# STRONG TASK FORCE FOLLOWUP:

# ENGAGING CANADIANS

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## FINAL TECHNICAL REPORT

## INTERNATIONAL INSTITUTE FOR SUSTAINABLE DEVELOPMENT

### FEBRUARY 2000

# Strong Task Force Report Follow-Up

## *Summary Report of Activities Funded under the IDRC Grant*

## *File # 96-4812/03469*

## *Submitted by the International Institute for Sustainable Development, February 15, 2000*

In 1997, the International Development Research Centre (IDRC) granted up to CAD $175,000 to the International Institute for Sustainable Development (IISD) for follow up to the report of the Strong Task Force. This report provides a summary of activities undertaken under the grant and includes separate reports for each activity in the Annexes.

## Background

The Strong Task Force published its report, *Connecting with the World: Priorities for Canadian Internationalism in the 21st Century* in 1996. Among the report's recommendations were that IDRC, IISD and the North-South Institute collaborate with each other, with other like-minded Canadian organizations, and with organizations overseas to promote sustainable development through the spread of information and knowledge. To follow up to the report's recommendations, in its letter of March 12, 1997, IDRC granted up to $175,000 to IISD to hold meetings among members of the Canadian community interested in promoting and pursuing the issues and challenges set out in the Strong Report, and to develop strategies and actions to follow up the Report. This grant was subsequently extended to December 31, 1999.

## Activities Funded by the Grant

Expenditures under IDRC's grant covered the following activities:
1. Participation of the North-South Institute in the Learned Societies meeting in 1997;
2. The Search Conference of May 15-16 1997;
3. Writing, review, translation, publication and dissemination of the Formal Knowledge Networks report by Howard Clark, including the formal presentation of his findings in Ottawa, 1998;
4. Project development work on the climate change knowledge network, including the scoping study by Sid Embree;
5. The inception meeting of the climate change knowledge network in Buenos Aires in November 1998; and
6. The information technology capacity assessment and capacity building activities for developing country members of the climate change knowledge network.

## The Learned Societies Meeting, 1997

Although many in the academic community and civil society had heard of the Strong Report, many were unaware of its contents, beyond what they might have seen in the media. Recognizing the need to disseminate the Report and its recommendations at academic meetings, IISD disbursed CAD $10,000 to the North-South Institute to attend the Learned Societies meeting in 1997 and present and discuss the report.

## The Search Conference, May 1997

On May 15 and 16, 1997, IISD, IDRC and the North-South Institute jointly convened a search conference of approximately 35 leaders in knowledge networks drawn from the private sector, non-governmental organizations (NGOs), research institutions, universities and government. Building on the conclusions of the Strong Report, the search conference was the first event in a process to identify concrete strategies and actions which could be applied nationally, and by various organizations. During the conference, participants first discussed trends to the year 2010, assuming business as usual. They then examined a desirable future for Canada in the same period, if Canada begins now to redesign its future towards a knowledge-based approach to sustainable development, along the lines recommended by the Strong Task Force. After reviewing constraints to achieving the desirable future, the group examined ways to deal with them and defined significant opportunities. Finally, a plan of action was developed for implementation.

The full report of the search conference is found in Annex A. Several key themes emerged from the conference and two "next steps" in particular were taken up by IISD. The first was the need to develop an inventory of existing "knowledge networks" in Canada, with a view to identifying common factors, what works and what does not.

The second was the suggestion to establish (an) international knowledge network(s) that draw upon certain Canadian strengths, notably environment, health, education, and governance. In the field of environment/sustainable development, three themes in particular were identified: (1) the sustainable management of renewable resources, (2) national compliance with international protocols on biodiversity, ozone, etc. and (3) climate change.

Another notable theme to emerge from the search conference was the need for capacity building in networking, knowledge management and information technology in order to be an active participant at any level in the 21st century. Canada should play a leading role in building capacity in information technology and knowledge management.

IISD established a website at http://iisd.ca/strongreport/ to provide access to the Strong Task Force Report, related media coverage and to distribute the findings of the search conference.

## Formal Knowledge Networks

Taking up the search conference's recommendation that an inventory of existing knowledge networks be developed, IISD contracted Dr. Howard Clark to survey Canada's

National Centres of Excellence, and similar networks, to come to a better understanding of what formal knowledge networks are, how they differ from more traditional information and advocacy networks, and how the formal knowledge network model can be used to as a new approach to sustainable development, internationally. The print run of 1200 English and 500 French of the Clark report has been distributed, with only 180 English and 360 French still in stock; in 1999, an additional 1773 copies of the report were downloaded in pdf format from IISDnet (http://iisd.ca/k.networks.htm).

IISD has drawn, and is building on, useful lessons from Dr. Clark's work. Annex B contains a box outlining the key characteristics of formal knowledge networks. This study has formed the basis of further research and analysis on knowledge networks at IISD, and has informed the creation, structure and ongoing work of IISD's three major knowledge networks: the Sustainable Development Communications Network (formerly Spinning the Web), the Trade Knowledge Network, and the Climate Change Knowledge Network. Presentations based on the Strong Task Force Report and Clark's work, and their respective influences on our networking activities, were made at Global Knowledge 97, the African Regional Consultation for RIO+5 on information and communications, meetings in 1999 and 2000 at MIT of the Global System for Sustainable Development, at the members' meetings of our three knowledge networks, and other venues. The recommendations in the Strong Task Force Report and the findings in the Clark report on the importance of youth in knowledge networking, strongly influenced the development of IISD's Young Canadian Leaders for a Sustainable Future project.

As stated in the Note on Issues Arising from the Study at the beginning of the Clark report, "much more work will need to be done to test, refine and adapt the model for a formal knowledge network as described in this study." IISD is currently preparing a series of supplemental reports, based on lessons learned in applying this model through the Sustainable Development Communications Network. These reports will include the Principles and Protocols of Knowledge Networks; How to Make Knowledge Networks Work; the Role of Youth in Knowledge Networks; Marketing and Evaluation in Knowledge Networks.

## Climate Change Knowledge Network: Scoping Study and Project Development

The second "next step" to be taken up from the search conference was the establishment of an international knowledge network on climate change. The choice of theme arose from discussion among the three collaborating organizations (IISD, IDRC and the North-South Institute) and climate change was identified, in the fall of 1997, as having particular relevance and timeliness due to the forthcoming Kyoto negotiations. To scope out the need and demand for such a network, and a possible role for the three collaborating organizations, IISD contracted Sid Embree of Clean Commodities Inc. to conduct a scoping study. Ms. Embree's work took place during the few weeks surrounding the negotiations leading to the Kyoto Protocol in December 1997. Her study, attached as Annex C, describes the need for, and elements of, the proposed network, which would enable developing and developed countries to undertake timely and useful collaborative research on priority climate change issues. Her chief conclusion was that

there was significant need and demand for such a network among developing country organizations, and that the proposed knowledge network would also enhance understanding among developed countries of developing country priorities with respect to climate change.

Over the spring and summer of 1998, IISD used the grant funds to consult with likely member organizations of the network and further scope out the approach, themes, and methodology to be used. On the basis of these consultations and of a separately funded scoping meeting held in Ottawa in May 1998, IISD produced a draft proposal which was the foundation document for the inception meeting of the climate change knowledge network in Buenos Aires in November 1998.

## Climate Change Knowledge Network: Inception Meeting

In the fall of 1998, IDRC granted IISD permission to use funds from the grant to organize the inception meeting in Buenos Aires. The meeting fit the original purpose of the grant in that it involved close consultation among IISD, IDRC, and the North-South Institute, as well as with non-Canadian institutes involved in climate change, for the purposes of responding to the recommendations of the Strong Report. It brought together representatives of the 14 members of the network, which include six developing country members, one member from a country in economic transition (Ukraine), and seven developed country members.

Taking place on November 6-7, 1998, the Buenos Aires meeting coincided with the fourth meeting of the Conference of the Parties to the Framework Convention on Climate Change. The purpose of the meeting was to flesh out the work program of the network, adding depth and detail to the network proposal and forming the basis for collaborative projects and activities to be undertaken by network members. In addition, participants discussed fundraising strategies, youth internships, and information technology capacity building. At the Buenos Aires meeting, significant progress was made both in fleshing out the work program of the climate change knowledge network, and in building the personal relationships and collective understanding needed to make it work. Annex D contains the summary report of the meeting. As a result of the Buenos Aires meeting, the climate change knowledge network became a recognized entity both among its member and among other climate change policy specialists. Network members left the meeting with a mandate to begin developing ideas for specific projects to be taken on by the network.

## Information Technology Capacity Assessment

In February 1999, IDRC granted IISD's request to use the funds remaining from the grant to conduct an information technology capacity assessment and to conduct follow-up training, where required, for developing country members of the climate change knowledge network. In June 1999, a final extension of the grant was made to December 31, 1999 in order to complete the follow-up training.

The information technology capacity assessment was included in the original climate change knowledge network proposal because several developing country members lacked the information technology, and in particular Internet capabilities, that would facilitate knowledge creation and dissemination and hence membership in the network. Rather than waiting for funding to come through for the knowledge network, however, IISD identified significant benefit in completing these tasks as soon as possible. Assessing and strengthening the technological capacity of the knowledge network members was an efficient means of enabling meaningful and regular collaboration within the knowledge network. It was compatible with the original purpose of the grant in that it involved close consultation among IISD, IDRC, and the North-South Institute, as well as with non-Canadian institutes involved in climate change, for the purposes of responding to the recommendations of the Strong Report. Finally, it built upon the search conference recommendation that "Canada should play a leading role in building capacity in information technology and knowledge management."

In the spirit of the Strong Task Force Report, which emphasizes the need to create "opportunities for youth" in international development, IISD contracted one of our former interns, Adam Rostis, to carry out the initial capacity assessment of eight developing country members of the knowledge network and to make recommendations for follow-up with those organizations who needed training. The capacity assessment and the recommendations for follow-up are attached as Annex E. This consultant subsequently accepted a full-time position overseas and was unavailable to complete the follow-up training.

IISD then contracted a second intern, Andrei Henry, to conduct the follow-up work with the Southern Centre for Energy and Environment (SCEE) in Harare and the Energy Research Institute in Beijing. An IISD staff member carried out the planned follow-up with the Center for Sustainable Development of the Americas (CSDA) in Washington, D.C. Staff at each of the three organizations were taught how to create and maintain their institution's web site and to conduct research via the Internet. Reports of the three training sessions are attached as Annex F. As a result of the training sessions, the three institutes are now able to disseminate their work more easily to a global audience; their ability to conduct research and to communicate with their colleagues worldwide has also been significantly enhanced.

## Conclusion

Originally conceived as a series of meetings to encourage Canadian institutions to take up the recommendations of *Connecting with the World*, the Strong Report Follow-Up project evolved, after the search conference, into a two-faceted endeavour. First, it became clear over the course of the project, and especially after the search conference, that more research and understanding was necessary on the nature of knowledge networks, and how they could be put to the service of sustainable development. Dr. Clark's report, *Formal Knowledge Networks: A Study of Canadian Experiences* was an illuminating starting point towards this understanding. Further, it has highlighted and enhanced Canada's competitive advantage in organizing and using formal knowledge networks.

The other facet of the endeavour is action-oriented. The search conference and subsequent discussions among the three collaborating institutions highlighted the need for "learning by doing" - i.e., immediate action on forming a knowledge network around a pressing issue. The climate change knowledge network was formed in the spirit of the Strong Task Force Report's recommendations, in the wake of the search conference, and under the leadership of the three collaborating institutions. The consultative project development process enabled under the IDRC grant, including the Sid Embree scoping study and the Buenos Aires meeting, has helped to ensure that the network meets needs identified by the members themselves. The information technology capacity building has been a cost-effective way of improving the ability of developing country organizations to research, communicate and disseminate their work. The climate change knowledge network has provided useful, practical lessons for the formation of other knowledge networks intended to promote sustainable development.

**Annex A (see attached: Search Conference Report)**

# ANNEX A: Canada and Global Knowledge Networks

May 15-16, 1997
Ottawa, Canada

## Search Conference Summary Report[1]

On May 15 and 16, 1997, the International Institute for Sustainable Development (IISD), the International Development Research Centre (IDRC), and the North-South Institute (NSI) convened a search conference of approximately 35 leaders in knowledge networks drawn from the private sector, non-governmental organizations (NGOs), research institutions, universities and government (see Appendix A). The purpose of the meeting was to build on conclusions from a November 1996 report, *Connecting with the World: Priorities for Canadian Internationalism in the 21st Century*.

A distinguished Task Force, headed by Maurice Strong, prepared the report at the request of the three convening organizations (see Appendix B). *Connecting with the World* recommends

> "*that knowledge, and the communication and information technologies that can advance knowledge, be placed front and centre in Canadian foreign policy and Canada's international outreach.*"

It further recommends that

> "*work begin immediately on the creation of information-based networks both real and virtual that can link institutions concerned about Canada's international outreach with each other and with counterpart networks and institutions in the developing world and beyond.*"

*Connecting with the World* raised several key questions about Canada's future capacity for international development and for our own transition to a knowledge-based economy.

- How should we re-orient our traditional commitment to development?
- How can we mobilize the wide range of elements in our society to enhance our well-being and that of others through new investments in and uses of knowledge networks and information and communication technologies (ICTs)?
- How can Canada become a leader in global knowledge sharing?

The search conference was the first event in a process to identify concrete strategies and actions which could be applied nationally, and by various organizations. A Steering Committee,

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established to direct the process, designed and participated in the search conference and will assist in implementing further action (see Appendix C).

During the conference, in small groups and then in plenary sessions, participants first discussed trends to the year 2010, assuming business as usual. They then examined a desirable future for Canada in the same period, if Canada begins now to redesign its future towards a knowledge-based approach to sustainable development, along the lines recommended by the Strong Task Force. After reviewing constraints to achieving the desirable future, the group examined ways to deal with them and defined significant opportunities. Finally, a plan of action was developed for implementation. The principal conclusions of the search conference are outlined below.

1. The conference supported the key recommendation of the Strong Task Force: "that knowledge and the communication and information technologies that can advance knowledge, be placed front and centre in Canadian foreign policy and Canada's international outreach."

2. The conference recommended that a much more extensive dialogue be launched in Canada to develop new investments in and uses for information technology and knowledge networks. It supported the Task Force recommendation that work begin immediately on the creation of new information-based networks, and the reinforcement of existing networks, to link Canadian and overseas institutions. By 2010, Canada should have developed an enhanced capacity to conduct public dialogue and to develop networks, partnerships and learning communities that link Canadians with people in all parts of the world. These networks should include citizens, governments, private sector organizations, NGOs, aid recipients and other partners. The networks should strengthen the information base required for Canadian well-being and help meet knowledge needs in developing regions.

3. Canada has a reputation for an ability to resolve conflict and to improve dialogue across borders. It should further develop these skills, to reduce polarization and to promote greater equity, both in Canada and internationally.

4. A plan of action should be developed to implement these recommendations, guided by the following "Ten Commandments":

   i. Build on what is going on in Canada. Inventory current policies, programs, and practices; develop ways to learn from both successes and failures and then show the world that we practice what we preach.
   ii. Find ways to work with the private sector on issues where there are common goals.
   iii. Build up a national strategy on knowledge and ICTs through stakeholder processes. The *Projet de Société* process provided useful lessons. The Acacia project at IDRC examines national strategies, policies, technology and infrastructure as the first step in wider stakeholder involvement.
   iv. Open up the discussion to the public. Involve the media; they have a stake in these issues and are also a channel to the public.
   v. Incorporate programs for continuous learning and evaluation through the universities.

vi. Develop twinning arrangements among groups, networks, projects and communities in Canada and the developing world.

vii. Develop a Network of Centres of Excellence or build on existing ones.

viii.Build all of this into the foreign policy agenda for international fora in which Canada assists in developing global policies.

ix. Develop programs for youth such as a Netcorps.

x. Use innovation and imagination to develop new, less bureaucratic ways of operating.


## Next Steps: Toward a Plan of Action to Build on the Task Force Report

5. IISD, IDRC and NSI should continue to take the lead in developing and implementing a plan of action. CIDA should become a partner. Early action should focus on fields such as health, education, environment and governance and the reinforcement of virtual institutions to tie together expertise across Canada. The strategy should include an approach to packaging and delivering products, processes and models.

6. Health provides an especially good example of a field in which Canada has an unusual set of experiences, highly relevant to other countries but not promoted nor widely known. Led by relevant organizations such as CIDA and the National Council on International Health, Canada should develop ways to package its knowledge and models for use around the world. The focus should be on capacity building. Such a package should respond to and encourage demand; it should have a tracking system to identify opportunities, it must have a financing process and it should include all Canadian initiatives.

7. A second Canadian "package of knowledge" could draw upon Canada's collective experience with the development of environmental laws, regulations and market-based mechanisms; its expertise in environmental technologies, environmental assessment, co-management of resources, environmental health etc.; and its participation in international environmental negotiations. Three principal elements of a framework to move forward could be (1) the sustainable management of renewable resources, (2) national compliance with international protocols on biodiversity, ozone, etc. and (3) climate change.

8. Another Canadian strength is good governance and public participation. Governance processes in Canada, including their strengths and weaknesses, should be documented. We should synthesize what we have learned about multistakeholder dialogue and apply it in a public consultation with Canadians on governance issues.

9. Canada has considerable experience with the development of information policies and regulations, the development of communications systems and software. It also has an enviable record of nurturing and stimulating its own cultural industries and it understands the role of traditional media and multi media in the democratization process. These experiences could provide one or several exportable packages.

10. Three major initiatives were proposed around the theme of "learning":

- "Meta fora" are frameworks for addressing issues by linking people around a common theme through use of on-line dialogue plus face-to-face meetings. A series of "meta fora" should be organized in fields such as business, health, education, environment, to explore Canada's future role in global development and to design a plan for international action. Each forum will be designed collaboratively or in a consortium with the sector involved.

- Capacity building in networking, knowledge management and in the ability to work with ICTs is necessary in order to be an active participant at any level in the 21st century. Canada is already doing good work but could have a greater impact both at home and internationally with a quantum increase in resources and a more holistic approach. We should play a leading role in the world by supporting a program to develop capacity in ICTs and knowledge networking. Such a program would be targeted at: a) ICT infrastructure capacity development; b) capacity development in knowledge management technologies; and c) development of individual and organizational work capacity. All elements of the education system should make ICT part of basic education. Partnerships with organizations such as IDRC could help to build the capacity of NGOs to adapt to the knowledge-based society.

- Primary education is a universal need. Canada should develop a learning demonstration using best-practice models. Organizations such as IDRC, CIDA, the Aga Khan Foundation, SchoolNet, BRAC (an educational NGO in Bangladesh), and the Tele-learning Network of Centres of Excellence should be involved, in collaboration with the private sector. This learning demonstration would provide information on best practices to educators in North and South. Such a project could have a significant development impact both in Canada and internationally. The next step could be for CIDA to provide a short proposal to BRAC or similar organizations to see if there is an interest in collaboration.

11. The private sector is an essential partner. The Steering Committee should be expanded to include private sector members. Agendas must be developed cooperatively so that private sector concerns are incorporated from the outset.

This summary report will be posted on the IISD website at **http://iisd1.iisd.ca**. Additional notes from the meeting are attached (see Appendix D).

## Appendix A: Search Conference Participants

|  | First Name | Last Name | Organization |
|---|---|---|---|
| 1. | David | Balson | Executive Director<br>Bellanet International Secretariat<br>c/o IDRC<br>250 Albert St., PO Box 8500<br>Ottawa, ON  K1G 3H9 |
| 2. | Pierre | Beemans | Vice-President, Corporate Services<br>International Development Research Centre<br>250 Albert St., PO Box 8500<br>Ottawa, ON   K1G 3H9 |
| 3. | Andrew | Bjerring | President and CEO<br>Canadian Network for the Advancement of Research, Industry and Education<br>CANARIE Inc.<br>410 Laurier St. West, Suite 470<br>Ottawa, ON  K1P 6H5 |
| 4. | Tim | Brodhead | President and CEO<br>McConnell Family Foundation<br>1002 Sherbrooke St. West, 18$^{th}$ Floor<br>Montreal, PQ   H3A 3L6 |
| 5. | Heather | Creech | Program Director, Information and Communications<br>International Institute for Sustainable Development<br>161 Portage Ave. East, 6$^{th}$ Floor<br>Winnipeg, MB    R3B 0Y4 |
| 6. | Wendy | Cukier | Professor, Department of Administration and Management<br>Ryerson Polytechnic University<br>350 Victoria St.<br>Toronto, ON   M5B 2K3 |
| 7. | Roy | Culpeper | President and CEO<br>North-South Institute<br>200 - 55 Murray St.<br>Ottawa, ON   K1N 5M3 |
| 8. | John | Evans | Chairman<br>Torstar Corporation<br>1 Yonge St., 6$^{th}$ Floor<br>Toronto, ON   M5E 1P9 |
| 9. | Jocelyn | Ghent Mallett | Member of the Chairman's Executive Council<br>Newbridge Networks Corporation<br>580 Prospect Ave.<br>Ottawa, ON  K1M 0X7 |
| 10. | Langston J. | Goree | Managing Director, Reporting Services<br>International Institute for Sustainable Development<br>c/o Earth Negotiations Bulletin<br>212 E. 47 St., Apt. 21F<br>New York, NY<br>10017 - 2125  USA |
| 11. | Christopher | Greenshields | Director, Economic Relations with Developing Countries Division (EEA)<br>Department of Foreign Affairs and International Trade |

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| 22. | Sue | Milne | Analyst, University and College Research Policy<br>Industry Canada<br>8th Floor West, Room 842-F<br>235 Queen St.<br>Ottawa, ON  K1A 0H5 |
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| 24. | Thérèse | Paquet-Sévigny | Secrétaire-Générale |
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| 29. | Rodger | Schwass | Search Conference Facilitator |
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| 32. | Robert | Valantin | Chief Scientist, Information |
| | | | International Development Research Centre |
| | | | 250 Albert St., PO Box 8500 |
| | | | Ottawa, ON   K1G 3H9 |
| 33. | Jim | Wall | Director General, International and Economic Issues, |
| | | | Environment Canada |
| | | | Les Terrasses de la Chaudière |
| | | | 10 Wellington St., Room 2232 |
| | | | Hull, PQ   K1A 0H3 |

6. A broader group should be assembled to design a Canadian program for knowledge-based networks.

7. Innovative funding mechanisms that might provide greater leverage for public investments should be developed.

8. By 1999, at least 15 percent of Canada's official development assistance should be allocated to knowledge and knowledge-related development programs, and this amount should thereafter increase.

9. Over a reasonable time period, recipient organizations should be required to commit themselves to a dollar-for-dollar match against ODA contributions. Such leverage of public grants should become one of the comparative advantages of institutions such as the three sponsors of the study.

10. The three sponsoring organizations (IISD, IDRC, and NSI) should set an example of leadership by establishing a joint communications program which could be extended over time to other institutions.

11. A priority for government and for joint action should be creating opportunities for youth and building international and policy-related capacity in the coming generation.

12. The three sponsoring organizations should be at the forefront in advising Canadian efforts on knowledge-based initiatives in the years ahead. This will mean greater cooperation between the three, as well as greater interaction with other sectors of society.

## Appendix C: Members of the Steering Committee

| | |
|---|---|
| Tim Brodhead | President and CEO, McConnell Family Foundation |
| Roy Culpeper | President and CEO, North-South Institute |
| Arthur J. Hanson | President and CEO, International Institute for Sustainable Development |
| Maureen O'Neil | President, International Development Research Centre |
| Thérèse Paquet-Sévigny | Secrétaire-Générale, Orbicom |
| David Runnalls | Program Director, Trade and Sustainable Development, IISD |
| Janice Stein | Harrowston Professor of Conflict and Negotiation, Department of Political Science, University of Toronto |

## Appendix D: Search Conference Notes

### Introduction

On May 15 and 16, 1997, the International Development Research Centre (IDRC), the International Institute for Sustainable Development (IISD) and the North-South Institute (NSI), convened a workshop of 35 leaders from the private sector, NGOs, research institutions, universities and government, to discuss and recommend action on *Connecting with the World*, the November 1996 report of the International Development Research and Policy Task Force. The Task Force was sponsored by the three convening organizations and chaired by Maurice Strong.

The meeting was intended to seek practical application of Task Force recommendations. For this process, a Steering Committee was formed, consisting of the Presidents of the three sponsoring organizations, several members of the Task Force, and several interested individuals. The Steering Committee members designed and participated in the search conference and will assist in implementing follow-up to it.

A Search Conference format was used. It is a technique which assists people from diverse backgrounds to grapple with complex issues where there is rapid change and where many conflicting influences must be taken into account in developing a plan of action. Background materials were sent to all participants to provide information about Canada's role in relation to the emerging global knowledge networks.

During the search conference, in small groups and then in plenary sessions, participants first discussed the present situation and where it is likely to lead by the year 2010 if present trends continue. They then examined a desirable future for Canada in the same period, if Canada begins now to redesign its future along the lines recommended by the Strong Task Force. After reviewing constraints, the group examined ways to deal with them and defined significant opportunities which would become possible. Finally, a plan of action was developed for implementation by the three organizing bodies and other interested organizations.

This is the report of the search conference discussions. Further details can be obtained from any of the sponsors.

### Opening Session

Arthur Hanson, President and CEO of IISD, noted in his opening remarks that globalization has meant the emergence simultaneously of rapid and inexpensive means for knowledge sharing, public understanding and new forms of cooperation, a widening gap between the information haves and the have-nots, and a long, slow decline in development cooperation.

As the Task Force pointed out, Canada will lose its place as one of the seven largest economies in the world and may well have difficulty remaining in the top 15 by early in the next century. Canada's role in the world and the well-being of Canadians is directly tied to our capacity to understand and act on a complex, evolving set of knowledge bases, derived from an equally complex set of domestic and international relationships. The funding and organizational base to build this capacity may be eroding.

He noted that while *Connecting with the World* provided the springboard for the discussion, participants will want to amplify and perhaps move beyond the content of the report. It recommends "that knowledge, and the communication and information technologies that can advance knowledge, be placed front and centre in Canadian foreign policy and Canada's international outreach". The conference participants need to develop ideas on how to mobilize the much wider range of elements in Canadian society to enhance both Canadian well-being and the well-being of others through new investments in and uses of information technology and knowledge networks. The Task Force recommended that "work begin immediately on the creation of information-based networks both real and virtual that can link institutions concerned about Canada's international outreach with each other and with counterpart networks and institutions in the developing world and beyond." This is a key idea that needs to be carefully explored, given the significant investment already made by people attending the meeting and others involved in information sharing.

Several members of the Task Force who were present then provided an overview of the report. *Connecting with the World* raised several questions which the workshop might try to address:
- What role should Canada play with its diminishing resources devoted to international development?
- How do we build on our intellectual capital?
- How can more resources be devoted to the creation of knowledge?
- Sharing knowledge creates new knowledge. How can Canada become a leader in global knowledge sharing?
- How can Canadians outside the governmental system be involved?
- How could we bridge the new knowledge gap between 'knows' and 'know-nots' in Canada and elsewhere?

CIDA's Vice-President for Policy gave an overview of the Global Knowledge '97 Conference on Knowledge for Development in the Information Age, which was held in Toronto, June 22-25, 1997. The themes are: 'understanding the information revolution', 'sharing strategies, experiences and tools' and 'building new partnerships that empower the poor'. CIDA's focus will be on relating these themes to sustainable development. Questions to be addressed include; 'how do we ensure that benefits of the information revolution accrue to the marginalized in society', 'how do we partner and with whom' and 'how does the knowledge and information revolution affect sustainability'?

CIDA is concerned that, while the global knowledge revolution empowers those with access to its benefits, half the people of the world have never used a telephone. While some less developed countries (LDCs) may leap ahead, others could be left even further behind. Other

concerns are that information overload, communications confusion and an international information caste system will be created. On the other hand, information technology improves prospects for better health care, improved distance education, and overall democratization, provided that local knowledge can be combined with global knowledge. How can the new technologies be used to provide, for example, universal education in a country rather than just providing Internet hookups for a few universities?

The Canadian International Information Strategy (CIIS) was described by a representative of the Department of Foreign Affairs and International Trade (DFAIT). The idea is to create a strategy that will lead to a sustained economic presence for Canada in the world. Minister Lloyd Axworthy has Cabinet approval for the new strategy, which involves three areas: broadcasting, electronic networking and education and development. DFAIT is working with a consultant to flesh out the strategy, using focus groups and with participation from the private sector. The three-pillared foreign policy (security, prosperity, values) is popular among the consulted public.

Many smaller countries (Brazil, Portugal, Korea) have already developed a sustained electronic presence and several others are at about the same stage as Canada. DFAIT is now looking at existing mechanisms such as TV, Radio Canada international, the Internet, etc. It is expected that a plan will be ready for Cabinet in the fall.

## The Present Situation and Where It Will Lead by 2010

The first task in the search conference was to explore the present situation and to extrapolate present trends into the future. The year 2010 was chosen as a target date for the projection. When the groups reconvened in plenary session, they reported the following observations.

Canada's role in the world economy will shrink as countries with larger population achieve 'development'. China will become the world's largest economy, followed by countries such as Brazil, Indonesia, India, etc. This could be good for everyone, and Canada should still enjoy a fair share of a much larger global economy. There will be larger markets for Canadian goods, even though Canada will have a smaller share of the market. Global Gross Domestic Product (GDP) should increase dramatically unless it is constrained by resource or environmental limits.

Canada will remain a major trading power. However, its renewable resources face limits (timber, fish, food production, energy) and exports cannot grow indefinitely if Canadian needs are to be met. Even so, Canada is capable of becoming a global power in the export of knowledge, especially since it is a leader in Information and Communication Technology (ICT).

Canada has an excellent international reputation for fairness and generosity. Through its role in mediation and peacekeeping and as a result of long-term aid programs, Canada is seen as a supporter of global equity. However, despite polls which show continuing strong support for aid from Canadians, the Federal aid budget has declined sharply in the past five years. This is in line with trends in many but not all countries of the Organization for Economic Cooperation and Development (OECD). Flows of private capital, however, have increased sharply to some

countries such as China, India, Indonesia and parts of Latin America. Major private investments are being considered, even for certain African countries. All the same, the gap between rich and poor continues to grow, both internationally and within Canada itself. The future prosperity and welfare of Canadians will continue to depend on a prosperous and sustainable world.

The capacity of government to influence policy and to manage change is shrinking. Globalization and free trade have removed many of the levers that governments traditionally used to manage and govern. The new agents of change are entrepreneurs and innovators (usually large multinationals, but increasingly, small, micro-providers). There are new conflicts between globalization and decentralization/localization. New relationships between governments and the private sector must be developed. ICTs support both globalization and localization and permit new forms of organization and new kinds of relationships between government and the private sector. At the same time, there are significant risks in the 'privatization of knowledge'.

From the discussion, the following questions arose to be addressed in the next session:
- Even if Canada has and can maintain a competitive advantage in knowledge, does it have the potential for a global leadership role?
- Is Canada in a position to acquire, use and disseminate the knowledge?
- Who are the clients likely to be?
- How can the capacity of potential users be developed?
- How can we build on what we have, e.g., an excellent education system?
- Can improved knowledge-brokering help us to improve, for example, our health system?
- Can it improve our ability to extend its best aspects to other countries?
- Is this really the basis for future export growth?

## The Desirable Future: Canada's Potential Role in the 21st Century

In the next session, the three groups discussed a more desirable future for Canada, which could be achieved by the year 2010 if immediate action is initiated. The groups produced three reports, which were discussed in plenary session. The following is a summary of the main ideas.

By the year 2010, the desirable future should include an enhanced capacity to create and conduct public dialogue and to develop networks, partnerships and learning communities across boundaries both within Canada and globally. These networks will need to include citizens, governments, private sector organizations, NGOs, recipients of aid and other partners.

Important aspects of the desirable future will include the ability to develop new approaches to resolving conflict and new institutions and practices to improve dialogue across boundaries. Ways will need to be found to reduce polarization and to promote greater equity, both in Canada and internationally.

A desirable future would include enhanced human security (physical, environmental, health, culture). It would include a stronger, knowledge-based economy and a well developed information infrastructure. New models of partnership would be developed between public and private sectors. Canada's best current example might be the Canadian Network for the Advancement of Research, Industry and Education (CANARIE). New models of non-profit public interest organizations are needed.

Other elements in a desirable Canadian future would be enhanced capacity to translate data and information into 'knowledge', greater capacity for multistakeholder processes and greater trust between the private sector, non-governmental organizations (NGOs) and government.

With respect to Canada's prospects to continue to be a model for the world, it is essential that Canadians get it right at home even as we export our values and models; that we practice at home what we preach internationally; that we achieve greater equity and reduced polarization in Canada before trying to achieve it internationally; and that as a culture, we try to achieve greater connectedness among groups.

The highest priority in a desirable future for Canada should be given to: education, governance, health, environment and culture and entertainment industries.

## Education

A desirable future would include far broader access to education through information technologies and a shift to a culture of lifelong learning. Canada would develop a world class 'learnware' industry. Access routes to learning would be broadened for all Canadians and a better balance would be developed between liberal and technological education. Education for citizenship would be more important than it is today. Canada would be a pioneer for education in a multicultural society and would in this field become a model for the world. Canada would implement a full system for early childhood education. There would be greater community ownership and control of education systems.

## Governance

A desirable future would include a broader sharing of knowledge in society, with a narrower gap between the 'knows' and the 'know-nots' in society. Actions of governments would be consistent with the core values of the society and there would be greater 'soft power' in NGOs and at the community level, exercised by women and groups now excluded from power.

## Health

A desirable future would include greater empowerment by providing people with more information about the choices they make which affect their health. It would include the development of alternative and complementary healing systems and remedies drawn from around the world as well as from the medical model of the richest countries. It would include a vast change in pharmaceuticals, with the introduction of many traditional remedies. It would include improvements in policy design, care practices and health promotion at the community level. It would include far greater empowerment for women.

## Environment

A desirable future would include a dramatic reduction in carbon emissions, major technological changes in energy conversion and use, major improvements in efficiency of use of natural resources and major changes in lifestyles which will permit a reasonable and sustainable standard of living for a much larger global population.

## Culture

A desirable future would incorporate new approaches and tools to preserve and nurture Canadian culture and it would include a proactive strategy to preserve cultural diversity in the face of globalization. The entertainment industry will be one of the driving forces of the 21st century economy and will play a much greater role in providing information to society.

## *Constraints and Opportunities*

In the search process, after developing a desirable or 'model' scenario for the future, it is important to recognize the constraints which must be dealt with to achieve it. It is also important to identify specific opportunities which could be significant in achieving the desirable future.

## Knowledge Brokering

The most difficult concept in *Connecting with the World* is 'knowledge brokering'. The possible future role of Canada as 'honest broker' or packager and purveyor of information emerges as a cornerstone of the Task Force recommendations. Is this an appropriate way to consider the dissemination of research, which is based on the free flow of information? Many participants argued that in a 'wired world', any effort to 'broker' between sender and receiver or to act as 'gatekeeper' may be regarded with suspicion and hostility.

Others argued in favour of knowledge brokering. Their view was that knowledge brokering is merely filtering information, much of which is low quality, and determining how to package it so it can be used more effectively. Knowledge brokering implies a close relationship with the user, and creates opportunities to involve sectors that have not been much involved to date. It can be a very active and valuable function.

The group could see a role for knowledge brokering in projects with significant technical elements. Partners could buy knowledge through a broker arrangement.

However, it was agreed that the brokerage function is only part of the opportunity. We should build the learning structures to enable people to use the information.

## Involving the Private Sector

A major constraint to involving the private sector is the present structure of the discussion. The agenda is still set by the public sector. Participants from the private sector pointed out that the meaningful participation of business will only occur when the agenda is set jointly. Until then, the private sector is likely to be a driver of technology but not a collaborative partner. If shared

objectives can be developed, though, the private sector can make a creative and complementary contribution.

It was noted that the private sector contains a wide variety of organizations, from multinationals to local. What kind of private sector do we want to involve: multinationals, or small-scale, dynamic, bottom-up businesses? Or is it necessary to draw any such line?

## Other Constraints

The world is moving toward more open systems where sender and user of information do not require 'knowledge brokers'. As one participant noted, people are looking for better access to information, not necessarily knowledge brokering. That term has a negative connotation in the private sector. Alternative terms would be 'synthesizer', 'packager' or 'producer', as in the movie industry.

Another constraint is that the power of computing has increased a millionfold in the past 25 years. In dealing with this pace of change, predicting how we will process information in 2010 is impossible.

Finally, we need greater connectedness among Canadian NGOs. Some NGOs do not understand how to use information technology. They need to understand the organizational changes that are necessary. Others are highly sophisticated in use of such technology but do not bridge across various themes or sectors.

## Other Opportunities

Information and knowledge are the natural resources of the 21st century. Canada has specific expertise that can be shared around the world. We need to decide on areas of greatest strength, where we have the most suitable models for use in other parts of the world. Once we have identified the knowledge, experience and expertise that must be shared - technology is just the mechanism. However, we need to build trust, quality and access to the information.

A major aim of foreign policy is to create rule-based transparent systems for trade, environmental protection, travel, and so on. Canada should utilize ICTs as one means of achieving its foreign policy. We have a significant comparative advantage in this area because we may be trusted more than the US and other leading countries. Knowledge-based networks are independent of the GDP or power of a country.

A potential model for using networks to advance Canadian interests in certain areas and for knowledge brokering is the International Model Forest Network (IMFN), which was developed as part of the post-Rio process. It was established as a network of Canadian and international partners to generate new ideas and on-the-ground solutions to sustainable forest management issues. The IMFN Secretariat, based in Ottawa, facilitates the exchange of knowledge between model forests.

It was observed that IDRC has been a knowledge-based network since the beginning. ICTs are transforming the way such networks operate. Do ICTs eliminate the need for a Canadian-based

knowledge network? So if we do not want to eliminate our Canadian-based knowledge network, what should we do? We should investigate how to use ICTs to do a better job.

Another example of the kind of role Canada can play is ACJNet. This web site brings together Canadian statutes pertaining to Internet law. It was established thanks to funding from the Canadian Department of Justice, partly as a response to the US-based International Internet Lawyers' Association.

Yet another example of a Canadian niche might be in influencing global negotiations. The Earth Negotiations Bulletin (ENB), has built up a trust relationship that might not have developed if it was a US-based institution. ENB has developed an ability to filter a huge amount of information each day. Part of our challenge is to figure out what is important and how to do this effectively and with value added.

Significant copyright issues exist and will be an important issue in relation to future knowledge network initiatives. Trade and sustainable development concerns will have to address such matters. Wide distribution of information and "value-added" competition in the transformation of information to knowledge are key matters at stake.

Soon there will be measures of the quality of information available from each country in the world, which could favour countries like Canada. The International Monetary Fund (IMF) is developing a measure of the quality of information being published by various countries.

## Development of a Plan of Action

The group considered how one government could influence other governments and the role of ICT. One means could be by negotiated agreements which in theory represent a coalescence of Canadian views and a projection of Canadian values. The Rio process was a model of civil society involvement with governments and international organizations. The Massachusetts Institute of Technology, Dalhousie and Carleton have developed centres with expertise on electronic negotiations on global issues. A possible next step might be to summarize what has been done in Canada for different ministries and what was learned from the Rio process which might assist in the development of future agreements.

The group then considered how Canada could project its values onto the world stage. This is constrained by the lack of receiving technology in developing countries. However, most countries have some technology through which Canada can access citizens and organizations. Radio Canada International, for example, if provided with greater resources, could reach most of the world. The Internet will gradually extend networks to communities and individuals far beyond the current reach.

With respect to Governance, there is a need for a good text on governance processes in Canada, including their strengths and weaknesses and broader applicability, which could be used as a base for public conversations both in Canada and abroad. In particular, we need to show what

we have learned about dialogue among different interest groups and apply it in a public consultation with Canadians on governance issues.

With respect to Information and Communication, there is a need for mechanisms for maintaining Canadian leadership in communications theory and practice, including corporations, multimedia, etc. We need to learn how to retrofit institutions. Universities need to adopt information technology and all levels of the university system need to make ICT part of basic education, like literacy and numeracy.

Canadian NGOs need to be sensitized and trained by institutions such as IDRC, which have taken a lead in the field. The Acacia project at IDRC could be generalized more widely through a participatory process involving other Canadian institutions.

## The Ten Commandments for Canada might be:

i. Build on what is going on in Canada. Inventory what is going on; develop ways to learn from both successes and failures and then show the world that we practice what we preach.

ii. Find ways to work with the private sector on issues where there are common goals.

iii. Build up a national strategy in this area through stakeholder processes. The *Projet de Société* process provided useful lessons. The Acacia project at IDRC examines national strategies, policies, technology and infrastructure as the first step in wider stakeholder involvement.

iv. Open up the discussion to the public and involve the media. They have a stake in these issues and are also a channel to the public.

v. Incorporate programs for continuous learning and evaluation through the universities.

vi. Develop twinning arrangements among groups, networks, projects and communities in Canada and the developing world.

vii. Develop a network of Centres of Excellence or build on existing ones.

viii. Build all of this into the foreign policy agenda for G-7 Summits and other international conferences in which Canada assists in developing global policies.

ix. Develop programs for youth such as Netcorps.

x. Use innovation and imagination to develop new, less bureaucratic ways of operating.

The Canadian Government should coordinate among its various units. It could become the role model by involving the Prime Minister's Office (PMO), the Privy Council Office (PCO), DFAIT, other agencies and departments, and key organizations and private sector leaders in developing a future oriented strategy for use of ICT.

Participants discussed elements for a possible virtual organization for knowledge networking which could be created by CIDA and the three Task Force Sponsors, working with relevant organizations such as (for health) the National Council for International Health. The activities and focus of such a knowledge network would be stimulated by *country client demand*. It would need a mechanism for *identifying opportunities and sources of finance*, and would be supported by an *international communications node*. *Capacity building* would be a key element.

The discussions that followed centered on health, environment, and learning and education.

## Health

Health was cited as an example where Canada has an unusual set of experiences, highly relevant to other countries but not as well promoted or widely known as it should be. A wide variety of organizations are involved, from local to national levels and involving every Canadian and every level of government. Various models of health care and health delivery have been tried, evaluated and adapted.

Canada needs a way of packaging its ideas, such as universal health care, for use in other parts of the world. The package needs to be attractive to encourage demand, it needs to have a tracking system to identify opportunities, it must have a financing process and it needs to include the major Canadian initiatives in its data base. It should include capacity building components.

CIDA should have an important role alongside the three venture partners which have sponsored this workshop. The group should add key national institutions, such as the National Council on International Health. The sponsoring institutions could take the initiative to bring people together to facilitate the development of a plan for packaging and delivering the product.

Keys to the success of the project might be the establishment of 'intelligent nodes' where partner organizations and countries could receive the material; the involvement of partner organizations in capacity building and twinning arrangements; the development of a virtual organization rather than a bureaucratic one; and sufficient financial support.

## Environment

A second Canadian 'package' might consist of its experience with the development of environmental laws, regulations and market-based mechanisms at home and its involvement in the negotiation of international agreements.

Canada has many international secretariats, research and policy institutes, round tables, environmental NGOs, university schools and faculties, industry-related groups, environmental law organizations, and so on. It has a quarter century of experience with environmental policies and extensive experience with environmental assessment methods, the co-management of resources, multistakeholder processes for dispute resolution, environmental law, Arctic and mountain issues, environmental health, etc. It has access to all technologies for environmental assessment from groundware to satellites and geographic information systems (GIS).

Despite all this, Canada has gone in five years from an international 'good guy' on environmental issues to an international villain as a result of its negative impact on climate change, its overuse of forests and fish and its continued role as the heaviest energy user on the planet. Canada could be perceived as an unsustainable society with declining environmental health.

A major Canadian initiative would need to involve Environment Canada and other environment and natural resources, agricultural, forestry and fisheries ministries from both national and provincial levels. In addition, key scientific institutes and key private sector organizations would have to be involved. Questions of major industrial and social restructuring would be addressed. Such an initiative might be welcomed by developing countries which are facing similar problems and are more likely to accept information from Canada than from countries which are having an even more significant impact on their resources. Canada is a rules-based power, so this initiative would be consistent with our commitment to cross-national sharing of information on how to achieve international protocols.

Three principal elements of a framework to move forward could be (1) the sustainable management of renewable resources, (2) national compliance with international protocols on biodiversity, ozone, etc. and (3) climate change.

## Learning and Education

Another overarching theme was 'learning'. Three major initiatives were proposed: meta fora, capacity building, and primary education.

1. Meta fora, as proposed to the group, are dialogues crossing various boundaries based on subject matter or sector and founded on a level of trust-building among participants. They are a framework for resolving issues. Clients are specific to each forum. A combination of face-to-face meetings and on-line dialogue are used, with specific rules about process and time.

2. Capacity building in networking, knowledge management and in the ability to use ICTs is necessary in order to be an active participant at any level in the 21st century. For Canada to play a leading role in capacity building, a significant increase in resources and a more holistic approach are needed. A Canadian-based consortium should be developed, perhaps initiated by CIDA, involving the private sector and the policy community. Case studies of successful programs could be brought together in a virtual network to demonstrate lessons learned and to increase the opportunities for them to be modified locally and then applied elsewhere.

3. A learning demonstration for primary education should be developed using best-practice models from around the world. Organizations such as IDRC, CIDA, the Aga Khan Foundation, SchoolNet, BRAC (Bangladesh), and the Tele-Learning Network of Centres of Excellence should be involved, in collaboration with the private sector. Such a package should provide information on best practices to educators in North and South. This learning demonstration could have a positive effect on development education in Canada and internationally. The next step might be for CIDA to provide a short write-up to BRAC or similar organizations to see if there is an interest in collaboration.

There is great difficulty having a conversation across the public sector/private sector divide. Canada should develop new techniques for these conversations.

## Next Steps

The concluding session was chaired by Arthur Hanson, President of IISD. He pledged early action by the sponsors to expand the Steering Committee and the process to include more representatives from the private sector and others not present at the search conference. The process would eventually be expanded to include potential clients from developing countries.

IISD, IDRC and NSI will continue to take the lead in developing and implementing an Action Plan. CIDA will be invited to become a core member of the group.

The Action Plan should include a focus on protocol diplomacy at the global level, as demonstrated in the environmental field. It should also include a leadership role in information and communications and the creation of virtual institutions to tie together pockets of expertise from across Canada.

The Steering Committee needs to further develop ideas on how to link Canadian capacity to international demand in fields such as basic education, health and sustainable development. In the case of health, a clear model needs to be articulated and to develop it, additional participants need to be involved. The goal should be to develop a cost-efficient way of building health care systems, using Canadian experience from both the private and public sectors.

In the case of education, the workshop has recommended a focus on primary education, distance education and tele-learning. This needs more work and consultation with existing educational institutions.

A follow-up meeting could be held in the fall, with the private sector. It is important that such a gathering be a success from the perspective of business. This will require careful planning by the Steering Committee.

The Steering Committee needs feedback from participants in this workshop on the process and substance for future events and activities. Suggestions for new relationships with the private sector are needed. The term 'knowledge broker' should be forgotten or replaced.

DFAIT will be fully briefed on workshop discussions and their relevance to the Canadian International Information Strategy, especially in relation to international development.

The three sponsors will work together to plan a schedule of steps during the summer, including meetings with the private sector. CIDA will be invited to join the sponsor group and the Steering Group will be expanded to include other key institutions. It may be useful to set up a series of specific dialogues or meta fora; a business forum, a health forum, an education forum, etc., to explore each area by having a public conversation about Canada's role in global development and to design international plans of action.

## Annex B

> ### What is a Formal Knowledge Network?
>
> The term "network" is used to refer to a combination of persons, usually dispersed over a number of geographically separate sites, with appropriate communications technology. There are several types of networks:
>
> 1. *Informal networks*, which are numerous and come and go, but play a very significant role in the creation of knowledge.
> 2. *Information networks*, such as university library networks, which provide access to information but do not create new knowledge.
> 3. *Open networks*, which have a well-defined theme, exist to undertake research and generate knowledge, have formal constitutions, and have invitation-based participation.
> 4. *Development networks*, which have a well-defined theme and carefully chosen criteria for participation, exist to create knowledge and to accelerate the application of that knowledge to economic and social development, and have a formal constitution and tight governance.
>
> Open networks and development networks can be regarded as formal knowledge networks. Certain ideal characteristics of formal knowledge networks can be identified:
>
> - their main purpose is to create and disseminate knowledge for use beyond the membership of the network;
> - their structure and operation are designed to maximize the rate of knowledge creation; there is a formal organization and well-defined management structure; participation is by invitation, based on criteria of merit or peer review;
> - there is a well-developed communications strategy to support interaction of network participants and dissemination of results;
> - the network results in a reduction of boundaries between sectors such as universities and industry.
>
> Additional elements of a formal knowledge network may include:
> - culture shifts within institutions towards collaborative activities between institutions and sectors;
> - multidisciplinary, multisectoral and multi-national/regional in terms of both network participants and in audience;
> - strong involvement in graduate education and training (over 50% of networks surveyed);
> - cost effectiveness in operations, and possibly revenue generating through sales of products;
> - more effective influence on decision makers through size of network, reputation of network members and quality of collaborative work; and
> - international scope, either potential or actual (73% of networks surveyed), reflecting the reality that knowledge networks cannot isolate themselves from what is going on elsewhere.

**Annex C (see attached: Sid Embree Final Report)**

**ANNEX C:**

# AN INTERACTIVE NETWORK ON CLIMATE CHANGE
# AND DEVELOPMENT
### Scoping Study: Recommendations

Prepared by
**Clean Commodities Clearinghouse Inc.**

For
**The International Institute for Sustainable Development**
and
**The International Development Research Centre**
and
**The North-South Institute**

February 12,1998

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# LIST OF ABBREVIATIONS

**AIJ**
least

Activities Implemented Jointly is JI in the pilot phase from 1995 until at

the year 2000.

**Annex I Parties**

Parties listed in Annex I to the FCCC, which are developed or that are in transition to market economies

**Annex B Parties**

Parties listed in Annex B to the Kyoto Protocol, which are required to limit their GHG emissions to the levels prescribed in Annex B

**CDM**

Clean Development Mechanism

**COP**

Conference of the Parties

**FCCC**

Framework Convention on Climate Change

**FJIN**

Foundation for Joint Implementation Network, based at the University of Groningen, the Netherlands (www.northsea.nl/jiq)

**JI**

"jointly"

Joint implementation is a concept that captures a provision in Article 4.2 of the FCCC, which allows Parties to implement policies and measures

with other Parties.

**JI-online**
and

Online discussion group sponsored by the Edison Electric Institute (EEI)

the US Department of Energy; administered by EEI (www.ji.org)

**MOP**

Meeting of the COP serving as the Meeting of the Parties to the Protocol

**OECD/IEA**

Organization for Economic Cooperation and Development/International Energy Agency

**UNEP**

United Nations Environment Programme

# AN INTERACTIVE NETWORK ON CLIMATE CHANGE
# AND DEVELOPMENT
*Scoping Study*

## 1. SUMMARY

### 1.1. Introduction

This Study describes the need for, and elements of, a proposed interactive Network, for developing countries, to undertake timely and useful collaborative research on priority climate change issues. There is significant interest in/demand for a network for developing countries focusing on economic instruments such as credit trading and emissions trading and technology transfer to reduce greenhouse gas (GHG) emissions. This interest was identified during consultations in late 1997, and confirmed during the third meeting of the Conference of the Parties (COP) of the Framework Convention on Climate Change (FCCC), which adopted the Kyoto Protocol. The Protocol endorses participation by developing countries in "crediting" of emissions reduction projects through the "Clean Development Mechanism" (CDM). The CDM will become operational as early as 2000.

Work to articulate the CDM has already started in many developed countries and international institutions. Developing countries have limited resources to undertake the necessary work to design the CDM and related aspects of international emissions trading; the limited work being undertaken is piecemeal and poorly coordinated, and often complicated by a pre-occupation with political aspects. This Study for the International Development Research Centre (IDRC), the International Institute for Sustainable Development (IISD), and The North-South Institute (NSI) recommends the establishment of a developing country-focused Network to catalyze and support efforts of developing countries to undertake substantial, timely and coordinated work to develop workable solutions to limiting GHGs through market mechanisms. The Network should be established as soon as possible in order to ensure outputs feed into relevant domestic and international discussions, including meetings in mid-1998 in Bonn, and in late 1998 in Buenos Aires.

### 1.2. Rationale

With the release of the Task Force report *Connecting with the World*, IDRC, IISD, and NSI have come together in a strategic partnership to build upon their synergies and comparative advantages to enhance the effectiveness of their joint and individual efforts in development policy research. This strategic partnership is open-ended, and invites the participation of similar organizations in Canada and abroad on policy research issues of mutual interest.

This Study focuses on climate change and catalyzing more sustainable development throughout the world. It is motivated by the consideration that more than any other problem, the issue of climate change, and the actions necessary to combat it, impact forcefully and directly on people in Canada, other developed countries and developing countries. It is expected that the proposed work to be undertaken by IDRC, IISD and NSI in conjunction with other like-minded institutions will be perceived as highly relevant, topical and useful.

In 1997, the Global Environmental Facility (GEF) and governments agreed that technology transfer is a major issue in global environmental policy-making. The GEF has identified industrial collaboration as a viable instrument for accelerating the adoption of new technologies. It has recommended that assistance for developing countries should develop and demonstrate policy options and financial/institutional arrangements for effective international industrial collaboration, and train local firms to develop the capacity for entering such collaborations. At the same time, there is a growing interest on the part of developing country governments, and companies and research institutes to gain an understanding of how emission reduction credit and emissions trading might work and how they could be designed to promote technology transfer and enable developing countries to limit their GHG emissions in the future. Currently, research and action in developing countries on technology transfer and economic instruments is limited, dispersed, uncoordinated, and reaches a limited audience. Discussions in many developing countries are usually

limited to a small group of government officials, often delegates to the negotiations on the FCCC. Policy making informed by real, on-the-ground research and experience is rare. The excellent, but scattered, products from/by some developing country institutions, is often buried under the heavy flow of information from developed countries. No real focal point exists to provide both old and new players with a body of useful information.

IDRC, IISD and NSI could catalyze the formation of a developing country-focused Network to address climate change and development issues. IISD could be the coordinator/manager charged by synthesizing and summarizing work of the Network, communicating results outward, and managing the Network. It already carries out work on trade and business aspects of climate change, and has the capability to manage such a Network and its supporting infrastructure. IDRC has substantial technical and institutional experience in establishing developing country-based networks, and this can be brought to bear in the design of the proposed Network. In addition, IDRC could establish potential tie-ins between the proposed Network and its current/existing research networks in developing countries. The NSI, which has a body of substantive knowledge on technical aspects of climate change, can bring this expertise to the Network.

## 1.3.    Goal

The goal of the proposed Network is to support developing country efforts to define workable approaches to designing and implementing economic instruments and market-based approaches, such as certified emissions reduction offset credits and emissions trading, to limit the growth of global GHGs.

## 1.4.    Objectives

The objectives of the proposed Network are to:
* Facilitate developing country efforts to develop efficient and workable market-based approaches and economic instruments to reduce GHG emissions;
* Provide a focal point and vehicle for bringing together and leveraging developing country-based, bottom-up, collaborative research, and promoting knowledge generation, learning through action, and information dissemination;
* Demonstrate concrete actions to implement the Framework Convention on Climate Change and the Kyoto Protocol, particularly emissions limitation activities involving the private sector consistent with market-based mechanisms and economic instruments; and
* Provide support for developing countries to explore and contribute to the design of the Clean Development Mechanism of the Kyoto Protocol, which has been designated as the mechanism through which crediting of GHG emissions reductions in developing countries will occur after the year 2000 and which is the only mechanism by which developing countries would formally limit GHG emissions in the near term.

The Network model will maximize the rate of knowledge creation and broad dissemination through its structure, discipline, activities proposed to stimulate innovation, and by exposing developing countries to each others' experiences and engaging the private sector and government decision makers.

## 1.5.    Overview of Recommendations

Members of the proposed Network will be predominantly from developing countries, particularly renowned expert research institutions (for example, Tata Energy Research Institute, India, and ENDA-Energie, Senegal). A few developed country institutions, such as the Canadian sponsors, the Stockholm Environment Institute and CICERO (Norway) should be invited to participate. Developing country members of the Network will be selected according to specific criteria, including strong ties with the private sector and the ability to influence policy making in governments through established forums. The primary market mechanisms to be addressed include the creation and trading of GHG emissions reduction credits, and emissions trading under cap and trade systems. Five broad, inter-related theme areas are recommended for the Work Program:

* How to operationalize the emissions reduction credit trading in developing countries;
* How to facilitate private sector participation in emissions trading in developing countries,

- Lessons learned from AIJ, JI, and existing emissions and commodities trading markets,
- Designing credit and emissions trading to promote technology transfer, and
- Macro-economic and policy implications of GHG emissions limitation for developing countries.

Section 3 of this Study provides a rationale for each of these theme areas, as well as potential topics, issues and questions that could be addressed by the Network. Given the critical, central role anticipated for the CDM in facilitating emissions reductions in developing countries, the recommendations emphasize exploring the role of the CDM in facilitating developing country involvement in emissions reduction activities through emissions trading and technology transfer. The Work Program should be finalized and agreed by Network members.

## 1.6. Network Membership

Section 4 addresses Network membership issues. To start, the Network would consist of: a manageable group of about 5 core leading developing country research institutions working closely with governments and businesses; 3 – 4 developed leading developed country research institutions; 2 developed country firms, including one multi-national; and 1 or 2 international NGOs engaged in "on-the-ground" policy and technical work on climate change. Over time, the Core developing country membership would be expanded (e.g., by the third year, the Network would include 8 – 12 core developing country research institutions working with their respective governments and local businesses - collectively referred to as the Core member.). In addition, a larger group of interested non-core developing country research institutions would be invited to participate. The Network could also involve a group of graduate students or interns that could assist with co-ordination and support of the Work Program elements being undertaken in each of the research institutions.

## 1.7. Funding Sources

The preliminary estimated budget for the first year is about US $800,000. For a full three-year period, with a growing Network, the budget required will be in the order of US $ 3,630,000 (see Appendix 2). Several developed country-based research organizations could be approached to provide funding/support for the Network (see Section 4). Similarly, some developed country governments may also be interested in the proposed Network, including the USA, Canada, Norway, the Netherlands, Switzerland, and Japan. Participation of non-developing country based institutions in the Network could be made conditional on the provision of support. One option for reducing the technology costs of the Network would be a partnership with a computer systems company, which may be able to underwrite some of the costs of network development, including for hardware and software.

## 1.8. Canadian Participation

IDRC, IISD and NSI should be the primary Canadian participants in the Network, and their participation should be coordinated or channeled through IISD, which is well-placed to be Coordinator. Its Solutions for Business Program is investigating market-based approaches to emissions limitation with a deep interest in the proposed Work Program areas/themes and trade issues, and it has an exceptional infrastructure with climate change and related information services, links and distribution lists.

## 1.9. Network Design

In order to achieve the Network's objectives, the Network and members must be both dynamic and proactive. The Network itself and members must be able to undertake research, organize projects, work with business and government, organize and participate in national and international workshops, seminars, policy meetings/forums, and disseminate information on progress/results, learning and effectiveness of demonstration activities. It will use the Internet/Web for various forms of communication, posting results, and information dissemination, as well as traditional forms of communication where appropriate. Section 5 outlines criteria for potential members related to staff and priorities, as well as recommendations on Network activities, design and operations.

## 1.10. How Would it Work

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The design of the Network will influence the ability of members to achieve the overall goal and objectives of the Network. Similarly, the members themselves will determine its effectiveness. In order to accomplish the various proposed objectives, both the Network and members must be dynamic and proactive.

To bring all of the Network's experience together, the central coordinator of the Network will organize semi-annual meetings for core and non-core members, and for other interested organizations (government and non-government). The goal of the international meetings is to bring local, on-the-ground research and demonstration results to an international audience consisting of representatives from 5 – 12 developing countries. Each meeting will be held in a different country, and will invite local institutions, experts, business and government representatives. The agenda will focus on Network organization, administration and co-ordination issues, as well as each of the Work Program theme areas. The Network Coordinator will prepare proceedings on each of the semi-annual meetings.

Each core member, in conjunction with its private sector and government "partners", will:

- Participate in the development of the Network's Work Program, including selection and refinement of the main theme areas, as well as identification of expected outputs, results and measures of success. The Work Program should accommodate different needs, priorities and interests among participating institutions.

- Take the lead in directing research and action learning in at least one of the Work Program theme areas (e.g., how to facilitate private sector involvement in emissions trading). Each institution, along with their private sector and government partners, should be interested in exploring efficient mechanisms for preparing and submitting actual emissions reduction projects to the CDM for certification and crediting.

- Co-ordinate research and delegate tasks at the national levels and among core Network members.

- Assign at least one professional/expert staff person full-time to the Work Program of the Network, as well as administrative, substantive and technical support from his/her institution. The total staff commitment will be equivalent to about two persons per year.

- Frequently engage government and private sector involvement in their own countries (and other countries where possible) in "on-the-ground" research, action learning projects and demonstration activities, as well as in seminars and workshops.

- During semi-annual international meetings for core and non-core Network members, organize (along with their private sector and government "partners") presentations/seminars and demonstration activities based on the progress and results achieved in their respective Work Program theme areas, in order to bring other members and participants "up the curve" on their learning experiences.

- During semi-annual international meetings, core private sector members of the Network will present their findings and experiences to the Network, including on their emissions reduction projects.

- Disseminate the results of their work and demonstration activities, directly to other members (core and non-core) and via the Network Coordinator. Quarterly reports and summaries of work/progress will be prepared by each core member, and posted on the Network's web site.

## 1.11. Network Start-up

Section 6 outlines a multi-faceted process for getting the Network "up and running", including marketing and fundraising, selecting core and non-core members, finalising the Work Program and communications strategy, and designing the technology infrastructure. The result of this process, including a proposed "Start Up" workshop, should be documented as a formal constitution and management structure for the Network.

A concerted effort, including dedicated staff, will be required for timely start-up. Several formal (FCCC) and informal international meetings are planned throughout 1998 to address issues related to the CDM and credit

trading. The Network could assist developing countries to leverage each other's work and provide value-added input to such meetings if initiated as early as May 1998.

## 1.12. Expected Results

Section 7 describes how the Network will achieve the proposed objectives. The Network will be built in a phased process. After three years, the Network will engage experts from 8 - 12 leading edge developing country (core) research institutions to undertake the agreed Work Program focusing on several theme areas. In addition, over time, the Network will also engage representatives from up to 10 other non-core developing country institutions in the Work Program and Network activities. The Network will have direct impact in at least 10 developing countries by engaging business and government in domestic Work Program activities, meetings and demonstration activities related to market-based approaches and economic instruments. The work will include designing and developing 5 - 12 emissions reduction projects and shepherding these through national and international "systems" in order to use experiences in developing countries to explore how crediting can work. The results of all work and proceedings of the semi-annual meetings will be posted on the Web and disseminated in other forums to ensure a broader impact.

The proposed Network design and Work Program will provide several forums and vehicles for promoting and leveraging developing country-based collaborative research, knowledge generation, learning through action, and information dissemination. To undertake its respected theme area of the Work Program, each core member will "partner" with local companies that have substantial GHG emissions. Work will focus on research, demonstration, and significant interaction with decision-makers in government at the national and international levels. Each "partnership" will use a real emissions reduction project to explore how the CDM could/should be designed, including oversight requirements at the national and international levels.

The "partnering" of core members with government representatives and businesses will demonstrate concrete actions to reduce GHG emissions consistent with the development/evolution of market-based mechanisms and economic instruments. Together with their institutional partners and respective governments, companies will contribute to operationalizing the concept of crediting and explore the many methodological, procedural and strategic questions.

Finally, the Network, the Work Program and Network activities are all mechanisms for exploring questions related to the CDM. While developed countries can look to the OECD/IEA (and their own staff and consultants) for technical and substantive advice on emissions reduction credit trading, emissions trading and CDM design and operations, developing countries have limited resources for such efforts. A Network, with a structured Work Program, designed by developing countries to explore market-based approaches and economic instruments to limit emissions and promote technology transfer would be a first.

## 2.    INTRODUCTION AND BACKGROUND

### 2.1.    Introduction

This Study establishes the feasibility of establishing an interactive network, for developing countries, to undertake timely and useful collaborative research on priority climate change issues.  An earlier phase of the study explored the potential interest in/demand for a network for developing countries focusing on research and knowledge sharing on climate change and development.  The aim was to identify interests and needs of developing countries in the areas of economic instruments (joint implementation under the Framework Convention on Climate Change – FCCC) and emissions trading and/or technology transfer.  The results suggested that there is significant interest in developing countries to undertake work in these areas.  This Study for IISD, IDRC, and NSI recommends the establishment of a Network on Climate Change and Development.  The Network will use Internet and Web-based tools to support research, leverage experience, build knowledge and disseminate information.

### 2.2.    Consultations

To explore interest in the proposed interactive network and possible designs/configurations, and to identify priority areas for research, several experts, organizations, web sites and Internet services have been consulted and/or reviewed.  Initial research on some organizations consisted of a visit to their Web site and/or a preliminary review of their climate change work program.  In addition, communications were sent by the Internet to more than 20 developing country government climate change focal points, as well as to the more than 400 international subscribers of JI-Online, an internet/Web based service provided by the Edison Electric Institute and the US Department of Energy.  Telephone interviews and face-to-face meetings were held with experts and representatives of several organizations involved in Activities Implemented Jointly (AIJ) and Joint Implementation (AIJ/JI) (see box), emissions trading, and technology transfer.  Feedback was solicited from several experts and organizations, including of the sponsors, on the predominant views and preferences emerging from earlier consultations.  Finally, the results of the Third Meeting of the Conference of the Parties (COP3) for the Framework Convention on Climate Change (FCCC), in Kyoto, Japan, in December 1997, including some of the critical debates on international crediting and emissions trading, were considered.

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**Joint Implementation and Activities Implemented Jointly (JI/AIJ)**
Article 4.2 of the FCCC allows Parties to implement policies and measures to reduce GHGs "jointly" with other Parties.  Although not articulated in the Convention, this concept became known in international discussions as "joint implementation", or JI.  In 1995, during the First Meeting of the Conference of the Parties (COP), joint implementation was discussed.  Given that there was very little experience with JI, the COP agreed that there should be a "pilot phase" with no "crediting".  Crediting would enable the investor Party to receive formal recognition for emissions reduction results, regardless of the location of such reductions.  Pilot phase JI activities were called "activities implemented jointly", or AIJ.  The AIJ pilot phase will last until at least the year 2000, at which time the COP will review experience, and make recommendations for future action.  Thus far, experience with the pilot phase for AIJ suggests that crediting will be critical for advancing international cooperation among Parties to limit GHG emissions in the future.

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### 2.3.    Decisions by COP3 in Kyoto, Japan

The interim report for this current study focused on the potential for the proposed Network to focus on AIJ, JI (see box above), emissions trading, and technology transfer.  These themes are maintained in the draft recommendations of this report, but have been adjusted to take into account the results of COP3.

The Kyoto Protocol, adopted by COP3, includes quantified emission limitation and reduction objectives for developed and transitional countries – Annex B countries.  Annex B countries may use a variety of mechanisms for

achieving reductions, including emissions trading (under cap and trade systems to be developed during future meetings of the COP and/or domestically) and emissions reduction credit trading (formerly known as JI). The Protocol also includes a provision (Article 12) that will involve developing countries in emissions limitation activities - the "Clean Development Mechanism" (CDM – see box below). Brazil, with USA support, led the negotiations to develop Article 12, which allows for (the equivalent of) JI with developing country involvement with crediting beginning in the year 2000. The CDM is the only mechanism in the Protocol that includes specific provisions for emissions limitation activities in developing countries.

It is important to note that decisions to articulate several of the Articles of the Kyoto Protocol will be made by the Meeting of the COP serving as the Meeting of the Parties to the Protocol (MOP). The MOP can only take decisions once the Protocol enters into force, and this may take two, or more, years.

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**The Clean Development Mechanism and Crediting**

Article 12 on the CDM is the only mechanism in the Kyoto Protocol for formally engaging developing countries in emissions limitation activities. These activities are limited to certified emission reduction credit creation and trading. Developed and transitional countries will engage in emissions reduction credit trading, while developing countries will use the CDM for certifying emissions reduction units. While the fate of AIJ is unknown, many experts believe it will be abandoned in 2000.

Developed and developing country experts both agree that the equivalent of JI with developing countries will take place only via the CDM in the form of certified emissions reduction credit creation and trading – "crediting". Some developing countries support the position that, in the future, the CDM should be the only mechanism for introducing (voluntary) emissions limitation commitments under the Protocol (for example, credits created under the CDM in developing countries would be deducted from a specific sectoral baseline).

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## 2.4 Implications

The obvious result of the Kyoto decision is that developing countries will be able to participate in certified emissions reduction trading and crediting as early as 2000 – assuming the provisions of Article 12 can be worked out by the COP and its subsidiary bodies in such a short time. Given the limited experience with the "previous" concepts of AIJ and JI, there will be a great need for resources and research to build capacity, develop policies and institutional frameworks, and contribute to the design of an effective system for crediting that meets the needs of developing countries, as well as potential private sector investors.

In the past, progress with AIJ and JI was hampered by a series of limitations, including lack of crediting and limited capacity in many "host" countries. Problems identified during a special workshop organized by the United Nations Environment Program and the International Energy Agency included:[1]

- Limited institutional, technical and analytical capabilities to identify, assess and implement AIJ projects; to monitor and enforce GHG emission/sequestration related performance; and to comply with/contribute to development of international rules for AIJ/JI;
- Lack of government support for capacity building in order to: develop market-based regulatory mechanisms and create investment incentives for potential investors; build institutional capacities that can deliver future AIJ projects that are consistent with domestic investment needs and development priorities; and provide sufficient local investment incentives to attract project investments that are at least comparable to those for other types of foreign investment;
- Limited linkage of AIJ/JI with national policies and general investment climate (e.g., DFI policies, plans for energy sector deregulation and/or privatization);

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[1] UNEP/IEA Workshop on Mutually Beneficial Incentive Structures for AIJ, Paris, September, 1997.

- Limited information among various constituencies regarding AIJ/JI, and therefore unable to provide input for design of national and international AIJ/JI regimes;
- Weak institutional capacity for regulatory administration of AIJ; and
- Lack of assessment methods for AIJ projects.

From the point of view of potential investors in credits, one of the greatest challenges will be to increase experience with market-based mechanisms and instruments to encourage private sector action to limit emissions. No doubt, it will be in the interest of many potential investors to ensure that crediting evolves in a manner to encourage a decentralized market-based approach that allows for business participation in credit creation, verification, certification, and trading. Thus, while the recommendations in this draft report focus on developing country needs and priorities, they also take into account the high level of anticipated involvement on the part of the private sector in credit trading and emissions trading.

## 3. RECOMMENDED THEMES FOR NETWORK'S WORK PROGRAM

The following recommendations take into account the preliminary findings of the interim report, comments and feedback from the sponsoring institutions, the results of COP3, and consultations with developed and developing country experts and institutions.

### 3.1. Priorities for Research by the Proposed Network on Climate Change and Development

The following inter-related research areas, or themes, are recommended for the proposed Network:

A. How to operationalize emissions reduction credit creation and trading in developing countries ;
B. How to facilitate private sector participation in emissions trading in developing countries,
C. Lessons from AIJ, JI, and past experience with existing emissions and commodities trading markets,
D. Designing credit and emissions trading to promote technology transfer, and
E. Macro-economic and policy implications of GHG emissions limitation.

The rationale for each of these priority areas is outlined below. In addition, under each section is a summary or list of potential topics that could be included in the Work Program, depending on the interests and priorities of the members of the Network. It is important to note that it is NOT worthwhile to expend too much effort on defining a proposed Work Program until members of the Network have been selected. Their interests and priorities, as well as available resources, will have the greatest influence on the direction, scope and focus of the Work Program. Thus, the following recommended areas should be considered as broad themes, rather than final recommendations.

### A. HOW TO OPERATIONALIZE EMISSIONS REDUCTION CREDIT CREATION AND TRADING IN DEVELOPING COUNTRIES

The interim report for this Scoping Study recommended that the Network should focus on AIJ and JI, since these were the most likely mechanisms for developing country participation in the FCCC in the short term and medium terms, and much work is required to elaborate how these mechanisms would be operationalized. Before the adoption of the Kyoto Protocol, AIJ and JI were anticipated to evolve to allow for crediting in the future. Now, Article 12 of the Protocol allows for crediting post-2000.

Crediting will, no doubt, build on many principles of AIJ and JI. Much research has been undertaken on these issues, primarily in developed countries. Some developing countries, such as Costa Rica, have significant experience with emissions reduction credit creation and trading, while the majority has little or no experience. Thus, there is a significant body of methodological work that needs to be undertaken and information disseminated to articulate the concept, and maximize the advantages for developing countries. Similarly, the Kyoto Protocol, identifies several questions that require elaboration, and decisions that must be made, by the MOP, to establish a

system for credit trading. For credit trading to work, developing countries must be involved both in any methodological work and in defining the management structure and operations of the CDM.

### Possible Topics for Work Program

As noted above, two areas require substantial work to move credit creation and trading to move forward: 1) methodological issues/questions; and 2) issues related to the design of the CDM.

### 1) Methodological Issues

The Editor of JI Quarterly, which addresses crediting related issues and experience with JI, AIJ and methodological issues, has suggested that there are at least 60 to 100 or more methodological questions that need to be addressed to operationalize credit creation and trading.[2] A notional list of broad categories of questions would include: baseline issues/reference case for different projects/sectors; identifying and assessing net benefits; financial additionality; compatibility with national priorities; incentives for private actors; verification; and institutional issues (e.g., multilateral and national levels, and public vs. private sector roles). Work is proceeding on many of these questions. Official work will take place through the COP's subsidiary bodies, but this must necessarily draw upon practical experience. Developing countries have few opportunities to contribute to this work for several reasons, including few pilot projects to learn from, limited resources for research, and so on. As such, the proposed Network could provide a valuable forum for exploring, collectively, practical and optimal approaches to addressing these baseline, additionality and other methodological issues.

### 2) Issues Related to the Design of the Clean Development Mechanisms (CDM)

The Kyoto Protocol outlines several issues and questions that must be resolved to get the CDM up and running (Articles 12). These include: the role, authority and constitution of the CDM's Executive Board; certification (how?) by (which?) "operational entities" to be designated by the Parties; additionality criteria (to ensure reductions would not have occurred in the absence of emission reduction investments); assistance with arrangement of funding for project activities, as necessary; modalities and procedures to ensure transparency, efficiency and accountability through independent auditing and verification; collection and administration of proceeds for administration of the CDM and for "assistance to vulnerable Parties"; roles of private and/or public entities; and so on. Resolving these issues will require extensive, broad-based consultation and research. Input by developing countries (and the private sector) is critical for operationalizing the CDM, and maximizing advantages for them. Answering some of these questions could form a useful theme or sub-theme area for research and demonstration by the Network.

### B.     HOW TO FACILITATE PRIVATE SECTOR PARTICIPATION IN EMISSIONS TRADING IN DEVELOPING COUNTRIES

The important role of the private sector in mitigating GHGs has become increasingly apparent. In 1997, governments and the GEF recommended that increased emphasis is needed to engage the private sector in efforts to limit GHG emissions. At the same time, several private sector groups and associations are pushing for governments to adopt the "right" incentives to facilitate investments in climate-friendly technologies. Many developed country governments work directly with the private sector to encourage action, and these governments lobbied hard to include the seeds of market-based instruments in the Kyoto Protocol. Given that developing countries are not required to limit GHGs, collaborative work between governments and the private sector in developing countries, on the issue of climate change, is uncommon.[3]

The AIJ pilot phase was unsuccessful in catalyzing any significant private sector participation in international emission reduction activities. In fact, the private sector spent more time identifying barriers to AIJ and JI than

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2 Personal communication, Catrinus Jepma, Foundation for Joint Implementation Network, the Netherlands, January 1998.
3 This is a "chicken or egg" issue, since consultation with the private sector is limited even in developed countries until the government "needs" the cooperation of the private sector to actually reduce emissions. Developing countries are not obligated to reduce emissions, so governments do not need private sector "buy-in" or cooperation. Nonetheless, some industries in some developing countries are "chomping at the bit" to engage in credit trading but face barriers due to other priorities and limited understanding and capability in their governments.

investing in, creating and trading credits.[4] Inarguably, involvement of the private sector in design will be critical in future efforts to operationalize credit creation and trading. In fact, as will be elaborated later, this Study recommends that one criterion for participation in the Network should be that core research institutions must join forces with local private sector partners, with significant GHG emissions, that wish to create and trade GHG emission reductions (probably via the Protocol's CDM) within the next 3 - 5 years. At least one or two developed country companies should also be involved in the Network.

Given the high degree of interest on the part of the Canadian private sector in credit trading, it would be in Canada's interest to encourage discussions on the role of the private sector in credit creation and trading in developing countries. Here is an obvious role for involvement of IISD's Solutions for Business program.

The Kyoto Protocol stipulates that private sector entities may have one or more roles in operationalizing the CDM. What role(s), and how it/they will be undertaken will be determined over the next two years. The lack of crediting in the pre-2000 regime means that there is very little experience in this area. Thus, the policies to be adopted by various governments, as members of the COP, will influence the degree to which the private sector can/desires to use the CDM to engage in credit creation and trading with developing countries.

Views regarding how the private sector should participate in credit creation and trading with developing countries vary widely. On the one hand, some governments, experts, and institutions suggest that private entities should only be involved in funding emissions limitation projects (with little or no involvement in project development, structuring, marketing, brokering, verification, etc.). On the other hand, some governments, experts, and institutions advocate a regulated "commodities market", where the CDM Executive Board sets the standards and provides oversight, while the private sector does everything else from project prospecting, development, marketing, brokering, verification and certification according to the Executive Board's standards. In the latter configuration, governments would, of course, retain accountability for meeting FCCC and Protocol obligations.

The range of views regarding private sector participation cannot be described in terms of country groupings. Some developing countries prefer a strict private sector approach, whereas perhaps many others prefer a structure that is more controlled and centralized (a place where they can send all of their offsets for certification, marketing and sale). In North America, there is a tendency toward a regulated market approach, using relevant features of commodities and financial markets with appropriate government standards and oversight. Some other (typically European) countries prefer a system with more management, guidance and control by governments and possibly multilaterals (e.g., the Dutch government's AIJ program which funds AIJ pilot projects; some French companies; the Global Carbon Fund being developed by the World Bank with support from the Government of Norway). It is unclear to what extent the "European" view is supported in developing countries . Canadian companies are interested in ensuring that credit trading evolves so as to provide flexibility for private sector involvement.

While it should be possible to design a CDM that meets the needs of different buyers and sellers, perhaps by providing a "menu" of services, it will be important to learn from the experience of AIJ/JI in the pilot phase. The role of the private sector, and its needs and interest in minimizing "red tape", transaction costs, political interference and conflicts of interest should be taken fully into account, or the international community risks another failed mechanism for reducing emissions at low cost from a global perspective. In fact, although it is premature to speculate, the Network may wish to also consider alternatives to the CDM.

*Possible Topics for Work Program*

In the process of exploring workable mechanisms for credit trading, the private sector's views on the following and other subjects will be critical: regulatory roles for multilateral and national institutions/agencies; location and execution of oversight responsibilities; minimizing transactions costs; need for and role(s) of clearinghouse(s); roles and types of intermediaries (public and/or private); existing expertise (e.g., accounting, auditing); investment environment issues; risk management; financing; and guarantees and insurance; technology; ownership issues; and crediting. Many companies, in developed and developing countries, of course, have prior experience with these

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[4] The World Business Council for Sustainable Development found national policies and enabling frameworks for private sector participation to be lacking in many countries to the point that capital markets could not justify investing in risky AIJ/JI projects.

issues in the context of their ongoing business activities, and such experiences need to be brought to bear to this new market.

## C.    LESSONS LEARNED FROM AIJ, JI, AND EXISTING EMISSIONS AND COMMODITIES TRADING MARKETS

Two areas of experience may be drawn on to explore the design of crediting systems: 1) project-based emissions reduction credit creation and trading; and 2) cap and trade allowance-trading systems. In addition, lessons used in the development of cap and trade (e.g., allowance) systems are found in commodities trading markets.

### 1)    *JI and AIJ experience, and experience with project-based emission reduction crediting*

The AIJ pilot phase is likely to be discontinued post-2000. However, there are many "lessons learned" that can be taken from experience with AIJ in developing countries and credit trading among developed and transitional countries. Aside from progress that needs to be made on methodological issues, there are several questions related to market design as well as developing country capacity that need to be addressed. The list of barriers to AIJ in Section 2.5 provides an indication of problems that need to be avoided. Similarly, experience with project-based emissions reduction credit trading programs has been gained through several pilot programs.

### 2)    *Emissions Trading*

Several developed and transitional countries intend to engage in domestic and/or international emissions trading in order to implement their Protocol commitments. Developing countries are unlikely to engage in emissions trading for at least one decade, or perhaps longer. Emissions trading requires capping emissions in the sector to be regulated, and allocating emissions among emitters. Allowances are then issued to all regulated entities, which can trade allowances among themselves for compliance purposes. The market seeks out the lowest cost options for those who need to buy allowances.

While it can take up to one decade to design and implement a cap and trade system, such systems are considered the most efficient means for limiting emissions. Already, discussions are underway to advance a Global Emissions Trading System (GETS). The UN Conference on Trade and Development and the Earth Council are spearheading this initiative, and extensive discussions are anticipated in advance of and during COP4. Canada, the USA, New Zealand, Australia and others were important advocates of emissions trading during COP3, and can be expected to participate in the design of the GETS and other mechanisms that will evolve in keeping with the Kyoto Protocol. It is likely that the "currencies" of allowance based systems and CER systems can be harmonized.

During COP3, developing countries voiced their concerns about emissions trading, noting that they know little if anything about it and how it would work. The status of "Article 16 bis" is testimony to the concerns of developing countries regarding allowance-based trading.[5] Even though they may not participate in emissions trading for more than a decade, developing countries want more information on it, and wish to explore how it should be designed and implemented – perhaps to explore adaptations to meet their needs.

While experience with emissions trading at the international level is extremely limited, there are enough lessons from domestic programs (e.g., from SO2 trading in the USA and others) that could prove useful when considering the design and operations of credit trading, as well as potential linkages to emissions trading regimes that will evolve among Annex B Parties to the Protocol. Other lessons are available from the commodities trading and financial markets, and developing countries can look to their own experiences in these areas.

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[5] "bis" means "added". This Article was added to the Protocol at the "11th hour" as a compromise between some developed countries, which insisted they could not agree to deep emissions cuts without emissions trading, and developing countries, which argued that the Protocol should not include a mechanism that is poorly understood by many developing countries. Article 16 bis will be articulated during future meetings of the COP.

*Possible Topics for Work Program*
*1)     AIJ/JI and Emissions Reduction Credit Programs*

Relevant experiences from the following can be brought to bear in designing credit creation and trading under the Kyoto Protocol:

1a) Technical Issues
-   the experience of the FCCC AIJ pilot program at the national and multilateral levels;
-   the experience with the British Columbia Greenhouse Gas Credit Trading Pilot Project;
-   the PERT program to trade smog pollutants in the Great Lakes region of North America;
-   the Northeast States for Coordinated Air Use Management (NESCAUM) Emissions Reduction Credit Demonstration Project (USA);
-   the California-based RECLAIM program;
-   the "opt-in provisions" of the U.S. $SO_2$ allowance trading system for electric utilities; and
-   the relevant experience of commodities, futures and currency markets that would apply to the creation, exchange, tracking and delivery of credits, mechanisms for reducing transaction costs, contract design and valuation.

1b) Institutional/Capacity Issues (as per UNEP/IEA Workshop recommendations)
-   build institutional, technical and analytical capabilities to identify, assess and implement emission reduction projects; to monitor and enforce GHG emission/sequestration related performance; and to comply with and contribute to development of international rules for credit creation and trading;
-   build government capacity to: develop market-based regulatory mechanisms which create investment incentives for potential investors; build institutional capacities that can deliver future certified emission reduction projects that are also consistent with domestic investment needs and development priorities; and provide sufficient local investment incentives to attract project investments that are at least comparable to those for other types of foreign investment;
-   link credit creation and trading with national policies and general investment climate (e.g., direct foreign investment policies, plans for energy sector deregulation and/or privatization);
-   improve information among various constituencies regarding crediting, and provide input into design of CDM;
-   build institutional capacity for regulatory administration of credits and trades; and
-   develop assessment methods for proposed emission reduction projects.

*2)     Emissions Trading under Regulatory Programs with Caps on Emissions*

Experiences with allowance and commodities trading markets could also be drawn on, particularly in the following areas:
-   the US $SO_2$ allowance trading system for electric utilities;
-   fisheries allowances and trading among members of the EU;
-   less successful experience with emissions trading in Santiago, Chile;
-   the relevant experience of commodities, futures and currency markets that would apply to reducing transaction costs, promoting the design of a fungible currency (e.g., between allowances and credits), contract design and valuation; and
-   information and communication technology solutions for maximizing efficiency and reducing administrative and transaction costs.

All of these experiences are relevant for defining the CDM, particularly market design issues. Also, developing countries may choose to engage in international emissions trading early on, even if only by capping emissions in one sector (e.g., cap and trade energy sector emissions). Regardless, the currencies of the CDM and of emissions trading allowances should be similar in design to facilitate development and trading of a unified currency. The currency (or currencies) should include features common to commodities and futures contracts to enable the evolution of a market that allows for the widest degree of flexibility in risk management.

## D. DESIGNING CREDIT AND EMISSIONS TRADING TO PROMOTE TECHNOLOGY TRANSFER

During consultations to support preparation of this Study, it was generally agreed that technology transfer is critical for most developing countries, especially in the context of the FCCC. Developing countries are reluctant, in part, to adopt even voluntary commitments to limit the growth rates of their emissions because they feel they do not have access to the right technologies. Exploring and securing access will be critical for encouraging developing countries to take on emissions limitation commitments in the future.

While technology transfer is important, the results of consultations suggest that, on its own, it could prove to be an intractable focus for a network. Thus, a generalized recommendation is that technology transfer should be considered in the context of the FCCC and credit and emissions trading, in a manner to be determined by the Network. Several initiatives underway could complement any technology transfer research of the Network, and vice versa. These ongoing initiatives should be tapped and engaged in relevant research and projects of the Network, depending on the priorities of the participating institutions and the scope and focus of work they choose to undertake on technology transfer.

Should the Network choose to focus on technology transfer, it will be imperative for the Network to establish linkages with efforts underway and work completed by the FCCC secretariat, the US-based National Renewable Energy Laboratory, and initiatives by Japan (e.g., Japan Information Centre for Science and Technology), the International Energy Agency (e.g., GREENTIE) and the Inter-governmental Panel on Climate Change. Any work on technology transfer must be carefully defined to encourage focused efforts, and to build on successful ongoing programs of several donors governments and institutions. Where there are complementarities among work programs, sponsors may be willing to consider supporting technology transfer related work by the Network.

*Possible Topics for Work Program*

Specific issues related to technology transfer under the FCCC that could be addressed by the Network include:
- identification and implementation of incentives to invest in technologies that are more climate friendly (removing barriers to private sector investment);
- reducing risks of investing in developing countries;
- adjusting sectoral and macroeconomic policies to give new technologies advantages relative to conventional technologies;
- reducing the cost of capital for climate friendly technology transfer; and
- encouraging interest and participation by small and medium-size enterprises, which are major emitters in developing countries.

## E. MACRO-ECONOMIC AND POLICY IMPLICATIONS OF GHG EMISSIONS LIMITATION FOR DEVELOPING COUNTRIES

Given the diverse positions among countries leading up to COP3, many governments and experts agree that the commitments in the Kyoto Protocol are a reasonable first step in a long-term process to limit emissions. While the European Union may be disappointed that they did not get a target as strong as they would have liked, US industry and the Senate are concerned about limited global coverage. The latter have already signaled their unwillingness to move toward ratification and implementation unless developing countries make some commitments to limit the growth of their emissions in the future. Without an "opt-in" article in the Protocol (there had been one in the draft text circulated before COP3), it will be difficult to develop an mutually-acceptable framework or mechanism for introducing developing country commitments.

It appears that the issue of developing country commitments will be on the agenda again in Buenos Aires, during COP4, November 1998, and during several meetings thereafter. Any emissions limitation commitment by a developing country would have important socio-economic, geo-political, financial, technological and other implications. Thus, before adopting any commitments, developing countries will need to undertake and/or access substantial analytical work on macro-economic and national policy impacts/implications of emissions growth limitation targets. However, few developing countries have the resources with, or the forums within, which to

explore the feasibility and collective viability of such options. The proposed Network would provide a suitable forum for undertaking, sharing and leveraging such analytical work.

*Possible Elements of Work Program*

Some developing countries have started to give some thought to using the CDM as their preferred mechanism for introducing voluntary growth limits on their GHG emissions. The idea is that developing countries could adopt, on a voluntary basis, "policies and measures" and/or "sectoral growth baselines" against which to credit reductions. This appears to be a reasonable proposal, because credits from any developing country that adopts policies and measures or sectoral growth baselines would be more credible than those from developing countries that have not adopted any such measures. This example, as a possible approach for introducing voluntary commitments by developing countries to limit the growth of the GHGs, can be used to illustrate some of the questions that will need to be considered before developing countries agree to such commitments. For example:

-   can the country adopt such a commitment? If so, how should it be formulated so as to be credible, but not to constrain anticipated/desired GDP (or other measures) or socio-economic growth and development?
-   what are the policy, macro-economic and sectoral implications of such a commitment?
-   Which sector(s) are most suited to voluntary commitments?
-   What are the most appropriate domestic policy, regulatory and administrative measures for implementing a voluntary commitment?
-   Should commitments be linked to domestic/sectoral policy reform(s) (e.g., electricity sector deregulation; fossil fuel subsidy phase-outs)?
-   How should voluntary commitments be introduced?
-   Should there be any conditionality(ies) attached to voluntary commitments? Would there be linkages to the financial mechanism of the FCCC, or through the CDM or other provisions of the FCCC or the Kyoto Protocol? Would the developing country that adopts a voluntary commitment be exclusively responsible for meeting the commitment, or should developed country Parties contribute to achieving commitments?
-   What are the issues related to compliance?
-   What are the issues related to technology(ies)? Best available technologies? Specific technologies only? What are the implications for trade (e.g., preferences, barriers)?
-   What are the implications for competitiveness and comparative advantage (e.g., vis-à-vis developing countries without voluntary commitments)? Presumably there are pros and cons....
-   Is there a need for a critical mass of developing countries to take on such commitments (e.g., minimum size group in terms of emissions or population or number)?
-   What is the role of the private sector? Are there any market-based mechanisms or economic instruments that can facilitate implementation of voluntary commitments
-   Must commitments be legally binding and enforceable?
-   Is emissions trading preferable to credit creation and trading?

## 3.2.    Work Program Orientation

Each of the above-proposed elements/themes of the Work Program is inter-related. Given the failure of the AIJ pilot phase, there should be relatively strong support for ensuring credit creation and emissions trading engage and facilitate action by the private sector. As Canadian institutions, IISD, IDRC and NSI are well placed to advocate a business-oriented approach for exploring how the CDM could evolve, and leveraging and drawing upon research efforts among leading developing country institutions, businesses and governments.

As noted earlier, the above recommended theme areas are preliminary. The final/actual Work Program should build on the priorities/interests of members of the Network, and should be developed through a collaborative effort/consultative process among the institutions that eventually participate in the Network.

## 4. NETWORK MEMBERSHIP

### 4.1 Network Composition/Overview

Section 4.1. provides an overview of the proposed composition of the Network. The subsequent sub-sections discuss criteria and issues related to the participation of various groups of members in the Network.

What would be an ideal mix of member institutions to carry out the work, demonstration and information dissemination? In principle, the target audience should be policy makers from major emitting developing countries. However, this would not be enough. The Network needs to influence policy makers, but policy makers cannot practically be expected to do the work, the action learning, the demonstration and various forms of information dissemination. They do, however, need to be involved, influenced and willing to apply lessons learned. One means of influencing policy makers is to engage them in action/results-oriented initiatives that involve a range of participants and views. It is recommended that leading developing country research institutions can provide a valuable service in assembling policy makers and practitioners from the private sector. As a result, it is recommended that the Network should consist of the following:

- 8 – 12 core leading developing country research institutions, each working closely with government representatives and a local, independent company that has significant GHG emissions,
- a group of about 10 interested non-core developing country research institutions, governments and/or firms,
- 3 – 4 developed leading developed country research institutions,
- at least 2 developed country firms, including one multi-national, and
- 1 or two international NGOs engaged in on-the-ground work on climate change.

The Network would be developed in a phased approach, with increasing membership over time. To start, it would involve a core of 4 – 5 renowned developing country research institutions (e.g., TERI, India). After two to three years, it should consist of a manageable core of 8 – 12 developing country institutions, which would be selected according to criteria established by the sponsors (see recommendations in next sub-section). Each core member would "coordinate" with a local private sector company and that aims to engage in credit trading activities in the next 3 - 5 years, and work closely with government representatives in this process. This tripartite group will be referred to as the Core developing country member.

Second, a broader group of developing country institutions, governments and/or firms should be encouraged to become non-core members of the network, contribute to its efforts, and/or be linked to the network's activities through the internet/web. This larger group would become involved after one or two years, and would ensure broader learning and dissemination learning/results. The degree of participation and contribution will depend on the budget for non-core member participation and degree of involvement.

Third, the network should include a few knowledgeable research institutions from developed countries. A small group consisting of the Canadian sponsors (IISD, IDRC, NSI), and a few other leading developed country institutions (e.g., Stockholm Environment Institute) might be appropriate. The involvement of institutions and governments from developed countries should be limited and targeted to specific roles or activities. Involvement of developed country research institutions and/or governments could be made conditional on the provision of contributions to, or support for, the network and its activities.

Fourth, developed country based businesses should be encouraged to participate and to provide financial or technical support for specific project activities. One or two companies, including at least one multinational, should be involved. ENRON may be a suitable candidate, although there are several others.

Finally, one or more "international" NGOs that is active in climate change and practical emissions limitation activities may be interested in participating. An example would be the International Council for Local Environmental Initiatives or the Centre for Sustainable Development in the Americas, which have both galvanized support for emissions reduction activities, using market based approaches, in many developing countries.

## 4.2. Developing Country Participants

After the first two or so years, the Core of Network should be expanded to include 8 – 12 leading edge developing country research institutions that have experience with technical aspects of climate change, including past work on aspects of emissions trading and technology transfer. The developing country research institutions may be independent, or they may be quasi-government agencies involved in climate change policy making and technical studies. Regardless of their constitution, they must have the capability to engage governments and the private sector in their work.

Core members should have experience working with the private sector, understand some of the issues and challenges surrounding technology transfer, and be realistic about the abilities of developing countries to adopt targets to limit GHG emissions. Examples of credible institutions include the Tata Energy Research Institute (India) and ENDA – Energie (Senegal). Members should be able to provide value added to the Network by building on their past experiences in the area of climate change, as well as experiences of other Network members. Initial criteria for selecting core members are suggested below. It is recommended that each core research institution should form a partnership with a local private sector firm and relevant government officials. The partnership will be responsible for advancing a potential (CDM) credit project nationally and engaging the relevant government agencies in the home country of the institution.

## 4.3. Criteria for Selecting Developing Country Members

A list of potential developing country-based candidates for membership is in Appendix I. The list is too long to recommend including all in the Network. However, the list may form the basis for developing a mailing list of prospective core and non-core members that can be used to solicit expressions of interest or proposals for participation. While the aim should be to involve 8 – 12 developing country institutions, it would be practical to start with a group of 4 – 5 such institutions. To promote broad participation and impact, institutions from different countries should be selected.

### Core Members
To be selected as a core member, past work by developing country research institutions must be relevant to the proposed Work Program. Potential members should be committed to knowledge generation, action learning, sharing and leveraging each other's experiences, and information dissemination. The interests of members will drive the research agenda and activities of the network, so member selection and design of (the focus and scope of) the Work Program are intricately interrelated.

Businesses will be key participants in the network. Each participating research institution should "partner" with a local private firm that has substantial GHG emissions and that has an interest in engaging in a crediting transaction in the next 3 - 5 years. Both the institution and the private sector partners must commit to work together on elements of the network's Work Program. At the same time, Network members should involve representatives from relevant government agencies in their respective Work program activities. Core members must have access to government decision-making forums, such as inter-ministerial climate change committees or national climate change policy or technical dialogues or forums in order to facilitate exchanges on substantive issues with policy makers.

The following are initial criteria for selecting potential Network members. All participating institutions should:

- Have substantial work/experience on the issue of climate change in developing country(ies).
- Employ respected researchers, who can commit time to the network.
- Have published and disseminated research on climate change.
- Be active in national debates, policy making, and/or technical work.
- Be actively involved in demonstration of knowledge and learning experiences.
- Have excellent access to government through regular participation in policy or technical committees or working groups.

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- Have proven experience in working with government on complex policy issues such as climate change.
- Have proven experience in working with the private sector, preferably with private sector clients and/or in partnership arrangements with major GHG emitting company(ies).
- Have some internet/web experience (preferably using email regularly and has web site).
- Have experience in organizing national policy dialogues and/or technical workshops.
- Be familiar with the discussions on AIJ/JI, emissions trading and technology transfer under the FCCC.

Once the sponsors decide to establish the Network, prospective participating institutions should be invited to provide evidence that they meet the criteria for participation, rather than the sponsors "pre-selecting" the institutions. Developing country institutions that may be able to satisfy the suggested criteria are listed in Appendix 1. Prospective members should be invited to submit proposals indicating how they could contribute to the work of the Network, along with comments on the proposed substantive areas/themes. Comments will assist the sponsors to evaluate the suitability of individual institutions vis-à-vis the overall Network and the proposed Work Program.

Prospective members should consider whether they can provide "in kind" support for Network activities, including hosting semi-annual meetings. They should also provide information on their information technology infrastructures, and Web/internet capabilities (both hardware/servers and software) to assist the Network coordinator to assess hardware and software needs.

<u>Non-Core Members</u>
Once the core group is functioning, a broader group of developing country institutions should be invited and encouraged to participate in the Network. The objective of their participation is to promote (more) widespread learning and extensive dissemination of results. Such broad participation is critical given the goal of the Network to support developing country efforts to develop workable approaches for designing and implementing market-based approaches for limiting GHG emissions. Non-core members of the Network can be selected from among the candidate institutions that respond to the proposed request for expressions of interest of proposals. The criteria for selecting core members can be applied to the selection of non-core members.

While broad-based engagement and involvement are desirable, it must be managed to ensure that neither the Network nor Work Program becomes unwieldy. Thus, (a) distinct role(s) should be carved out for members of the broader group. The scope of this role, and degree of involvement, depends in large part on availability of resources. Very limited resources could encourage superficial involvement, along with dissemination of learning experiences and results. Additional resources would facilitate more interaction, including more meaningful interchanges for non-core members. The following options are available for facilitating participation by a broader group, depending on the budget:

- provide resources to "hook up" to Web site,
- provide hardware and software to participate in online "chats" and/or audio/video conferencing,
- provide resources to attend semi-annual meetings of members,
- provide resources for peer review of research and actions/results of core members, and/or
- pay for subscriptions to information services and publications, and for information dissemination.

Non-core group membership issues will be explored further in the section on Network Design.

## 4.4. Developed Country Participants

Interest in the Network by developed country governments and institutions will be based on several factors. Some governments and institutions have a genuine interest in ensuring developing countries contribute to the definition and articulation of crediting mechanisms (e.g., the CDM) and other means for engaging developing countries in emissions reduction activities. Others may find idea of a network consistent with development assistance (ODA) objectives or other ongoing programs or initiatives, and may be interested in providing support. No doubt, donor interest in providing support will be dependent, in part, on the ability to influence project design and the Work Program. Thus, both the design of the Network and the Work Program should be kept flexible, but the target

audience – developing countries – should be kept in mind. This is critical if the Network is to influence the design of emissions crediting and trading systems, such as the CDM, in ways that are workable for developing countries.

## 4.5.   Potential Developed Country Members and Funding Sources

The following list of non-Canadian developed country-based organizations could be approached to provide funding/support for, and participate in, the Network. Each of these institutions has a sizeable work program dedicated to policy, economic and technical aspects of climate change. As noted earlier, provision of support could be made a condition for participation in the Network. In the case of overwhelming interest, the sponsors should consider limiting developed country government or institution participation to ensure an appropriate balance with developing country participants.

- International Academy of the Environment (IAE – Geneva; Evolving climate change focus)
- CICERO (Center for International Climate and Environmental Research, Oslo)
- Stockholm Environment Institute (SEI)
- World Resources Institute
- Global Industrial and Social Progress Research Institute (GISPRI – Japan)
- Lawrence Berkeley Lab (USA)
- Woods Hole Research Institute (USA)
- Royal Institute for International Affairs (UK)
- Wuppertal Institute (Germany)

Several developed country governments may also be interested in the proposed network concept. They could be approached directly by the sponsors, or they may even be approached indirectly by any of the above institutions seeking funding in order to participate in the network. The governments of the USA, Canada, Norway, the Netherlands, Switzerland and Japan are logical choices.

## 4.6.   International Institutions and Businesses

Several international institutions/NGOs and multinational organizations have been active on the issue of climate change. Businesses that might become engaged in the proposed Network are highly committed to moving forward discussions on emissions trading and may be willing to commit staff and/or resources to participate in the Network. Some international non-governmental (and inter-governmental) organizations are also interested in emissions trading, and may be able to provide support, substantive input and/or value added in some other way. A short list of institutions to contact could include:

- ICLEI – International Council for Local Environmental Initiatives (Cities for Climate Protection Pgm)
- Earth Council and/or one or more National Councils for Sustainable Development
- World Business Council for Sustainable Development with national and regional BCSDs
- The Centre for Sustainable Development in the Americas
- UNCTAD/Centre Financial/Earth Council consortium working on a Global Emissions Trading System
- ENRON
- ABB Asea Brown Boveri
- Tokyo Electric Power or Keidanran (Japanese umbrella business council)
- Norskhydro

One option that should be explored to reduce the technology costs of the Network is a partnership with a computer systems company, such as Sun Microsystems, Fujitsu or another. These companies have been known to underwrite some of the costs of Network development, where they feel there are advantages to their own business or improving corporate image. Such a partnership may catalyze involvement by other corporations in the Network.

## 4.7   Canadian Participation

The Canadian sponsors should be the primary Canadian participants in the Network, and their participation should be coordinated or channeled through IISD or IDRC. Both IISD and IDRC have substantial expertise and

infrastructure for gathering and disseminating information and knowledge, networking using the web and the internet, and using networks and communications technology for advancing research and information dissemination. IISD has well-established distribution lists and web capabilities, including focusing on climate change, which can be used for disseminating work of the Network. IDRC should investigate potential tie-ins with its current/established research networks in developing countries, perhaps as non-core participants (depending on the expertise of the IDRC network). IDRC's technical and institutional experience/lessons in establishing LDC-based networks should be brought to bear in the design of the proposed network. The NSI, which has a body of substantive knowledge on technical aspects of climate change, should bring its expertise to the Network through IISD or IDRC.

Several Canadian experts/consultants, as well as any of the following and other organizations, can provide specialized expertise for the Network, if needed: Pembina Institute; TransAlta Energy, or a few other businesses; GEMCO; Climate Action Network; and The Sierra Club. Similarly, staff of the Canadian Global Change Program or members of the Canadian University Programme on Global Change may also provide valuable technical input.

IISD should serve as the Canadian focal point for the overall initiative, although IISD has some advantages. Its Solutions for Business Program is investigating market-based approaches to emissions limitation with a deep interest in the proposed Work Program areas/themes, and it has an exceptional web-site with climate change and related information services, links and distribution lists. IISD could also serve as the Network Coordinator. See Section 5.2.


## 5.     NETWORK ACTIVITIES, DESIGN AND OPERATIONS

### 5.1.    Network Activities: How would it work?

The design of the Network will influence the ability of members to achieve the overall goal and objectives of the Network. These bear repeating. The goal of the Network is to support developing country efforts to define workable approaches to designing and implementing economic instruments and market-based approaches, such as certified emissions reduction offset credits and emissions trading, to limit the growth of global GHGs.

The objectives of the Network are to:
*   To facilitate developing country efforts to develop efficient and workable market-based approaches and economic instruments to reduce GHG emissions;
*   Provide a focal point and vehicle for bringing together/leveraging developing country-based, bottom-up, collaborative research, and promoting knowledge generation, learning through action, and information dissemination;
*   Demonstrate concrete actions to implement the Framework Convention on Climate Change and the Kyoto Protocol, particularly emissions limitation activities involving the private sector consistent with market-based mechanisms and economic instruments; and
*   Provide support for developing countries to explore and contribute to the design of the Clean Development Mechanism of the Kyoto Protocol, which has been designated as the mechanism through which crediting of GHG emissions reductions in developing countries will occur after the year 2000 and which is the only mechanism by which developing countries will formally limit GHG emissions in the near term.

In order to achieve the above, the Network and members must be both dynamic and proactive – they must actively "have their fingers in many pies". The Network itself and members must be able to undertake research, organize projects, work with business and government, organize and participate in workshops, seminars, policy meetings/forums, and disseminate information on progress/results, learning and effectiveness of demonstration activities. The following recommendations will enable the Network to meet these the goal and objectives.

To bring all of the Network's experience together, the Network Coordinator (e.g., IISD) will organize semi-annual meetings for core and non-core members, and for other interested organizations (government and non-government). The goal of the international meeting is to bring local, on-the-ground research and demonstration results to an

international audience consisting of representatives from at least 5 – 12 developing countries (through core and non-core membership). Each meeting will be held in a different country representing the home of one of the core Network members, and will invite local institutions, experts, business and government representatives. Each meeting will address overall Network organization, administration, communications and co-ordination issues, as well as each of the Work Program theme areas. A special session should be devoted to the information technology infrastructure, including strategy, needs, experience, and "bugs". The participating institutions should be encouraged to provide feedback in the technology development cycle.

The length of semi-annual meetings will depend on the overall budget, but must be at least 3 days in order to cover administrative issues and all theme areas of the Work Program. The longer the semi-annual meetings, the greater the interaction among members, and increased awareness and learning. "Proceedings" should be prepared to summarize each of the semi-annual meetings, and these should be posted on the Web and disseminated to interested organizations and governments. Example: The institution appointed to serve as the overall coordinator of the Network's activities will organize meetings twice per year for core and non-core Network members, and for other interested organizations. All core members will meet to discuss administrative and Work Program issues. Non-Network members will support the costs of their participation in Network meetings. These costs should be negligible for local participants. The coordinator will prepare proceedings on each of the semi-annual meetings.

Each core member, in conjunction with its private sector and governments "partners" should be willing to:

1.  Participate in the development of the Network's Work Program, including selection and refinement of the main theme areas to be explored, as well as identification of expected outputs, communications strategy, results and measures of success. The Work Program should accommodate different needs, priorities and interests among institutions, countries, regions, as well as the sponsors (thus, the need to maintain a flexible definition of the Work Program until the membership of the Network is selected). Example: Tata Energy Research Institute (TERI) will work with other core members to develop the Network's Work Program and define the main theme areas of the Network's Work Program, as well as outputs, results and measures of success.

2.  Take the lead in directing research and action learning in at least one of the Work Program theme areas (e.g., how to facilitate private sector involvement in emissions trading). Over time (when there are more members), they may take the lead in partnership with another core member so that "pairs" of core members will take the lead on each of the theme areas. Each institution, and their respective private sector and government partners, should be interested in exploring efficient mechanisms for submitting an actual emissions reduction project to the CDM for certification and crediting. Example: TERI and ENDA – Energie, along with their private sector and government "partners", take the lead on Work Program activities related to "facilitating private sector involvement in emissions trading". As part of their work program, they will examine specific project cases that their private sector partners intend to submit to the CDM in the next 3 – 5 years.

3.  Co-ordinate research and delegate tasks at the national levels and among core Network members, keeping in mind that delegation of tasks will be somewhat limited because all core members will have their own Work Program themes to manage. Each pair may solicit advice, input and participation from non-core members within the constraints of the budget. Example: TERI and ENDA, along with their private sector and government partners, would lead and coordinate research a) in India and Senegal on "facilitating private sector involvement in emissions trading", and b) at the international level among core and non-core Network members.

4.  Assign at least one professional (e.g., climate change expert) staff person full-time to the Work Program of the Network. It will be important that this person will truly be assigned full-time to Network activities. This professional will need both administrative and technical support within his or her own institution. Junior staff and/or graduate or post-graduate interns (perhaps linked as a network) could provide technical support. Some additional support will be needed for internet/web and communications hardware and software. In total, the staff commitment will be equivalent two about two persons. Example: TERI will appoint at least one professional staff person to be the key contact and coordinator of its involvement in the Network. This

professional will not be significantly involved in any other projects/initiatives. TERI will assign supporting responsibilities for technical and administrative activities to other TERI staff, and interns where appropriate.

5. Engage government and private sector involvement in their own countries (and other countries where possible) in "on-the-ground" research, action learning projects and demonstration activities, as well as in seminars and workshops. The condition is frequent interaction with governments and the private sector. Example: TERI and ENDA engage private sector and government involvement in "on-the-ground" research and demonstration in India and Senegal related to "facilitating private sector involvement in emissions trading". They may undertake, along with their local private sector and government "partners", actual demonstration projects to explore, for example, policies and institutional frameworks needed to "facilitate private sector involvement in emissions trading". Engagement of government and private sector representatives may take place via participation in seminars, workshops, policy forums, steering committees, policy making exercises, and so on.

6. During semi-annual international meetings for core and non-core Network members (along with their private sector and government "partners"), organize presentations/seminars and demonstration activities based on the progress and results achieved in their respective Work Program theme areas, and how they propose to shepherd their respective CDM projects through national and international processes for certification and crediting. The goal is to bring the audience (other core members, non-core members and other participants in the semi-annual meetings) "up the curve" on their Work Program theme area, and to leverage each other's learning experiences. Presentations should be creative in order to stimulate learning. Example: TERI and ENDA, and their private sector and government partners, will organize seminars/workshops on progress/results of research and demonstration activities. The presentation would take the form of a simulation, or other experiential process (e.g., the steps to get an emissions reduction project through the national and international approvals).

7. During semi-annual international meetings for core and non-core Network members, core private sector members will present their findings and experiences to the Network, including on their emissions reduction projects. Their presentations will be summarized in a report, as part of the proceedings. Example: Company X, based in India and "partnered" with TERI, will present with other private sector "partners" their experiences with research and demonstration activities, as well as policy dialogues, seminars, workshops addressing the theme of "facilitating private sector participation in emissions trading" in India.

8. Disseminate the results of their work and demonstration activities, directly to other members (core and non-core) and via the centralized management of the Network's infrastructure (see below). Quarterly reports and summaries of work/progress will be prepared by each core member, and posted on the Network's web site. Proceedings will be prepared for each of the semi-annual meetings. Example: TERI and ENDA, in conjunction with their private sector partners, will prepare quarterly reports, and disseminate these to other members and the central management institution. The central manager will post the reports on the Network's web site.

9. Deliver the results of their work on their own servers. Example: TERI will post the results of its work on its own server/web site. The Network Coordinator (e.g., IISD) will build interfaces to connect the servers of core and non-core members.

## 5.2 Network Design and Operations

To support the activities of core and non-core members of the Network, an institution, the Network Coordinator, will be selected to provide substantive, administrative, management, logistical, communications and technical support. These are distinct tasks and cannot be managed by one individual alone. As noted earlier, the Network Coordinator could be IISD.

The Network Coordinator will manage the Network's information technology infrastructure, including Internet networking activities and the Network's web-site. This may be in partnership with a computer systems company that has agreed to underwrite some of the costs of the system (e.g., server, computers, etc.). The Network Coordinator would be responsible for providing technical support and technical infrastructure, setting up and

maintaining a web site for the Network, building interfaces to connect members' servers, posting information and activities of the network, designing and implementing an internet-based communications network (including common workspaces) for members, providing developing country members with the needed hardware (e.g., computers, web/internet access, video/audio conferencing equipment) and software (office suite, shareware, audio-video conferencing, etc.), ensuring compatible software, addressing member needs (including "bugs") and disseminating the work of the network and its members outside of the formal network. A centralized location for the above activities will decrease the response time for technical support, promote the use of consistent/compatible software and hardware, and reduce costs for administration.

The Web and Internet can be used to varying degrees to support activities of the Network. This depends on the degree to which the supporting infrastructure will be designed and customized to the needs of the Network and its members. Several mechanisms are available for facilitating information sharing and dialogue via the Web and Internet. Reasonable elements/services for the proposed Network could include:

- E-mail/Form E-mail forwarding
- Website for Network Members / Centralized Website for Network.
- Online Bulletin Board Applications
- Access to Document Files Online
- Online Chat Applications
- Links to similar Networks (would allow information sharing)
- WWW access to Gopher and FTP sites (web interface)
- Audio/Video conferencing for Members or groups of Members

Servers may be installed at a central or at multiple locations. Some of the more advanced services could contribute to reducing costs for travel/meetings.

In designing the Network and support requirements, Network members and the Network Coordinator should take into account:
- Learning is greatest through "hands-on" experience, and face-to-face interaction. Thus, the Internet and web are multi-purpose tools to support activities of the Network. They cannot be substitutes for some more traditional means for exchanging experiences and demonstrating results. Nonetheless, online chat applications, and audio/video conferencing could be extremely valuable for enabling a schedule where core (and, depending on available resources, non-core) members can "meet" more frequently for "networking", dialogue, and information sharing.
- Access to the Network's web site, by non-members, should not be constrained by passwords or barriers. Progress, experiences, and results must be posted and available to the largest audience possible. It is the responsibility of core members and the central administrator to ensure dissemination of results via the internet, web, and through links to other sites, and mailing lists of interested institutions.
- Use of one language would be the most straightforward (and cheapest) approach for Network communications. The members should determine whether use of only one language would be appropriate.
- Simple "links" must be established between the network's web site and existing sites and proposed networks that cover similar or related issues (e.g., JI-Online administered by the Edison Electric Institute in the USA, Foundation Joint Implementation Network (FJIN)/Editor of the Joint Implementation Quarterly (JIQ) in the Netherlands), and the proposed Network/site being developed by the Centre for Sustainable Development in the Americas (CSDA - Washington).
- In addition to the web-site, some private "work space" will be needed for core members. Private spaces could be accessed with passwords, and use appropriate shareware, depending on the working and technical needs of members.
- Members should be encouraged to explore linkages with existing/ongoing networks that they belong to. These may be excellent mechanisms for disseminating learning, information and results.
- Some participants, from governments in particular, may not have ready access to the Internet or the Web. The Network must make allowances for the use of more traditional means of communications to ensure the involvement of not only the primary institutions, but also their government and private sector partners.

While core members of the Network will receive and utilize the majority of resources, it will be important to design the Network so that non-core members provide a reasonable amount of input and feel that they are a part of the process. If not, they will become alienated, and interest and participation will diminish. At a minimum, they should be willing to facilitate with information dissemination in their own countries/sectors. For these reasons, plus the fact that the goal of the Network is to increase broad-based awareness and understanding, it is recommended that non-core members participate through:

- attendance at semi-annual workshops/meetings (travel);
- online chat (hardware/software); and
- audio/video conferencing (hardware/software).

For their own part, they could provide, for example, links to their climate change information bases, and provide links to the Network from their web sites. These tools and links will go a long way in promoting involvement and cohesiveness among core and non-core members and broad dissemination of results.

The members should consider whether it would be appropriate to designate a specific, individual core member to be a link for each non-core member of the Network. The core members could act as formal channels to engage non-core members in the Network's Work Program. Such a linkage could be based on common interests related to the Work Program themes, geographical proximity, or other factors.

## 6. GETTING THE NETWORK UP AND RUNNING

Setting up the Network will require a multi-phased and multi-faceted process. Several steps are envisioned for each of the following: selecting membership; finalizing the Work Program and communications strategy; and designing the Network's infrastructure. The results of this multi-faceted process, including a proposed "Start-Up Workshop," should be documented as a formal constitution and management structure for the Network. This will serve as a common reference governing participation for members.

### 6.1. Establishing the Network: Core and non-Core membership

#### 6.1.1. Marketing/Fundraising

Marketing is required to sell the Network concept and to solicit resources for Network activities and the Work Program. The sponsors should discuss the proposal with the following to solicit input and resources:
- IISD, IDRC, and NSI
- Stockholm Environment Institute
- CICERO (Oslo)
- Developing country research institutions, governments and businesses
- Governments of the Netherlands, Norway, Canada, Switzerland and Japan (and possibly USA)
- A computer systems technology supplier that could underwrite the costs for a server and workstations for core members (e.g., Sun Microsystems, Fujitsu, other).

#### 6.1.2. Draft Budget

A budget, based on notional commitments, will determine the scope of the network membership and its Work Program, as well as the extent to which non-core developing country institutions can become involved in Network activities. A preliminary estimate of the budget is included in Appendix 2. This budget is indicative only, and should be used only as a "ballpark" reference. Several factors, such as travel, hardware and software needs (see section 6.3), number of institutions and timing of their involvement, level of support, contributions in kind, and so on, will influence the final budget.

<u>6.1.3. Prepare Terms of Reference for Core Members</u>

The sponsors should prepare Terms of Reference (TOR) for preferred core developing country research institutions. Initial criteria are included in Sections 4.3. and 5.1. These could form a basis for the TOR. Prospective members should be advised that the Network would consist of core and non-core members, and that the core will start off with a small group and increase in size over time. Non-core members will not be responsible for undertaking elements of the Work Program, but will be invited to participate in Network activities. The extent of participation will depend on available resources, and may be undertaken "through" or in conjunction with one or two core members.

<u>6.1.4. Distribute Request for Proposals</u>

The sponsors should finalize and distribute Requests for Proposals (RFPs) to all potential developing country candidate research institutions, as well as international NGO candidates. The RFPs should include a summary of the proposed Network and its activities, including goals, objectives, the preliminary Work Program themes, critical success factors, criteria for selection of core members, a request for comments and suggestions regarding the proposed Work Program themes and information on hardware and software used by the institution, a deadline for response, and contacts. The RFP could be posted on the Web and circulated by Internet. Responding institutions should be encouraged to be creative in terms of proposing their respective participation in/contributions to the Work Program and activities of the Network, including how they will involve the private sector and governments in activities of the Network. They should be allowed 2 months to prepare proposals.

<u>6.1.5. Review Proposals</u>

The sponsors should review proposals submitted by potential candidates, and score them according to the Terms of Reference and Criteria (see Section 6.1.3. for examples).

<u>6.1.6. Select developing country participants and international NGO(s)</u>

The coordinators and sponsors should select core and non-core members. Businesses and international NGOs may be core participants, depending on their expressed interests in the Network, available resources, and the potential for contributing to the overall Work Program and/or specific Network activities (e.g., sponsorship of meetings, research, etc.).

<u>6.1.7. Invite private sector participation</u>

The sponsors should invite developed country based firms to participate. Two companies (in addition to the private sector partners of each Core developing country institution) seems an appropriate number. A targeted search should easily yield two prospects.

<u>6.1.8 Develop Email Distribution/Circulation List</u>

The coordinator should assemble a list of email addresses for primary contacts for all core and non-core members. Contact addresses for the professional staff member assigned to the substantive work are needed, in addition to addresses for designated substantive, administrative and technology/internet/web technical support at each participating institution.

**6.2. Designing the Work Program**

Once the core and non-core members of the Network have been selected, efforts must begin to focus on refining and finalizing the Work Program and developing a communications strategy. This can be undertaken through a series of

steps. Agreement on the overall Work Program and communications strategy should be one of the objectives of the first meeting of the Network (the "Start Up" workshop).

### 6.2.1. Review of Comments on Work Program

Prospective Network members will be invited, in their applications, to comment on the proposed Work Program and to provide recommendations on Network external communications. While the comments will be used to assist with evaluating proposals submitted by members, they should also be used for refining the Work Program and drafting a communications strategy. Thus, the Network Coordinator should review comments, and use these as a basis for refining the proposed Work Program and drafting a communications strategy.

### 6.2.2. Disseminate Revised Work Program

The revised Work Program, and a draft communications strategy, should be disseminated to core and non-core members for review and feedback. Feedback should be solicited in advance of the "Start Up" workshop, and circulated to all core and non-core members of the Network.

### 6.2.3. Organize Start-Up Workshop

The coordinator will organize a "Start Up" workshop for all core members of the Network. The workshop will focus on: team-building; agreeing on the Work Program and a communications strategy/plan for the Network; outputs and results and measures of success; promoting participation of the private sector and government in Network activities; allocation of responsibilities for agreed theme areas; delegation of tasks; discussion of budget and budget implications; and demonstration of technology options (hardware and software) to be used by the Network or of available technology options for supporting/facilitating work of the Network.

## 6.3 Designing the Network's Infrastructure

The design of the network's infrastructure will depend on what technologies exist in the participating institutions (and their respective countries) as well as the degree to which the technology infrastructure will be designed to cater to the needs of both core and non-core members. Clearly, with today's technologies, it is possible to design an information systems/technology network that can enable its users to do almost anything – including meet via cyberspace. The primary constraints to design and operations will be financial and time-related. Thus, the hardware and software technology and infrastructure should be selected, designed and implemented according to the needs of the Network, its communications strategy, the constraints of the budget, and in a staged process. It will be important to define, early on, the overall objectives of using information technology to support the work and activities of the Network.

### 6.3.1. Assessment of Technology Capabilities and Requirements

The technical coordinator (employed by the Network Coordinator) should review the proposals, or expressions of interest, from the selected Network members to determine existing technology capabilities, and "start-up" needs. This review will probably require communication with core and non-core members, possibly via a survey (the survey can be sent out with the Request for Proposals, or a more detailed survey may be required). The capabilities of government and private sector participants must be taken into account, keeping in mind that some will only use more traditional means (e.g., phone, fax) for communications. Members should each designate someone in their institutions to provide technical support for the Network (an allowance for local technical support costs is included in the budget).

### 6.3.2. Preliminary Strategy and Options for Network Configuration and Basic Communications Needs

Based on the review/assessment, the technical coordinator will identify options for configuring the network focusing on hardware, software and ease of communication, exchange of knowledge and for external communications and

information dissemination. A strategy should include objectives, and identify short term and longer term needs and options for meeting these. Several infrastructure options are listed in Section 5.2..

Core and non-core members will have different needs. The preliminary strategy and options should be circulated to core and non-core members in advance of the "Start Up" workshop (see 6.2.3.) to obtain feedback. The coordinator should also undertake to identify whether the Network can form a partnership with a computer systems provider (e.g., Sun Microsystems, Fujitsu) to underwrite some of the costs of the hardware and/or software (the only cost to the Network may be exposure to advertising by the underwriter).

### 6.3.3. Review Feedback from Members and Potential Systems Providers

The coordinator should review feedback from Network members and service/system providers to refine the strategy, including identification of short term requirements, long term objectives, and options for meeting these.

### 6.3.4. Prepare Proposal for Network Infrastructure

The coordinator should prepare a proposal on the proposed design of the Network's information technology infrastructure, including a strategy for the provision of technical support (staff, communication with members, etc.), start up and maintenance of services, and timing issues. The proposal should take into account that it will take at least several months to get the technology operational to the point where it truly provides real value added in facilitating Network activities. The full Network will take years to develop. The degree of value added depends, of course, on the degree to which the infrastructure will be designed to cater to the Network and its activities. The proposal should be submitted to the sponsors and all members for review and feedback. Feedback will be solicited during the "Start Up" workshop, and the overall configuration should be agreed. It is not recommended that the workshop should address detailed issues, such as specifications, etc. These should be left in the hands of the technical coordinator of the Network Coordinator.

### 6.3.5. Implement System

The coordinator will develop the system infrastructure according to the recommendations agreed at the "Start Up" workshop. The coordinator will be responsible for maintaining and upgrading the system, responding to queries and concerns of members, developing and installing selected applications, maintaining the central web site, posting information, disseminating reports and communications, establishing links with members' and related sites, and all network infrastructure-related activities. It will also ensure that the technology infrastructure is advanced (enough) to provide real value added for members. In this respect, it should solicit feedback from members during the semi-annual workshops, and take follow up action as needed.

## 7. MEASURING RESULTS

This section outlines what would constitute a successful Network. Potential indicators of success are identified.

### 7.1 Meeting the Proposed Objectives

Each of the proposed objectives for the Network will be met in several ways.

### 7.1.1. To facilitate developing country efforts to develop efficient and workable market-based approaches and economic instruments to reduce GHG emissions.

The Network will engage experts from 5 – 12 leading edge developing country research institutions in undertaking the proposed Work Program (e.g., in the agreed theme areas). The Network will also engage representatives from up to 10 other developing country institutions in the Work Program and Network activities such as meetings. Depending on the home countries of core and non-core Network members, the

Network should have an impact in at least 5 – 14 developing countries, by engaging the private sector and government agencies in domestic Work Program activities, meetings and demonstration activities related to market-based approaches and economic instruments, such as appropriately designed emissions trading systems, to reduce GHG emissions (including shepherding actual emissions reduction projects through – potential/anticipated – national and international processes).

Local on-the-ground activities and results will feed into and influence national and international discussions on designing and implementing workable market based approaches to limiting emissions. The results of all work and proceedings of the semi-annual meetings of the Network will be posted on the Web for non-members, and may be distributed in other forums. All members should be able to facilitate information dissemination via other networks and mailing lists, and/or research results can be disseminated at international meetings such as those under the FCCC and Kyoto Protocol or others (e.g. proposed OECD/IEA and UN meetings on the CDM).

7.1.2.   To provide a focal point and vehicle for bringing together/leveraging developing country-based, bottom-up, collaborative research, and promoting knowledge generation, learning through action, and information dissemination

The proposed Network design and Work Program provide several forums and vehicles for supporting the sharing of bottom-up, developing country-based research, and for leveraging the work of the various participating institutions and their partners. Each core member must work with other core members, companies and government representatives in undertaking their Work Program themes. Work will focus on research, demonstration, and interaction with decision-makers in government at the national and international levels. Semi-annual meetings (including seminars/presentations) and communication by the Internet/Web will enable collaboration and information dissemination.

7.1.3.   Demonstrate concrete actions to implement the Framework Convention on Climate Change and the Kyoto Protocol, particularly emissions limitation activities involving the private sector consistent with market-based mechanisms and economic instruments

The "partnering" of core members with businesses will achieve several results. Businesses are more interested in "action" than, for example, some policy-based research activities. Companies twinned with core members must be interested in exploring how emissions reduction credit trading and emissions trading will work. For example, they must plan to submit the results of at least one emissions reduction project for international crediting in the next 3 – 5 years. They will consider how to operationalize the concept of crediting – not only in their home countries, but also internationally – in order to get their project approved/credited. They will work with core and non-core members to explore the many methodological, procedural and strategic questions that arise in the process of shepherding (or pushing) projects through approvals, questions that will be addressed in international discussions. Similarly, private sector views on emissions trading and workable approaches will be solicited and gathered in developing countries for the first time. Thus, involvement of companies will encourage action learning and demonstration by NGOs and governments at the national and international levels.

7.1.4.   Provide support for developing countries to explore and contribute to the design of the Clean Development Mechanism of the Kyoto Protocol.

The Network, the Work Program and Network activities (national and international meetings, project development, policy discussions) are all mechanisms for exploring questions related to the CDM. While developed countries can look to the OECD/IEA (and their own staff and consultants) for technical and substantive advice on CDM design and operations, developing countries have limited resources for such efforts. Typically, their participation is limited to international workshops and FCCC Subsidiary Body meetings, if they can secure travel support. Thus, the Network could be the only real ongoing forum that caters to developing country priorities and interests. A Network, with a structured Work Program, designed by developing countries to explore Protocol and CDM-related issues, would be a first.

### 7.2. Measuring Results and Success

In designing the Network, its Work Program, and activities, it will be important to ensure that results and success can be measured. Initial indicators of success could include: extent of dissemination of the work/results of the Network; number of emissions projects developed and implemented; degree of involvement of the private sector and governments in Network Work Program activities/events; amount of (new) research in developing countries on emissions trading; degree of usage of Network infrastructure by members; attendance by non-members at semi-annual meetings; progress in undertaking proposed projects for crediting under the CDM; number of "hits" on the Network's web site; number of inquiries regarding the Work Program and progress; quotations of members'/Network's work; and so on. Sponsors and core members of the Network must identify and agree on the most critical indicators of success, including means of verification, risks, and risk management strategies. The indicators selected will depend, in part, on the elements of the Work Program to be agreed by members, specific Network activities and products/events, and available resources and the source(s) of such resources.

## 8. PRELIMINARY ESTIMATED

Appendix 2 includes a preliminary estimate of the budget for the Network based on the recommendations in this report. The estimate assumes a 3-year program, starting with 4 - 5 core members, and increasing to 10 over time as well as 10 non-core members, including NGOs, with semi-annual meetings for all members. The preliminary estimated budget for year 1 is about US $800,000. For a three-year period, with a growing Network, the budget required will be in the order of US $ 3,630,000.

Businesses are expected to cover their costs (staff time, travel to one semi-annual meeting, basic system infrastructure) to participate in the Network, except travel will be covered for one representative of each "partner" company to attend (only) one of the semi-annual meetings. Government representatives should cover their own travel cost. Non-members may attend meetings, and/or join the Network via the Internet/Web, at their own cost. It should be understood that the final budget for the proposed Network would likely differ substantially from the estimates in Appendix 2.

## Potential Developing Country Candidate Institutions

*Americas*
- Federal University of Rio de Janeiro (Brasil)
- Getulio Vargas Foundation, Brasil
- Center for Sustainable Development in the Americas (CSDA - proposed Latin American internet/web based network focusing on JI – open to all; no membership required)
- OLADE (Latin American energy sector cooperative network)
- Fundacion Bariloche, Argentina
- Argentine national BCSD
- FUNDECOR (Costa Rica)
- Climate Action Network – Latin America (advocacy)
- Mexican or Ecuadorean company (or other possibilities)
- National Autonomous University of Mexico (UNAM)

*Asia*
- Development Alternatives (India - work on technologies, environment/climate change and institutions with plans to develop Asia Pacific Network - DAINET)
- Tata Energy Research Institute (TERI – India)
- India Institute of Science
- Indira Gandhi Institute of Development Research (India)
- Confederation of Indian Industry (India)
- Organization of Energy Conservation and Planning (Egypt)
- Climate Action Network – Asia (advocacy)
- Bangladesh Center for Advanced Studies (?Atiq Raman's organization)
- Thailand Development Research Institute
- Thailand Environment Institute
- ENVORK: A Research & Development Organization (Pakistan)
- Asian Energy Institute (AEI – climate change and AIJ work; TERI coordinates, members list follows..)
  - Bangladesh University of Engineering and Technology
  - Tsinghua University (China)
  - Bandung Institute of Technology (Indonesia)
  - Korea Energy Economics Institute
  - University of Philippines
  - Institute of Fundamental Studies (Sri Lanka)
  - Chulalongkorn University (Thailand)

*Africa*
- African Centre for Technology Studies (Kenya)
- ENDA – Energie (Senegal, and other W. African countries)
- Climate Action Network – Africa (advocacy)
- Southern Centre for Energy & Environment (Zimbabwe)
- Center for Energy, Environment, Science and Technology (CEEST – Tanzania)
- CSIR – Water, Environment and Forestry Technology (S. Africa)
- Energy and Development Research Centre (Cape Town University, S. Africa)
- Iscor (South Africa – steel company)
- ESKOM (South African electric utility)

Appendix 2


See Preliminary Estimated Budget.....

## *Annex D: Report of the Buenos Aires Meeting, November 6-7, 1998*

Members of the South-North Knowledge Network on Climate Change met in Buenos Aires on November 6-7, 1998. The meeting coincided with the fourth meeting of the Conference of the Parties to the Framework Convention on Climate Change. The purpose of the meeting was to flesh out the work program of the network, adding depth and detail to the network proposal and forming the basis for collaborative projects and activities to be undertaken by network members. In addition, participants discussed fundraising strategies, youth internships, and information technology capacity building. The International Development Research Centre funded the meeting, which was organized by IISD in its capacity as Network Coordinator.

## Participants

The following representatives of member organizations attended the meeting:

| | |
|---|---|
| Deborah Cornland | *Stockholm Environment Institute (SEI), Sweden* |
| Joyeeta Gupta | *Institute for Environmental Studies (IVM), the Netherlands* |
| Anne Hambleton | *Center for Sustainable Development of the Americas (CSDA), US* |
| Sivan Kartha | *SEI-Boston* |
| Victoria Kellett | *IISD, Canada* |
| Kavi Kumar | *Tata Energy Research Institute (TERI), India* |
| Richard Labelle | *Consultant to the UNFCCC Secretariat* |
| Emson Marova | *Southern Centre for Energy & Environment, Zimbabwe* |
| Luiz Pinguelli Rosa | *COPPE, Fed. Univ. of Rio de Janeiro, Brazil* |
| Suzana Ribeiro | *COPPE, Fed. Univ. of Rio de Janeiro, Brazil* |
| David Runnalls | *IISD/IDRC; also representing the North-South Institute, Canada* |
| Youba Sokona | *ENDA-Energie, Sénégal* |
| Preeti Soni | *TERI, India* |
| Asbjørn Torvanger | *Centre for International Climate and Environmental Research – Oslo (CICERO), Norway* |
| Pavlo Zamostyan | *National University Kiev-Mohyla Academy (UKMA), Ukraine* |
| Zheng Shuang | *Energy Research Institute (ERI), China* |

The following member organizations were unable to send a representative to the Buenos Aires meeting; however, consultations were carried out with them on an individual basis after the meeting.

- Global Industrial and Social Progress Research Institute (GISPRI), Japan
- Instituto de Economía Energética (IDEE), Argentina (Institute of Energy Economics)
- United Nations Centre for Trade and Development (UNCTAD)
- United Nations Development Programme (UNDP)
- World Resources Institute (WRI), US

## Basis for Discussion

In the scoping meeting in Ottawa in May 1998, and during subsequent consultations, members had decided that the knowledge network would use a two-pronged approach based on focused, short-term research and knowledge brokering, and longer-term capacity building. Within each of the two approaches, they decided that the themes to be addressed by the network would be:

### *I.    Short-Term Research and Knowledge Brokering:*
a) Operationalizing the Kyoto mechanisms in the context of sustainable development;
b) Assessing the priorities and options for adaptation;
c) Facilitating private sector participation in the Kyoto mechanisms and climate change mitigation and adaptation; and
d) Identifying and building on lessons from AIJ, recent work on the Kyoto mechanisms, and experience with existing emissions and commodities exchange markets, to inform the discussions leading to the design of the Kyoto mechanisms.

### *II.    Longer-Term Research and Capacity Building:*
e) Assessing macro-economic and policy implications of implementation of the FCCC and the Kyoto Protocol; and
f) Assessing the priorities and modalities for and impacts of technology transfer.

The longer-term capacity building oriented themes, which are intended to provide long-term benefits for developing country members, will influence the approaches taken to the research themes. The research themes will focus on near-term issues, particularly to increase understanding and build preparedness to participate in multilateral and project level negotiations to ensure development benefits for developing countries.

## Work Program Developed in Buenos Aires

At the Buenos Aires meeting, participants built on the above framework to identify priorities for research projects and activities within the network. The results of their discussions were summarized in the following sections extracted from the revised network proposal, dated January 18, 1999.

### I.    Short-Term Research and Knowledge Brokering

<u>Network Research and Action</u>
While research in this category is focused on immediate priorities and is geared towards implementation, it nevertheless will contribute to longer-term capacity building. Research issues that members identified include:

a) *Operationalizing the Kyoto mechanisms in the context of sustainable development:*

- Employing the CDM as a mechanism to promote sustainable development
- Sustainable development criteria and certification
- Fungibility among the various flexibility mechanisms
- Selection of baselines, including implications for equity
- Supplementarity, including implications of and alternatives to a cap
- Project criteria, identification, formulation, and execution (including capacity building for same)
- Unilateral developing country actions and eligibility for credit
- Minimizing risk for developing countries
- Equity in the CDM including equitable geographical distribution
- Leakage at macro (international) and micro (national/project) levels
- Incentives for participation
- Implications and methods for including land use change and forestry

b) *Assessing the priorities and options for adaptation:*

- Options for the CDM adaptation fund (percentage of levy; potential volume and significance)
- Eligibility for receiving funds
- Regional impacts of climate change and potential options
- Relationship between technology transfer and adaptation

c) *Facilitating private sector participation in the Kyoto mechanisms and climate change mitigation and adaptation:*

- Various interests between developing and developed country private sectors
- National burden sharing
- Incentives for private sector participation in the Kyoto mechanisms
- North-South-South private sector co-operation
- Improving policy dialogues between governments and the private sector in and between developing and developed countries

Building on Experience – Knowledge Brokering
Developing countries need knowledge that is specific and relevant to their situations. A great deal of relevant information is already being generated, but most of it is unpublished, available only on the Internet (and difficult to locate) or otherwise inaccessible. The Knowledge Network can play a role in identifying key information sources, making them available and keeping members up-to-date on the state of knowledge and the priorities for research and action. Part of this function is fulfilled by IISD's Reporting Services. However, Network members identified a need for knowledge brokering through an online information resource with a view to:

d) *Identifying and building on lessons from AIJ, recent work on the Kyoto mechanisms, and experience with existing emissions and commodities exchange markets, to inform the discussions leading to the design of the Kyoto mechanisms.*

Experiences of developed and transitional countries with restructuring of the energy sector, introducing legislative mechanisms for market-based instruments, involving the private sector, and JI activities between countries in Annex I of the FCCC will also be tapped.

The knowledge brokering function will also help to identify knowledge gaps, which can be used to set priorities. Interns and/or graduate students will be retained to gather, filter, synthesize and archive available information for Network members, on the basis of the agreed work program and priorities.

## II.    Longer-Term Research and Capacity Building

Capacity building will focus on the transfer of clean technologies and macro-economic and policy implications for developing countries of implementation of the FCCC and the Kyoto Protocol. These longer-term themes provide the legitimacy and rationale for the implementation-focused themes. Capacity building activities will include research on such topics as:

e) *Assessing the macro-economic and policy implications of implementation of the FCCC and the Kyoto Protocol:*

- Economic and other costs and benefits of participating in the Kyoto mechanisms
- Sensitivity analysis of Kyoto targets on financial flows to developing countries
- Financial additionality
- Impact of a potential cap on financial flows
- Role of international financial institutions, including the issue of conditionality
- The relationship between emissions limitation and local environmental conditions
- Balance of payments implications of the Kyoto mechanisms
- Modalities for and implications of voluntary commitments by developing countries and criteria for possible expansion of Annex B
- Development and assessment of options for policies and measures in various developing countries
- Incentives required to ensure/enhance sustainable development benefits of mitigation and adaptation activities

f) *Assessing the priorities and modalities for and impacts of technology transfer:*

- Criteria for technology co-operation and transfer in the context of the FCCC and sustainable development
- Relative importance and effectiveness of market and non-market mechanisms
- Assessing and enhancing the value added by technology transfer
- Capacity building needs to support technology transfer

**Annex E (see attached - IT Capacity Assessment; IT Follow-up Proposal)**

# ANNEX E

## International Institute for Sustainable Development (IISD) South-North Knowledge Network on Climate Change

### Information Technology Survey Report

Prepared by Adam Rostis <arostis@is2.dal.ca>
April 29, 1999

## Overview

This report summarizes and makes recommendations on the findings of an information technology assessment survey carried out for the IISD's South-North Knowledge Network on Climate Change (SNKN). The purpose of the survey was to gather information on SNKN members' information technology capacity, both in terms of existing equipment and in terms of administrative and technical expertise and familiarity with Internet use. The survey also identified an individual in each organization responsible for communications and Internet technology.

The initial surveys were sent to the member organizations on or about February 12, 1999. The last survey response was received at the end of April, 1999.


## Methodology

Surveys were sent to 7 network members to assess their capacity to participate in the SNKN in terms of information technology. Nine specific areas were used to characterize an organization's information technology capacity:

1. availability of hardware:   type of computer (processor) and its memory and storage capacity; speed; number of workstations; number of peripherals (printers, scanners, etc;)
2. access to software:   availability of standard software (word processor, spreadsheet, WWW browser)
3. information sharing:   ability to create and distribute information internally and externally using email and webpages
4. software skills:   ability to use the software available within the organization
5. Internet connection:   type of connection (dial-up or network); speed of connection
6. Internet skills – email:   ability to use email, send and receive attachments
7. Internet skills – webpage:   does the member have a webpage; in-house ability to create and maintain webpages
8. Internet skills – research:   ability to use the Internet for research; knowledge of available resources for research on the Internet
9. other:   Two supplemental questions were asked, namely: "Does your organization have a documentation centre, and if is bibliographic information available on-line?" and "Does your organization have, or have access to, facilities for video/audio conferencing?"

Network members were asked to assess their capacity in each of the above areas. It should be noted that for areas 6 through 8, the survey responses were to a large extent subjective; for example, organizations were asked to judge their experience in searching for information on the Internet as being 'very experienced', 'somewhat experienced' and 'no experience'. As a guide to interpreting these subjective results, one should remember that the overall purpose of this survey is to determine if the organizations can use information technology to disseminate research and communicate with SNKN (and non-SNKN) organizations.

# Results

The complete results of the survey are given in Appendix A. Table 2 summarizes these results. Each organization's capacity to participate in the SNKN was characterized as low, medium or high. The criteria used to determine capacity is given in Table 1. It should be noted that Table 1 is only a rough guide to the assessment process used by the consultant. Various combinations of hardware, software and experience within organizations were assessed and judged, and some combinations might not meet the guidelines given in Table 1.

Table 1: Decision-making criteria for assessing information technology capacity of SNKN members.

| Category | Criteria | Capacity | | |
|---|---|---|---|---|
| | | High | Medium | Low |
| availability of hardware | type of computer (processor) | Pentiums or better | Pentiums or better | Pentiums or better |
| | memory | 32 MB or better | 16 MB | < 16 MB |
| | storage capacity | 1 GB or better | < 1GB | < 1 GB |
| | speed | 150 MHz or better | < 150 MHz | < 150 MHz |
| | number of workstations | 1 per researcher | < 1 per researcher | < 1 per researcher |
| | Network capable? | Yes | Yes | No |
| access to software | word processor, spreadsheet | Office 97 (or equivalent) or better | Office 95 (or equivalent) | Worse than Office 95 (or equivalent) |
| | WWW browser | Netscape 4 (or equivalent) or better | Netscape 3 (or equivalent) or better | Worse than Netscape 3 (or equivalent) |
| | Zip/Adobe Acrobat/Email software | Have this software | -- | Don't have this software |
| information sharing | ability to create and distribute information internally and externally using email and webpages | Use of webpage, listservs, newsgroups, & internal email to post and distribute research | Use of at least one method of distributing research | No method used |
| software skills | Experience in using the software available within the organization | "Very experienced" | "Somewhat experienced" | "No experience" |
| Internet connection | type of connection (dial-up or direct) | Direct | Dial-up | Dial-up |
| | speed of connection | 56 kbps or better | 33 kbps or better | Worse than 33 kbps |
| Internet skills - email | ability to use email, send and receive attachments | "Very experienced" | "Somewhat experienced" | "No experience" |
| Internet skills – webpage: | does the member have a webpage | Yes | -- | No |
| | in-house ability to create and maintain webpages | Yes | -- | No |
| Internet skills – research: | ability to use the Internet for research | "Very experienced" | "Somewhat experienced" | "No experience" |
| | knowledge of available resources for research on the Internet | "Very experienced" | "Somewhat experienced" | "No experience" |
| Other | Video conferencing and documentation centre | For informational purposes only. Not used in the capacity assessment. | | |

Table 2: Summary of each member organization's capacity to participate in the SNKN.

Capacity Level (◆ = Low; ◆◆ = Medium; ◆◆◆ = High)

| Organization | Availability of Hardware | Access to Required Software | Information Sharing | Software Skills | Internet Connection | Internet Skills: Webpage | Internet Skills: Searching and Browsing | Internet Skills: Email | Internet Skills: Research |
|---|---|---|---|---|---|---|---|---|---|
| Centre for the Sustainable Development of the Americas (USA) | ◆◆ | ◆◆ | ◆◆ | ◆◆◆ | ◆◆ | ◆ | ◆◆ | ◆◆ | ◆ |
| COPPE (Brazil) | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ |
| ENDA-Energie (Senegal) | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆ | ◆◆◆ | ◆◆ | ◆◆ | ◆◆◆ | ◆◆ |
| Energy Resources Institute (ERI), China | ◆◆ | ◆◆ | ◆ | ◆◆◆ | ◆ | ◆ | ◆◆ | ◆◆◆ | ◆◆ |
| Institute for Energy Economics (Argentina) | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆ | ◆◆ | ◆◆◆ | ◆◆ |
| Kiev-Mohyla Academy (Ukraine) | ◆◆◆ | ◆◆ | ◆◆ | ◆◆◆ | ◆◆◆ | ◆◆ | ◆◆ | ◆◆◆ | ◆◆ |
| Southern Centre for Energy and Environment (Zimbabwe) | ◆◆ | ◆◆ | ◆ | ◆◆ | ◆◆ | ◆ | ◆◆ | ◆◆◆ | ◆ |
| Tata Energy Research Institute (TERI), India | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ |

# Recommendations

Based on the results presented in Table 2, it was found that the Centre for Sustainable Development of the Americas (CSDA), the Energy Resources Institute (ERI) and the Southern Centre for Energy and Environment (SCEE) have requirements in either hardware, software or training (or a combination thereof) in order to build their capacity to participate in the SNKN.

Some comments should first be made regarding the remaining organizations. While they seem to have adequate capacity (in the key areas mentioned in the methodology section) to participate in the SNKN, action may be warranted for these organizations in the following areas:

> <u>Website Development</u>: while not specifically analyzed in this report, the website of each organization (excepting those which did not yet have a website) was visited and informally assessed. It is felt that there is much potential to improve upon the existing content and structure of SNKN member websites.

> <u>Intranets</u>: Intranets can improve information exchange amongst researchers within organizations by enabling researchers to create their own websites (for the sharing of working papers, bookmarks and other documents), and by providing access to administrative and other information. A model which can be used is the IISD Intranet, or the Intranet currently under development at PRISMA in El Salvador (PRISMA is a partner in the IISD Trade Knowledge Network).

For all the remaining organizations (but specifically in the case of the IEEE in Argentina, and ENDA in Senegal), it is felt that these organizations could benefit from targeted capacity building through the provision of a highly qualified IISD intern. The intern would spend 5 to 6 months on an information technology capacity-building project (possibly addressing the above two areas of website design and Intranet development) tied to the theme of climate change.

General recommendations are now given to address the areas of concern amongst the three organizations flagged in the survey: the CSDA, the ERI and the SCEE.

## Centre for Sustainable Development of the Americas (CSDA):

The CSDA is a 4-person research group based in Washington, DC. The consultant surveyed the CSDA over the phone, and as a result, learned first-hand that the organization's overall knowledge of IT is low (e.g. there was no knowledge of how to determine what types of computers were being used, or what versions of software were installed). There is no computer support at the CSDA, and there is little or no capacity within the organization to maintain their webpage. During the phone interview, the CSDA indicated that web design, Internet searching and other IT training would be welcome at the organization.

*Recommended Follow-Up Action:*

Based on the results of the survey, a training course in webpage design (including purchase of web editor software) and advanced Internet searching would increase the capacity of CSDA to participate in the SNKN. However, it is recommended that follow-up questions be asked of the CSDA to determine their specific training needs. The follow-up survey would also clarify whether or not the

CSDA uses an internal network for email, and whether additional hardware purchases would be required to establish this network (if such a network was deemed warranted).


## Energy Resources Institute (ERI)

The ERI is using one 9600 bps modem to connect to the Internet.  This is a significant deficiency and is an obstacle to their full participation in the SNKN.  There is no network within the ERI office and this prevents the sharing of resources such as printers, software and folders of individual researchers.  The ERI does not yet have a web page, and they indicate that their staff does not have the skills to create and maintain a webpage.  ERI is using an old version (3.01) of Netscape.

*Recommended Follow-Up Action*

There are two courses of action that can be taken to increase the capacity of the ERI to participate in the SNKN.  The first, a conservative approach, involves replacing ERI's 9600 bps modem with at least one high-speed modem (56 kbps).  The second approach, which would require the purchase of additional hardware, involves establishing an e-mail network within the ERI*.  Both approaches would also involve training in webpage design (including purchase of web editor software), advanced Internet searching and an update to the existing web browsing software at the organization.


## Southern Centre for Energy and Environment (SCEE)

The SCEE is operating 6 workstations, 2 of which are 486's.  Of the remaining 4 workstations, 2 Pentiums are running with only 8 MB of memory.  The Pentium workstations are network-capable, but SCEE is not running any kind of network to share resources and files.  They use a dial-up Internet connection, and have yet to establish a webpage.  The SCEE also indicated that they do not have the skills to create and maintain a webpage.

*Recommended Follow-Up Action*

The priority at the SCEE would be the establishment of a webpage, and the provision of training and software necessary to achieve this end.  Additional training in advanced Internet searching is also recommended.  It is also recommended that  the existing 486's be replaced with Pentiums, and that the existing Pentiums be upgraded to have at least 32 MB of memory.  Finally, the possibility should be explored of purchasing software and hardware to establish an internal e-mail network within the SCEE (see footnote on this subject under the entry for the ERI above).

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* Commercial software solutions exist that use a dial-up modem, a dedicated mail server workstation and specialized software to deliver e-mail services.  See for example: http://www.business.softarc.com/index.shtml

# International Institute for Sustainable Development (IISD)
# South-North Knowledge Network on Climate Change

## Proposal for Follow-Up Action

Prepared by Adam Rostis <arostis@is2.dal.ca>
May 12, 1999

# Introduction

After surveying 8 members of the SNKN (see IISD's South-North Network on Climate Change: Information Technology Survey Report, April 29, 1999), it was decided that 3 of the members, the Centre for Sustainable Development of the Americas (CSDA), the Energy Resources Institute (ERI) and the Southern Centre for Energy and Environment (SCEE) could benefit from some combination of training, software and hardware improvements. The purpose of this document is to propose several options for follow-up action in these 3 areas for each organization mentioned above.

The individual member organizations should be an integral part of the decision making process for capacity building. There may be information technology (IT) capacity building needs within an organization that have not been revealed by the capacity survey. Meeting these undisclosed needs may improve an organization's ability to take part in the SNKN; for example, an organization may require an uninterruptable power supply (UPS), or an upgrade to software. Therefore, organizations should be asked what they believe to be key capacity building needs.

Note that in all cost estimates, the cost of airfare and perdiem rates for consultants has not been included.

## Recommended Follow-Up Action

### Centre for Sustainable Development of the Americas (CSDA):

It is recommended that website design training be carried out at CSDA. While the CSDA does have a webpage, it was noted in the capacity survey that they have little ability to maintain it (an outside consultant is currently used to do this). This would enable the CSDA to maintain their own webpages, in addition to improving their internet search capabilities.

**Option A:** Software and Training

| | Component | Consultant Time Required | Estimated Cost ($CDN) |
|---|---|---|---|
| **Training** | Webpage design training | 4 days on-site training<br>1 day preparation | 1200<br>300 |
| | Advanced Internet search training | 1 day on-site training<br>½ day preparation | 300<br>150 |
| | Rental of training hardware:<br>-lcd display<br>-laptop | --<br>-- | 100<br>100 |
| **Software/Hardware** | Webpage editor (Homesite 4.0) | -- | 150 |
| **TOTAL** | | | 2300 |

## Energy Resources Institute (ERI)

There are at least 2 possible courses of action to take at the ERI. The first, Option A, would involve hardware, networking and training. This option addresses all the points noted in the capacity survey; namely, that the ERI was using only a 9600 bps modem, the lack of a networked environment and that there was no capacity to design or maintain webpages. The second, Option B, would involve only hardware and software upgrades and training. Both options will enable the ERI to more quickly access on-line information, and would ensure that the capacity existed to create and maintain webpages.

It is unknown at this time what the webpage hosting costs would be for the ERI, nor is it known what the restrictions ERI might face on webpage design and hosting. Initial setup costs and recurring costs for the first year of webpage operations were included in the budget (but are unknown at this time) with the intention that the SNKN may have to cover these costs initially.

**Option A:** Hardware and Software Upgrade, Networking and Training

|  | Component | Consultant Time Required | Estimated Cost ($CDN) |
|---|---|---|---|
| **Training** | Webpage design training | 4 days on-site training<br>1 day preparation | 1200<br><br>300 |
|  | Advanced Internet search training | 1 day on-site training<br>½ day preparation | 300<br>150 |
|  | Rental of training hardware:<br>-lcd display<br>-laptop | --<br>-- | <br>100<br>100 |
| **Software/Hardware** | Webpage editor (Homesite 4.0) | -- | 150 |
|  | Upgrade of Netscape | -- | 50 |
|  | Webpage hosting costs:<br>-startup costs (first year)<br>-recurring costs (each year) | --<br>-- | <br>unknown<br> |
|  | Upgrade existing 9600 bps modem | -- | 250 |
|  | Install network hardware and software for network email:<br>-hardware costs<br> 4 network cards (200/per)<br> network mail server<br>cable, etc;<br>-software costs<br> mail manager software<br> Windows NT<br>-installation costs (labour) | <br><br><br>--<br>--<br>--<br><br>--<br>--<br>-- | <br><br><br>800<br>500<br>100<br><br>1200<br>300<br>400 |
| **TOTAL** |  |  | 5900 |

**Option B**: Hardware and Software Upgrade and Training

| | Component | Consultant Time Required | Estimated Cost ($CDN) |
|---|---|---|---|
| **Training** | Webpage design training | 4 days on-site training<br>1 day preparation | 1200<br>300 |
| | Advanced Internet search training | 1 day on-site training<br>½ day preparation | 300<br>150 |
| | Rental of training hardware:<br> -*lcd display*<br> -*laptop* | --<br>-- | 100<br>100 |
| **Software/Hardware** | Webpage editor (Homesite 4.0) | -- | 150 |
| | Upgrade of Netscape | -- | 50 |
| | Webpage hosting costs:<br>-*startup costs (first year)*<br>-*recurring costs (each year)* | --<br>-- | unknown |
| | Upgrade existing 9600 bps modem | -- | 250 |
| **TOTAL** | | | 2600 |

## Southern Centre for Energy and Environment (SCEE)

As mentioned in the capacity survey report, the priority at the SCEE would be the establishment of a webpage, and the provision of training and software necessary to achieve this end. Additional training in advanced Internet searching is also recommended. It is also recommended that the existing 486's be replaced with Pentiums, and that the existing Pentiums be upgraded to have at least 32 MB of memory. The possibility should be explored of purchasing software and hardware to establish an internal e-mail network within the SCEE. The costs of these options are explored in the tables below.

**Option A**: Hardware and Software Upgrade, Networking and Training

| | Component | Consultant Time Required | Estimated Cost ($CDN) |
|---|---|---|---|
| **Training** | Webpage design training | 4 days on-site training<br>1 day preparation | 1200<br>300 |
| | Advanced Internet search training | 1 day on-site training<br>½ day preparation | 300<br>150 |
| | Rental of training hardware:<br>-lcd display<br>-laptop | --<br>-- | 100<br>100 |
| **Software/Hardware** | Webpage editor (Homesite 4.0) | -- | 150 |
| | Webpage hosting costs:<br>-startup costs (first year)<br>-recurring costs (each year) | --<br>-- | unknown |
| | Replace 2 existing 486s with Pentiums | -- | 4000 – 5000 |
| | Upgrade 2 existing Pentiums to 32Mb memory | -- | 300 |
| | Install network hardware and software for network email:<br>-hardware costs<br> 4 network cards (200/per)<br> network mail server<br>cable, etc;<br>-software costs<br> mail manager software<br> Windows NT<br>-installation costs (labour) | <br><br><br>--<br>--<br>--<br><br>--<br>--<br>-- | <br><br><br>800<br>500<br>100<br><br>1200<br>300<br>400 |
| **TOTAL** | | | 9900 - 10900 |

## Option B:  Hardware and Software Upgrade and Training

|  | Component | Consultant Time Required | Estimated Cost ($CDN) |
|---|---|---|---|
| **Training** | Webpage design training | 4 days on-site training<br>1 day preparation | 1200<br>300 |
| | Advanced Internet search training | 1 day on-site training<br>½ day preparation | 300<br>150 |
| | Rental of training hardware:<br>-*lcd display*<br> -*laptop* | <br>--<br>-- | <br>100<br>100 |
| **Software/Hardware** | Webpage editor (Homesite 4.0) | -- | 150 |
| | Webpage hosting costs:<br>-*startup costs (first year)*<br>-*recurring costs (each year)* | <br>--<br>-- | <br>unknown<br> |
| | Replace 2 existing 486s with Pentiums | -- | 4000 – 5000 |
| | Upgrade 2 existing Pentiums to 32Mb memory | -- | 300 |
| **TOTAL** | | | 6600 - 7600 |

## Option C: Training Only (with necessary software)

|  | Component | Consultant Time Required | Estimated Cost ($CDN) |
|---|---|---|---|
| **Training** | Webpage design training | 4 days on-site training<br>1 day preparation | 1200<br>300 |
| | Advanced Internet search training | 1 day on-site training<br>½ day preparation | 300<br>150 |
| | Rental of training hardware:<br>-*lcd display*<br> -*laptop* | <br>--<br>-- | <br>100<br>100 |
| **Software/Hardware** | Webpage editor (Homesite 4.0) | -- | 150 |
| **TOTAL** | | | 2300 |

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## Annex F: Internet Training Reports

### Report of Internet Training for the Southern Centre for Energy and the Environment (Harare, Zimbabwe)

As part of IISD's Climate Knowledge Network program, I conducted an on-site Internet training sessions at the Southern Centre for Energy and the Environment (SCEE) in Harare, Zimbabwe, from 23-28 July 1999. The objective of the training sessions was to increase SCEE staff members' capacity to participate in the Network. My specific goals were to train five SCEE staff members in advanced Internet search techniques and three in HTML and web site management.

Prior to my departure, I spent four days preparing my curriculum in Canada. Upon arrival in Harare on 21 July, I learned that the website hosting account with the ISP (Cybermedia) was not yet set up and that participants were not prepared. I therefore spent 21 and 22 July negotiating with the ISP, contacting participants, installing the memory upgrade, fixing various problems with SCEE's computers and generally acquainting myself with the organization.

The training sessions I conducted were divided in two segments: advanced Internet search techniques, and HTML and web site management. The session on advanced Internet search techniques was held on 23 July and attended by three of the five expected participants. We discussed the advanced use of search engines (use of special characters, Boolean logic, specialized search engines, etc) and other sources of information (newsgroups and listservs, searching sites for relevant links, etc).

The goal of the HTML and web site management training sessions was to enable SCEE to build and maintain a website through use of HTML code and Dreamweaver software. On 24 July, I taught HTML code to two of the three expected participants. No training sessions were held on Sunday, 25 July. Use of Macromedia's Dream Weaver package for website creation and management was explained on 26 July. Usability and information architecture were the topics covered on 27 July, and 28 July was spent practicing and working on the SCEE website. I spent half of 29 July at the SCEE's office taking care of last-minute details before heading to the airport.

Various people participated in the website training sessions, but only one person (Emson Marova) attended all the sessions and is thus capable of being SCEE's webmaster. As with many other Southern NGOs, the SCEE is short-staffed and over-burdened with work. It was my impression that Emson was instructed to stick with me and learn everything I had to teach, while other participants sat in on sessions when their busy schedules allowed. I would qualify my time in Harare as a limited success. Although I did not train as many people as previously hoped, I did leave the SCEE's staff with a greater understanding of how to find information on the Internet and with the ability to create and maintain their own website.

Andrei Henry

**Report of Internet Training for the Energy Research Institute (Beijing, China)**

As part of IISD's Climate Knowledge Network program, I conducted an on-site Internet training sessions at Energy Research Institute (ERI) in Beijing, China, from 19-26 November 1999. The objective of the training sessions was to increase ERI staff members' capacity to participate in the Network. My specific goals were to train ERI staff members in advanced Internet search techniques and in HTML and web site management.

Preparations for my training at ERI required only one day because I relied on the preparatory work I did for Zimbabwe. I landed in Beijing on 17 November, then rested and recuperated on the 18th. On the 19th, I visited the ERI offices, installed the new modem that I had purchased for them and made preparations for the training sessions. No work was done on Saturday the 20th or Sunday the 21st, despite prior assurances that ERI staff would be available to receive training on the 20th. From the 22nd to the 26, I carried out my training sessions. Since the training I gave in Beijing was identical to the one I dispensed in Harare, one could refer to my description of my work in Zimbabwe for more details on the work I did.

I would describe my work with ERI as a success. Attendance at my sessions was always very high, despite a very hectic work schedule for ERI staff (I arrived just as annual reports were due). Although the language barrier occasionally slowed the pace of learning, it did little to discourage my students- motivation and determination were always very high. I also felt a sense of ownership on the part of ERI staff. I was there to help them create *their* website, which they saw as being important for the future of the organization; I was certainly not there to do the work for them.

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**Report of Internet Training for Center for Sustainable Development in the Americas (Washington, DC)**

As part of IISD's Climate Knowledge Network program, training was conducted at the Center for Sustainable Development in the Americas (CSDA) on Internet and World Wide Web advanced usage and site creation/management. The training occurred at the CDSA office in Washington, D.C. from July 26 to July 29, 1999. The trainees included Helena Olivas, Project Director, Melí Figueres, General Manager, and Cristiam Rodríguez, Executive Assistant.

Training topics included how the Internet and World Wide Web function, advanced Web search techniques, basic HTML and Web site design principles. The time available and low number of trainees made it possible to conduct the training in a one to one fashion during the first days and move onto group topics on the last days. It also provided time for the participants to perform real world tasks using the newly acquired skills.

The sessions provided a valuable starting point for CDSA staff to continue their learning and expand their internal capacity for creating and maintaining their Web site. The challenge in the future will be for the staff to maintain their knowledge levels in the ever changing Internet environment and to devote the time and effort necessary to actually think about their Web site and how to improve/maintain it.

Rod Araneda

***Annex F (See attached: Internet Training Reports)***

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The sessions provided a valuable starting point for CDSA staff to continue their learning and expand their internal capacity for creating and maintaining their Web site. The challenge in the future will be for the staff to maintain their knowledge levels in the ever changing Internet environment and to devote the time and effort necessary to actually think about their Web site and how to improve/maintain it.

Rod Araneda

## Appendix B: Connecting with the World: Priorities for Canadian Internationalism in the 21st Century

### Members of the International Development Research and Policy Task Force

Maurice F. Strong (Chairman)
Jack Austin
Tim Brodhead
Margaret Catley-Carlson
John Evans
Yves Fortier
Gerald K. Helleiner
Pierre Marc Johnson
Janice Gross Stein

### Summary of Recommendations (November 1996)

1. Knowledge, and the ICTs that can advance knowledge, should be placed front and centre in Canadian foreign policy and Canada's international outreach. Canada should position itself for the coming century as a creator and broker of knowledge for sustainable development.

2. Strong institutions and linkages between strong institutions will be essential to the creation and brokering of knowledge. Urgent action should be accorded to the institutional requirements of an effective knowledge system.

3. Canadian intervention should centre on our historical (and emerging) values and comparative advantages: support for democracy and good governance, human rights, peace and the rule of law; special emphasis on sustainable development; and reliance upon a confluence of skills, institutions, and industries combining knowledge, ICTs, and Canada's long history of international engagement and goodwill.

4. Work should begin immediately on the creation of information-based networks that can link institutions concerned about Canada's international outreach with each other and with counterpart networks and institutions in the developing world and beyond.

5. The value added in a new Canadian approach should revolve around the practicality of the knowledge, who captures it, and the uses to which it is put. The system should be based on the most up-to-date ICTs and be dynamic, participatory, and multidirectional.