raised. Because of the complexity and continually evolving character of research, the report calls for explicitness, clarity and problem focus within a flexible and pluralist framework.

A. Research Relevant Concepts and Definitions

- (i) Research is systematic investigation into and study of materials, sources, etc. in order to establish facts and reach new conclusions; discovery of new and collation of old facts by scientific study of a subject.
- (ii) Science is the pursuit of knowledge, a pursuit with a well-defined process of inquiry, logic and validation; it can be described in a variety of ways. Habermas (1978) provided a three fold classification of forms of science:
 - (a) Empirical-analytic science, which corresponds closely with the classical and critical rationalist approaches (below);
 - (b) Historical-hermeneutic science, which focuses on the meaning of language and the understanding of means of communication in historical context; and
 - (c) Critical science which explores the connection between knowledge and action. This is only one of many ways (cf. Foucault, Kuhn or Latour) but is helpful in this context because it draws attention to the fact that science is much more than, for example, the subjects taught in a Faculty of Science at a modern university.
- iii) Scientific approaches include:
 - (a) Empiricism, a theory that all knowledge is derived from sense experience;
 - (b) Rationalism, the theory that reason rather than sense experience is the foundation of knowledge;
 - (c) Positivism, the verification of factual statements or the falsification of hypotheses, with the objective of social engineering;
 - (d) Reductionism, the principle of analysing complex things into simple constituents;
 - (e) Humanism, the investigation of individual worlds with an emphasis on individuality and subjectivity, stressing rational enquiry and human experience over abstract theorizing or orthodox religion; and

- (f) Structuralism, the construction of theories which can account for what is observed but cannot be tested for veracity because direct tangible evidence of their existence is not available, contrasting relations among sets of items within conceptual systems e.g. kinship, myths and taboos.
- (iv) Thought worlds (or plausibility structures, after Berger and Luckmann 1966 can be generalized to include:
- (a) Premodernism, in which truth statements are derived from a combination of reason and revelation;
 - (b) Modernism, in which problem solving and progressive approximation towards truth via the classical and/or critical rationalist scientific method are emphasized; and
 - (c) Postmodernism, in which problem solving and truth statements are discarded in favour of independent insight.
- (v) Development research is applied research that has the objective of leading directly to sustainable improvement in the quality of human existence, or basic research that results in an improved understanding of factors that affect development.
- (vi) International development research is defined in the IDRC Act, Section 4.1 as follows "The objects of the Centre 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, and, in carrying out those objects:
- (a) to enlist the talents of natural and social scientists and technologists of Canada and other countries;
 - (b) to assist the developing regions to build up the research capabilities, the innovative skills and the institutions required to solve their problems;
 - (c) to encourage generally the coordination of international development research;
 - (d) to foster cooperation in research on development problems between the developed and developing regions for their mutual benefit."

Section 4.2 deals with Powers which include;

- (e) “establish, maintain and operate information and data centres and facilities for research and other activities relevant to its objects; and
- (f) initiate and carry out research and technical development, including the establishment and operation of any pilot plant or project, to the point where the appropriate results of such research and development can be applied.”

B. The Classical and Critical Rationalist Models of Research

Some of the key assumptions of the classical view were (Harre, 1972):

- (i) The principle of accumulation which states that scientific knowledge consists of the conjunction of well established facts and that knowledge grows by the gradual accumulation of further well-attested facts.
- (ii) The principle of induction which states that there is a form of reasoning that enables true laws to be obtained from a set of factual observations.
- (iii) The principle of instance confirmation which states that the plausibility of a law is proportional to the number of instances which have been observed to conform to that law.

The critical rationalist view, which superceded the classical model, has the following essential ingredients (Popper, 1974):

- (i) The principle of falsifiability which states that statements and theories can only be refuted and not verified. Hence the emphasis in the traditional research process of setting up an empirically testable hypothesis;
- (ii) The principle of criticism which states that since all scientific knowledge is speculative the only rational attitude to adopt is a critical one. Scientific knowledge grows by a process of trial and error not by the gradual accumulation of well attested facts; and
- (iii) The principle of demarcation which states that the essential characteristics of scientific statements is that they are empirically testable i.e. capable of refutation if they are false.

The combination of these two approaches has been enormously successful in the physical sciences and biological sciences; the extent to which they have been successful in the human sciences is still actively debated.

C. **Contested Understandings of Research**

The natural sciences, hard technology, social sciences, the humanities and the creative and performing arts occupy different parts of a spectrum of understandings of research and scholarship. They differ in their emphases on questions of meaning and on questions of material production; they have different views on the nature of the social contract with which they are engaged; the relative importance of new knowledge as compared with the retention and reflection on old knowledge and the value of contextual interpretation of unique phenomena versus the global generalizations of predictive science. Griffin (1989) takes an extreme position which is helpful in so far as it clarifies the perspective of the humanistic sciences:

“Modernity, rather than being regarded as the norm for human society toward which all history has been aiming and into which all societies should be ushered is instead increasingly seen as an aberration. A new respect for the wisdom of traditional societies is growing as we realize that they have endured for thousands of years and that, by contrast, the existence of modern society for even another century seems doubtful. Likewise, modernism as a world view is less and less seen as The Final Truth, in comparison with which all divergent world views are automatically regarded as ‘superstitious’.---- Going beyond the modern world will involve transcending its individualism, anthropocentrism, patriarchy, mechanisation, economism, consumerism, nationalism and militarism. Constructive postmodern thought provides support for the ecology, peace, feminist and other emancipatory movements of our time, while stressing that the inclusive emancipation must be from modernity itself.”

I have quoted at some length here to underline some of the distinctives of a more humanistic social science research. If humanity and the humanisation of the planet is a prior goal to the economic growth of the planet we are faced with a conundrum which is both philosophical and practical. There exists a massive conflict in contemporary intellectual life. Postmodernism has largely replaced modernism in the ‘soft’ social and humanistic sciences whereas modernism is the guiding philosophy of ‘hard’ social scientists and natural scientists. To add a further element of complexity, premodernism continues to be the dominant thought world of

the majority of the world's population, through broad swaths of society and a wide range of cultural contexts.

Fundamentally, we are talking here about the relationship between science and society. The intellectual community with which IDRC has traditionally been deeply involved is asking critical questions about the managerial assumptions that underly much of traditional international development research; at the same time, the research and development community with which IDRC is equally deeply involved, is advertising as evidence of progress the fact that 'modern science' is characterized by 'more management, more evaluation, career structures with less permanence, sophisticated instrumentation, more emphasis on application, greater interdisciplinarity, more networking and collaboration, more internationalisation and more specialization and concentration of resources' (Hicks and Katz, 1996). In this context of contested views on the nature of research, NSERC has come up with a categorization of research that is more compatible with the research and development community's perspective than that of the scholarly community. NSERC defines a spectrum from pure research through pre-competitive R and D, applied R and D, product development to commercialization.

The modernist and postmodernist perspectives are clearly contested understandings of research and IDRC sits at the crossroads of these two cultures. Should IDRC, for example, be a knowledge broker or a knowledge creator? This is surely a false dichotomy. If we become exclusively a knowledge broker we may lose our credibility with the scholarly research community; if we become exclusively a knowledge creator we may lose our links with a significant fraction of the activities incorporated in research and knowledge systems. Irwin and Wynne (1996) make the case that scientists must share the blame for the public's misunderstanding of science. The ability of scientists to understand the public becomes at least as much a concern as the public's understanding of science. The distinctive role for IDRC seems to be at the interface of a wide variety of components of the knowledge system.

D. The Evolution of Science Policy in Canada

In a number of OECD countries, including Canada, science policy since World War II has followed a remarkably similar evolution (Riivo, 1994).

- (i) The naïve decade (1945-1955). There was strong public confidence in empirical-analytic science. Science policy was designed to support basic research and to strengthen science education.

- (ii) The age of pragmatism (1955-1970). The overriding concern was national security in the face of the Cold War.
- (iii) Taking the technology cure (1970-1975). Technological innovation and increased investment in empirical-analytical science as a cure of declining economic growth rates. Science was to be applied more to social needs such as health and the environment.
- (iv) Science as strategic opportunity (1975-1985). Science was seen as a source of opportunity for economic growth and social welfare. The process of science was seen as something to be managed and nurtured. Networking, vision and missions became central.
- (v) Science as marketplace (1985-1995). In a period of scarcer resources, science has had to become more accountable. Inputs and outputs were to be measured and science supply was to be integrated with market demand. Multidisciplinarity and multi-stakeholder consultation was necessary for R and D.
- (vi) Whyte (1997) identifies three current trends as threefold:
 - (a) internationalization of scientific programmes;
 - (b) multi-stakeholder discussion linking science to policy; and
 - (c) scientific conflict resolution as instruments of public policy are her candidates.

E. Historical Review of Research at IDRC (IDRC, 1998)

IDRC's Policy and Planning Group has kindly put together references from IDRC documents that demonstrate the evolution of thoughts about research at IDRC since its inception. We have already quoted from the IDRC Act of 1970. President Hopper, in his inaugural speech in 1970, referred to application of science directly through research to the needs of development. By 1984, the Program and Policy Review VI made reference to the concept of a 'research system' ranging from the formulation of a research problem to the use of the eventual research results for improving living conditions of the people. In Program and Policy Review VII (1986) not only was there an identification of focus on the problems of poverty but there was also a discussion of types of

research, with a preference expressed for applied research, over against basic research and experimental development. The John Lewis Report on Donor Support to Research (1987) raised three major issues:

- (i) Problem-solving versus research capacity-building;
- (ii) Research and training; and
- (iii) The pure to applied spectrum

Lewis used the NSF definition of research, namely that 'research is systematic study directed towards fuller scientific knowledge or understanding of the subject studied. Research is classified as either basic or applied according to the objectives of the sponsoring agency'. The Program and Policy Review X (1988) noted a shift in emphasis towards greater weight being given to the promotion of social and economic change and a concomitant need to pay more attention to the utilization of the results of research. IDRC's Empowerment through Knowledge Report (1991) emphasized the need for creating, maintaining and enhancing research capacity in response to the expressed needs of people with respect to equity and social justice. Three explicit directions were enumerated: research on effective research systems; attention to the utilization of research and the role of IDRC as knowledge broker. Finally, John Hardie (1996), elaborated the role of research in the whole knowledge system demonstrating the relations between teaching, information and communication, production of goods and services, management and organization of enterprises and research itself. This review is not only instructive, it represents a remarkable process of maturation over a period of less than 30 years.

F. The Role of Wisdom, Vision and Culture

Wisdom is the state of having experience and knowledge and judiciously applying them; vision is imaginative insight and culture is almost indefinable but includes at least the arts and other manifestations of human intellectual achievement. Because these are qualities that are impossible to define quantitatively, they are frequently omitted from formal discussions of science and technology, of R and D and most seriously of the relationship between science and society. Alternatively they are dismissed as being no more than the sum of certain quantifiable characteristics. From the humanistic science end of the spectrum, these are some of the words that are central to the search for understanding. For this reason I particularly enjoyed the item included by John on knowledge in development. Here he argues that development requires a great deal more than knowledge, namely a healthy natural environment, religious and spiritual values, cultural activities and human governance.

This is one very helpful way of keeping knowledge and research in perspective. Indeed, his discussion is reminiscent of the original meaning of the word science, deriving as it does from the Latin word 'scientia' or knowledge. The value of a typology of science that transcends the classical and the critical-rationalist models seems self-evident.

G. The Need For Clarity and Explicitness Within a Pluralist Framework

One of the concerns expressed at Board level has been that we frequently fail to distinguish between different kinds of research and indeed whether we are talking about research, the research system or the knowledge system. The other concern towards which this report is also directed is the often implicit assumption that there is only one kind of legitimate research for IDRC. There is no longer a single model of research in science nor indeed is there a single model of development research. In 1970, when IDRC commenced operations, there was widespread agreement over a positivist, reductionist model of research (though not even at that time was there universal agreement). The brief review of IDRC's self-record demonstrates a move towards embracing a wider range of approaches towards research and indeed a more flexible understanding of the nature of research itself. This change exactly mirrors the broader changes in the scholarly and development communities with the following caveats (this is a personal list to which I would appreciate additions or statements of disagreement):

- (i) IDRC has resisted the intellectual community's drift towards anarchy and semantic constipation;
- (ii) IDRC has been innovative in the development of information technology tools for development; and
- (iii) IDRC has recognized that policy relevant research provides a practical resolution to the conundrum of the separation between intellectual community and development community.

Nevertheless, there are some things that IDRC could usefully take on board from the intellectual community, for example:

- (iv) Notably, a more fulsome interest in the debates about meaning, both at philosophical and religious level. An interesting recent example is Ryan (1995).

- (v) Having inherited the sustainable development portfolio, IDRC has not notably advanced thinking about the concept of sustainability
- (vi) A pluralist framework, in my estimation, extends to the fullest exploitation of not only modernist and postmodernist thinking but also premodernist thinking. Not to suggest that IDRC researchers should be premodernist, but that more serious research into premodernist values and assumptions would help to identify with the needs and wants of citizens of the global community

H. **A Redefinition of the Social Contract**

Jane Lubchenco, in her Presidential Address to the American Association of the Advancement of Science (1997), indicated the need for a new social contract for science. Her thesis is that the old social contract depended on the contribution of research to winning the war (initially World War II and later the Cold War), winning the space race and conquering disease. The needs of society have changed so radically because of the extent of human dominance of the planet (Vitousck et al, 1997) and now it is knowledge to inform policy and management decisions that is at a premium. This new contract should express a commitment to harness the full power of the scientific enterprise in discovering new knowledge, in communicating existing and new understanding to the public and to policy makers and in helping society move towards a more sustainable biosphere. The whole system of science, society and nature is evolving in fundamental ways that cause us to rethink the way science is deployed to help people cope with a changing world. Moreover, more flexible ways of understanding science will emphasize the relevance of not only empirical-analytic, but also more humanistic conceptions of science.

I. **Towards a Policy Relevant Research Agenda**

John Hardie has provided us (again) with a valuable document entitled *Using Knowledge for Development: towards a research policy agenda*. The document (even though I have points of disagreement on detail) is an excellent starting point for discussion. He talks about both the strengths and the weaknesses of a reductionist approach to development research and although he refuses to use this wording, he is espousing policy relevant research and in so doing is exploiting IDRC's comparative advantages within the research and knowledge systems. It is not the purpose of this Ad Hoc committee to develop a research agenda; merely to commend a clearer and more explicit recognition of the variety of legitimate

research approaches that can underpin a policy relevant research centre.

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Respectfully submitted ,

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The following appendices were prepared as statements of elaboration and/or disagreement with details of the above report:

Appendix A: from Dr. Joan Foley, Professor, Department of Psychology, University of Toronto.

Research sponsored by IDRC (at least as it is described to the Board) is rarely designed to allow for comparisons between different treatments, or interventions, and between these and control conditions. Without this design feature, it is impossible to isolate the variable(s) that are responsible for any change (results) that we see at the end of the day. Concern is often expressed that results from our projects are not taken up by others. But, because of the way in which we typically proceed, the results are specific to a particular situational context, and their transferability to other contexts is therefore limited. Even if we continue to do only applied research, it could be designed in such a way as to increase the contribution that we make to understanding, as distinct from merely obtaining a result. It is this feature that will allow us to make a contribution to the evolution of theoretical concepts, such as “sustainability”. Access to this understanding will allow R & D people who are trying to solve particular problems in other countries or other contexts to benefit from the work that we are doing. As long as our work is situation bound there is little if any value in it to anyone other than those who actually do it. (To use ACACIA as an example, I noticed with approval that in the last report, the South African team is planning to compare development in communities who get the ICTs to that in other similar communities that do not.)

A second concern is that we frequently evaluate the success of our work by soliciting subjective responses to a questionnaire. Of course, how people feel about the results of our projects is important, and it is appropriate to enquire about their perceptions—I am not suggesting that we stop doing this. Unfortunately, however, people’s opinions are a notoriously unreliable source of information about what actually happened. Likewise, people’s intuitive explanations of why things happen are notoriously biased and resistant to change, even in the face of counter-evidence. I would like to see more emphasis in our evaluations on objective measures of changes in the quality of life, or of whatever specific effects are expected to follow from our interventions. (Again to use ACACIA as an example, the last report suggest that the present intention is to limit evaluation to opinion surveys.)

I suggest that the regular inclusion of these two features (comparisons between treatment and control conditions, and objective measures of the effects of our interventions) would enormously enhance the impact of our work.

Appendix B: from Caroline Pestieau, Vice-President, Programs, IDRC.

This report by the Ad hoc Committee of the Board gets the discussion of IDRC's research going at a high level. It provides the kind of methodological context Board members are likely to find useful as they review the Centre's research programs. I believe program staff will welcome the breadth of the thinking in the report and the scope it provides for IDRC's work, particularly the last sentence in section C "the distinctive role of IDRC seems to be at the interface of a wide variety of components of the knowledge system."

I expect Governors to focus particularly on the section entitled "The need for clarity and explicitness within a pluralist framework" and on the last sentence of the report. My brief comments address these elements.¹

As regards the former, I am of course pleased that the report identifies the Centre favourably in points (i), (ii) and (iii). Our success in this respect is probably related to our situation with a foot in both the academic and the development communities. This situation is sometimes difficult for program staff to maintain in terms of their professional careers but it is fruitful for IDRC's work.

It is interesting that some of the Southern researchers we support have lukewarm support for the approaches proposed in points (iv) and (vi). An example is a workshop which was held recently in the Centre on a project in the Philippines. The researcher, who was explaining traditional and spiritual perspectives in the management of a local environment, told us that these perspectives were received with more interest as worth researching in Canada than in the Philippines. I have had somewhat similar experiences in economics. Just as the best North American economists are emerging from an excessively mathematical approach to the discipline, those in the South tend to feel they are being patronised if we advise them to play down the econometrics and include more intuitive approaches. They want to prove they are true modernists. I see IDRC as having a role to play in helping Southern researchers to understand the intellectual history the report has set out and to find their own place in it. This is another way in which we can help them to "empower" themselves.

Turning to point (v), I would like to suggest that we have done quite a lot of work in "advancing the concept of sustainability." Examples are the work on the "Barometer of Sustainability" we have supported with IUCN and related work on sustainability indicators, and the case studies done under the INTESEP theme (Integrating Environmental, Social and Economic Policies). A forthcoming publication coming out of this theme includes case studies from the three developing regions plus Canada and a methodological paper by John Robinson. I would also see many of our PIs as

¹ Tim Dottridge shared his comments on the report with me and my comments build on his.

addressing this question. But we probably have not pulled the material well enough together.

As regards the final sentence in the report, I think it will be important for the Ad hoc Committee to continue the discussion with Centre management on its implications. Perhaps it should be taken up in Phase 2.