Brief from the International Development Research Centre (IDRC)
to the Special Joint Committee Reviewing Canadian Foreign Policy

DEVELOPMENT AIN'T WHAT IT USED TO BE"
The Critical Role of Knowledge in Development

The wrenching transformations that the world is undergoing are forcing us to reexamine, in a fundamental way, the meanings of development and of progress.

The visions of plenty and happiness that for decades guided the "catching-up" efforts of the less fortunate nations have blurred. The task of development could once be defined as attempting to achieve, in the span of one generation, the standards of living that the rich nations of the West achieved in three or four, while avoiding the heavy social costs they had to pay or they inflicted on others, including slavery, colonialism, use of child labor, subjection of women and forced migrations.

The Western standards of living to which all humanity was supposed to aspire are now being questioned, not only because of their negative environmental consequences, but also because they were defined primarily in material terms and neglected the social, cultural and spiritual dimensions of human development. The rise of religious fundamentalism and of fierce ethnic rivalries throughout the world indicate the extent to which these neglected non-material dimensions of development have reemerged, and have acquired a disruptive and even pathological character.

The imperative of rethinking development and progress comes at a time of unprecedented change in practically all aspects of human activity. Most notably, the international order that prevailed for five decades collapsed as we entered the 1990s, and both nations and individuals are facing the uncertainties and instabilities that accompany the difficult transition to a new, and as yet undefined, world order. International security and political concerns, once processed through the relatively stable bipolar system of confrontation between the East and the West, have now acquired a much more complex and unpredictable character. The world economy is experiencing profound transformations, mainly as a result of shifts in trading patterns, the globalization of financial markets, changes in the nature of work and the impact of technological advances, which challenge established economic practices and confound the search for models and strategies.

Accelerated social and cultural changes have turned upside down the time-honored assumptions that underpinned the social order in many parts of the world, and particularly in the developing regions and the former socialist countries. The complex web of human values and interpersonal relations that keep communities together has been subjected to unprecedented strains, and in some instances has broken down completely with tragic consequences.

This brief addresses the importance of cooperating with developing countries in finding solutions to their problems through applied research and access to knowledge, a process that also allows them to contribute to solving global problems and to participate in worldwide innovation. Such cooperation is not an act of charity; far from it. In a world where economic and ecological borders are fast ceasing to exist, such cooperation becomes -- just as was geopolitical security in the post-war era -- the very essence of enlightened self-interest. It is in this regard that rethinking the concepts of development and progress has become an urgent task:

- Because, as we are already seeing, future conflicts will be between people and not between nations, there will be conflicts over entitlements, over environmental, health, educational and community security;

- Because of the need to improve the standards of living of over one billion people who live in extreme poverty, lack the means to satisfy their most basic needs, and have been excluded from sharing in the benefits of scientific and technological advances;

- Because of the problems that affect developed countries, including unemployment, social decay, productivity stagnation, waste of natural resources and ethnic tensions;

- Because of the daunting tasks of social, political and economic reconstruction in the former socialist countries of Eastern Europe and the ex-Soviet Union;

- Because of the extent of man-made disasters and the pain and suffering that human beings inflict on each other in places such as Afghanistan, Bosnia-Herzegovina, Cambodia, Georgia, Haiti, Rwanda, Somalia, and Sudan; and

- Because of the fact that it will be impossible to extend the patterns of consumption and economic growth of the rich countries throughout the world without causing severe -- and perhaps irreversible -- environmental damage.

Institutional change and renewal for development

Development must be rethought and the instruments we use to assist in development must be modified. This means not only making additions, but also eliminating habits and practices that cannot function well in the new context. This will not be easy. As Einstein observed many years ago, "We cannot solve the problems we have created with the same thinking that created them." Or as Keynes put it, "The difficulty lies not in new ideas, but in escaping from old ones."

The changed context emphasizes the need for institutional change and renewal. At the international level, we must ensure that the institutions of global governance, such as the United Nations and its agencies, including the Bretton Woods organizations, are equipped to respond adequately to the new challenges. But institutional change is necessary at all levels, including our own Canadian institutions. The problems of poverty, disease, violence and food and nutrition shortages have, of course, not changed. But the global context in which they are found is at dramatic variance with what existed only a few short years ago. If institutions are not transformed to reflect that changed context, they will become, at best, irrelevant and, at the worst, part of the problem and not of the solution.

Capacity for change

It is perhaps in our capacity to generate and utilize knowledge that changes and transformations have been most profound. Scientific and technological advances have become the main determinants of the paths that much of the world community will take in the new millennium. As a consequence, those who have access to the products of scientific and technological research -- as well as the ability to understand, absorb and make use of them -- will exert an ever increasing influence in the conduct of human affairs.

In parallel with the astonishing pace of advances in science and technology during the last few decades, differences between nations in their capacities to generate and utilize knowledge have become more pronounced. This will severely limit the possibility of many nations and of large groups within individual nations to pursue their own development objectives, whichever form they take, and, unchecked, will create a new global apartheid that will apply both between nations and within individual societies. The "North-South" axis of poverty and marginalization is fast shifting to a new "included-excluded" dimension cutting between and within all societies.

But, if this is a time of unprecedented problems, it is also a time of unprecedented opportunities to take advantage of the possibilities for innovation and change. The worldwide growth of scientific and technological capacity is without parallel and, in many countries, the rate of growth in the number of scientists, engineers and other professionals is exceeding the rate of population growth. Humankind, as a whole, from an historical perspective, appears to be on the steepest part of the learning curve for basic understanding of the universe, our planet, and the biological systems of which we humans are an integral part. Harvey Brooks, distinguished Harvard University professor emeritus of science, describes our current contest as:

> "...a transition leading either towards catastrophe and social disintegration or towards a sustainably growing world society (growing in per capita welfare though with constantly declining population growth)."

Brooks argues that the opportunities can be seized and that catastrophe can be avoided IF R&D is placed on an intensive world-wide footing.

R&D, however, is very far from being approached on an intensive world-wide basis:

- Approximately 84% of the world's population lives in the developing world. At the beginning of the 1990s, less than 5% of global spending on R&D was in developing countries (about $20 billion).

- In 1991, General Motors Corporation alone spent $5.9 billion on R&D, and the top ten US corporations spent more than $22 billion.

- Developing countries have over 20% of the world's R&D scientists and engineers, but they often work in conditions of isolation and inadequate infrastructure that do not allow them to be adequately productive.

The challenge is to ensure that developing countries participate as fully as possible in solving their own and the globe's problems, through the efforts of their own and other scientists. This can go some way to reducing what Thomas Homer-Dixon of the University of Toronto, lead researcher of the Project on Environmental Change and Acute Conflict, has identified as the danger of the "ingenuity gap" -- that the challenges of rapid change and upheaval will be so great that humans will be unable to accommodate to them.

The OECD has concluded that, with regard to developing countries, the:

> "... central objective must be to help establish genuine indigenous science and technology capabilities..."

Canada already has a comparative advantage, in terms of its institutions and experience, in this critical field.

Research for sustainability

"Sustainable and equitable development" is a unifying global vision. It is also a knowledge intensive one, and one that requires us all to learn from what has worked or not worked in other parts of the world.

- Much of the impetus for organizing the Earth Summit, also known as the United Nations Conference on Environment and Development (UNCED) came from the broad consensus of the global scientific community about the degradation of the resource base/environment on which future human well-being depends.

- Rio launched a worldwide process of searching, self-scrutiny and looking for better ways of doing things. All countries and communities have to think about and understand what sustainibility means for them.

- Finding new, more sustainable ways is critical. New ways in policy and technology should be based on learning and exploration through research, with application and use of results as fast as possible.

- Science must be part of the way forward but science and technology cannot solve all the problems that may be created by disregard for sustainability. There is no technological "fix". Technological opportunities and improvement in economic efficiency are possible - but are they "necessary" conditions, rather than "sufficient" conditions for sustainability?

- Protecting the environment and encouraging economic growth and development are not necessarily mutually exclusive; the application of environmentally sound technologies can even result in increased economic efficiency.

- Public policy must be based on analysis that adequately reflects the key components of sustainability.

We are involved in a global transformation based on knowledge; this permits a new vision of global society that will be based on people having the best possible access to knowledge that they can use for their own purposes. But those who do not participate in that transformation will be further marginalized. If they are the vast majority of humanity, those who are today warning us of impending global chaos will be proved right. In a world without economic and environmental borders, the consequences of marginalization will be felt worldwide.
How then to achieve the promise of a global knowledge society? This is the great unknown. It is not a matter now, if ever it was, of just judicious infusion of capital investment and technology transfer. Part of the transition will require new learning, community solutions, and R&D that responds to the new circumstances. This again is why institutions and agents of development must be transformed and why the foreign policy review is -- at this critical moment -- so important.

Whose capacity: the "ownership" principle

The capacity to find solutions to global and local problems and to find new, more sustainable ways of doing things, is critical both in Canada and overseas. In the changed context, the generation, dissemination, and application of knowledge are even more important in the development process.

- One of the most vital differences between developed and developing, rich and poor, is the knowledge gap -- the capacity to generate, acquire, disseminate and use scientific and technological knowledge.

- The extent of this capacity will make the difference between those parts of the world where people are able to decide and act independently and those where they cannot.

- To use knowledge requires "ownership", not necessarily in a proprietary sense, but that people feel they are in control. It cannot just be applied from elsewhere - it has to be appropriated, internalized within countries and communities so that it can be used to best advantage. The experience of the Asian "tigers" demonstrates this.

- Individuals, communities and organizations in developing countries need knowledge for their development. Some comes from their own stock; and there is increasing understanding of the richness of indigenous knowledge in many parts of the world. Some knowledge from elsewhere must be adapted to fit specific conditions and aspirations. Some must be newly discovered.

- Knowledge, and the capacity to create and use it, permits people to determine their own development, and not be constrained in their societal or technological choices to accepting imported solutions. Local populations, for instance, are involved in determining strategies for the management of the Sierre de los Tùxtlas, Mexico's last remaining rain forest.

- The world needs the best product out of the developing country workers in science and development. It doesn't make any sense to keep pumping money into international development without applying all the brain power available to come up with better answers!

Research for a public purpose

Much of what is required in research and capacity-building terms continues to require public funding from sources in developing and industrialized countries, in areas such as:

- support to food systems in ecologically fragile regions;

- minimizing the health effects of environmental pollution;

- ensuring that technologies used by enterprises are environmentally sound;

- preservation and conservation of crucial habitat (coastal/mountainous areas, wetlands/mangroves, rainforest) and the interconnected species.

New approaches to funding, and drawing in the private sector, are being employed for research. This is useful particularly for following-up on research and ensuring that promising results are used.

In the much longer-term, development research lays the basis for international cooperation in science and technology between Canada and other countries in areas of mutual interest and advantage. This cooperation will not all and forever have to be funded from Official Development Assistance (e.g. very different basis for arrangements with some countries that have been past recipients of ODA such as Korea).

IDRC: research capacity-building and knowledge for development

Parliamentarians have already been briefed on IDRC's efforts in terms of institutional change and renewal in the 1990s (new strategy; staff cuts; new basis for Agenda 21 programming; increased leveraging of funds). Results and value to development are evident. Some examples of developing country and Canadian gains from the type of research support that has been provided are mentioned below and in the attachments to this brief.

The pay-off

Development usually proceeds through small incremental steps. Gradual improvements, an accumulation of them, broaden people's choices and options and increase their well-being. We may be right to look for the rapid and dramatic breakthroughs, but much improvement, including that associated with scientific change, will come from a succession of small changes that build together. Applied research must however be judged on the contribution it makes to development.

The advantages to Third World countries of research funding are clear:

- new solutions meaning better use of resources (e.g. more careful management of ecosystems, or improved crops such as the new Goldfinger banana or more disease-resistant beans); stronger economic management (e.g. better tax systems to enable developing countries to replace protectionist custom duties which hurt exporters and consumers); and greater human well-being (e.g. better access to clean water such as through the new "fog-catching" technology);

- application and adaptation of existing technology to problems of development: e.g. Healthnet -- giving health professionals, often in remote areas, timely access to information via satellite; or use of Geographic Information Systems to ensure better resource management;

- more experienced, better trained scientists, and stronger scientific institutions; and a stronger input from various parts of society (NGOs, community groups) into discussion of priorities and policies;

- research for policies in sensitive situations, e.g. economic policy in Chile under dictatorship for transition to democracy; contribution to policy options of the democratic movement in South Africa.

- links with scientists in other developing countries and Canada, and stronger, better grounded input to global forums, e.g. support to African preparations for the conference and convention on desertification.

Canada benefits from this kind of funding also:

- it is one of the most effective and efficient ways of contributing to Third World development;

- Canadian scientists and institutions benefit from knowledge linkages and networks. Canadians need to keep in tune with fast-breaking opportunities, and thinking in different settings;

- Canadian technology -- e.g. building on existing Canadian expertise to develop an electronic atlas of Agenda 21 that will allow testing of scenarios for planning implementation of sustainable development; working with developing countries to prepare the technological base necessary for using and processing remote sensing data from the future RADARSAT technology;

- Canada can benefit directly from some of the technology -- water testing methods for use in rural communities; improved varieties of canola;

- Security -- contributing answers to global problems, provides the basis for a more secure future for Canadians.

Conclusion:

"Development ain't what it used to be." We are all participants in the process of discovering how the changed context has and will affect it. One certainty is that rethinking development, and contributing new ways for human beings to fulfil their needs, will require knowledge -- knowledge about what has worked, about how things can be done better, and about what science can contribute. In this, countries and communities the world over are going to need the capacity to generate and use knowledge for their development to take advantage of the opportunites that the future offers. While the prime target should be to contribute to development in the South, the reality of global interdependence is that Canada and other countries in the North will also benefit from developing countries' greater ability to participate in research and knowledge exchange, and to contribute to solutions of development problems.