

Information Networking on Medicinal Plants : Towards a Global Strategy

Neemrana Fort Palace, India
November 17-19, 1999



**ARCHIV
120674**

IDRC  **CRDI**

International Development Research Centre

The International Development Research Centre (IDRC), a public corporation created by the Canadian government, is committed to building a sustainable and equitable world. IDRC funds developing-world researchers, thus enabling the people of the South to find their own solutions to their own problems. IDRC also maintains information networks and forges linkages that allow Canadians and their developing-world partners to benefit equally from a global sharing of knowledge. Through its actions, IDRC is helping others to help themselves.

The views expressed are those of the author(s) and do not necessarily represent those of the International Development Research Centre.

IDRC - Lib.

120674

CHUSA GINÉS

copy

Information Networking on Medicinal Plants : Towards a Global Strategy

Neemrana Fort Palace, India
November 17-19, 1999



International Development Research Centre

ARCHIV
002:633.38
I6

TABLE OF CONTENTS

A. Background	
1. Overview	1
2. Introduction	1
3. Objectives	3
4. Key Outcomes of Workshop	3
5. Next Steps	5
6. How to Get Involved	7
B. Proceedings	
Agenda	10
History of the Process	11
Building the Context	17
1. Regional Assessments	17
I) Centre for Science and Environment	19
II) Foundation for the Revitalization of Local Health Traditions	21
II) Institute of Natural Resources	26
IV) East Africa Regional Office - IDRC	28
V) TRAMIL	34
VI) CETAAR	42
2. Benefits of Networking	46
3. Multisectoral Partnerships	47
4. FAO Presentation	49
Building a Plan of Action	55
1. Developing a Vision	55
2. Building a Network	57
3. Information Communication Technology	59
i) EMEC	59
ii) Bellanet	63
4. How to Access the Web	65
5. Communication and Technology	66
6. Membership and Governance	68
7. Sustainability	69
8. Next Steps	70
9. Conclusions	72
C. Appendix	
1. Concept Paper	73
2. Needs Assessment Survey Template and Guidelines to Completing a Proposal	80
a) Needs Assessment Survey Template	80
b) Guidelines to Completing a Proposal	87
3. Guidelines for Regional Presentations	93
4. Executive Summary of Papers	95
5. Models of Multidisciplinary, Multisectoral Networks	99
6. Using the Web to Advantage	136
7. Network Building Process	154
8. Information on Organizations	156
9. List of Participants	159

BACKGROUND

INFORMATION NETWORKING ON MEDICINAL PLANTS: TOWARDS A GLOBAL STRATEGY

Neemrana, India, November 17-19, 1999

1. Overview

The workshop, "*Information Networking on Medicinal Plants: Towards a Global Strategy*" was organized by the International Development Research Centre (IDRC) and held at Neemrana Fort Palace, India from November 17-19, 1999. The purpose of the workshop was to bring together people from diverse interests and backgrounds in medicinal plants to share regional experiences in research and development, explore networking opportunities, and to find ways of improving information exchange at the local, regional and global levels. An effort was made to invite participants who could represent regional concerns along with a cross-section of key medicinal plant stakeholders, with a focus on south-south collaboration. The workshop brought together over 40 individuals from over 20 countries representing research institutions, NGOs, universities, government agencies, industry and traditional healers.

2. Introduction

There has been a renewed interest in medicinal plants in many countries around the world. As the rising cost of patented drugs and the development of drug resistance to many pathogens increases, the need to find alternatives for health care practices is on the rise. In developing countries where traditional medicine is more commonly used, medicinal plants are viewed as a relevant and accessible source of health care and a vital source of income for the poor.

However, the cost of this renewed interest threatens many species of medicinal plants through habitat destruction, unsustainable harvesting due to economic pressures, and the erosion of traditional knowledge on the use of these plants. The reversal of these negative trends are dependent upon the actions taken by organizations and individuals with a stake in the sustainable use of medicinal plants.

Many of the key actors, including NGOs, research institutions, government departments, international organizations, industry and health practitioners have a diversity of interests in medicinal plants. However, there are very few mechanisms which allow these agencies to share information on their activities, their successes and challenges. The lack of personal interaction and networking has led to negative outcomes such as duplication of research, groups working in isolation from one another and a less than optimal use of global resources currently devoted to medicinal plant activities.

At the International Conference on Medicinal Plants held in Bangalore, India in February, 1998, the prospect of creating a global medicinal plants network was discussed. The conference hosted by the Foundation for the Revitalization of Local Health Traditions (FRLHT) attracted 400 delegates from 35 countries representing all facets of the medicinal plants community. At this meeting a proposal to develop a global electronic network of networks was put forward by FRLHT, IDRC, and Botanic Gardens Conservation International (BGCI) in the final plenary session. Included in the conference statement prepared by participants was the resolution:

"...to form a global electronic network in order to promote constructive relationships between the diverse agencies active in the field of medicinal plants conservation and their sustainable utilization."

After the International Conference, IDRC continued discussions and consultations with key organizations working in the medicinal plant sector. It was clear that a global strategy for medicinal plants could be developed only after support for an adequate assessment of networking needs and capacity was conducted at the regional level. As a result, IDRC is supporting local institutions and regional networks working on medicinal plants in South Asia, Africa, Latin America and the Caribbean to facilitate regional needs assessments and strategy development in their areas. Although the needs assessments were not completed in all the regions, there was enough information for the ones who were still in the process to learn from those who had received initial feedback from their respective communities.

IDRC's Sustainable Use of Biodiversity (SUB) Program (see Appendix 8 for more information) brought together these organizations along with other medicinal plants groups, universities, government agencies and traditional healers and provided an ideal opportunity for the organizations to share their findings with the larger group and to discuss common problems and regional differences. The workshop, "*Information Networking on Medicinal Plants: Towards a Global Strategy*" was organized by IDRC's SUB Program as a response to and support for the 1998 resolution mentioned above. The goal of the workshop was to improve information provision, sharing and exchange at local, regional and global levels, in order to facilitate and enhance partnerships and communication among institutions at all levels involved in medicinal plants research, development and advocacy, and their sustainable use and equitable management.

This initiative is one among many others taking place at the local, national and international levels and is part of a long on-going process of discussions that have occurred between grassroots organizations, regional and international networks and international donors well before the International Conference on Medicinal Plants was held in Bangalore in 1998. There will no doubt be other activities and workshops taking place that will build on the information received from this and other meetings.

To assist SUB in conducting the needs assessments and facilitating the workshop, the services of a networking development specialist team was engaged. The team,

Conseil Equilibrio Consulting is a Canadian "virtual company" based in Quebec, Canada consisting of 10 professional consultants working at different locations in Canada and abroad, but linked by Information Communication Technologies (ICTs). Working together as a balanced team, their mission is to "facilitate access to scientific and technical knowledge, and to support goals defined by communities for social and economic analysis" (see Appendix 8 for further information). Equilibrio Consulting assisted regional networks in preparing funding proposals for conducting the surveys as well as adapting the needs assessment surveys to meet their local needs and realities.

3. Objectives

The overall objectives of the meeting were:

- To develop a common vision based on the needs to facilitate better communication and exchange of information on medicinal plant research and development;
- To share experiences and results of regional needs assessments and regional strategy development on communication and information needs; and
- To begin the development of a strategy for the structure, implementation, and sustainability of networking activities.

4. Key Outcomes of the Workshop

The following are the three key outcomes of the workshop:

i) **Need Assessment Surveys** - These were presented on the first day of the workshop and seen as a logical first step in enhancing the medicinal plants network. Key organizations active in the field of medicinal plants conservation and networking and who had the capacity and infrastructure to carry out a needs assessment in their respective areas were approached. The surveys were developed as a tool to help regional organizations identify their needs, capacities and resources. A model survey template (see Appendix 2) was designed; the idea being that the organizations would change and adapt the surveys to meet their own local needs and realities. The two key questions that the needs assessment surveys addressed were, first, what unique needs are there with regard to knowledge and information among medicinal plants stakeholders, and what types of information and knowledge could potentially be shared in the context of a network? And second, what methods of communication are used to access information, and what are the main barriers to communication?

Six surveys have been or are in the process of being implemented in the following areas: South Asia, Africa, Latin America and the Caribbean with planned activities in East and South East Asia. Three organizations presented their preliminary findings at the workshop while the other three presented the initial feedback they received from their surveys. The organizations with preliminary findings included the Centre for Science and the Environment (CSE) based in New Delhi, India, the Foundation

for the Revitalization of Local Health Traditions (FRLHT) based in Bangalore, India, and the Institute of Natural Resources based in Scottville, South Africa. These organizations spoke about the following concerns: the insufficient information available on medicinal plants and difficulty in accessing what does exist; the need to focus on grassroots organizations working with local health cultures; and the existing culture of suspicion and fierce competition for resources which are creating barriers to cooperation and the sharing of information.

The organizations which presented an analysis of the feedback they received from the surveys included Afrique Biomedique based in Abidjan, Cote d'Ivoire, TRAMIL based in Santo Domingo, Dominican Republic, and CEUTA based in Montevideo, Uruguay. The following commonalities emerged from the three presentations: weak access to email and the high cost of communications; the competitive nature of the medicinal plants market; and the competing claims to resources and agendas. Also emerged was the need for common agreements on standards and regulations; for information sharing protocols; and for ways to protect local stakeholders and to ensure they derive benefits from any strengthening in networking. (See Regional Assessments p.16 for more detail on the surveys)

The information presented in this session was helpful in understanding each group's local concerns and sharing regional differences from around the globe. In many cases, the groups found the session useful in identifying common differences from the various regions and discussing appropriate strategies and solutions to deal with them. The dialogue between organizations will hopefully continue after this meeting through individual communication and a potential list serve.

ii) **Name and Vision Statement** - The name for the network was decided by the participants only after a brainstorming session about the type of message the network needed to convey. After a healthy discussion the name agreed upon by the group was *MEDPLANeT*. The name was to reflect the use of medicinal plants by the word "MED" plus the global nature of the network by including the word "PLANET", however, the last three letters "NeT" are written with a small "e" to indicate the use of the internet as an important tool for the network in facilitating information exchange and the use of Information Communication Technologies (ICTs).

The following draft statement for the network was developed at the workshop by the participants and was to be taken back to their respective organizations for full and final approval before it would be formally adopted.

Statement:

MEDPLANeT is a global network whose members are committed to the sustainable and socially equitable use of medicinal plants.

The network will achieve this through:

- *Sharing information as widely as possible to achieve the collaborative generation and exchange of knowledge;*

- *Strengthening regional and local networks and their initiatives and strengthening the networking capacities of its members;*
- *Bringing the benefits of medicinal plants to support local health systems and livelihoods;*
- *Addressing global health concerns*
- *Conserving medicinal plants and their habitats;*
- *Working together to build an active, participatory, and transparent network that respects the autonomy of its members.*

iii) **Network Building Protocol** - At the beginning of the workshop, participants were asked to assist in a network-building process, by lending their perspectives, ideas and suggestions to a three-day effort. Beginning on day one, participants were asked to define the problem areas as they saw them for medicinal plants, and the scope for collaboration at regional and international levels. Then, more concretely, on days two and three, they were requested to participate in a discussion which would identify the numerous issues a global information network would need to consider given the complexity of a multisectoral network, for example, from membership criteria to translation services of a multilingual network. To assist in this discussion, a background paper was prepared for the participants by *Equilibrio Consulting*, entitled, "Models of Multidisciplinary, Multisectoral Networks" (See Appendix 5). The paper provided several case studies, useful examples and lessons learned from international networks and an opportunity to learn from their successes and failures. From the lessons learned, a "network building protocol" was suggested as a useful tool and framework for discussing the various aspects involved when building a multisectoral network. The exercise was extremely helpful in assisting participants to articulate their regional needs and concerns, global problem areas, and points of collaboration and to share them with the entire group.

Some of the conclusions from the network-building protocol were as follows:

- the need to develop operating principles including an intra-network communication policy
- the need to further discuss which language(s) will be used for communication and the possibility for translation services
- the need to develop a code of conduct or set of rules collectively defined by its members
- the need to develop an acceptable procedure for validation of the information received from different sources
- the need to develop a strategy which would ensure the sustainability of the network

For a detailed report on the network-building process see Appendix 7.

5. Next Steps

The participants agreed that the immediate next steps following the workshop should focus on supporting regional organizations and networks to develop and build their infrastructure and capacity. Potential activities to strengthen regional

networks include information and communication exchange, training and advocacy, and strategic planning and coordination. Participants emphasized the need to enhance regional based activities before jumping into a global network; however, they also felt it would be useful to identify strategic areas at the international level for sharing experiences between regions and lobbying around specific issues such as communication protocols and development of policy.

To support regional networking the next steps are to continue to:

- i) identify key actors in regions working on medicinal plants research, development and policy (eg. East and South East Asia); assess needs for information and communication; and infrastructure and capacity for information and communication exchange;
- ii) facilitate the development of appropriate strategies for strengthening regional level networking; utilize results of assessments to design activities which address the regional needs and improve communication channels at the local, regional and national levels; build the capacity of organizations to effectively use ICTs;
- iii) explore opportunities and potential mechanisms for exchange and collaboration at the global level; and
- iv) develop a long-term strategy of sustainability for regional and global networking.

Planned activities to facilitate networking in the future are as follows:

* **Web-site** - The meeting web-site, now hosted by Bellanet, provides a specific site for participants and others interested in medicinal plants related issues to review the workshop proceedings, list of participants, photographs, and sound bytes taken at the end of the workshop.

* **List-serve** - A list serve will be established by IDRC to provide all workshop participants, and other who wish to join, a venue to carry-on specific discussions on topical issues related to medicinal plants.

* **Discussion Topics** - To complement the list-serve, specific discussion topics will be carried out and moderated by an animator of the list-serve. Such topics might include: sharing strategies for strengthening regional networking and improving communication channels, and endorsement of the vision statement. Volunteers from among the workshop participants will be recruited to animate these discussions, and be responsible for the technical aspects of the list-serves, with training and assistance provided by IDRC.

* **Promoting Networking** - Promotional tools to assist in raising awareness about the value of networking at the regional level should be developed in coordination

with workshop participants and should be used to recruit other participants and donors. Materials suitable for local channels of communication, such as newsletters, radio broadcasts etc., will be the second stage of promotion.

6. How to Get Involved

If you would like to get involved or find out more about medicinal plants activities in your area, please contact the organization in your region. (These organizations facilitated the needs assessment activities in the regions.)

The Caribbean

Mr. Lionel Germosen-Robineau
Coordinator
TRAMIL
Enda-Caribe
apdo 3370, Santo Domingo

Dominican Republic
Tel: 809-535-5450
Fax: 809-541-3259
Email: ecaribe@aacr.net
Dr. Sonia Lagos-Witte

Program Coordinator
TRAMIL
P.O. Box 64
Managua
Nicaragua
Tel: 505-2-658-311
Fax: 505-2-667-039
Email: tramilca@nicarao.org.ni

Latin America

Ms. Monica Litovsky
CEUTA
Santiago de Chile 1183
(CP 11.200)
Montevideo
Uruguay
Tel: 5982-902-8554
Fax: 5982-901-4004
Email: yuyos@chasque.apc.org

South Asia

Ms. Indira Khurana
Coordinator, Natural Resource Management Unit
Centre for Science and Environment (CSE)
41 Tuglakabad Institutional Area
New Delhi - 110062
India
Tel: 91-11-6981110/6981124/6983394
Fax: 91-11-6985879
Email: indira@cseindia.org

Mr. Darshan Shankar
Foundation for the Revitalization of Local Health Traditions (FRLHT)
No. 50 MSH Layout
Anandnagar
Bangalore, Karnataka - 560 024
India
Tel: 91-80-333-6909
Fax: 91-80-333-4167
Email: root@frlht.ernet.in

Africa

Dr. Francois Gasengayire
Regional Program Officer
IDRC-Regional Office for Eastern and
Southern Africa (EARO)
Liaison House, 2nd and 3rd floors
State House Avenue
P O Box 62084
Nairobi

Kenya

Tel: 254-2-713 160/713 273-4/713355-6/
713578-9
Fax: 254-2-711 063
Email: fgasengayire@idrc.or.ke
Website: <http://www.idrc.ca>

Mr. Myles Mander
Institute of Natural Resources
Private Bag X01
Scottville 320D
South Africa
Tel: 27-333-460796
Fax: 27-333-460895
Email: manderm@iwr.unp.ac.za
Email: ellis@inr.ump.ac.za

If you would like to find out more information about MEDPLANeT and obtain an electronic copy of the workshop proceedings please visit our website at <http://www.bellanet.org/medplants>.

If you would like to join MEDPLANeT by adding your name to the list serve or participate in any future electronic conferences that take place please contact one of the following people:

Ms. Liz Fajber
Program Officer
South Asia Regional Office
208 Jor Bagh
New Delhi, 110003
INDIA
Tel: 91-11-461-9411
Fax: 91-11-462-2707
Email: efajber@idrc.org.in

Mr. Steve Song
Program Officer
Bellanet
P.O. Box 8500
Ottawa, Ontario, K1G 3H9
CANADA
Tel: 613-236-6163
Email: ssong@bellanet.org.ca

PROCEEDINGS

Agenda

Information Networking on Medicinal Plants: Towards a Global Strategy
November 17-19, 1999, Neemrana Fort Palace, India

Day One - Building a Strong Foundation

- Welcome and Introductions
- Conference Objectives/ Day One Objectives and Plan
- History of Process - presentation by Liz Fajber, IDRC
- Regional Assessments: Presentations and Discussions
 - i) Centre for Science and Environment - Indira Khurana
 - ii) Foundation for the Revitalisation of Local Health Traditions - Darshan Shankar
 - iii) Institute of Natural Resources - Myles Mander
 - iv) East African Regional Office - Francois Gasengayire
 - v) TRAMIL - delivered by proxy by Chusa Gines
 - vi) CETAAR - Monica Litovsky

Day Two - Developing a Common Vision

- Objectives and Plan for Day Two
- Multi Sector Partnerships
 - i) Case study presentation - Meg Barker
 - ii) Networking discussion - Peter Gillies
 - iii) FAO presentation - Paul Vantomme
- Developing the Vision
 - i) What could the network look like
 - ii) Roles and benefits for participants
 - iii) Using the flow chart - where we want to go to
- Building a Network
 - i) Protocol for Network

Day Three - Designing a Sustainable Future

- Objectives and Plan for Day Three
- How Can ICTs Help
 - i) EMEC - Catherine Dhaussy
 - ii) Bellanet - Steve Song
 - iii) Communication/ Technological Issues
- Affirming the Vision Statement
- Revisiting the Objectives
- Networking Issues
 - i) Membership and governance
 - ii) Sustainability
- Next Steps
- Evaluation

History of the Process

Presentation by Liz Fajber, Regional Program Officer, IDRC South Asia Regional Office, New Delhi

Background

Research and development in medicinal plants is increasing steadily in all parts of the world. There is recognition of plant resources as accessible and culturally relevant sources of health care, as vital sources of income for rural poor who cultivate and collect raw material for sale, and heightened understanding of these "alternate" treatments in the wake of rising costs of patent drugs and global drug resistance to many pathogens. Medicinal plants, both wild and cultivated, promise many possibilities for the health and livelihoods of people around the globe.

This renewed interest has come with a cost, however, as many species of medicinal plants have come under threat from habitat destruction, non-sustainable levels of harvest in the wake of economic crisis, and the erosion of indigenous knowledge about the practices governing their use. There has been increasing infringement of intellectual property and traditional resources rights of indigenous peoples who have depended on these biological resources.

There are numerous challenges in taking action on these issues and problems. This has led to a wide range of actors (including NGO's, research institutions, industry and trade, health practitioners) and a diversity of interests (conservation, traditional health systems, product development) to be involved in medicinal plants research and development. Few mechanisms exist, however, to allow organizations and agencies to share information on their activities, their successes and challenges.

Networks, both informal and formal, which do exist are relatively homogeneous with respect to:

- geographic region — most are national or regional, few are international
- membership — most link like-agencies (NGOs, R&D institutions, industry and trade, health practitioners)
- focus issues (most have a single dominant focus — health, conservation, community development trade)

Such homogeneity has many advantages in the pursuit of common objectives. But it also places real limits on the impact of such networks on broader goals that require alliances among different types of institutions, different sectors of society, and different regions of the world. It is rare that there are regional or international fora for sharing of research projects and results, or information with respect to other issues such as approaches to local conservation, sustainability, advocacy, and integration of medicinal plants into health policy and practice. To date, there has been no multi-sectoral network, nor a global activity linking all of these interests.

The lack of personal interaction and networking leads to negative outcomes such as:

- duplication of research
- groups working in isolation from one another
- little information sharing and partnerships
- less than optimal use of global resources

The potential for global action to address problems and benefit from complementary work has been recognized. At the International Conference on Medicinal Plants held in Bangalore in February 1998, the prospect of creating a global medicinal plants network was discussed.

As a result, IDRC's Sustainable Use of Biodiversity Program (SUB), with the support of other programs at IDRC, including Bellanet, PAN Global Networking, and Uganisha — engaged in dialogue with members of the Organizing Committee of the Bangalore conference, and other interested parties to discuss initial steps to launch a global network. These discussions led to brainstorming potential attributes of such a network.

The network envisioned would bring together a broad spectrum of organizations from the grassroots to donors. Such a network would respond to information and communication needs and interests of a broad and multidisciplinary membership involved in key issues of medicinal plants research and use. It would potentially:

- create wider opportunities for synthesis, sharing and application of research priorities, methods and results;
- facilitate cross-disciplinary and cross-sectoral dialogue
- enhance dissemination of existing non-proprietary information
- support the development of partnerships in research, development, training and advocacy
- provide greater visibility to local and regional activities on medicinal plants, and to raise the profile of medicinal plants internationally
- support dialogue, strategic planning and coordination around critical issues of common concern
- assist communication flow from the local level to the international arena and vice versa; and
- produce greater impacts on policy and action.

Networking may embrace a range of issues related to medicinal plants including:

- conservation and sustainable use
- local health systems and traditional medicine
- commercialization and trade
- rights of local communities and indigenous peoples

Networking and Connectivity

At the Bangalore meeting, an initial vision of the network was a people based organization, potentially supported by information and communication technologies (ICTs) which aim to take advantage of the benefits of the Internet. It is understood that there exist many limitations in the current status of connectivity in the world. Widespread access to the Internet is still a problem for many countries, and for those where it is available, the high costs of computers, modems, and telephone lines limits the organizations who may be able to access these services. Various devices and media need to be incorporated to promote inclusivity. The most appropriate electronic tools and associated process would need to reflect regional, national and local realities.

However, information about the communication challenges faced by the various agencies and actors in the medicinal plant area is sparse. There is a need to effectively document and assess the existing infrastructure and capacity of organizations for communication and information exchange, and accessibility and capacity to use ICTs.

Setting the Stage

It became apparent that there did not yet exist adequate information identifying existing organizations and on information and networking needs. Any networking activities need to build on the initial involvement and commitment of institutions from the local to the regional to the international levels. The first steps needed are a more decentralized assessment and approach to determine what community, regional and international organizations need in regards to networking, both in terms of networking technologies and information/content, well before the design and implementations of a network. This can best be accomplished at the regional level. It is clear that one cannot prescribe the framework and structure of a network without having a thorough understanding of the needs of the different stakeholders, and of the appropriate resources require.

IDRC committed initial resources through a project fund to improve information provision, sharing and exchange at all levels, in order to enhance partnerships and communication among institutions involved in research on, and development of, medicinal plants.

Activities/Objectives of Assessments:

- 1) Identify key actors and assessment of information and communication needs and capacities for exchange through regional assessments.
 - (i) organizations in different regions to conduct regional assessments which
 - a) identify key actors in the region working in medicinal plants research, development and policy communities
 - b) assess needs for information and communication; and infrastructure and capacity for information and communication exchange

- 2) Facilitate the development of appropriate strategies for strengthening regional level networking.
 - (ii) develop appropriate technologies and strategies to meet regional context-specific needs (recognizing the precise nature of content, the ability to interact with other organizations within their country or region, and the extent of infrastructural support)
 - (iii) facilitate two-way information flow to the community and other organizations on needs and available information
 - (iv) utilize results of assessments to design appropriate strategies to address needs at the regional level which would more effectively utilize existing and potential communication channels and devices and improve local institutional access to information
 - (v) build the capacity of organizations to effectively utilize appropriate ICTs and supporting processes, in particular those organizations which currently experience difficulty with information access and communication.

- 3) Explore opportunities and potential mechanisms for exchange and collaboration at the global level.
 - (i) ensure content of network is clearly defined by community, regional, national and international organizations.
 - (ii) identify challenges and barriers, and potential similarities and differences

- 4) Develop a long-term strategy of sustainability of the regional and potential global networks

This meeting allows us to bring together a number of key organizations working in the area of medicinal plants to explore a number of these objectives. Organizations working at the regional level can share some of the plans, experiences, and results of needs assessments at the regional level. Plans and strategies for strengthening networking at regional and global levels may be discussed and developed. Finally, a long term vision of implementation, operations and sustainability may also be considered.

Presentation -

Information Networking on Medicinal Plants

Building on the Initiatives

Information Networking on Medicinal Plants

Increasing interest in medicinal plants

- Relevant and accessible source of health care
- Vital source of income for rural poor
- Increasing costs of allopathic medicines
- Development of new medicines and drugs to treat current and new illnesses

Information Networking on Medicinal Plants

Problems facing medicinal plants use:

- Species under threat from habitat destruction
- Unsustainable harvesting due to economic pressures
- Inequitable benefit sharing
- Unsafe use of medicinal plant resources

Information Networking on Medicinal Plants

Actors

- NGOs
- Research organizations
- Government
- Local health practitioners
- Industry
- International organizations
- Donors

Information Networking on Medicinal Plants

Topical issues

- Conservation and sustainable use
- Commercialization and trade
- Traditional health systems
- Community development
- Local/indigenous rights

Information Networking on Medicinal Plants

Current Networking Activities formed around:

- Geographic region - national, regional
- Membership - like agencies (NGOs, industry, research and development, practitioners)
- Focus issues (health, conservation, trade)

Information Networking on Medicinal Plants

Lack of networking leads to:

- duplication of research
- groups working in isolation from one another
- little information sharing and partnerships
- less than optimal use of global resources

Information Networking on Medicinal Plants

International Conference on Medicinal Plants
Bangalore, India February, 1998

Resolution:

".....to form a global electronic network in order to promote constructive relationships between the diverse agencies active in the field of medicinal plants conservation and their sustainable utilization"

Information Network on Medicinal Plants

Potential Benefits

- bring together a broad spectrum of organizations from grassroots to donors;
- create wider opportunities for synthesis, sharing and application of research priorities, methods and results;
- facilitate cross-disciplinary and cross-sectoral dialogue

Information Network on Medicinal Plants

Potential benefits

- Enhance dissemination of existing non-proprietary information
- Build partnerships in research, development, training and advocacy;
- Promote visibility to local and regional activities on medicinal plants;

Information Networking on Medicinal Plants

Potential benefits

- Facilitate dialogue, strategic planning and coordination around critical issues;
- Enhance communication flow from local to international levels and vice versa;
- Strengthen impacts on policy and action.

Information Network on Medicinal Plants

Topics of interest

- conservation and sustainable use
- local health systems and traditional medicine
- commercialization and trade
- equitable benefit sharing
- national policies

Information Networking on Medicinal Plants

Networking and Connectivity

- Accessibility of ICTs
- Infrastructural capacity of organizations
- Appropriate media and tools

Information Networking on Medicinal Plants

Need for more information

- Who are the key actors?
- What are their information and networking needs?
- What are their organizations' infrastructure and capacity for information exchange?
- Information at the regional level

Information Networking on Medicinal Plants

Goal of IDRC support

To improve information provision, sharing and exchange at all levels, in order to enhance partnerships and communication among institutions involved in research on, and development of, medicinal plants.

Information Networking on Medicinal Plants

Objectives of IDRC Support

- 1) Facilitation of regional needs assessments
- 2) Development of strategies for strengthening regional level networking
- 3) Exploration of opportunities and mechanisms for exchange and collaboration at the global level
- 4) Build sustainability at local and regional levels

BUILDING THE CONTEXT

1. Regional Assessments

The regional assessments were carried out in the following areas: South Asia, Africa, Latin America and the Caribbean with planned activities in East and South East Asia. The purpose of the assessments were to conduct participatory consultations with actual and potential partners in these regions and to document their:

- a) information and communication needs for their respective areas of work in medicinal plants; and
- b) existing infrastructure and capacity for communication and information exchange.

Regional institutions were identified according to the following set of desirable criteria:

1. Involved in research, studies, and awareness-raising activities in medicinal plants and traditional medical systems;
2. Mandated in information generation and dissemination;
3. Ability to carry out needs assessments;
4. Capacity for minimal basic infrastructure and technical ability for communication and consultation with partners; and
5. Credibility and managerial skills for gathering and synthesizing information from diverse sources as well as assessing information needs.

The regional needs assessment surveys began in 1998 and are in the process of being implemented in East and South East Asia. At the time of the workshop, six surveys were presented, some were completed while others had either received some initial feedback or were in the process of being implemented.

The consultations which were conducted included local, national and regional NGOs, research institutions, government ministries (such as environment, health), local and national industries, health care professional, traditional practitioner organizations, and representatives of local and indigenous groups with a stake in medicinal plants in their communities.

The presentations for the needs assessment surveys were given on the first day of the workshop to provide a starting point on the discussion of the needs and networking capacities in the different regions. The day's discussion focused on such issues as: how to carry out the survey; preliminary ideas of the categories of who the main actors are and what the main issues are; what the priority problems are; and what are the commonalties and differences between and among regions of the world.

The morning's sessions consisted of presentations by organizations that are just beginning the needs assessment process. The presenters were: Indira Kuhrana, of the New Delhi-based Centre for Science and the Environment, Darshan Shankar of the Foundation for the Revitalization of Local Health Traditions based in Bangalore, India, and Myles Mander From the Institute of National Resources, South Africa.

Presentations focused on the various organizations' proposed methodology for carrying out the survey and important issues regarding the context of networking in the different regional contexts. Indira Khurana spoke of the insufficient information available on medicinal plants, and the fact that what does exist is difficult to access. A difficulty she anticipates is convincing organizations, especially universities and government, to become more "user-oriented", and to overcome suspicion. Other questions included, how to involve different stakeholders with different and sometimes competing aims? With regard to the survey, there was discussion of how to capture households. Dr. Kuhrana stressed the need to use different methods of communication in the needs assessment process, including field visits. Darshan Shankar discussed the importance of ensuring that the eventual global network is based firmly on regional initiatives, making for a rich end product. Also raised was the importance of grassroots organizations working with local health cultures. Myles Mander discussed the culture of suspicion and fierce competition for resources in his region as creating major barriers to cooperation and to the sharing of information. The major challenge of the network in South Africa, according to Mander, would be finding ways to get people to share and to demonstrate to stakeholders that they could potentially benefit.

The afternoon presentations focused on the completed need assessments. Francois Gasengayire, representing Afrique Biomedique, presented a summary of a workshop that was carried out in August 1999 in Abidjan, in which a number of African organizations shared information, based on the needs assessment surveys in their countries. At this meeting, the participants agreed to begin the development of the Africa regional network and to constitute themselves as focal points in their respective countries. There was then a report from the TRAMIL network (Traditional Medicine for the Islands), delivered by proxy with the help of Chusa Ginés of IDRC, which described the survey they had carried out in Central America and the Caribbean. Monica Litovsky of the Centro de Estudios Uruguayo de Tecnologías Apropriadas, based in Montevideo, Uruguay, presented the results of a survey process that had proceeded to the development of a regional strategy for a network of medicinal plants organizations in the Southern Cone countries of Latin America, the Red de Trabajo en Plantas Medicinales del Cono Sur. Certain commonalties emerged. The main challenges: weak access to email and the high cost of communications; the competitive nature of the medicinal plants market; competing claims and agendas. Emerged was the need for common agreement on standards; for information-sharing protocols; for ways to protect local stakeholders and to ensure they derive benefits from any strengthening in networking.

The presentations given by the six organizations at the workshop are provided below in the following order: CSE, FRLHT, INR, EARO, TRAMIL, CETAAR.

I) Centre for Science and Environment

Presentation Title: Towards Building a South Asian Network on Medicinal Plants

Presented by Indira Khurana, Coordinator, Natural Resource Management, Centre for Science and Environment, New Delhi, India

Background on CSE

The Centre for Science and Environment (CSE), started in 1980, is today a highly vocal environment organisation in India and in the developing world. The key objective of this organisation is to promote an informed public opinion in favour of environmental sustainability and sustainable development.

The key values of the Centre are:

- Respect for nature
- Concern for equity, intra-generational and inter-generational equity
- Public participation and democracy
- Respect for the poor, their knowledge and capacities
- Respect for cultural diversity

CSE as a Medicinal Plant Stakeholder

The organization's interest in medicinal plants is:

- To promote biodiversity conservation through sustainable utilisation;
- To use these resources and the associated knowledge for poverty alleviation;
- To ensure that benefits (from the use of knowledge as well as resources) if accrued are shared with local communities in accordance with the Convention on Biological Diversity;
- Sustainable utilisation of biological resources so that all stand to gain- the primary raw material supplier, the industry, the consumer of the plant - based products and the environment;
- As a representative of the media and to create awareness amongst the civil society because of the various publications that we come out with; and
- To use this network for advocacy and to bring about change.

Need for a Network

In order to bring about change in the way medicinal plants are dealt with, there is a need for a network, specifically for persons involved in medicinal plants, in some

form or another. This network would :

- Facilitate exchange of experiences in issues relating to medicinal plants; and
- Stimulate the governments into some sort of positive action, basically act as agents of positive action, basically act as agents of change.

In order to get an effective network going a pilot study is being undertaken. This pilot study will:

- Assess the capacities of the potential partners as a first step in setting up of a South Asian network on medicinal plants;
- Gather information on the different players in the area;
- Determine the needs of different players - technical, financial, informational, and others;
- Study the current capacities in the area of information technology of the different players;
- Determine the systems needed to facilitate a smooth and quick interaction between different players;
- Determine the best suited structure for the proposed network;
- Determine the administrative setup of the network;
- Determine the goals of the network; and
- Determine the activities of the network.

Methodology

- 1) Identification of potential partners (stakeholders)
 - a) tapping own database
 - b) undertake a literature survey
 - c) undertake field visits
 - d) send questionnaires
 - e) organise a South Asian workshop
- 2) Assess their access to IT
- 3) Assess the need of an IT network, based on their perspective
- 4) Assess the various components of this IT based network

Area to be covered in this pilot project:

- India: All states barring Kerala, Tamil Nadu, Karnataka and Andhra Pradesh
- Bangladesh
- Pakistan
- Nepal
- Bhutan

The findings of this pilot study will be disseminated through:

- Publication in our fortnightly environment magazine called Down to Earth
- The CSE website

CSE's Experience with Networks

The CSE is already functioning as the Central Secretariat for a National Water Harvesters' Network (NWHN) as part of its People's Management of Water Programme. Networking activities include:

- building up the network with persons involved in water;
- building up of a database;
- publishing a bimonthly newsletter called Catch Water;
- holding conferences, training workshops, conferences and raising awareness through other means;
- forming branch networks in different parts of India and the South Asian region; and
- creating a separate website for water harvesting

II) Foundation for Revitalisation of Local Health Traditions (FRLHT)

Presentation Title: Need Assessment for "Enhanced Regional Information Networks on Medicinal Plants focused on Southern India and Sri Lanka."

Presented by Darshan Shankar, Director of FRLHT, Bangalore, India

Introduction

The assumption is that a range of individuals and institutions need medicinal plants information but do not have access to it. The status of information accessibility on various aspects of medicinal plants is interesting. On one hand bits of information on medicinal plants are lying scattered in different institutions, universities and organizations even with individual researchers, households and traditional practitioners etc. (all of these people are to a various degree both users and providers of information). On the other hand this very scattering of information leads to a situation where all users feel deprived of substantial and reliable information on various aspects of medicinal plants and most providers also feel they have limited information to offer to others.

There is a need therefore for some mechanism to gather the multi-faceted information and develop evolving "information centres" on medicinal plants, that can promote exchange and provide access to information at reasonable costs and in an efficient manner. It is not feasible for a single institute to gather multi disciplinary

information in one place and make it accessible in an efficient way. It will be too expensive. So a cooperative network of all the medicinal plants information users and providers may be formed. A preferred mode for this network's functioning is "cooperative action" wherein every member contributes whatever information they have, provided it conforms to certain agreed to "admittance standards", and can also draw upon whatever information they need from the network's central pool.

To form this kind of cooperative information network, we need to survey what information members need, what information they can offer and what communication infrastructure is available with the information providers etc. We also need to develop standards for acceptance or rejection of information on grounds of its reliability, quality and relevance. In this network, many users of information will also be providers of bits of information although some users may only be consumers. In this cooperative network institutional providers may also need some information from the network which they do not have and some non-institutional users may have some useful information to share with others in the network. The aim of this project is to gather and transfer information after preliminary evaluation and promote information exchange between the user groups, in a viable and sustainable way.

The project will begin, as a first step, with a geographical focus on Southern India and Sri Lanka and will result in a regional information exchange network.

Problem and Objectives

The problem being addressed is the limited accessibility of individual communities, institutional actors and agencies in the "medicinal plants" area to reliable information and the absence of a network which can promote the gathering, organizing and exchange of this information. This is a problem experienced at both regional and global levels.

There are several types of user/provider groups that could participate in an information network, the following is a list of these groups:

- households (rural and urban)
- conservationists, researchers, foresters, NGOs
- community health workers (government and non-government)
- physicians and researchers (modern and traditional Indian Systems of Medicine)
- industry (herbal)
- farmers and NGOs involved in growing medicinal plants
- botanical gardens and nurseries
- educational institutions
- groups interested about IPR issues related to medicinal plants and traditional knowledge

These user groups are using and providing several kinds of information. Some of the categories visualized are as follows:

- self-help uses of medicinal plants
- market and trade information
- nomenclature correlation of vernacular to botanical names
- nursery techniques and seed storage
- red list of medicinal plants
- how to identify medicinal plants
- where to source medicinal plants
- medicinal plant images
- researched information on phyto-chemistry, pharmacognasy and clinical information
- information on classical medical systems like Ayurveda, Siddha, Unani and Tibetan
- policy issues related to medicinal plants and traditional medicine
- IPR issues

In Southern India and Sri Lanka the usage of the internet in most of the above categories has not yet percolated through the system. People still depend on phones and fax machines for information exchange. The scene is changing fast with India opening doors for private Internet Service Providers (ISP) from state owned monopolies in this sector. This is expected to result in both qualitative and quantitative improvement in internet services in the near future. The rates for the services are also becoming affordable. A similar scene is expected in Sri Lanka.

The objectives of the needs assessments are:

- a) to identify the potential actors of the medicinal plants information network;
- b) to carry out needs assessments of potential members in a regional medicinal plant; network. Two types of assessments are required:
 - i) information that can be provided by members and information that is needed by members;
 - ii) infrastructure available with members for communication and information exchange;
 - iii) perception of the actors regarding specific networking needs like advocacy, coordination, chat groups etc.;
- c) to develop standards for entry of data into the information pool;
- d) to work out the economies of running a co-operative information network; and
- e) to draw up a preliminary technical and operational design of the information network.

Methodology

1. Identify the user/provider group categories for the medicinal plant information
2. Develop mailing lists for the user/provider groups
3. Develop a questionnaire format for the user/provider group categories for their needs and capacity assessments
4. Field test the formats on small groups
5. Send out the field tested formats and get them filled by target members of the user/provider groups
6. Organize meetings with key representative players for detailed interaction
7. Organize the responses in a suitable database
8. Analyze the data for the desired results
9. Attempt a preliminary design of the information network
10. Conduct a preliminary assessment of the economics of operating a medicinal plant information network.

User Participation

User participation is part of the very concept and design of the assessment.

Gender Considerations

Women are targeted as a special focus group in all the user categories and thus will be reflected in the development of the mailing lists.

Training

Training will be required in database management and analysis

Deliverables

1. A categorized member list of initial members of the medicinal plants information network;
2. A list of information categories the users are interested in;
3. Data on the need and capacities of the providers and users of the network; and
4. Preparation of draft technical and business plan for the network.

The Foundation for the Revitalization of Local Health Traditions Presentation.

<p>Need assessment for "Enhanced Regional Information Networks on Medicinal Plants focused on Southern India and Sri Lanka."</p>
<p>Foundation for Revitalisation of Local Health Traditions. Bangalore, India. November 1999</p>

<p>Who are the potential User (Provider) Groups</p>
<ul style="list-style-type: none"> ◆ Households (Rural and Urban) ◆ Conservationists (Researchers, Foresters, NGOs) ◆ Community health workers (non-Govt. and Govt.) ◆ Physicians and Researchers (Modern and ISM) ◆ Industry (Herbal) ◆ Farmers and NGOs (involved in growing medicinal plants) ◆ Botanical Gardens and Nurseries ◆ Educational Institutions ◆ Groups interested about IPR issues related to Medicinal Plants and Traditional Knowledge

<p>Visualised Information Categories</p>
<ul style="list-style-type: none"> ◆ Self-help uses of Medicinal Plants ◆ Market and Trade Information ◆ Nomenclature correlation of vernacular to botanical names ◆ Nursery Techniques and seed storage ◆ Red Listed Medicinal Plants ◆ How to identify Medicinal Plants ◆ Where to source Medicinal Plants ◆ Medicinal Plant Images ◆ Researched information on phyto-chemistry, pharmacognasy and clinical info

<p>Visualised Information Categories...</p>
<ul style="list-style-type: none"> ◆ Information on Classical Medicinal Systems like Ayurveda, Siddha, Unani and Tibetan ◆ Policy Issues related to Medicinal Plants and Traditional Medicine ◆ IPR Issues

<p>Objectives Phase I</p>
<ol style="list-style-type: none"> a) to verify the potential actors of the medicinal plants information network b) to carry out need assessments of potential members in a regional medicinal plant network. Two types of assessments are required information that can be provided and the information that is needed by members? c) to learn about infrastructure available with members for Communication and Information Exchange. d) to record perceptions of the actors regarding other networking activities like advocacy, co ordination, chat groups etc.

<p>Objectives Phase I . . .</p>
<ol style="list-style-type: none"> e) to develop standards for admitting of data into the information pool; f) to work out the economics of running a co-operative information network; g) to draw up the content and operational design of the information network.

<p>Work Plan Phase I</p>
<ul style="list-style-type: none"> ◆ Develop categorize mailing lists for the provider/user groups as per categories listed above ◆ Develop the questionnaire formats for the provider/user group survey ◆ Field test the formats on small groups ◆ Send the field tested formats and get them filled by a large number of provider/user groups ◆ Meetings with key representative players for detailed interaction ◆ Organize the responses in a suitable databas ◆ Prepare feasibility report on design of medicinal plant information network

<p>Deliverables Phase I</p>
<ul style="list-style-type: none"> ◆ A categorized list of members actually interested in joining the medicinal plant information network. ◆ A list of verified information categories that the users are interested in. ◆ Analysis of the needs and capacities of the providers and users of the medicinal plants information network. ◆ Data entry formats for different categories of information. ◆ First draft of a technical and business plan for the medicinal plants information network.

III) Institute of Natural Resources

Presentation Title: Perspectives from Southern Africa

Presented by Myles Mander, Institute of Natural Resources, Scottville, South Africa

The Institute of Natural Resources Presentation.

Perspectives from Southern Africa

Myles Mander
Institute of Natural Resources
South Africa

The Stakeholders

- Rural harvesters
- Traditional healers
- Traders - formal
- Traders - informal
- Consumers
- Researchers
- Pharmaceutical Co's
- Farmers - commercial
- Forestry dept
- Agriculture dept
- Conservation dept
- NGO's - various
- Medical insurance
- Health dept
- Farmers - subsistence

General communication barriers

- Different languages
- Entrenched perceptions
- Different technology
- Lack of vision
- Competition for resources
- SADC - suspicions of dominance

Rural harvesters

Communication barriers	Conservation and use issues
<ul style="list-style-type: none"> • No telephones • Networks based on word-of-mouth • Communication depends on physical movement of people • Competition for scarce plant resources 	<ul style="list-style-type: none"> • Scarcity of high value species • Escalating harvest effort • Competition for popular species • Lack of harvesting controls • Legal constraints to trade • Lack of state assistance in production and conservation

Traditional healers

Communication barriers	Conservation and use issues
<ul style="list-style-type: none"> • Competition for clients • Lack of continuity in representation • Plethora of organisations • Suspicion between organisations • Competition for organisational membership 	<ul style="list-style-type: none"> • Scarcity of high value species • Escalating costs of popular species • Lack of harvesting controls • Legal constraints to trade • Lack of state assistance in production and conservation • Lack of access to protected areas • Protection of intellectual property

Traders - informal and formal

Communication barriers	Conservation and use issues
<ul style="list-style-type: none"> • Competition for clients • Informal traders lack telephones • Suspicion between organisations • Networks based on word-of-mouth • Communication depends on physical movement of people 	<ul style="list-style-type: none"> • Scarcity of high value species • Escalating costs of popular species • Legal constraints to trade • Lack of state assistance in production and conservation • Lack of basic business skills

Consumers

Communication barriers	Conservation and use issues
<ul style="list-style-type: none"> • No mechanism for articulating perspectives • Rely on market surveys 	<ul style="list-style-type: none"> • Scarcity of high value species • Escalating costs of popular species • Quality/ standards of products • Quality of packaging • Quality of retail outlets

Researchers

Communication barriers	Conservation and use issues
<ul style="list-style-type: none"> • Competition for funds • Lack of continuity in partnerships • Suspicion between organisations • Language and perceptions • Lack of deliverables to healers and traders • One way transfer of knowledge 	<ul style="list-style-type: none"> • Emotive approach • Lack of state assistance in funds • Lack of co-ordinated research effort • Duplication of effort • Focus on charismatic species • Protection of intellectual property

Research endeavor

Project activities	Projects
Chemical and pharmacological analysis	62
Identification and recording of uses	35
Horticulture and cultivation	14
Propagation	12
Conservation and harvesting	10
Databases	8
Trade analysis	6
Education	6
Communication facilitation	2
Legal concerns	2
Economic analysis	1
Marketing	0

Farmers

- | | |
|---|--|
| Communication barriers <ul style="list-style-type: none"> • Competition for new products • No market information | Conservation and use issues <ul style="list-style-type: none"> • No awareness of plant values • No support from govt to produce • Legal constraints to trade • Lack of materials • Lack of agro-economic schedules |
|---|--|

Pharmaceutical Co's

- | | |
|--|---|
| Communication barriers <ul style="list-style-type: none"> • Competition for clients • Profit maximisation • Plethora of organisations • Suspicion between organisations • Competition for new drugs • Focus on intellectual property rights | Conservation and use issues <ul style="list-style-type: none"> • Scarcity of material for manufacture • Legal constraints to trade • Lack of state assistance in production and conservation • No guarantees for supply • Lack of benefit sharing protocols • Double standards in govt |
|--|---|

Conservation agencies

- | | |
|---|---|
| Communication barriers <ul style="list-style-type: none"> • Competition for funds • Lack of continuity in partnerships • Suspicion between organisations • Bureaucratic inertia • Failure to recognise conservation opportunity | Conservation and use issues <ul style="list-style-type: none"> • Emotive approach • Lack of funds • Lack of co-ordinated research effort • Duplication of effort • Focus on charismatic species • Stop trade vs promote sustainable trade • Too large to address themselves |
|---|---|

Agriculture and Forestry

- | | |
|--|---|
| Communication barriers <ul style="list-style-type: none"> • Ignorance • Lack of continuity in partnerships • Bureaucratic inertia • Failure to recognise conservation opportunity | Conservation and use issues <ul style="list-style-type: none"> • Non issue • Lack of funds • Lack of co-ordinated research effort |
|--|---|

Health Depts and Medical Insurance

- | | |
|--|---|
| Communication barriers <ul style="list-style-type: none"> • No mechanism for articulating perspectives • Rely on market surveys • Lack of continuity in partnerships • Suspicion between organisations • Bureaucratic inertia • Failure to recognise health opportunity | Conservation and use issues <ul style="list-style-type: none"> • Efficacy • Safety • Standards • Scarcity of high value species • Quality of packaging • Quality of retail outlets |
|--|---|

Some concluding thoughts

- Dichotomy in perceptions, technology and approaches - first vs third world across the industry/practice
- State ignorance
- Identify interest intersections - nodes for interaction
- Incentives to share
- Develop partnerships

IV) East African Regional Office (EARO) - IDRC

Presentation Title: Needs Assessment for Sub Saharan Africa

Presented by Francois Gasengayire, Program Officer, EARO, IDRC, Nairobi, Kenya

Note: The IDRC Project Officer, Francois Gasengayire, working on medicinal and aromatic plants in the Nairobi Office assisted in facilitating the group discussions on the needs assessments. The report below summarizes the findings from the surveys and participatory discussions held at the "Workshop on Information Networking on Medicinal Plants and Traditional Medicines in Africa: Towards a Global Strategy", August 2-5, 1999, Abidjan, Cote d'Ivoire.

Background

For several years, the International Development Research Centre (IDRC) has been supporting research activities, surveys and meetings in this area in Africa and elsewhere in other developing countries. The aim is to help find out solutions to various health problems encountered by most people in these countries and to the continuous deterioration of the environment which deprives concerned people and the entire world of access to medicinal resources.

Meetings organised or sponsored by IDRC in recent years include:

- The First OAU/STRC/DEPA/KIPO Workshop on Medicinal Plants and Herbal Medicine in Africa: Policy issues on Ownership, Access and Conservation held in Nairobi, Kenya, in April 1997;
- The Regional Workshop on Medicinal Plants and Traditional Medicines in Africa, organised in Conakry, Guinea, in November 1997, for francophone participants including NGO representatives, researchers and traditional practitioners;
- The Regional Workshop on Medicinal Plants and Traditional Medicines in Africa, organised in Cape Town, in South Africa, in April 1998, for English speaking participants also including NGO representatives, researchers and traditional practitioners; and
- The International Conference on Medicinal Plants for Survival organised in Bangalore, in India, in February 1998.

Context

Medicinal plants form an important part of plant biodiversity resources and are used to improve health care for most people in developing countries and especially in Sub Saharan Africa. This is due to cultural factors and poor economic conditions especially. It is estimated that 25 per cent of "modern" drugs sold in pharmacies are derived from the plant kingdom, and there is an increasing interest from industrialized countries for natural products in general and phytomedicines in particular.

An urgent need for communication and exchange of information between various stakeholders and networks involved in the concerned area were identified at all levels: local, regional and global. In response to this need, the Bangalore Conference recommended setting up an electronic global network on medicinal plants. IDRC initiated a project in this regard whose aim is namely to improve effective information provision, sharing and exchange at local, regional and global levels, in order to facilitate and enhance partnerships and communication among institutions involved in research on, and development of medicinal plants, and to strengthen the international stature of the medicinal plants area.

Based on this project a workshop was organised in Abidjan, Cote D'Ivoire from 2-5 August, 1999, entitled "Workshop on Information Networking on Medicinal Plants and Traditional Medicines in Africa: Towards a Global Strategy" to assess information needs of different stakeholders in the field of medicinal plants and traditional medicines in Africa. The workshop also assessed the stakeholders communication capacity notably by new information and communication technologies and the possibility of information exchange mechanisms that would be useful in this regard.

Stakeholders

A review of activities in the area of medicinal plants and traditional medicines in Africa was done in 1997 by the EARO office that identified different actors/ stakeholders and their area of focus in Sub Saharan Africa. These included:

- Research institutions
- Traditional healers
- Local communities
- Non Governmental Organisations (national & international)
- Governments services
- International Organisations / Donors
- Industrialists / Private companies

Focus / Issues

Stakeholders wereare interested in a whole range of issues including:

- Health care practice
- Research (ethnobotany, phytochemical, pharmacological screening, and toxicology)
- Conservation
- Transfer of technology
- Production of phytomedicines
- Commercialization / Trade
- Integration of traditional and "modern" medicines
- Legal issues / legislation
- Intellectual property rights

The Process

Participants included representatives from public and private research institutions and non-governmental organisations working with local communities and traditional healers. Due to limited resources and for practical reasons, only a few organisations were invited to the workshop based on criteria such as: long standing experience in the area of medicinal plants, type and scope of activities, geographic representation, gender balance, and leadership ability.

Prior to the workshop, participants were required to conduct a survey in their countries/organisations on needs in the concerned area and on their organisation's communication capacity, based on a questionnaire elaborated by a consultant from Conseil Equilibrio Consulting. The data collected by the participants formed the main documents of the workshop.

Below is a list of organizations who participated in the survey:

1. Association DONAVAL Nature et Santé (NGO, Centrafrique) - focus of research, training and consultancy
2. Afrique biomédicale (Société savante/NGO, Côte d'Ivoire) - involved in promoting biomedical education and research in Africa and the editing of the Journal Afrique Biomédicale
3. Département de médecine traditionnelle (research institution, Mali) - they are a WHO Collaborative Centre and focus on research, training, organisation of traditional health systems, and development of improved phytomedicines
4. Enda Tiers Monde / Santé (International NGO, Sénégal) - focus on research, dissemination and sensibilisation, and conservation
5. Centre for Scientific Research into Plant Medicine (Ghana) - focus on research, production and marketing of phytomedicines, publication and dissemination, and conservation
6. Maseno University College/ Department of Zoology and Biomedical Sciences (Kenya) - focus on teaching and research
7. Institut malgache de recherches appliquées (private, Madagascar) - they are a WHO Collaborative Centre and focus on research, development of phytomedicines (40 plant based drugs), and commercialization of medicinal and aromatic plants
8. National Herbarium & Botanic Gardens of Malawi (Malawi) - focus on research, conservation and training
9. Natural Chemotherapeutics Research Laboratory (Uganda) - focus on research, promotion of traditional medicine, conservation, and dissemination

Main Communication Barriers for Organisations Surveyed

The following is a list of constraints encountered by the organisations:

- High cost for equipment maintenance (RCA)

- Connection problems with the internet due to frequent technical failures of the central server (RCA)
- Lack of adequate equipment (modems) and access to internet, and difficulty accessing e-mail due to a great number of users (one SYFED Centre) (CI)
- Lack of access to internet and failures of the power infrastructure (Mali)
- Lack of LAN and connection to an external service provider (Ghana)
- Lack of LAN and access to e-mail and internet (instalation) (Kenya, Madagascar)
- Unreliable e-mail connections (Malawi)
- Connection and subscriptions costs very high (Malawi)
- Lack of LAN and unreliable e-mail connections (system going down) (Uganda)
- Lack of access to internet (Uganda)

Most Important Knowledge/Information to the Organizations

The following is a list of important information needs identified by the organisations:

- Ethnobotanic information
- Scientific data (botanic, chemical, pharmacological, etc)
- Pharmaceutical information
- Preservation and conservation methods
- Dissemination approaches
- Anthropological knowledge (cultural attitudes, etc.)
- Knowledge/information relating to Intellectual Property Rights, benefit sharing and legislation
- Commercial information
- Industrial information (industrial processes)
- Information on institutions and individuals involved in the area (national, regional and international levels)

Main Issues From the Perspective of the Organizations Facing the Use and Conservation of Medicinal Plants

(A) Issues

Need to support African health system by:

- Strengthening and improving health care delivery by using traditional medicine
- Defending mutual interests in order to benefit from the over use of our (African) pharmacopea in the context of globalization
- Supporting community development through the use of traditional medicine
- Identify Intellectual Property Rights and benefit sharing
- Standardizing herbal medicines i.e. safety, toxicity, efficacy and posology

- Formulating government policy and regulation for the control of medicinal plant resource use and ownership, e.g. code of conduct for TMPs, trade, integration of TMPs into health care systems

(B) Threats

- Deterioration of the environment and loss of medicinal plant resources through human activities, e.g. deforestation, industrialisation, bushfires, overharvesting of medicinal resources, land "grabbing", "itinérante" agriculture, etc.
- Illicit trade of phylogenetic resources/uncontrolled increase in trade of medicinal plants
- Loss of local/traditional knowledge and lack of communication of knowledge
- Lack of adherence to approved forestry and environmental regulations
- Negative attitudes of certain opinion leaders and orthodox doctors notably towards traditional medicines practice

Networking Strategy

Participants discussed the relevance and opportunity for setting up an information exchange mechanism in the form of a network whose structure and mandate were outlined as indicated below. It was understood that the information to be exchanged would be already in the public domain or ready for publishing. In any case, it is up to the holder of information to decide on the matter. It was also understood that, as far as local communities' information is concerned, their consent should be required before delivery of their information.

Structure and Mandate of the Network

A) Structure

The structure of the Network will be composed of a central coordinating unit and focal points/local networks established within countries involved. Focal points will constitute local networks encompassing partners such as local communities, research centers, universities, NGOs, public services, industries, international organisations based in countries. The network will also establish linkages with interested institutions and organisations based outside of the continent.

B) Mandate

B.1) Central Coordinating/Processing Unit will:

- receive and process information from focal points
- collect and process information from other organisations
- disseminate information to focal points and other interested partners
- promote partnerships at local, regional level and global levels

- collate information
- organise a constitution of libraries (electronic and documented)
- organise workshops on specific issues/topics such as IPR, ethical issues, TRIPs, etc.
- coordinate resource expansion

B.1.1) Means/Tools

- technical staff (1)
- equipment
- web site
- electronic newsletter
- electronic discussion
- list server

B.2) Focal Point (local network) will:

- collect, process and send information to the central coordination unit
- receive and process of information for target groups
- promote partnerships (local level)
- collate information
- organise a constitution of libraries (documents)
- organise workshops on specific issues
- coordinate resource expansion

B.2.1) Means /Tools

- Challenges relating to the dissemination of information and communication with local communities are as follows:
 - processing of information to make it relevant for target groups
 - difficulty in relating to different languages
 - difficulty in relating to illiteracy
 - In order to overcome these difficulties a number of mechanisms and tools are proposed:
 - producing a newsletter for target groups in local languages
 - identification and/or setting up suitable communication relays (NGOs, resource persons, video and audio means, exhibitions, radio and or television broadcastings, open traditional medical consultation and sale of traditional drugs)

Follow up

1. The participants in the workshop agreed that Professor Frédéric GUEDE-GUINA and Afrique biomédicale will act as a central coordinating unit to be put in place. To this end, Professor Guede-Guina is required to draft a preliminary proposal to be submitted to IDRC, based on suggestions and guidelines

discussed during the workshop and to request possible comments from the participants in the Abidjan workshop. Professor GUEDE-GUINA is also required to inform other possible interested stakeholders in the concerned area about the development process of the network initiated in Abidjan. The preliminary proposal will be in both French and English languages to facilitate feedback from all the participants.

2. Participants in the Abidjan workshop commit themselves to constitute focal points in their respective countries. To this end, they will take any required initiative to contact and to promote future partnerships with individuals and organisations whom they will form local effective information networks with in the field of medicinal plants and traditional medicines.
3. The preliminary proposal is due by the end of September 1999 at the latest. Comments from focal points will be sent to the central coordinating unit by the end of October 1999.

Recommendation

We, the participants to the first workshop on information networking on medicinal plants and traditional medicines in Africa, organised by IDRC in Abidjan, Côte d'Ivoire from 2-5 August 1999, strongly support the idea of regional and global information networking on medicinal plants and traditional medicines. We highly recommend that all stakeholders in Africa be contacted to broaden the scope of information collection, reception and dissemination.

V) TRAMIL Presentation: OptiRed

Delivered by proxy by Chusa Gines, Team Leader, Sustainable Use of Biodiversity, IDRC

Objectives of the Survey

- I). To gather data concerning the needs for information and communications among the organizations working in the field of medicinal plants in the Caribbean Basin.
- II). To find a strategy that would allow for the Optimization and Expansion of the TRAMIL Network, so that the organizations in the Caribbean basin can be acquainted with one another, learn from one another, and collaborate when necessary.

1) Comments Concerning the Application of the Survey

- Many organizations were patient enough to answer the long and difficult questions in the survey but only after a fair amount of persuasion.

- A great number of responding organizations are on friendly terms with TRAMIL, but the survey made it possible to identify other institutions that could, potentially, become part of a network.
- Some organizations had difficulties in completing the survey, mainly because they were not equipped to receive attached files. In these cases, we sent the questionnaire as a text message, which changed the format and made it impossible to open the tables that account for half of the questions in the survey. As a result, this part of the questionnaire was left unanswered.
- As for the way the questions were formulated, respondents had difficulties in understanding certain tables, which resulted in answers that are too different in nature and, at times, confusing.
- In spite of all these problems, 58 organizations took part in the survey. We infer from this data that at least 58 Caribbean institutions, that is, half of the total number of those who received the questionnaire would like to be included in a network concerning medicinal plants, thus improving their access to information and communications within their respective organizations, and with other agencies.
- The last stage of the survey was the compilation of all the data received either via e-mail, fax, or regular mail. Since most of the questionnaires were printed, we found it easier to print them all and examine them question by question to reach mainly quantitative conclusions, in the hope that these conclusions would be as accurate as possible.

2) Number of Organizations that Participated in the Survey

The questionnaire was sent to 194 organizations, 57 of which answered the questions and sent them back to us.

3) Areas of Interest of the Responding Organizations

Most of the respondents reported that they were either government organizations or non-government organizations working towards the goal of sustainable development in the natural resources sector. A central component of their mandate was finding alternatives for development from an environmental point of view, working with the communities to add value to their production of medicinal plants and traditional medicine, and using medicinal plants for improving the health of the communities.

Apart from the organizations mentioned above, academic research institutes also took part in the survey. These institutes include university centres and laboratories concerned with generation of knowledge and training in the field of pharmacology, medicinal plants, and agricultural research (in some cases). Moreover, these centres have expressed their interest in research focussed on the use of medicinal plants for improving the quality of life of individuals, as well as their environment.

4) Number of Participants by Sector

- Non-governmental organizations 17/58
- Government agencies 6/58
- Academic research institutes 22/58
- Agencies and/or organizations concerned with the environment, health, or trade 10/58
- 3 institutions did not specify their mandate.

5) Main Communication Barriers Experienced by the Organizations in the Different Regions

Limitations in terms of access to information and means of communication. The access fees are relatively high for many organizations and not all of them have sufficient funds to pay for easy access to information. Other organizations experienced the same problems but on a higher scale at the national level, as in the cases of Cuba and Haiti.

- 11 organizations reported not having any plans for purchasing new computer equipment in the near future.
- 17 organizations received no technical support whatsoever, and they had to buy services from a commercial technical service.
- 15 organizations assigned time blocks to their personnel for using the computers.
- Only 30 organizations answered the question about their own e-mail addresses, from which we infer that the remaining organizations do not even have access to this technology.
- Half of the responding organizations find that the price for the Internet service is average or expensive, especially the monthly basic rental fee, login time, and local connection time.

	Free of charge	Inexpensive	Average	Expensive
installation	8	4	10	8
monthly basic rental	4	6	14	6
login time	5	5	11	8
fees for local connections	5	6	10	6
long distance	7	3	10	8

Most of the respondents referred to the low priority given to accessing and sharing of information and to the limited amount found in libraries and data banks, which are their main sources of information. Ten respondents found there was limited information on methodologies, types of organizations working in this field, and that there was limited research funds available.

a) Methodological Concerns

	main source	where	problems
preservation	15 answers in order of importance a) Magazines and Books b) Internet c) Workshops and Discussions d) Laboratories and herbariums	10 answers in order of importance a) Mail b) E-mail c) Laboratories d) Libraries	10 answers in order of importance a) Little information b) Little organization c) Lack of research
conservation	13 answers in order of importance a) Magazines and Books b) Laboratories c) Studies and expertise	10 answers in order of importance a) Mail b) Libraries c) Universities	9 answers in order of importance a) Little information b) Lack of research, contacts, organization and funds
crops	16 answers in order of importance a) Magazines, bibliographies and books b) Exchanges and direct discussions c) Experiments	8 answers in order of importance a) Research Centre b) Production areas c) Libraries and mail	11 answers in order of importance a) Little information b) Little organization
taxonomy	20 answers in order of importance a) Botanists, herbariums, Taxonomists (universities) b) Magazines and Books c) Discussions	11 answers in order of importance a) Little information b) Little organization c) Herbariums d) Libraries and Internet e) Laboratories	12 answers in order of importance a) Lack of information b) Little organization and classification c) Little funding

storage	8 answers in order of importance a) Bibliographies, guide books, b) Laboratory, herbarium	3 answers in order of importance a) Newsletters	7 answers in order of importance a) Little organization b) Little information
---------	---	--	---

b) Access and Interpretation of Pharmacological Data:

- a) According to 12 respondents there exists a serious problem in terms of access to information and to the Internet, incomplete data in reference documentation and also (above all) lack of funds for these purposes.

The following is a listing of access to and/or interpretation of pharmacological data:

safety	26 answers in order of importance a) Magazines, books, bibliographies b) Tramil exp. and Caribbean pharmacopoeia c) Internet d) Own studies, pharmaceutical industries e) Laboratories f) Discussions	14 answers in order of importance a) Libraries, bibliographies, information centres b) Caribbean pharmacopoeia c) Discussions and interviews d) Laboratories	12 answers in order of importance a) Lack of access to information b) Difficult access to Internet
efficiency	24 answers in order of importance a) Magazines, books, bibliographies, monographs b) Tramil exp. and Caribbean pharmacopoeia c) Internet d) Research and laboratories e) Laboratories f) Discussions	15 answers in order of importance a) Libraries, Internet b) Discussions and interviews c) Caribbean pharmacopoeia d) Medical centres laboratories and universities	12 answers in order of importance a) Difficult access to information b) incomplete magazines, Outdated libraries c) Lack of follow-up in clinical uses

negative effects	21 answers in order of importance a) Magazines, books, monographs, bibliographies b) Internet c) Tramil exp. and Caribbean pharmacopoeia d) Laboratories	16 answers in order of importance a) Libraries, Internet b) Caribbean pharmacopoeia c) Discussions, interviews d) laboratories	10 answers in order of importance a) Incomplete information b) Expensive and difficult access to Internet
dosage	21 answers in order of importance a) Magazines, books, monographs, bibliographies b) Internet c) Tramil exp. and Caribbean pharmacopoeia d) Laboratories	14 answers in order of importance a) Libraries, Internet, Docum. centres b) Discussions and interviews c) Pharmacopoeia d) Universities	9 answers in order of importance a) Difficult access to information b) Internet expensive
sustainable use and management strategies	21 answers in order of a) Magazines, books, data banks, monographs. b) Internet c) Tramil exp. and Pharmacopoeia	10 answers in order of importance a) Libraries, Internet, Docum. Centres b) Discussions and interviews	9 answers in order of importance a) Difficult access to information b) Lack of funds and materials
processing	17 answers in order of importance a) Magazines, books, bibliographies. Monographs b) Tramil exp. and Pharmacopoeia c) Internet d) Experiences	13 answers in order of importance a) Libraries, doc. centre. Internet b) Discussions and Interviews c) University work	7 answers in order of importance a) Access problems b) Lack of funds

trading	14 answers in order of importance a) Magazines, books, bibliographies, Internet b) Tamil exp. and Pharmacopoeia	10 answers in order of importance a) Libraries, Internet, laboratories b) Discussions and Interviews	9 answers in order of importance a) Difficult access to information b) Lack of funds
---------	---	--	--

6) Type of Organizations that Experience a Higher Degree of Difficulties

The organizations operating without their governments' support experienced more difficulties, along with those whose mandate makes it impossible to justify spending on access to new technologies that would facilitate their work and the sharing of information with other organizations for mutual support.

7) Type of Knowledge/Information that was Considered Important by Respondents

The following is a list of points that were identified by respondents:

- knowledge about self health-care and improvement of the environment;
- access to results of research projects and studies in the pharmaceutical field, natural products area, and medicinal plants;
- information on training, plant product technologies, processing medicinal plants, and returning knowledge to local communities;
- information on successful projects concerning medicinal plants, traditional medicine, and sharing of new technologies.

A great number of respondents, more than half, found it necessary to disseminate pharmacological information on medicinal plants among workers, health-care systems and different associations. Twenty-three responding organizations found the dissemination of scientific findings important. More than 20 respondents believed in collaborative research and defending common interests.

The following provides the above information in a table:

	Yes	No
1) Provide information, sharing information	99%	1%
Dissemination of pharmacological information on medicinal plants	25	

Among workers and health care systems	18	
Associations of shamans, herb doctors etc.	20	
Interpretation/screening and dissemination of scientific findings	23	
2) Collaborative research, defending common interests	14	
Regulations concerning the use and trading of medicinal plants	23	
Access rights of communities/indigenous peoples to biological resources	18	
Matters concerning intellectual property rights	15	
3) Coordination and/or screening of information on a specific topic for example: coordination of activities to raise awareness on environmental matters of common concern for those in the field of medicinal plants	23	

8) Major Problems for the Use and Conservation of Medicinal Plants in the Regions of the Responding Organization

Most respondents answered that environmental problems are important factors affecting the use and conservation of medicinal plants; i.e., deforestation was at the top of the list, along with other threats like land erosion and extinction of some species.

Moreover, the respondents also referred to the lack of education among the general public and among professionals concerning the subject; i.e., lack of knowledge and research concerning the native medicinal flora; little coordination by organizations in the exploitation of traditional knowledge regarding agro-industrial crops of medicinal plants; and restrictive regulations with negative outcome concerning medicinal plants, their use and promotion as an alternative source of health care.

The following provides the above information in a table:

	Yes	No
1) Provide information, sharing information	99%	
over-harvesting of rare or threatened species	25	19
threats from other factors such as deforestation	42	3
land erosion	30	11
pollution	28	9
expansion of urban areas	29	9
changes in regulations on land ownership/use	15	21

VI) Regional Consultation on Information and Communication Needs Assessment - South Cone Medicinal Plants Network (South America)

Presented by Monica Litovsky, CUETA, Montevideo, Uruguay

The "*Consultation on Information and Communication Needs Assessment*" was conducted in our region using surveys along with interviews/direct communication with different sectors and individuals involved with medicinal plants. The survey was discussed and approved by the coordinating institutions of our network in member countries: CETAAR (Argentina), CET of Temuco (Chile), CEUTA (Uruguay), REDE (south Brazil). It was directed to institutions, members and non-members of our network, and organization/individuals working in the medicinal plants area.

A total of 366 forms were sent out, however only 121 forms were answered. The answering rate was 33% (Argentina: 30%, south Brazil: 28.5%, Chile: 46.6%, Uruguay: direct interviews were held with a list of selected institutions and individuals.

The regional results included analysis of surveys given by country, and complemented by interviews with experienced coordinators in the countries.

The survey contained six principal items:

1. General information about the institution/person
2. Type of work developed
3. Access to information
4. Information organization capacity
5. Information dissemination capacity
6. Suggestions and comments about the survey

According to the organizations consulted we found it helpful to categorize the organization into three "profiles".

- A) Community Organization (10.7%)
- B) Civil Associations/NGOs (23.1%)
- C) Government Organizations (37.2%)

(The surveyed group which did not fall into any of the above categories, this included individuals not belonging to any organization were listed under "productive and commercial enterprises")

A) Community Organizations

Most of these organizations are between 5 to 10 years old and are developing their work in urban and rural areas with outreach to local and regional areas. Presently,

they are not involved in any networks (low participation in Argentina and Uruguay) and their activities include: traditional and popular knowledge rescue; medicinal plant cultivation; remedy production; phytotherapy; education for safe and correct use of medicinal plants; and knowledge diffusion. Generally these activities are not economically supported by any project fund. The principal source of information is oral communication through popular informers such as peasants, farmers and in some cases NGOs working in local management/development of rural areas, as in the case of Chile.

Their communication services and infrastructure include postal service and libraries (south of Brazil). The information exchange ambits include personal visits, working groups, meetings and workshops.

The main subjects about which they need to receive information are varied due to the wide range of activities developed ranging from production and propagation, to quality control, to community working methodologies and finally to scientific validation. In Uruguay and Argentina, in particular popular use is quite common at the local level.

A concern for the communities identified through the surveys was difficulty in accessing the information they needed and lack of training in ICTs. These communities felt that if they could increase their contact with other organizations and their financial resources they would be able to improve their situation. In some cases, certain basic infrastructure such as a telephone and radio equipment is needed.

To organize information they use notebooks and data files, however, with financial assistance and training, they could become more efficient.

Dissemination of information is exclusively done through personal contact, meetings, courses and workshops. More advanced dissemination activities are difficult to develop due to organizational problems and lack of appropriate resources. Further training and financial assistance were noted as possible solutions to this problem.

The communities were able to disseminate information on popular uses and cultivation/ propagation techniques.

It was noted that 13 community organizations (10.7%) answered the survey. This low response could be due to the following reasons: a survey was not a familiar tool for these organizations, there was a too little time provided for answering the survey; and in some cases there might have been an effort to send the information back but it was not received.

B) Non-Governmental Organizations/Civil Associations

These organizations were created 5 to 15 years ago, working primarily in urban areas with some involvement in rural areas. They work at local and regional levels

with some participation at the national level. These organizations are active in networks, however, they do not have specific projects in medicinal plants

Their main activities include: training, dissemination, cultivation, rescue, education for use, and remedy production in south Brazil.

Their principal sources for access to information are popular informers, peasants and farmers, community organizations, universities and information centres. In the south of Brazil mass media play an important role as a source of information.

The infrastructure available for communication include the telephone, postal service and library. In Chile, 28.5% have access to electronic mail whereas in Argentina and Uruguay the percentage is higher.

The principal ambits for information access are personal visits, meetings, workshops and working groups. Publications are very important in the access to information for this group. They lack information in the following areas: community work methodologies, scientific validation, biodiversity, ethnobotany, and intellectual property rights. In Chile, (61.5%) and in southern Brazil (87.5%) organizations suggest that contact with other organizations, financial support and training in ICTs would help them increase their ability to access information.

To organize information they mainly use folders, books and libraries. In Argentina the NGOs use a database while in southern Brazil they use cartillas. Information organization would improve through training, human resource development and financial assistance.

Dissemination of information occurs through personal contact, meetings, presentations, courses, books and other printed material. Topics which are disseminated include: popular uses for medicinal plants, cultivation techniques, ethnobotany, and in Argentina information on scientific validation. Difficulties for dissemination activities are related to the lack of institutional organization. Assistance in human resource development, training in public relations and financial assistance would improve dissemination work.

It was noted that out of 28 NGOs/civil associations only 23.1% answered the survey. Although this group has 23 NGO members, the low response must take into account that some preferred to send electronic messages or expressed their opinions and needs through direct contact with the coordinators. As a result, there is an important number of NGOs included in the consultation which are not members of this present group, however, their input was extremely valuable.

C) Governmental Organizations

These organizations were created more than 10 years ago, developing their work in rural and urban areas. In general they do not participate in networks. The majority

of these organizations have specific projects in medicinal plants and their activities include knowledge rescue, research and training. The principal sources of information are popular informers, universities, research centres, NGOs and in south Brazil the mass media is used.

These organizations have a large institutional infrastructure such as libraries, telephones, computers and fax modems. Their communication networks include publications, meetings seminars, and personal contacts. They require further information on the following subjects: scientific validation, quality control, pharmacognosia, cultivation, ethnobotany, and patents. Although these institutions, in some cases, have a well defined infrastructure, they would be more effective in their work by having contact with other organizations, better training in human resource development, and financial support. In the case of south Brazil, 71.43% have difficulties with access to information.

To organize information they use libraries, electronic files and databases. They consider training and better access to human resources as an important and necessary improvement for their organization.

Dissemination of information varies according to countries: in Argentina this group is not involved with distribution activities; in south Brazil there is a wide dissemination movement through meetings, seminars and courses. Information which is circulated include: phytochemistry, pharmacognosia, popular uses of medicinal plants, and pharmacobotanics.

In the case of Chile, there is a sub-group within the government organization composed by health centres and schools which show a different profile one that is closer to the community organization's profile. This means they do not participate in networks, they are focussed on remedy production and phytotherapy, and they are involved in disseminating information. The following points refer to this specific group:

- They require information about pharmacobotanics, scientific validation and patent rights;
- They organize information through cards and note files;
- Their dissemination activities include courses, workshops and personal contact, however, they are limited due to the lack of financial resources, and training;
- They circulate information on popular uses of medicinal plants, phytochemistry and ethnobotanics;
- Their difficulties to access of information could be solved with equipment which provides internet facilities, human resources and training.

It must be noted that from a total of 45 governmental organizations 37.2% answered the survey. This was the highest response from any group. Within our network this was also the most heterogenous group.

Participation Survey

	Community Org.	NGO/Civil Assoc.	Government Org.	Others
Argentina	4%	20%	40%	36%
Brazil (south)	16.4%	34.6%	49%	-
Chile	14%	46%	40%	-
Uruguay	16.7%	16.7%	16.6%	50%
Total for Region	10.7%	23.1%	37.2%	29%

Member of South Cone Medicinal Plant Network			
Community Org.	NGO/Civil Assoc.	Governmental Org.	Others
5.7%	32.8%	44.3%	17.2%

2. Benefits of Networking

During the discussions, many of the participants shared some of their experience, both positive and negative, in networking and exchange. Following are the main points which arose:

- **Common mission statement** : As long as there is a common focus or vision, participants involved may have different interests, expertise, and entry points, but still be bound to that common goal and work together to get there. This may be a broad common framework which can be adapted to specific regional contexts.
- **Start simple** : Especially when dealing with such a wide, diverse group of interests and players, and with different networking capacities, there is a need to keep initial exchange simple and easy to maintain. Time is needed to develop relations, especially across regions, and build on a network's reach.
- **Added value** : Networking must give benefits to participants, but should also be able to give increased value to information, through facilitating more in-depth research around an issue, or compiling information and discussion around specific issue areas.
- **Generate and disseminate information to justify funding to R&D in this area** : A network can play a key role in facilitating research and communicate this information, in order to increase awareness of donors and public alike about a problem, and identify key needs for research and development. Discussion or indepth technical papers, e-conferences may be used to highlight specific products or development issues.

- **Wide outreach** : In having a wide outreach, one must explore a number of different media including internet, but also newsletters and more traditional media. A wider reach will also ensure much more opportunities for cross-regional dialogue and exchange, and encourage participation from a number of different interest groups.
- **Generate energy for participation** : People need to be excited in order to get involved. A network/networking can be a medium to bring people together with common interests and motivate individuals to become active participants.

3. Multisectoral Partnerships

Presented by Meg Barker, Conseil Equilibrio Consulting

The following presentation takes account of the diverse range of organizations and agencies within the medicinal plant community and the need to start from a common point of understanding. The paper, *Models of Multisectoral, Multidisciplinary Networks* (see Appendix 5 for full text) is the basis for this presentation and attempts to assist in the clarification of issues at stake for the assembly, launch and sustenance of multisectoral and multidisciplinary networks. Drawing on case studies and Equilibrio's own experience, main challenges and lessons learned are highlighted. A working definition of a multidisciplinary, multisectoral network is presented followed by discussion on problem identification, areas of collaboration, launching a network and finally network consolidation.

Equilibrio Consulting's Microsoft Powerpoint Presentation is provided below.

**MULTISECTORAL,
MULTIDISCIPLINARY
NETWORKS: LESSONS
LEARNED**

- **Sources**
 - Case studies and examples
 - Equilibrio experiences
 - Your experiences

CASE STUDIES SELECTION

- **Different definitions**
- **Our working definition**
 - NGO-led, grass-roots led or academic led
 - Involve researchers (U,G, NGO), Indigenous communities, Industry, policy makers
 - Include advocacy activities, community-based and/or public education
 - Use ICTs to advantage
 - Operate locally, regionally and internationally
 - Commitment to personal linkages among different disciplines using a variety of methods
 - Capacity to build a network of networks

PROBLEM IDENTIFICATION

- **Who defines the problem(s)?**
 - *Researchers?*
 - *Policy makers/designers?*
 - *NGO and/or other organizations?*

COLLABORATION: DEFINING AREAS

- **Research, training, advocacy, political goals...policy development**
 - *Build critical mass in research*
 - *Achieve political/advocacy goals*
 - *Achieve a policy goal*
 - *Multidimensional development of a policy capacity and a policy approach*

COLLABORATION: BUILDING TRUST

- **Smaller budget, greater need for trust-building**
 - *Demands more commitment*
 - *More in-kind resources and labour*
 - *Consistency of values and goal*
- **Larger budget catalyzes "formal" networks**
 - *Products of public policy, R&D networks*

LAUNCHING A NETWORK

- **A person to person meeting**
 - *Critical number and inclusive range of participants*
 - *Single issue or fewer sectors/disciplines, limited geographic scope - modest meeting*
 - *Complex multidimensional problem area - modest meeting with a committed core - cumulative growth - more meetings*
 - *Wide geographic scope, ambitious international goal - seed the growth*

LAUNCHING A NETWORK

- **Window of opportunity, catalyzing event**
 - *Earth Summit 1992*
 - *UN Meetings*

NETWORK CONSOLIDATION: FIXED

- **By participatory practice,**
 - *Definition of vision, goal and objectives*
 - *Establishing boundaries for membership*
 - *Management regime/delegation of power*

NETWORK CONSOLIDATION: FIXED

- **Elaborate a communication ("interaction") policy**
 - *Dedication of institutional time and support*
 - *Consistency and commitment*
 - *Assignment of responsibility within participating institutions*
 - *Institutional adjustment/accommodation*
 - *Learning how to profit from one another*

NETWORK CONSOLIDATION: FLUID

- **Decisions on operations**
 - *Strategies and tactics*
 - *System of recruitment/delegation of responsibility and tasks*
 - *Conflict resolution and self-evaluation channels*

4. Networking on Non-Wood Forest Products at the Global Level by the Food and Agriculture Organization of the United Nations

Presented by Paul Vantomme, Non-Wood Forest Products Officer, Forestry Department, FAO, Rome, Italy

The following presentation by Paul Vantomme provides an overview of the FAO's program on medicinal plants and networking activities including the types of information gathered, analyzed and disseminated, and seminars and meetings organized by the FAO.

This presentation consists of 3 parts:

- A. What is FAO, how does it work and how can it help you,
- B. How does FAO deal with Medicinal Plants (MP),
- C. How is global networking done in the Non-wood Forest Products Programme.

A) What is FAO and How Does it Work

Established in 1945, FAO, the Food and Agriculture Organization of the United Nations, is the world's leading international agriculture and forestry organization. Today FAO has 182 member governments. FAO's headquarters are in Rome, and it has a comprehensive regional structure with regional offices, and a physical presence/representation in more than 100 countries. Staff includes some 1500 specialists in agriculture, fisheries, forestry and related disciplines.

The primary roles of FAO are to serve as:

- a **neutral forum for policy dialogue** (including international governmental meetings for example on agricultural trade, on natural resource management issues, etc.),
- a **source of information and knowledge** (technical information on products, methodologies and statistical data on production and trade on agriculture)
- a **provider of technical assistance** (field projects to develop/ introduce new products or technologies, to assist governments in institutional capacity building, etc.).

B) How Do We Deal with Medicinal Plants at FAO?

- 1) Products which are fully domesticated and which are cultivated by farmers as cash crops. Support to these activities are covered by FAO's **Agriculture Department**, (FAO's publication catalogue or via internet at <http://www.fao.org>).
- 2) Products gathered from (wild) sources in forests or other related land-uses, fall under the responsibility of FAO's **Forestry Department**.

- 3) For food products, quality control aspects are covered by the Food and Nutrition Division (Codex Alimentarius).

C) Networking on Non-Wood Forest Products

The term 'Non-Wood Forest Products' (NWFP) is used by the Food and Agriculture Organization of the United Nations (FAO), and it refers to all plant and animal products derived from forests and other wooded lands.

The Non-Wood Forest Products Programme aims to be a "Centre of excellence in information sharing" to improve the utilisation of NWFPs as a contribution to sustainable forest management and to the conservation of the biological diversity of forest resources, and simultaneously to improve food security for rural people.

The Programme is composed of the following main elements:

Information Gathering, Analysis and Dissemination

Specific categories of NWFPs and important topics for their development are highlighted in the FAO *Non-Wood Forest Products Series*. Twelve volumes have been published to date including the following titles¹: *Flavours and Fragrances of Plant Origin; Natural Colourants and Dyestuffs; Edible Nuts; Non-Wood Forest Products for Rural Income and Sustainable Forestry; Trade Restrictions Affecting International Trade in Non-wood Forest Products; Domestication and Commercialization of NWFP through Agroforestry Systems, Tropical Palms, NWFP from Conifers, and Medicinal Plants for Forest Conservation and Health Care.*

The FAO *NWFP Series* is open for contributions and joint development of new titles with any interested agency, as long as the topics to be dealt with are of global relevance and within the overall scope of the NWFP Programme of FAO. Several issues in this series have already been jointly compiled with governmental and/or non-governmental agencies, and potential topics for new titles to be developed include the contribution of NWFPs to food security, gender and NWFPs, sustainable harvesting of NWFPs, extension of NWFPs and NWFP certification.

Appraisal of Socio-economic Contributions

Comprehensive statistical data and other descriptive information on the production and trade of NWFPs are essential for an accurate appraisal of their true socio-economic contribution to sustainable development. This, in turn, will contribute to the elaboration (and acceptance by policy and senior decision-makers) of appropriate policies leading to more equitable access to non-wood forest resources and to a fair distribution of benefits obtained from them.

Although FAO, as well as many other agencies, have already assembled a wealth of information on the socio-economic role of many NWFPs, the available information

base on NWFPs is very dispersed, still insufficient, not aggregated at a national level and far from being comprehensive or global in scope.

The objective of this programme element is to gather, validate and disseminate statistics and other descriptive information on the production and trade of NWFPs at the national level for all countries. As a first step in this direction, and within the framework of the 'EU-FAO Partnership Programme to Support Data Collection and Analysis for Sustainable Forest Management in the African, Caribbean and Pacific Regions', country reviews are in preparation which describe the production and trade of major NWFPs. Similar exercises are ongoing or planned to cover countries of other regions, i.e. in Latin America, the Near East, and Asia. The results will be posted on the FAO Forest Department website, as they become available. Data are obtained and validated through partnerships with the relevant national agencies in the countries.

Improved Networking

In the past few years, an impressive network of contacts with organisations (governmental and non-governmental) and individuals working in the field of NWFPs has been developed by the NWFP Programme of the Forest Products Division of FAO. To improve networking, an annual news bulletin, *Non-Wood News*, compiled from voluntary contributions of relevant information about ongoing activities dealing with NWFPs, links more than 2,200 individuals and organisations worldwide. The newsletter is also available at <http://www.fao.org/waicent/faoinfo/forestry/nwnews> or they can be distributed free of charge upon request.

A comprehensive database is presently under construction, the aim of which is to gather and collate reliable information about all partners involved with the development of NWFPs and on the kind of activities with which they are concerned. A first draft of this interactive database is also available from the NWFP webpage, and it incorporates an option to download a questionnaire (available in English, French or Spanish) for those who wish to be included in the directory.

Although FAO is an intergovernmental organisation and, as such, its main line of communication is with member governments, this is not its only source of information. Inputs from a broad range of interest groups, including the private sector, universities, forest industries and non-governmental organisations, representing environmental and developmental interests, are warmly welcomed. There is a need to ensure that dialogue takes place between interested parties and that duplication of efforts is avoided so that skills and resources are most efficiently utilised. To increase awareness about NWFPs further and to strengthen collaboration and partnerships at the national, regional and global levels, FAO's NWFP Programme has organised several international expert consultations on NWFPs worldwide. International Expert Meetings Organised by FAO include:

Global expert consultations:

- Social, Economic and Cultural Dimensions of NWFP. Bangkok, Thailand, 1994.
- Inter-regional Expert Consultation on NWFP. Yogyakarta, Indonesia, 1995.

Regional expert consultations:

- Asia and Pacific Region. Bangkok, Thailand, 1991.
- Anglophone African Countries. Arusha, Tanzania, 1993.
- Latin America and Caribbean Countries. Santiago, Chile, 1994.
- Medicinal Culinary and Aromatic Plants in the Near East. Cairo, Egypt, 1997; and follow-up meeting in Beirut, Libanon, 1999.
- NWFP in Boreal and Cold Temperate Forests. Joensuu, Finland, 1998 (in collaboration with EFI/ECE and Ministry of Forestry, Finland).
- Expert Consultation on NWFP in the Congo Basin. Cameroon, 1998 (in collaboration with CARPE, USDA Forest Service).

Note: URL addresses of global networks on :

Tropical Fruits Network (TFNet): <http://www.mardi.my/TFNet>

World Agriculture Information Centre (Waicent): <http://www.fao.org/waicent>

PAUL VANTOMME - FAO Presentation

Networking on Non-Wood Forest Products at the global level by the Food and Agriculture Organization of the United Nations

- What is FAO, and how it works,
- How does FAO deal with Medicinal Plants,
- How is global networking done in the Non-wood Forest Products Programme.

What is FAO ? MANDATED ROLES

- Neutral forum for policy and technical international dialogue
- Source of information
- Technical assistance and policy advice

MEDICINAL PLANTS AT FAO

- Farming: Agriculture Department
- Gathering in Forests: Forestry Department
- Quality control: Food and Nutrition Dprtm

NETWORKING ON NON- WOOD FOREST PRODUCTS

“ Centre of excellence on
information exchange on
NWFP”

NON-WOOD FOREST PRODUCTS - (FOP)

PROGRAMME

networking among individuals and organizations

appraisal of NWFP socio-economic contribution
to rural development

gathering, analysis and dissemination of
information

NON-WOOD FOREST PRODUCTS - (FOP)

MISSION

- improve the utilization of NWFP for:
 - sustainable forest management
 - conservation of the biological diversity
 - improved food security

NON-WOOD FOREST PRODUCTS - (FOP)

NETWORKING

- **'DIRECTORY'**
 - linking stakeholders
 - database
 - internet
- **'NON-WOOD NEWS'**
 - annual news bulletin
 - voluntary contributions
 - 2200 + subscribers (free + internet)
- **'EXPERT MEETINGS'**
 - 2 global mtgs
 - 7 regional and national workshops

PARTNERSHIPS

- Governments
- International organizations
- International financing agencies
- Non-governmental groups
- The private sector
- Communities

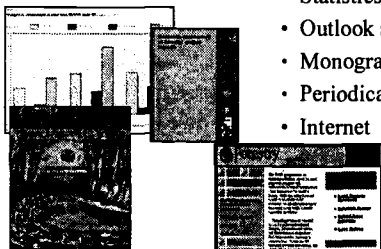
• *Global expert consultations:*

Social, Economic and Cultural Dimensions of NWFP. Bangkok, Thailand, 1994.
Inter-regional Expert Consultation on NWFP. Yogyakarta, Indonesia, 1995.

• *Regional expert consultations:*

Asia and Pacific Region. Bangkok, Thailand, 1991.
Anglophone African Countries. Arusha, Tanzania, 1993.
Latin America and Caribbean Countries. Santiago, Chile, 1994.
Medicinal Culinary and Aromatic Plants in the Near East. Cairo, Egypt, 1997; and follow-up meeting in Beirut, Libanon, 1999.
NWFP in Boreal and Cold Temperate Forests. Joensuu, Finland, 1998
(in collaboration with EFI/ECE and Ministry of Forestry, Finland).
Expert Consultation on NWFP in the Congo Basin. Cameroon, 1998
(in collaboration with CARPE, USDA Forest Service).

A SOURCE OF INFORMATION



- Statistics
- Outlook studies
- Monographs
- Periodicals
- Internet

NON-WOOD FOREST PRODUCTS - (FOP)

'NON-WOOD FOREST PRODUCTS SERIES'

in-depth technical papers
highlight specific products
or development issues
12 volumes published
joint development
internet

SOCIO-ECONOMIC APPRAISAL

- **METHODOLOGIES**
 - ♦ definitions
 - ♦ concepts
 - ♦ classification
 - ♦ valuation
- **STATISTICS**
 - ♦ country
 - ♦ products

NWFP DATA COLLECTION

COUNTRY BASED INFORMATION

Methodology

- Review of published material
- Preparation of country brief
- Presentation at regional workshops
- Wide circulation to resource persons
- Storage in a database
- Available on internet

Building a Plan of Action

1. Developing a Vision

This session involved participants to break into small groups and discuss the type of network they envision for the future. Each group had no more than 4 individuals to ensure each member's full participation in the following questions:

1. What could the network look like?
2. What would be the role and benefits for participants?

Each group brought their feedback to the plenary and their suggestions were listed under different groups categorized by themes. These themes provided the framework for the eventual vision statement. The discussion around the vision statement was a long process which did not end at this session, instead a number of participants volunteered to prepare a draft vision statement which was brought back to the larger group for approval the following day. Most participants felt that as representatives of their regions and organizations they could not fully endorse the vision statement without their organization's full support. It was agreed by all participants that this draft vision statement would be taken back to their respective regional networks and organizations before giving their final acceptance and approval.

Vision

Medplanet is a global network whose members are committed to the sustainable and socially equitable use of medicinal plants.

The network will achieve this through:

- Sharing information as widely as possible to achieve the collaborative generation and exchange of knowledge;
- Strengthening regional and local networks and their initiatives and strengthening the networking capacities of its members;
- Bringing the benefits of medicinal plants to support local health systems and livelihoods;
- Addressing global health concerns;
- Conserving medicinal plants and their habitats;
- Working together to build an active, participatory, and transparent network that respects the autonomy of its members.

Medplanet Website

<http://www.bellanet.org/medplants>

2 Building a Network

This session emphasized the importance of process. The "network-building protocol" as presented by Equilibrio Consulting was a seven step process which included the following headings: *Launch, Maintaining Momentum, Communications Policy, Applications of ICT, Management, Sustainability and Risks*. These headings were displayed on a large piece of paper which was placed on a wall in front of the participants. Building a network focussed only on the first "step" or *launch* section of the protocol. The participants were divided into 10 groups of three people and were asked to share their ideas and concept of what a launch should include. This process encouraged debate, elicited ideas, helped participants recognize their mutual concerns, and share in the crafting of conceptual and material solutions. It was an on-site process that signalled to participants the great value of networking - that, given a suitable social structure within which to operate, and the commitment to work together, new knowledge could be generated simply by bringing different disciplines, sectors, institutional contexts and cultural perspectives together in a joint effort to solve a common problem.

Part of the outcome was the need to have:

- a well-defined goal and set of objectives;
- a critical mass of participating organizations and an inclusionary attitude toward all stakeholders;
- a small start-up team who have commitment and drive (that is a track record as "active" members);
- attributes such as commitment, respect by other organizations, organizational and animation savvy, adequate technical infrastructure, and sufficient technical people; and
- training in the applications of ICTs for some organizations before or concurrent with the launch.

During the session, ideas generated by the group were written on cards and then placed on the large paper against the wall. There were numerous suggestions which were eventually organized under the following 13 categories: criteria for readiness, common principles, trust and credibility, determine membership criteria, respect for language and culture, management coordination, what is the issue of problem to be addressed, technical support, location or site(s), critical mass, budget, link with current activities, window of opportunity.

a) Criteria for readiness

- trust
- need to collaborate
- require a critical mass
- develop a budget for one year
- realistic time commitments - one year

- evaluate opportunity costs - early
- evaluate alternative ways to address the issue

b) Common principles

- develop common goal and/or objectives
- require minimum set of rules that can not be discussed (except really strong exceptions) and need a short time frame to establish them
- need respect for cultural needs, differences and traditional knowledge
- priorities should be set locally
- no one person as a representative of the network
- no commercial exchange of information
- sharing of non-proprietary knowledge
- participation of all stakeholders
- principles are likely to evolve with time
- discuss sources of funding

c) Trust and credibility

- trust-don't push it, let it grow naturally
- need transparency
- time should be taken to engage current initiatives in order to build trust in the network
- no misleading information and tall claims
- develop guidelines for admitting/rejecting information
- need to be innovative creative
- revalidation of information (database)

d) Determine membership criteria

- open membership
- must be prepared to share
- need to represent people who are not represented by networks
- could be several levels of membership
- various categories - individual (collector, healer, researcher), corporate
- need to include stakeholders
- non-members pay for information
- pay according to ability or category of organisation

e) Respect for language and culture

- global language will be English
- require resources for translation according to local needs (however financial implications of translation are high)
- who will provide translation service?
- need to respect local specific, concerns etc.
- need both traditional medicines and general cultures - decentralization

f) Management coordination

- require technical knowledge and capacity
- require substantive knowledge
- need an advisory committee, operation committee
- need technical support vis-a-vis ICTS
- small group of dedicated team needs qualification, representation of the global diversity, and appropriate number of people
- reminder of language diversity

g) What is the issue of problem to be addressed

- need to discuss this first
- improve supply
- improve safety efficacy
- improve health
- sustainable use and conservation of the resource
- issues or problems: medicinal plants, conservation, sustainable use, equitable benefit sharing, community focus etc.
- need transparency
- what is the content and scope (sectors and disciplines etc.)
- need a code of ethics
- network is a tool to collaborate, share information

h) Technical support

- initial training (existing knowledge)
- technical capacity building with network members is essential
- development of human resources (with gender emphasis) more than technology
- require support for secretariat and its members
- an example of a resource is the IUCN Species Information Service

i) Location or site

- coordination should not be located according to availability of technology
- require adequate infrastructure to host the network
- centralized location geographically, decentralized location (network of networks) regionally

j) Critical mass

- require an optimum number - if too many difficult to manage, if too small threat to extinction

- critical mass is necessary but more important is active members
- will depend on how easy it is to communicate within the network

k) Budget

- no such thing as a free launch
- should be adequate to attain the goal
- cash is not only necessary but also human and technical resources
- need to explore sources of funding - govt, donors, corporate etc.
- budget must be transparent

l) Link with current initiatives

- contact initiatives - IUCN Medicinal Plants Specialist Group (Centres of Diversity)
- contact FAO networks - NWFPs

m) Window of opportunity

- when to launch event - could have a global event?

Also need to establish a time frame and need to resolve unresolved issues from this workshop

3. Information Communication Technologies (ICTs)

This session provided participants with examples of how ICTs can be used in different linguistic contexts and how they can be used to support collaboration for networking opportunities. Given the previous sessions discussions around the importance and advantages of using ICTs, it was necessary to give practical examples that participants could use or adapt for their own purposes. The paper, *Using the Web to Advantage: A Guide to Information and Communications Options for a Global Information Network on Medicinal Plants*, prepared by Conseil Equilibrio Consulting (see Appendix 6) is a more theoretical paper which is not directly related to the following presentations, however, it is a useful and complimentary document providing relevant background information on both the social process and the technical issues associated with the applications of ICTs to networking.

1) The Efficient Multilingual Electronic Conferencing (EMEC)

Presented by Catherine Dhaussy, FUNDREDES, Santo Domingo, Dominican Republic

The creation of an Efficient Multilingual Electronic Conferencing (EMEC) Service will allow the adaptation to the evolution of the Internet of existing regional or

thematic electronic conferences. This task, which will be conducted within the framework of a specific EMEC methodology, opens the room for the use of new electronic conferences and related services as a professional tool for NGOs.

The project considers a two-step approach:

- i) a pilot phase, which requires funding; and
- ii) a subsequent self-sustained phase where services will be sold.

The pilot phase of the project will be conducted with a Caribbean focus and hold a set of secondary objectives specific to that region. This one year duration phase targets, through the use of existing FUNREDES and ENDA CARIBE electronic conferences to benchmark the EMEC methodology in the field, while participating to the enhancement of electronic communication within the Caribbean, as a means to push forward the regional integration and sustainable development for NGOs.

Most of the non (or slightly) moderated electronic conferences which have been successful in the previous stage of the Internet (1990's) are now suffering from similar unwanted symptoms, consequences of the exponential growth of the number of users and of the lower level education and knowledge of "netiquette" of the average user. All these elements together lead to information overload with little focus and are representing a situation which deserves attention and appropriate solutions.

An appropriate methodology is required to bring practical and effective solutions to that situation without losing the criteria of openness and freedom of expression which prevails in the Net. The main ingredients of the proposed EMEC methodology are two-fold:

- 1) Devices to allow for a better focus of electronic conferences and information overload management; and
- 2) Devices which enable greater participation for communication.

The two ingredients will be combined in different proportions depending on the objectives of each electronic conference, to offer a balanced solution. For example, to allow for a better focus, the following devices could be used: systematic moderation and animation; posting of structured abstracts; compatibility with documentation standards; and organized archiving of the postings for easy and voluntary retrieval. The devices which could enable increased participation include: message translation; and support and training for network culture.

The first stage of the project will allow for practical and useful experience within the Caribbean, and will be concluded by an in-depth analysis of the results, which will evaluate, validate and eventually modify and consolidate the initial EMEC methodology. Reporting and publication of the results will also be included.

The second stage will use the improved EMEC methodology and existing

infrastructures to market the EMEC services to the public at large at the same time providing a sustainable financial path for future developments.

This document addresses only the first stage.

FUNREDES, with its large experience in networking, its own Internet resources and its virtual presence in the Caribbean is in a good position to successfully lead the project. ENDA CARIBE, with its regional requirements and presence and its own experience in international networking will be an appropriate partner to maintain the user perspective and contents.

FUNREDES will offer as its counterpart to the project, its Internet infrastructure and its Caribbean list serve, as well as some equipment. ENDA CARIBE will participate by funding part of the required human resources and will offer some equipment.

The project requires a team of young professionals with specified skills in the following areas:

- a) Project Manager - will require a thorough knowledge of the Internet, will coordinate the team and the tasks, will be responsible for the methodology evaluation and reports, and will ensure proper training of the team. This person will be supervised directly by the directors of FUNREDES and ENDA-CARIBE.
- b) Technical management of the internet node and application assistant (1)
- c) Web authoring (1)
- d) Librarians (2)
- e) Translators (2)

The budget for the first year was of \$180,000 USD, including the contract fee for the professionals and the technical and administrative infrastructures. FUNREDES and ENDA CARIBE's financial contribution included \$20,000 USD for each partner, a remaining \$140,000 USD is required to be funded externally.

OVERHEAD PRESENTATION of the EMEC METHODOLOGY

Presented by Catherine Dhaussy

i) EMEC = Efficient Management of Multilingual Electronic Conferences

a) Context

What is an electronic conference?

Why does it need an efficient management?

History of the EMEC project?

b) Principles

What does the EMEC methodology consist of?

How does it take place?
What is the cost? Why should it be paid?
What is the perspective?

c) Experiments

The MISTICA project
The Alliance for a United and Responsible World
A global network on medicinal plants?

a) Context

What is an electronic conference?

A tool for virtual communities: thematical; geographical; professional; cooperative work

Three main options for a-synchronous communication: list; newsgroup; web based conference

Lists: moderated or not moderated; open or closed (for both subscription and/or contributions)

Why does it need an efficient management?

Evolution of the Internet (new comers, without "culture"); Information overload; Spamming; Focus

History of the EMEC project?

Original idea (enda-caribe and Funredes): 1995

Project document (enda and Funredes): 1997

First experiment: Sept. 1999

b) Principles

What does the EMEC methodology consist of?

Initial training if needed and continuous education; Moderation/animation; Classification of the contribution; Short abstract and key data; Good translation of the sintesis; Sending of the processed message; Pre-process (re-writing) and automatic (approx.) translation; Associated website for easy access (appropriate for the public we have dealt with so far); and Archives with a search engine

How does it take place?

Team of several people; Animation; Moderation; Training; Translation; Sintesis; Webmaster; Technical support

What is the cost? Why should it be paid?

EMEC is expensive (as a general rule, translation is not cheap), as well

communication among human groups has a high strategic value and deserves the investment.

What is the perspective?
Participative democracy

c) Experiments

- i) The Mistica project: <http://funredes.org/mistica>
- ii) The Alliance for a United and Responsible World
- iii) Others? (e.g.: a global network on medicinal plants)

SOME USEFUL REFERENCES

The original project document: <http://funredes.org/funredes/emec.htm>

The section of the Mistica project Virtual Community: <http://funredes.org/mistica/english/emec>

(or /castellano/, or /portugues/, or /français/)

The first results (paper submitted for a call for proposals):

<http://funredes.org/funredes/html/english/publications/emec-terena.html>

The issue of users training (and critical level of knowledge)

<http://funredes.org/funredes/html/english/publications/userstraining.html>


II) Using ICTs to Support Collaboration

Presented by Steve Song, Program Officer, Bellanet

The following presentation provides information on how ICTs can be used to help support organizations to meet their own needs through the electronic mail and by building capacity. The electronic mail is a useful and powerful networking tool which can be used to bridge the information gap that exists within and between organizations through the use of mailing lists, newsletters and accessing the internet. The opportunity for building capacity, which is essential for almost all organizations, depends largely on subsidies, training and on-going support.

The need for effective facilitation in ICTs is also a growing concern, given the growing demand and use of ICTs there is a definite need for appropriate facilitation skills when using an on-line environment. Finally, the long term possibilities and follow-up tools which are not only essential but necessary include mailing lists, web archive discussions and news group access.

The following is the Microsoft Powerpoint Presentation: Using ICTs to Support Collaboration

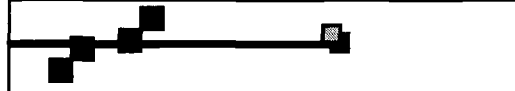


Using ICTs to Support Collaboration

— ■ ■ ■ —

Steve Song


Bellnet International Secretariat



Future Possibilities

- XML
- MedPlants Search Engine
- Multimedia


Bellnet International Secretariat



General Principles

- ICTs are part of a continuum of communications media
- Need to match the medium to the user
- Find the *Lowest Practical Denominator*
- Electronic Mail

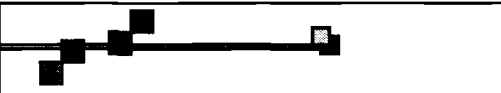
Bellnet International Secretariat



Electronic Mail

- Mailing Lists
- Newsletters
- Accessing the Web via Email

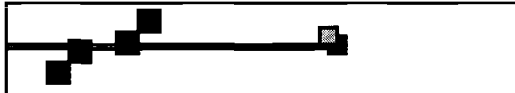
Bellnet International Secretariat



Capacity Building

- Level the playing field
 - Subsidies
 - Training
 - Ongoing support


Bellnet International Secretariat



Facilitation

- More important than ever in an online environment
- Essential for building trust
- Everybody needs to learn facilitation skills

Bellnet International Secretariat



Follow-up Tool

- Ongoing Forum for Dialog
 - Mailing list
 - Web Archive of the Discussion
 - Newsgroup Access
- How to communicate the process
 - Pictures
 - Presentations
 - Sound bytes

Bellnet International Secretariat

4. How to Access the Web

This session provided participants with information on how to access the world wide web.

To retrieve a web page using electronic mail:

1. Compose a new email message
- 2) Address the email to either
 - a) www4mail@web.bellanet.org
 - b) www4mail@unganisha.idrc.ca
3. In the body of the email put the URL of the web page you wish to receive.
4. Send the message

For example, to receive the IDRC's home page via email, you might send a message that looked like this:

```
From : yourname@yourisp.org
To : www4mail@web.bellanet.org
Date : 11/19/99 4:26 AM
Subject :

http://www.idrc.ca
```

Note that the subject line is blank. You can fill in the subject line for your own reference but it is not essential.

This is the basic operation of the Web to Email service. The Web to Email service is capable of performing more sophisticated requests such as using search engines and filling in electronic forms. To find out how to take advantage of these features, send a message to the

1. Compose a new email message
2. Address the email to either
 - a) www4mail@web.bellanet.org
 - b) www4mail@unganisha.idrc.ca
3. In the body of the email put the word "help"
4. Send the message

For example:

```
From : yourname@yourisp.org
To : www4mail@web.bellanet.org
Date : 11/19/99 4:26 AM
Subject:

help
```


5. Communication and Technology

The session on How Can ICTs Help in building a network informed participants of practical examples they could use in their own contexts. After this session, participants were asked to look more specifically at information exchange and communication policy, as part of the larger code of operating principles for the global medicinal plants network. It was suggested that the network needed to develop an acceptable procedure for the validation of the information received from different sources, or, alternatively, satisfy itself through some mechanism that could unambiguously show that these sources; the regional organizations and/or networks, found a way to do this themselves. According to some participants, guidelines would need to be produced which would have a dual purpose: to establish boundaries on the admissibility of information by a network body; and to provide assistance to potential information sources (regional organizations/ networks). The opinion was voiced that, while existing communication channels could be used to advantage wherever possible, in order to: stimulate communication at the regional level; achieve greater grassroots interest and learning; and secure local support, it was vital to develop and launch a distinct communications strategy at the regional levels. Consequently, a competent, committed person would be required for each regional network, which would develop a strategy and continuously animate the discussion. This implies resources for this purpose.

As part of this session, participants were asked to brainstorm ideas on specific examples of technologies available to them for sharing and disseminating information and to identify a list of important considerations for a communication policy and public education package. The following is the list developed by the participants:

(i) Technology for Sharing and Disseminating Information

- different media B person to person, telephone, print media, tape cassette (recorder), local community radio station, television, video, computers, audio visualization
- email (mailing list), e-conference, teleconference,
- website
- monthly; bi-monthly newsletters for regional and global levels
- calendar of important events
- use of simple tools, need to have minimum equipment and compatible technologies
- involve existing regional networks or community organisations to join and inform their members
- keep information low-tech (photos that can be downloaded without expensive computers)
- network to provide capacity building to ensure equal level technological playing field

Require:

- training in computers and capacity building to develop community infrastructure
- donor assistance for building capacity in technology
- encouraging corporate sector to support technology development
- template grant application for technical assistance
- methodology is more important than technology

(ii) Communications

a) Communications Policy

- identify types of policies that already exists (no need to re-invent the wheel)
- start by developing local communications strategy and promotion of existing channels
- need to define and adopt "communication standards"
- need to set up a framework for communication
- need a commitment to cultural sensitivities in communications and respect of local cultures and methodologies
- need agreement on communication needs
- must have an open discussion arena where all can participate or just listen
- network of networks could be in English and regional networks in local languages (major languages include English, French, Spanish); whenever necessary translations must be made available; should look into translation software
- must have free access to information for members
- require a key person to manage communications at both regional and global levels
- need a person who will keep the coming discussion alive on unresolved issues
- need to stimulate communication at regional level
- need to define a way to deal with differences and solve conflicts in a peaceful and efficient way
- members should not be obliged to reveal unpublished information
- no point in expressing information in a "PC" way just for the sake of it
- rules defined by the members are more likely to be followed and self-enforced
- members should list their profiles and specialties
- members are required to share relevant activities regularly
- need to identify interested and committed people and inform them
- trainers in ICT must be selected as geographically close to the trainees as possible
- require financial support to regional networks to enhance their communications policies

(b) Public Education and Communications Package

- at regional level use letters, telephone, fax, and face to face communication
- use newspaper articles in local languages and publication of a newsletter
- publicize website address
- list conferences, training and workshops
- target like-minded communities and use their communication channels
- target school programs

6. Membership and Governance

The session on Networking Issues allowed participants to discuss their views and thoughts on the criteria for membership and governance structure for the global network. The discussion raised the question about the need to permit regions to decide on their own criteria and admissibility of members, so long as all members agreed with the mission of the global network, adhered to its code of conduct, and were prepared to share their information to a degree and along lines consistent with others. The idea of different levels of members was put forth, which split groups into non-fee paying "members" and fee-paying "users" with the latter expected to buy some types of information from the network. The different categories of possible members could include: individuals, collectors, traditional healers, researchers; and institutional or corporate members.

Once a member decided to participate, two key considerations emerged: could a trusting relationship be developed with the many partners, so that resources offered would ultimately be reciprocated with net benefit? It was clear from the case study paper and participant views that trust was a key element in successful networks. But the question of trust is not answerable in the short term. Subsequently a second consideration was offered: regional networks will need to evaluate the opportunity costs of participating in a global network versus focusing efforts on current activities.

The discussion which followed included the need for members to take into account the heterogeneity of the group, regional differences, sensitivity to cultural and linguistic differences and individual membership needs. The list was not exhaustive, but was viewed as a starting point for further discussion on these topics once the network became more formally established. The following is a list of criteria on membership and governance structure developed by the group:

(i) Membership

- members must commit to vision
- members need to adhere to network code
- members must follow code of conduct / ethics
- need to define memberships
 - who are the user groups?
 - who makes the strategic decisions?
 - network of networks?

- need for body within network to process / manage information which is shared
- include regional networks and other networks / organizations
- support based on current initiatives (not undermine)
- identify regional specificities
- need to devise mechanisms to respect regional specificities
- need to include all stakeholders / groups
- need to recognize heterogeneity of stakeholder groups
- do not dictate membership criteria of member organizations
- should strengthen regional networks and other organizations to share information
- members and users maybe different
- could mean fee access vs. free access

(ii) Governance

- need a specific code of conduct
- must have endorsement of membership
- need to guide the launch — proposing definitions for goals / objectives, code of conducts, etc.
- need to have a coordinating committee (small manageable size of 5-10) responsible for carrying program forward (as opposed to those sitting on a board making decisions),
- need to be sensitive to cultural and linguistic differences
- need to have diverse and broad representation
- need to support an even participation of stakeholder groups and regional network who are elected by the members, need a workable size
- need to bring on different regions and major stakeholders at the beginning
- could meet virtually
- could have rotating people involved and/or organisations
- must respond to on-going needs
- might need to look to external expertise / management

7. Sustainability

Sustainability of the network and the risks inherent in establishing it and maintaining it is an important topic to which only a little attention could be given near the end of the last day. Like all other elements, though, its debate could be continued within the space provided by the new network, whether that be electronic, by phone or fax, or in person. Despite the short time, participants made some important points. For some, the first question to be asked when considering how to sustain the network: is who would be interested and why? Knowing the answer to this helps in the development of a strategy, one that would hinge on high quality, reliability and *selectively accessible* information on the network for potential users, be they public or private. Designing a system of selectively accessible information helps to mitigate risks - policies can be designed for the network which indicate the permissible uses

of the various types of information, some of which could be purchased. Participants, such as regional networks, would be expected to adhere to this policy within the larger context code of ethics and/or operating principles. The greatest risk of a publicly funded network is part of its genesis - public funds usually disappear after a spell, with survival subsequently dependent on the sale of portions of the initiative (if desired by private buyers) or the whole project. Thus creating an insurance for survival, a contingency plan, must be among the top priorities for the new global information network on medicinal plants.

The following is a list of important points raised by participants to consider for the sustainability of the network:

- who would be interested and why?
- contributions by members
- high quality information ↔ more sustainability
- strong communications
- sharing takes trust which takes time; encourage sense of belonging
- a benefit is also access to partners and partners' projects
- single portal for access to information on medicinal plants
 - advertise here!
- pay vs. free access to information
- innovations

8. Next Steps

The workshop provided considerable interest and enthusiasm for the medicinal plants network and concrete steps were discussed to pursue MEDPLANeT in the long run. However, the next steps, listed below arising from this meeting, focus on supporting regional networks, in the immediate future, to assist them in developing their infrastructure and capacity. Attention needs to be paid to strengthening regional networking through activities which include enhancing information and communication exchange, training and advocacy, and strategic planning and coordination. Participants emphasized the need to enhance regional based activities before jumping into a global networked in the regional needs assessments and need to be addressed before a global network of networks, MEDPLANeT, can be created.

The immediate next steps to support regional networking include the following:

- i) identify key actors in regions working on medicinal plants research, development and policy (eg. East and South East Asia); assess needs for information and communication; and infrastructure and capacity for information and communication exchange;
- ii) facilitate the development of appropriate strategies for strengthening regional level networking; utilize results of assessments to design activities which address the regional needs and improve communication channels at the local, regional and national levels; build the capacity of organizations to effectively use ICTs;

- iii) explore opportunities and potential mechanisms for exchange and collaboration at the global level;
- iv) develop a long-term strategy of sustainability for regional and global networking.

Planned activities to facilitate the network in the future are as follows:

* **Web site** - The meeting Web site, now hosted by Bellanet, provides a specific site for participants and others interested in medicinal plants related issues to review the workshop proceedings, list of participants, photographs, and sound bytes taken at the end of the workshop. Responsibility for updating and maintaining the Web site needs an initial assignment to a person with the time, skills and resources, and commitment, and who has the support of their organization. It is reasonable for IDRC to assume responsibility for this service in the short-term, until responsibilities can be delegated to a "launch site" which conforms to the opinions expressed by participants of the network.

* **List-serve** - A list serve will be established by IDRC to provide all workshop participants, and other who wish to join, a venue to carry-on specific discussions on topical issues related to medicinal plants. It seems reasonable to assume that ultimately the list-serve responsibility would fall into the same hands as the Web site.

* **Discussion Topics** - To compliment the list-serve, specific discussion topics will be carried out and moderated by an animator of the list-serve. Such topics might include: endorsement of the vision statement, criteria for developing membership in the network, code of ethics, and coordinating structures and decision-making. Volunteers from among the workshop participants will be recruited to animate these discussions, and be responsible for the technical aspects of the list-serves, with training and assistance provided by IDRC. This will help ease the way into ownership of the network by the participants, and also allow the members work through problems on a team basis. Ideas and practical suggestions about governance and management may be invited by this concrete approach.

* **Promotion of the Network** - Promotional tools to assist in the recruitment of participants and donors should be developed in coordination with workshop participants. Materials suitable for local channels of communication, such as newsletters, radio broadcasts etc., will be the second stage of promotion.

9. Conclusions

Communication and networking by various actors in medicinal plants research and development at regional and global levels is limited; however, great potential exists to exchange experience and information, build relationships and collaboration,

as well as to bring diverse groups together to address key issues pertinent to the area of medicinal plants. During this meeting, individuals from research institutions, NGOs, universities, government agencies, traditional healers and representatives from regional medicinal plants organizations assembled to strategize ways to tap into this potential, in addition to learning about the context and experience in various regions. Presentations made by six organizations (some had conducted regional needs assessments on ICT capacity and needs, while others were in the process) provided an opportunity to share information, results and strategies for strengthening networking at the regional level and identifying potential areas for collaboration at the global level. Participants repeatedly emphasized the need to strengthen regional based networking and research and development activities, linking key actors involved in medicinal plants research and development. With a strong regional base, sharing and collaboration at the global level will be much more sustainable, and will not undermine those regional based activities. Key points during the meeting also highlighted the need for clear guidelines and protocols for information sharing, the need to clarify issues of membership and governance, and the potential to assemble committed parties to address salient issues.

Participants also discussed opportunities for networking and exchange at the global level, and supported the creation of MEDPLANeT, a global network of networks, to provide a critical venue for regional contacts and organizations to liaise with each other along with other interested individuals and organizations on medicinal plants issues. MEDPLANeT has the potential for:

- creating wider opportunities for synthesis, sharing and application of research priorities, methods and results;
- facilitating cross-disciplinary and cross-sectoral dialogue;
- supporting the development of partnerships in research, development, training and advocacy;
- providing greater visibility to local and regional activities on medicinal plants, and to raise the profile of medicinal plants internationally;
- assisting communication flow from the local level to the international arena and vice-versa; and
- producing greater impacts on policy and action.

MEDPLANeT has the ability to become a network of networks that can enhance communication, information sharing, and research for the safe, equitable, and sustainable use of the world's medicinal plant resources. At present there are virtually no networks of such a wide geographical and sectoral scope offering such unique and intriguing possibilities. The multidisciplinary and multisectoral approach to a national and international public policy problem can help to conserve these precious planetary resources, vital for our collective and sustainable future.

APPENDIX

TOWARDS A GLOBAL INFORMATION NETWORK ON MEDICINAL PLANTS

Problems and Opportunities

For thousands of years, plants and their caretakers have provided the primary means for the healing and curing of humans afflicted by disease or injury. However, in the present century these sources and practices began to be dislodged by the introduction of synthetically derived drugs, as well as by western medical practices. Traditional therapies continue to be practiced in all corners of the globe, but largely under the hegemony of a western biomedical model. Global trends in the last two decades — such as the rising costs of patented drugs and the development of drug resistance to many pathogens — have contributed to a search for alternatives to Western, conventional medicine and health practice. There has been a restoration of interest in medicinal plants within many countries around the world, and this attention is gradually being enhanced with the modern means of knowledge accumulation and sharing through research and development. Recognition of the importance and an understanding of the applications of medicinal plants to a range of local health care systems are growing. The scope of research on the safety and efficacy of many wild and cultivated species is broadening. Medicinal plants, both wild and cultivated, promise many possibilities for health practice.

This renewed interest comes with a cost, however. Many species of medicinal plants have come under threat from habitat destruction, non-sustainable levels of harvest in the wake of economic crisis, and the erosion of indigenous knowledge about the practices governing their use. There has been an increasing infringement of the intellectual property and traditional resource rights of indigenous peoples who have depended on these biological resources for the health of their communities. The reversal of these negative trends and the enhancement of the positive developments will depend upon actions taken now from the many organizations with a stake in the sustainable use of medicinal plants.

There are numerous challenges to be faced in taking action on these issues and problems. Worldwide, there are many actors (NGOs, research institutions, industry and trade, health practitioners and associations) and a diversity of interests involved in medicinal plants development. Few mechanisms exist, however, to allow organizations and agencies to share information on their activities, their successes and challenges. Rare are the regional, national and international gatherings that would allow for the presentation of research projects and results, or sharing information with respect to other issues such as approaches to local conservation and sustainability, advocacy and/or integration of medicinal plants into health policy and practice, and so on. Although many medicinal plant institutions and organizations might benefit from similar information sources and databases, there is no international

device or service available to organize access to these resources in a cost-effective and efficient manner. The lack of personal interaction and networking leads to negative outcomes such as duplication of research, groups working in isolation from one another and a less than optimal use of global resources currently devoted to medicinal plant endeavours.

The reason for the lack of global interaction between groups working in areas related to medicinal plants is fairly obvious to those working in this field. Constraints such as low budgets, stretched human resources, local mandates, and difficulties with communication militate against the formation of widespread personal linkages and the development of common interests and purpose. Yet, where the resources have been available, national and regional networks have proved to be successful initiatives, such as the TRAMIL network in Central America. Elsewhere, barriers exist and funding is scarce for this type of investment.

The potential for global action to address problems and benefit from complementary work has been recognized. At the International Conference on Medicinal Plants held in February of 1998, the prospect of creating a global medicinal plants network was discussed. This conference, hosted in Bangalore, India by the Foundation for the Revitalization of Healing Traditions (FRLHT) attracted 400 delegates from 35 countries representing all facets of the medicinal plants community. At the meeting, a proposal to develop a global electronic network of networks was put forward by FRLHT, IDRC, and Botanic Gardens Conservation International (BGCI) in the final plenary session. Included in the conference statement prepared by participants was the resolution:

"...to form a global electronic network in order to promote constructive relationships between the diverse agencies active in the field of medicinal plants conservation and their sustainable utilization."

IDRC's Sustainable Use of Biodiversity Program (SUB), with the support of other programs at IDRC, including Bellanet, PAN Global Networking, and Uganisha,¹ is committing resources for the initial steps to launch such a network.

Purpose/Vision of an International Information Network

The international network envisioned would consist of a broad spectrum of organizations, from the grassroots to donors. Its purpose would be to respond to the

¹ Bellanet is an international initiative, housed at IDRC, with a mandate to increase the impact of development programming by fostering inter-agency collaboration through the use of ICTs. PAN Global Networking is an IDRC initiative to establish efficient communication and networking among developing country research and development institutes, NGOs, and development workers. It aims to ensure that the benefits of the new Internet technologies are shared among all social groups. IDRC's Uganisha connectivity project's aim is to extend the network of IDRC's connectivity beyond the Regional Offices to the actual projects that they fund.

information and communication needs and interests of a broad and multidisciplinary membership involved in the key issues of medicinal plants research and use. It would be a network oriented to the shared accumulation and mutual exchange of knowledge and practice, without making public potentially proprietary information. As the network evolves, it could facilitate opportunities for informal and formal learning and the exchange of personnel and expertise. It could become a venue for the development of knowledge and abilities in the application of Information and Communication Technologies (ICTs), not solely in areas related to research, but across a broader spectrum B community outreach, the establishment of institutional-community links, strategies of influencing policies, and so on. With its establishment, opportunities would be identified for more collaboration and joint programs of research and action among groups. Greater effectiveness and cohesiveness could be achieved in regional, national and international advocacy work. Such a global network is envisioned to embrace areas such as: conservation and sustainable use; local/primary health care systems and traditional medicine; commercialization and trade; and the rights of local communities and indigenous peoples. Flexibility around precise content would be a hallmark of the global medicinal plants network, however, and content would be defined and re-defined on an ongoing basis, dependent on the various needs and interests of participants. The emphasis of the network would be on south-south collaboration and inclusiveness.

A Goal

The precise goal of the network will be determined by its participants. By way of assisting in the articulation of an agreed goal, and to provide some transition from the present situation to the future, the following tentative goal is provided: To improve information provision, sharing and exchange at local, regional and global levels, in order to facilitate and enhance partnerships and communication among institutions at all levels involved in medicinal plant research, development and advocacy, and their sustainable use and equitable management.

The Objectives

Consistent with the vision and goal set by participants, objectives for the network would be articulated. Following are some tentative objectives that respond to the vision, above:

- To share best practices and lessons learned among medicinal plant organizations;
- To form partnerships in research, development, training and advocacy;
- To accumulate and exchange non-proprietary information in medicinal plants;
- To facilitate dialogue around critical issues; and
- To raise the profile of the medicinal plant endeavour world-wide.

The Participants

The participants would cross a wide spectrum of interests and agendas, united by the common goal and aspiration of long-term survival of medicinal plants and the communities that nurture them. It might include organizations such as local research institutions, local and international NGOs, indigenous groups, governments, existing regional and international networks, donor organizations, and certain strands of industry. The network would evolve through a process of consultation with the diverse variety of stakeholders.

The immediate challenge is to reach out to local organizations with a stake in medicinal plants in each region to help to identify their needs, capacities, and resources. However, from the perspective of actors and donors alike, there currently is limited knowledge on the identity, goals and distribution of medicinal plant actors throughout the regions of the world. Consequently regional organizations should be supported in efforts to locate medicinal plant organizations in their areas, develop working relationships, and then to coordinate needs assessments across the range of medicinal plant actors and agencies in their regions.

A central tenet of the concept for the global medicinal plants network is that it will only be as valuable as its content; a content that is defined by its participants at community, regional, national and international levels. Although the users of the system do not necessarily have to participate in the creation and design of information systems, close attention to local and community needs for content and for facilitating participation will be crucial.

Networking and Connectivity Issues

Information about the communication challenges faced by the various agencies and actors in the medicinal plants area is sparse. Widespread access to the Internet is still a problem for most countries. Often the larger academic and research institutions are serving as hosts for the Internet in a given country, along with government departments and research institutes. However, for most people and institutions, the only route to the Internet is through the telephone lines, and this necessitates the purchase of a personal computer (PC) and modem: a major stumbling block for many. The high cost or unavailability of telecommunications systems for both local and long-distance calls is also a problem.

Nevertheless, much change is occurring around the world in the area of ICT and the Internet. For example, satellites and underground cables are obviating the need for outdated telecommunications lines, and overcoming various topographical barriers to traditional telephone lines. Cellular telephones and personal computing services (PCs) are also entering into the realm of telecommunications, which not so very long ago was a regime solely controlled by telephone companies and their suppliers. On the Internet itself, new programming languages, search devices, tools, and a surge in institutional, corporate and individual web sites permit for a worldwide reach of enormous proportions.

An important conclusion of an IDRC study on the use of ICT technologies was that the projects that used ICTs to provide information for community use have been most successful when they have involved the community in deciding which information is important, and have delivered information in ways that suit local conditions and needs.² Careful attention will need to be paid to the formation of "user-friendly" information systems, and in some situations intermediaries will be necessary to mediate access to the network.

One of the steps in the formation of the network will be to identify the infrastructure and communication capacities in the different regions, and to come up with appropriate strategies of linking the various stakeholders. In some cases, potential technical support for the network might exist in regionally based programs such as *Acacia* in Africa.³

Setting the Stage

From the above, it is apparent that there is not adequate information for identifying existing organizations, and on their information and networking needs, once identified. Similarly, it is also evident that a network needs to be built on the initial involvement and commitment of institutions from the local to the regional to the international levels. The first step then, in the evolution of such a network, is to determine the needs of medicinal plants organizations at the community, regional, national and international levels with regard to networking, both in terms of networking technologies and information/content, well before the design and implementation of such a network. Regional partners have expressed that this would be best accomplished initially at the regional level. It is clear that one cannot prescribe the framework and structure of a network without having a thorough understanding of the needs of the different stakeholders, and of the appropriate resources required.

To this end, the IDRC has committed the initial resources, through a project fund that medicinal plants organizations can draw from, to improve information provision, sharing and exchange at all levels, in order to enhance partnerships and communication among institutions involved in research on, and development of, medicinal plants. The objectives of the project are:

1. To identify, engage and solicit commitment and support from key actors within the medicinal plants research, development, and policy communities;
2. To support regional consultations (Central America, South America, Asia, and Southeast Asia/Pacific) among actual or potential partners in a regional

² Michael Graham, April 1997, "The Use of ICT Technologies in IDRC Projects: Lessons Learned".

³ *Acacia* is an IDRC program oriented toward the empowerment of African communities using ICTs. It was launched in 1987. Its central tenet is that community access and use of ICTs can be enhanced by simultaneous action on four fronts: policy, infrastructure, tools and applications. National strategies have been launched in four countries, which draw together a range of stakeholders and take advantage of different community access mechanisms. Telecentres are one example of the latter.

- medicinal plant network, leading to assessments of needs for information and communication; and infrastructure and capacity for information and communication exchange;
3. To design appropriate strategies to address these needs at the regional level which would more effectively utilize existing and potential communication channels and devices and improve local institutional access to information;
 4. To build the capacity of organizations to effectively utilize appropriate ICTs and supporting processes, in particular those organizations which currently experience difficulty with information access and communication;
 5. To explore the option of effectively bringing together regional networks at the global level;
 6. To develop a long-term strategy of sustainability of the regional and potential global networks.

Regional needs assessments supported by the IDRC project fund are currently underway in Central America, South America, Sub-Saharan Africa, and South Asia. Thus, the formation of the prospective global network is beginning with small steps, identifying and mobilizing the stakeholders at the local and regional levels, and analyzing needs and capacities of the various institutions. In some regions, medicinal plants networks already exist, and the challenge is to expand and strengthen these networks, and to begin thinking about cross-regional dialogues and issues. In others, new relationships and networks may need to be created. In sum, it is expected that there will be great variation among the regions as to the precise nature of the content, the interactions among organizations within their country or region, the style of operations, the extent of infrastructural support, languages used, and so on. This diversity will result in the crafting of different regional strategies appropriate for linking and communicating with the range of institutions and agencies.

The diversity among regions is expected to pose a challenge and an opportunity for the eventual global level of the network. Networking will require a design for a global interface adaptable enough to permit a common look and feel, and a common source of information, while permitting specialized searches on particular topics. The global node will also be challenged to provide overall coordination, motivation and technical assistance and support to the regional nodes, and also, work toward sustainability.

Benefits

The potential benefits for participating medicinal plant organizations and agencies in the prospective global information network are many, but the actual outcome will depend on key factors such as the commitment of the membership; its clarity of vision; its capacity to delegate, implement and manage; and its success in devising a feasible and realistic path for sustainability. Decisions will need to be taken as to priorities in such a way that all participants will benefit from the network in terms of communication, access to information, and various tools and services in the short- or long-term.

To name some of the benefits that could result from the founding of a global information network in medicinal plants, the following could be cited:

- Improved access to scientific, technical, policy, and training information such as on-line documents, databases, journals, courses, manuals, libraries, legal sources and government regulations;
- Enhanced corridors of communication with international peers;
- Exchange of information for mutual benefit among groups;
- Improved abilities to arrange and undertake collaborative research or the exchange of personnel/trainees;
- Enhanced strategy and advocacy approaches nationally and internationally drawing on input and experiences of a multi-country, electronic constituency;
- Better dissemination of "lessons learned", benchmarking, evaluatory material and the like of local experience in areas such as conservation and sustainability; and
- Devising of guides and the accumulation of experience in difficult, arcane and complex areas such as commercialization and the protection of community-based intellectual property.

In sum, the potential benefits are numerous, and in fact could multiply and evolve depending on such factors as the nature of participation, volume and types of financial support and changing technology. The point is this: a prospective global information network has the capacity to be a dynamic service and instrument for medicinal plants organizations worldwide, but its ability to become just such a service depends on collective human action and interaction.

Working Together for a Common Goal

To enable participants and partners to realize the goal of a global information network in medicinal plants, IDRC is hosting an initial meeting, to be held November 17-19, 1999 in New Delhi, India. Organizations involved in the consultations from each of the regions will be present, as well as members of other key international organizations and donors involved in medicinal plants research. The challenge of an eventual global network will be to negotiate the diversity of the different regions and to develop an effective strategy for sustainability.

The opportunities of the global medicinal plants network are synonymous with its broad objectives: to accumulate and exchange non-proprietary information in medicinal plants; to learn from the experiences and practices from other medicinal plant organizations; to form collaborations and partnerships in research, development, training and advocacy work; and to raise the profile of the medicinal plants endeavour on a world-wide scale. All this, in the effort to secure a sound and sustainable future for medicinal plants, their habitats, their caretakers and practitioners.

NEEDS ASSESSMENT SURVEY TEMPLATE AND GUIDELINES TO COMPLETING A PROPOSAL

A) NEEDS ASSESSMENT SURVEY TEMPLATE

NOTE TO THE SURVEYOR

A comprehensive needs assessment survey form is provided in what follows. It should be regarded as a template, that is, a detailed form containing many possible questions, and is intended for guidance and also to encourage ideas in the design of your own survey form. It is expected that you will select, modify and adapt the questions pertinent to your regional context, and possibly add some questions of your own.

INTRODUCTION

This two-part survey has been prepared by (*the name of your organization*) to collect baseline data on information and communication needs among organizations working in the medicinal plants area in (*your region*). The survey forms part of a project receiving support from the International Development Research Centre (IDRC).

The purpose of the survey is to gather data from you and other groups working in the area of medicinal plants. It will be used as background for the eventual determination of a strategy for establishing a network that will permit organizations within (*your region*) to become familiar with one another, learn from one another and collaborate when appropriate. This network will help organizations working in the area of medicinal plants to share information, techniques, methodologies, dissemination methods, advocacy approaches, and so on. Participants in the network will be encouraged to help develop policies and procedures for the network, to develop information priorities for it, and, as users, advise on the appropriate content for it.

Part I of this survey, the **Information Needs Assessment**, is concerned with what we call "content". Content is the information and communication devices that are available for users of the network. Ideally, the users or "owners" of the network should define what that content should be. As potential participants in the network, you will want to decide on the types of information which are most important to you, and which you would like to see included in the network. You will want to be clear on what types of ways you currently obtain the desired information, and how you may be able to access it in the future. You will also want to consider what information you, as an organization, can provide to the network for widespread sharing and dissemination.

The attached **Information Needs Assessment** is in a relatively open-ended format due to the great diversity of stakeholders and their interests in the medicinal plants community. It is probably not possible to predict all the information needs of a great

range of different agencies and actors. It is important that your organization makes clear the specific types of information it requires or desires to accomplish its present and future work.

Part II of the survey, the **Communication Capacity Assessment**, aims to determine what types of concrete equipment and/or systems are available to you to permit communication with your colleagues in other organizations, various officials in agencies, libraries and other institutions. This part of the survey aims to determine the different ways that you access information from distant locations, as well. This questionnaire covers electronic connectivity through telephone wires and satellite, but considers that this is part of the wider realm of communication — though admittedly an increasingly important part for some organizations.

GENERAL INFORMATION

Name

Title

Organization, institution or agency name

.....

Division, department, or unit name, if applicable

.....

Address

.....

.....

Mailing Address

.....

.....

Telephone..... Fax Email

Mandate of your organization/unit

Major activities of your organization/unit

Number of people working in your organization/unit, and their roles/function

.....

PART I: INFORMATION NEEDS ASSESSMENT

We would like your opinion of the state of medicinal plants in your region. From your perspective as an organization, what are the main issues and threats facing the use and conservation of medicinal plants in your region? For example:

Overharvesting of rare or endangered species, and threats from other factors such as deforestation, soil erosion, pollution, urban sprawl, changes in land tenure/land use regulations, etc.

Faulty or unsafe uses of medicinal plants in communities without access to information on traditional practice or knowledge governing the safe use of medicinal plants.

Loss of traditional knowledge governing the safe use of medicinal plants.

Ethical and equity problems over ownership, control, and use of community medicinal plant resources.

Other issues?

What are some of the positive gains or success stories in medicinal plants that your organization has been involved in? For example:

Community workshops on the dissemination of scientific findings concerned with the safety/efficacy of medicinal plants, in situ conservation and sustainability practices, working toward community access and control of medicinal plant resources.

Liaison and information sharing with government officials for the integration of medicinal plant knowledge and practice into community health.

Collaboration with researchers and other specialists in other institutions for mutual exchange of scientific findings, collaborative research or community outreach and development work.

Advocacy for appropriate and equitable government regulations that protect the rights of community groups in terms of ownership, control or access to medicinal plant resources.

Other areas?

What are some of the challenges and opportunities that your organization perceives in the medicinal plants area, now and in the future? For example:

New and/or strengthened relationships with community groups for the joint design and sharing of conservation and sustainability practices.

Improved understanding and flow of information/expertise between your organization and relevant government officials, towards a more supportive environment for one or more of medicinal plant research, development, community outreach and public dissemination.

The development of better, fairer regulations that protect medicinal plants, indigenous knowledge and community access.

Support for innovative research and development which will conserve and sustain medicinal plants, such as the creation of gardens, use of marginal land, intermixing of plant breeds, etc.

Other areas?

What types of information/knowledge are necessary for your organization to carry out its mandate and current activities? For each type of information/ knowledge listed, please describe the different sources, the relative importance of different sources, ease of access and types of problems. For example:

Chemical data on medicinal plants. What is the source(s) of this data, and where is it obtained? Are there problems in obtaining it? Why?

Methodologies for preservation, conservation, ex situ culture, taxonomy and storage. What sources are used for this information (formal training within an academic or technical setting, informal training in a workshop setting, meetings, conferences, journals, and books...)? How are these sources accessed, obtained or otherwise used? Which ones are the most important, and why? What problems are there in obtaining the information?

Access to, and/or the interpretation of pharmacological data, such as information on safety, efficacy, adverse affects, dosages, etc. What sources are used for this data (meetings, visits to research institutes, journals, indices, bibliographies, databases...)? Where are these sources and how do you access them? Which ones are the most important and why? What are the problems of information access?

Access to knowledge and information on the therapeutic use of traditional plants/ conditions under which plants are being used effectively. What sources are used for this data (meetings, visits to research institutes, visits to NGOs and community groups, journals, indices, bibliographies, databases...)? Where are these sources and how do you access them? Which ones are the most important and why? Are there problems in obtaining the information?

Access to information on sustainable use and management strategies, the marketing and processing of medicinal plants. What information sources are used for this information (meetings, bulletins, conferences, journals, dialogue with colleagues...)? Where/how do you obtain these resources and which ones are the most important?

Current and new methodologies for community-based activities. What sources are used for this information (meetings, bulletins, conferences, journals, dialogue with colleagues, visits to NGOs and other organizations...)? Where/how do you obtain these resources and which ones are the most important?

Information on laws and policies concerning such issues as traditional resource rights, indigenous people's rights, intellectual property, etc. What information sources are used for this area? (government publications, government circulars, NGO newsletters or bulletins, journals, newspapers, discussion groups, meetings, conferences, documents of international organizations...) How accessible are these resources, and which are the most important?

Public information and advocacy approaches. What information sources are used for these activities? (NGO publications or newsletters; advice from colleagues, other organizations or consultants; journals, meetings, workshops...).

For each of the information types you describe as being important to your mandate (question 4.), how could your access to these sources be improved, in your view? Comment on the advisability or drawbacks of information, computer and telecommunication (ICT) technologies for this purpose. (Examples of ICT technologies which could be used include: telephone, fax, E-mail, electronic mailing lists, electronic conferences, Web site development, on-line databases)

Which organizations/individuals are your most important partners in communication? List the organizations you communicate with, in descending order of priority, and indicate the usual mode(s) of communication with these groups (For example: the general public, community groups, NGOs, academic and other researchers, government officials, policy makers, international organizations, and donor agencies.)

Assuming a regional network on medicinal plants were to be established, on what themes and issues might your organization be able to offer support to the establishment and the sustainability of such a network? By support, we mean such processes as information preparation and provision, information sharing, research collaboration, joint advocacy on issues of common concern, joint workshops, coordination and/or screening of information on a particular topic, etc. For example:

Dissemination of pharmacological information on medicinal plants to local health workers and systems, traditional healers associations, herbalists, etc.

Interpretation/ filtering and dissemination of scientific findings in forms that render them more useful to the community of users.

Collaboration/advocacy with other stakeholders and policy-makers on issues such as the regulations governing the use and commercialization of medicinal plants, community/indigenous rights of access to biological resources, issues of intellectual property.

Coordination of awareness raising activities on environmental issues of common concern to medicinal plants stakeholders.

Other areas with potential for mutual sharing of information.

Can you share with us any concerns that you / your organization might have about sharing information and collaborating with other organizations?

PART II: COMMUNICATIONS CAPACITY ASSESSMENT

What are the usual modes of communication that your organization uses to communicate with other individuals, organizations or agencies outside your unit? Please indicate the importance of these various forms of communication by estimated frequency of use.

	Not available	Used rarely	Used some-times	Used often	Used almost all of the time
Person to person					
Mail					
Courier service					
Telephone					
Fax					
Email					
Other means (please specify)					

Provide comments on the advantages and drawbacks of each of the following communication mechanisms for your organization, if you use these mechanisms often: person to person, mail, courier, telephone, fax.

Does your organization have one or more computers? If so, how many does your organization have? Are there plans to purchase more in the near future? Please describe your current and planned computer(s) according to the following list of variables.

Capacity of the central processing unit (CPU): 386, 486, Pentium, other

Memory (640K., 1M., 4M., 8M., etc)

Speed of the CPU (33MHz, 66MHz, 100MHz, 166MHz, 300MHz)

Main types of software used on the computer(s)

Is there a local area network (LAN) for your computers, if you have several? If so, is the LAN connected to an external line for the receipt of external communication (E-mail)?

Is there technical support available within your organization for these computers? If not, where do you source your technical support for problems that arise?

Please provide comments on the accessibility of your computer(s) to members of your organization. Is it necessary to allocate time blocks to staff?

Is one or more of your computers equipped with modems? Are there plans to buy (a) modem(s)? If so, what is its (their) speed?

Does your organization send and receive Email? If so, please answer the following.

How many Email accounts does your office have? Do staff members share accounts?

What type of Email connection do you have: Internet, Fidonet, other?

What Email software do you use?

Does your institution supply your Internet connection (e.g. university, college, government) or do you purchase Internet services from a commercial Internet Service Provider (ISP)? If you purchase services directly from a commercial ISP and must pay costs, please comment on these costs, including connection time, local- and long-distance connection charges. What is the name of your commercial ISP?

Do you know if your Internet service is directly linked to the Internet, or indirectly linked through a proxy server?

How reliable is your Email connection? Are there times when you cannot access or is there restricted access at certain times?

Can you send and receive attachments by Email? Are there limitations on the size of attachments?

How valuable is E-mail to your organization? Other comments about your E-mail system, today and in the future?

Can your organization access the Internet? If so, please answer the following.

How many of your computers are equipped to access the Internet? What type of software do you use for this purpose?

How many of your staff are familiar with the Internet, and use it for information retrieval?

Does your institution (e.g. university, college, government) provide Internet services, or do you purchase these services from a commercial ISP? How do you connect to the Internet; is it automatically on (as in a dedicated line service provided through a LAN) or must you dial up ?

If you purchase the Internet service from a commercial supplier, what are the approximate costs per month? Please itemize these costs (e.g. provision of connection, local telecommunication costs, long-distance telecommunication costs).

Are there problems connecting with the Internet, or difficult or restricted times? Please describe problems connecting to the Internet.

Approximately how much time per day does your organization dedicate to the Internet (person-hours used searching and retrieving information)?

How valuable is your Internet connection(s) for your organization? Other comments about the Internet and your organization, now and in the future?

Thank-you for your time and effort in filling out this questionnaire!

B) GUIDELINES TO COMPLETING A PROPOSAL

INTRODUCTION

These proposal guidelines were prepared specifically for the regional assessments of information needs and communication capacity of organizations involved in the sector of medicinal plants research and development. They are meant as a resource tool to assist your organization to develop a proposal. Although a lot of detail is given, it is primarily for your information and to familiarize your organization with the points that

IDRC looks for in a proposal. The guidelines are not meant to be prescriptive, and we hope that you will find them a useful tool.

For this proposal, we are asking you to determine what community, regional

and national organizations in your region require with regard to networking - both in terms of content, and communications infrastructure. This information will contribute to the knowledge base upon which regional networks can be enhanced, and eventually a global network may begin. The aim of the needs assessments is to gather and interpret the information required in order to facilitate and enhance partnerships and information exchange among programmes, projects and networks with similar or complementary interests in medicinal plants research and development in your region.

We are not seeking a lot of detail at this point. Your proposal can be about 5-8 pages in length. What is key, is that the proposal specifies clearly the objectives, placing the problem in its regional context, and that the methodology and activities clearly follow from those objectives.

PROBLEM AND OBJECTIVES

The overall **problem** being addressed by this proposal is the limited ability of communities, institutional actors and agencies in the medicinal area to effectively communicate, share information, and learn from one another. This is a problem experienced at both regional and global levels. The present proposal is aimed at improving communication and information exchange at the regional level.

The objectives of the proposal are to carry out assessments of actual or potential partners in a regional medicinal plant network. Two types of assessments of these partners are suggested.

- a) Information and Communication Needs; and
- b) Infrastructure and Capacity for Communication and Information Exchange

For your guidance, comprehensive model formats, what we call "survey templates", are provided for the purpose of these assessments. It is anticipated that these templates will be used as the departure point for the development of your own contextually appropriate needs assessment survey. You will likely want to select and adapt only those questions in the survey template that are relevant for your region and prospective network, and may wish to develop your own unique questions.

Taking account of the above, this section should provide a brief overview of your understanding of the "problem" or task, and of the objectives of the assessments, for your particular region.

METHODOLOGY

This section should explain the methodology that will be used to achieve the objectives. You may wish to organize the methodology so that it corresponds directly to each specific objective. The proposal needs to clearly explain the specific activities envisaged in pursuit of each objective, and the procedures that will be followed in pursuit of these activities. For example:

Identifying the range of medicinal plants organizations in your region: what procedures will your organization use to identify the range of medicinal plants organizations, from the community to the national level? How will you ensure a balance in terms of sub-sector/discipline, type of organization, and gender/ethnic balance of participants?

Designing and testing the needs assessments surveys: what procedures will be followed for the development, pre-testing and administering of the research instruments?

Collecting and analyzing the data: What methods and analytical tools will be used for collecting and processing the data?

Preparing a report on communication and information needs for medicinal plants organizations in your region: What form will the project research findings take? Outline a table for the delivery of expected findings and reports.

User participation

Participatory aspects of the project are often important. Indicate whether the ultimate users of the research results were involved in the design of the project and what role they will play in executing the project or in implementing the results.

Gender considerations

State how gender considerations are important in this project and show how the methodology will address them.

Training

Identify whether the project contributes to the training of staff and whether it would be necessary for certain staff to undergo training prior to or during the project. What kinds of training would be most appropriate and how would it be organized?

DELIVERABLES

Describe what the production of outcomes will be at each stage of the project.

INSTITUTIONS AND PERSONNEL

Institutions

Briefly describe the research institution, including its history and objectives. Similarly, provide information on any agencies that may be collaborating in the needs assessments.

Personnel

List the personnel who will be involved in carrying out the project, their roles, and their time commitments. Briefly describe their qualifications and experience. Include the resumes of the principal professional staff.

TIMETABLE AND BUDGET

Indicate the time needed to carry out each phase of the project, as well as the project's total duration. Remember to take into account the time required for staff recruitment and equipment purchases. Indicate possible constraints in adhering to the timetable. Estimate the project's total costs. Allow for inflation and indicate the level of inflation used in the estimate. All budget items must be quoted in national currencies.

The budget should be divided into two categories, the IDRC contribution and the local (recipient) contribution. The local contribution can be an estimate of "in kind" resources such as salaries, equipment, etc. The budget estimates should be computed on an annual basis.

The following categories reflect general IDRC budget lines.

Salaries

Salaries include all remuneration, allowances, and benefits paid to staff and to advisors hired for a specific project. Project advisors are those people hired for fairly long periods and paid regular sums. IDRC does not generally permit topping up of salaries for existing staff.

Research Expenses

Research expenses encompass services and materials (including reference materials) required to carry out the project.

Capital Equipment

This category covers equipment purchased by either the recipient, or IDRC on behalf of the recipient, that has a useful life of more than one year and costs over 1,000 CAD per item.

Consultants

This category covers all expenses related to acquiring the services of a consultant for a specific activity within the project. The consultant should provide expert professional advice to project staff. He or she usually works on a "fee for service"

basis. Compared with project advisors (see Salaries), consultants are contracted for shorter periods to work on specific assignments.

Training

This covers a trainee's registration and tuition fees, living and other allowances, research and training expenses, and travel costs during the project.

Travel

This covers costs incurred by project staff outside the local research area. (All local travel is to be reported under Research Expenses).

Support Services

Support services should only encompass those administrative costs that are not directly related to research. They can include such items as clerical, accounting, or secretarial help, general office expenses, office accommodation, rent, and utility charges.

Overhead

The Centre expects the recipient to absorb the overhead or administrative costs of a project as part of its local contribution. If the recipient will not or cannot do so, IDRC will consider contributing overhead costs up to a maximum of 13% of all recipient-administered costs, excluding capital equipment costs.

Coordination

This category covers expenses related to the coordination of a project, whether it is a network covering recipient institutions in several countries, several institutions within a country, or several components (or subprojects) within an institution. The coordination function involves overseeing the various components of a project to ensure that all concerned follow the same objectives and approaches, including budgetary monitoring. Note: A budget note is required for each line item in the budget. The budget notes should state exactly what is covered under the heading and the basis on which the budgeted amount was calculated.

APPENDICES

1. Project Overview

Title: state the title of the project.

Proponent: Provide the name of the research organization, the name of the project leader, and collaborating research organizations.

Estimated budget: Give an estimate of the total cost of the project in national currency. Indicate the current exchange rate of the national currency against the Canadian dollar.

Estimated duration: Indicate how many months it will take to complete the entire project, including writing and submitting the final reports.

Objectives: Indicate both the general and specific objectives of the project.

Abstract: Provide a summary of 150 to 300 words of the project, how it will be approached, the expected results, and how they will be used.

2. Administrative Information

Project leader: Name the person(s) who would have the main responsibility for the technical and administrative coordination of the project. Include the project leader's title, address, work and home telephone numbers, cable/telex and fax numbers, and e-mail address (if available).

Recipient institution: Name the recipient organization that will administer the research funds. The recipient institution must be a recognized legal entity that is able to enter into contractual arrangements and assume legal obligations. Include the institution's address, telephone, cable/telex, and fax numbers, and e-mail address (if available). Note that researchers must be affiliated with an institution to receive a grant from IDRC.

Collaborating institution: In some cases, all or part of the project may be carried out in an institution other than the recipient institution administering the funds. Give the names and addresses of any collaborating institutions.

Supporting administrative documents: The institution's responsible officer should attach a letter of formal request for support from IDRC when the final proposal is submitted. (The responsible officer is the person authorized to submit official requests for funding on behalf of the institution, such as the rector or president of a university, the head of a government department, or the executive officer of a nongovernmental organization.) In cases where the research leader and the responsible officer are the same, please have the responsible financial officer of the institution submit or cosign the formal request. In cases where there has been no previous collaboration between the institution presenting the proposal and IDRC, a copy of the document certifying the legal status of the institution should be attached to the proposal. In cases where there are collaborating institutions, please submit a document certifying collaboration.

3. Attachments

Attach any supporting documentation, such as the resumé of personnel.

GUIDELINES FOR REGIONAL NEEDS ASSESSMENT PRESENTATIONS

Day One of the Conference on Medicinal Plants is called "Building a Strong Foundation". The day's activities will focus on learning from one another about the range, needs and the capacities of the organizations in the different regions who have a stake in the present networking activity.

The first three plenary sessions will focus on presentations, discussion and facilitated analysis of regional needs and capacities. This will be an opportunity to pool knowledge of who the potential stakeholders are, and of their distinct characteristics. From this common pool of knowledge, participants can begin to develop an understanding of the opportunities for knowledge networking that arise from the various regions.

Representatives from each of the regional organizations carrying out the Needs Assessments are being asked to give brief presentations on their findings, or of their experiences with the process thus far. Others who have not yet started the process will discuss regional particularities, and/or the approach to the assessment process they plan to take. It is understood that presenters will arrive at the conference at different stages in the assessment process. However, this will be an opportunity for those at an earlier stage to benefit from the knowledge shared by those further ahead. In all cases, it will be an opportunity to highlight the issues that are particular to each region.

So far, the following organizations have committed to presenting:

Centro de Estudios sobre Tecnologías Apropriadas de Argentina (CETAAR)
TRAMIL Enda-caribe Network on Medicinal Plants, Nicaragua
Foundation for the Revitalization of Local Health Traditions (FRLHT), India
Centre for Science and Environment (CSE), India
Institute of National Resources (INR), South Africa
International Development Research Centre (IDRC), East Africa Regional Office,
Kenya

Presentations should be kept to under twenty minutes, so that plenty of time can be devoted to questions and to discussion. For those participants who are presenting on the completed needs assessment process in their region, following is a plenary list of questions that the day's activities will address: they can be used as a rough guideline to designing your presentation.

- Who are the medicinal plant stakeholders in the various regions?

- What was the experience of the survey process? How many organizations were/are being surveyed? How were/are they being identified? Who were/are the participants (ie. NGO, govt, research institute, environment/health/commercialization)?
- What are the main communication barriers of organizations in the different regions?
- Which type(s) of organizations experience the most difficulty?
- Which types of knowledge/ information are the most important to the organizations surveyed?
- What are the main issues from the perspective of the organizations in your region, facing the use and conservation of medicinal plants?

APPENDIX 4

**MULTIDISCIPLINARY, MULTISECTORAL
NETWORKS: A PROCESS AND SOME TOOLS**

**An Executive Summary of the background papers for
the meeting "Information Networking in Medicinal
Plants: Towards a Global Strategy",
November 17-19, 1999**

November 7, 1999

By:
Conseil Equilibrio Consulting
48, chemin de la Rivière
Wakefield, Québec
Canada J0X 3G0

Executive summary

Multidisciplinary, Multisectoral Networks: A Process and Some Tools

This paper is an executive summary and synthesis of two background papers prepared for participants in the international meeting "Information Networking in Medicinal Plants: Towards a Global Strategy", hosted near New Delhi, India, November 17-19, 1999. These two papers, taken together, were designed to provide a common base of knowledge to participants on some of the important social, cultural and technical aspects of network formation.

The first of these papers is called: *Models of Multidisciplinary, Multisectoral Networks: A Collection of Case-studies to Aid the Development of a Global Information Network on Medicinal Plants*. The overall aim of this paper is to provide participants with a concrete concept to work from; a "model social process" on how to build a multidisciplinary, multisectoral network. This process is developed through an examination of a number of case studies and examples that, together, tell a story about the components of network building.

This paper begins with the development of a working definition of a multidisciplinary, multi-sectoral network. For this, it draws on public policy and academic literature to define "networks", specifically research and development-based, or "knowledge networks". Reasons are offered as to why multisectoral and multidisciplinary networks have come into vogue both as real, new entities within social formations, and as objects of interest within public policy circles. It is argued that multisectoral, multidisciplinary networks are well-suited for public policy problem-solving in contemporary contexts where problems are often complex, being composed of interrelated social, economic and political factors. The utility of information and communications technologies (ICT) to the operations of these knowledge networks is then discussed, and it is asserted that, while there are investment costs to the application of these tools in developing country contexts, the costs outweigh the benefits in the medium- to long-term.

Attention is given to the special character and membership of a multidisciplinary, multisectoral network that would be equipped to tackle the regional and global problem areas and policy issues related to medicinal plants. This part of the discussion draws on our understanding of the prospective vision and membership of a global information network that IDRC and other agencies have discussed, and generates criteria which we use to select case studies and examples. Not all of the networks selected fit all of the criteria, rather they approximate an "ideal" or "model" type of network, one that:

- is NGO, "grassroots" or academic-led;
- is multidisciplinary;
- involves research and development;
- involves government as well as government/policy uptake;

- involves indigenous communities, industry, and private sector;
- includes advocacy activities;
- has a communications policy/strategy;
- uses ICTs to advantage at local, regional and/or international levels; and
- has the ability to craft a network of networks.

Case studies were conducted on the following global networks: The Mountain Forum, The Biodiversity Clearing-House Mechanism, The Global Applied Research Network in Water Supply and Sanitation, and the International Model Forest Network. Other network examples included in the study are: CONDESAN, The International Campaign to Ban Landmines, NGO Oceans Network, Canadian Network of Toxicology Centres, and the Indigenous Peoples Biodiversity Information Network. From this varied basket of cases, best practices and lessons learned are illuminated. Discussed in some detail are processes of network launch, strategies of maintaining momentum through the process of establishing and consolidating a network, communications policies and technologies, the risks involved, and issues of sustainability.

The second paper is called *Using the Web to Advantage: A Guide to Information and Communications Options for a Global Information Network on Medicinal Plants*, or "the ICT paper" as a shorthand. This paper was written to equip participants at the international meeting with some background information on both the social process and the technical issues associated with the applications of ICTs to networking. It is expected to serve as a first step into knowledge-building in this area for those who might later be engaged in research, planning and decision-making in this area.

The ICT paper begins with a discussion of issues related to building what is, in essence, a *social network*; one that may indeed take advantage of ICT technologies, but is based on relationships among people and organizations for knowledge exchange, communication and action. It is argued that successful networks are based on shared goals and objectives of a community of user-participants, a constant recognition of differences, and substantial commitment, in terms of time, effort and financial resources. Fundamental buy-in to the concept of electronic networking is key; but it is also understood that electronic aspects of the network might not be appropriate for all contexts and situations. Other methodologies for gathering and disseminating information play critical and complementary roles to electronic means.

The paper then moves on to a brief introduction to the Internet, its history, development and basic technical foundations. It discusses the problems and prospects for its application in the developing world, mentioning the various factors hindering its growth in these regions, but also points to some of the technical innovations occurring which give reason for cautious optimism. Designers of regional or global Internet-based networks in the developing world need to strive to develop tools and mechanisms that accommodate a vast range of technological capabilities, as well as ensure that participants at the end of the "technological line" are able to participate through effective capitalization of existing communications channels and supportive institutions.

The third section documents some of the current Internet-based communication tools and information resources available to prospective network builders, and draws attention to some of the social, organizational, administrative and technical issues that should be taken into account. For the various options discussed, the paper points to the initial steps that might be taken should decisions be made to implement projects which would use some of these Internet-based techniques. Covered in this section are: Web site hosting; communication tools including Email, listservers, newsgroups, newsletters, and electronic conferencing; and information provision through identification and digitization, if necessary, of existing information, relational databases and distributed databases.

By drawing on the lessons learned and experiences documented in these two papers, a protocol for network-building can be discerned, one that consists of the following steps: network launch, finding ways to maintain momentum, paying attention to the need for communication and commitment among participants within the network, using technology effectively for information exchange and accumulation; being aware of risks and designing strategies to minimize these, and ensuring sustainability by addressing this issue throughout all stages. Our findings show that a network is formed around an issue or problem; one that has been identified and that lends itself to solution only through joint action by many actors and agencies. Successful networks begin with a critical number and inclusive range of dedicated and participants who share a degree of trust, and an adequate budget from a basket of sources and/or donors. The availability of expertise, management and technical support is important to the establishment of a network. From the papers, we are able to identify the defining social and organizational characteristics of successful networks that have endured over a reasonable time span. These include: a significant degree of democratic and participatory practice; clearly articulated goals and objectives; and proactive, positive and regular animation. Such networks have a communications policy that is conscious of language and cultural differences, and infra-structural variations. Its applications of technology demonstrate an awareness and willingness to adopt any and/or all techniques to reach participants. These networks have tackled the sustainability challenge at the time of its launch or soon after, forming links with supportive organizations and institutions, building partnerships, and tapping financial and in-kind resources from a variety of agencies.

All of these points are elaborated in the two papers.

It is the conclusion of these background studies that networks have great potential. They offer the possibility of sharing, transforming, and putting to use knowledge that emerges from local communities, articulated by those who know it best, in concert with people working towards an understanding of how the parts fit into the whole. As the world's problems grow in complexity, there is a greater need for holistic understandings and holistic solutions, incorporating a wider range of disciplines and perspectives. In the complex processes of network formation, participants bring to the forum their particular art or science, knowledge or expertise, but the product is the whole B the interchange and the process B that allows for solutions to emerge.

APPENDIX 5

**MODELS OF MULTIDISCIPLINARY,
MULTISECTORAL NETWORKS**

**A Collection of Case Studies to Aid the Development of
a Global Information Network on Medicinal Plants.**

November 1999

By:

Conseil Equilibrio Consulting
48, chemin de la Rivière
Wakefield, Québec
Canada J0X 3G0

TABLE OF CONTENTS

Introduction	102
A Working Definition	102
The Case Studies	106
The Mountain Forum	106
The Biodiversity Clearing-house Mechanism (CHM)	110
GARNET	113
The International Model Forest Network	115
Other Useful Examples	117
CONDESAN	117
The International Campaign to Ban Landmines	118
NGO Oceans Network	119
Canadian Network of Toxicology Centres	119
Indigenous Peoples Biodiversity Information Network	120
Lessons Learned	121
The Launch Process	121
Maintaining Momentum	124
Communication Policies and Technologies	127
Risks	128
Sustainability	130
Conclusion	132
APPENDIX I - Questionnaire	133
APPENDIX II B List of contacts	133
APPENDIX III B literature and web sources	134

LIST OF ACRONYMS

CIP	International Potato Centre, Lima, Peru
CGIAR	Consultative Group on International Agricultural Research
CHM	Clearing-house Mechanism of the Convention on Biodiversity
CNTC	Canadian Network of Toxicology Centres
CONDESAN	Consortium for Development of the Andean Region
CSD	Commission on Sustainable Development
FAO	Food and Agricultural Organization
GA	General Assembly
GARNET	Global Applied Research Network in Water and Sanitation
GISN	Global and Information Server Node
GNC	Global Network Centre
IBIN	Indigenous Peoples Biodiversity Network
ICBL	International Campaign to Ban Landmines
ICMOD	International Centre for Integrated Mountain Development
ICT	Information Communication Technologies
IMFN	International Model Forest Network
IMFNS	International Model Forest Network Secretariat
IAC	Informal Advisory Committee of the Clearing House Mechanism
IOC	Initial Organizing Committee
ISC	International Steering Committee
LNC	Local Network Centre
MF	Mountain Forum
SBSTTA	Subsidiary Body on Scientific, Technical, and Technological Advice
UNCSTD	United Nations Commission on Science and Technology for Development
WEDC	Water, Engineering and Development Centre, Loughborough University
WSSCC	Water Supply and Sanitation Collaborative Council

MODELS OF MULTIDISCIPLINARY, MULTISECTORAL NETWORKS

A Collection of Case Studies and Examples to Aid the Development of a Global Information Network on Medicinal Plants.

Introduction

Responding to a call to establish an international network which would enhance efforts to establish safe, sustainable and equitable development in medicinal plants, the International Development Research Centre (IDRC) launched an initiative in December 1998 which would support this process. To date, resources have been committed to help identify the capacities, resources, and needs of some of the key medicinal plants organizations in different areas of the globe. A number of regional needs assessments have been completed, and in some of the regions, information and communication strategies are being devised to address them.

For the range of diverse organizations and agencies within the global medicinal plant community, it is critical to start from a common understanding; one that takes account of what exists, and how to proceed. This paper is prepared for those involved in the next steps of the process, in particular the participants of the International Meeting, "Information Networking on Medicinal Plants: Towards a Global Strategy", hosted in New Delhi, November 17-19, 1999. It aids in the clarification of issues at stake for the assembly, launch and sustenance of multi-sectoral, multi-disciplinary networks whose key commodity is knowledge, but whose objectives might be broader than merely research and development. Drawing on case studies, examples and the literature, we highlight the main challenges, and draw out the lessons to be learned from these. By understanding what works well, as well as likely problems, medicinal plants stakeholders can move forward with a strategy that can maximize positive outcomes.

A working definition

In this section a "working definition", or model, of a multi-disciplinary, multi-sectoral network is developed. This definition was used to select the case studies and examples. Looking first to the literature on "networks" we define this term, and then we specify the types of features or contingencies that are consistent with the tentative vision, goal and objectives so far identified for the global information network on medicinal plants. In doing so, we give some indication of the role and significance of information and communications (ICT) technology.¹

¹ This definition is taken from Richard Heeks, "Information and Communication Technologies, Poverty and Development," Development Informatics Working Paper Series, Paper No.5, Institute for Development Policy and Management, University of Manchester, p.2, June 1999. View/download at http://www.man.ac.uk/idpm_dp.htm#devinf_wp

It should be emphasized that this working definition does not carry with it an expectation of complete conformity. Indeed, as will be seen in the discussion of the case studies and examples, none of the networks we investigate strictly adhere to all of the criteria included in the working definition. In fact, most networks fall rather short of the ideal. Rather, our purpose in this paper is to elucidate the real-life approximations to the model, and to discern the areas that posed problems and opportunities, barriers and incentives, in such a manner that we can synthesize and summarize "lessons learned".

According to Terry Smutylo,

Networks are social exchange arrangements... at the base they involve people actively sharing and collaborating toward concrete goals... Effective networks add value to individual action by providing a platform for shared experimentation and learning across sectors, geography, professions, and cultures.²

Networks dedicated to research and development provide a means for accumulating knowledge; an accumulation which depends on the nature of relations of the actors involved. In an effective network, participants agree on the types and descriptive norms of knowledge in which they jointly have an interest, they share methodologies on how to obtain knowledge and they decide how they want to share the outcome. Networks which have a purpose broader than research and development may also decide on applications of the knowledge to other aspects of socio-economic innovation, such as: training, technology development, commercialization, and policy uptake and/or policy change, for example. Benefits accrue to all participants in the network, though not necessarily in the same time frame or same proportions: relatively large investments are usually rewarded with proportionately more return.

Networks contribute to the building of "social capital", that is, the sum of the parts in an effective collaboration can both accelerate and enhance the quality of learning by participants and contribute, in a more efficient way, to socio-economic innovation.

Social capital is a powerful resource that develops from productive social ties. Its use depends in part on the values and objectives of the actors involved. Successful formation of social capital requires that the actors value the long-run relationship and its material benefits highly enough to forego immediate gains.³

Preservation of networks depends on maintaining the confidence of participants that, sooner or later, all will gain from their membership and contributions, exceeding the gains they achieve on their own. However to do this,

² Terry Smutylo, in IDRC Networks: An Ethnographic Perspective, p.8 1996.

³ Jane Fountain in "Social capital: its relationship to innovation in science and technology," in Science and Public Policy 25 (2), p.106, April 1998.

*The boundaries and objectives of the network must be clearly defined. In some cases, it has been important for participants in the network to define the rules under which they cooperate. Graduated sanctions must be in place to restrict inappropriate actions without destroying the network. Similarly, well-performing networks must develop conflict resolution mechanisms in order to resolve inevitable disagreements.*⁴

Multi-sectoral, multi-disciplinary knowledge networks are a contemporary development brought into existence by a variety of factors, some originating organically at the grassroots or groupings of private or public sector organizations, some motivated by funding or public sector policy, or various combinations of these. There are also, though, important external pressures, which have contributed to the development of these networks. For example, the rationalization and intensified competition for funding in the academic and other public research sectors in the last two decades has been interpreted by some as a deterioration of the norms and societal role of these institutions and an entry of the marketplace. However, others see that there are positive sides to this development:

*New configurations in the various relations of knowledge production also signify new possibilities. It is a truism that, while academic research is organized, both cognitively and institutionally, into disciplines, the problems which confront public policy do not fall under these convenient headings...Contextually-specific problem solving commonly requires solutions beyond the scope of any single discipline; solutions which are... transdisciplinary.*⁵

Multi-disciplinary, multi-sectoral networks meet, in an organized fashion, the need to respond to complex public sector challenges in an organized fashion. Although the actors participate in this constellation part of the time, they also assume different roles and responsibilities in the range of institutions from which they are drawn. The knowledge gained within a network therefore stands a better chance for diffusion, and action decided upon a higher probability of impact. This is not only a question of numbers and scope, it is also that shared insights and experiences among the multiplicity of institutional representatives involved lends itself to more strategic and effective outputs.

The application of ICT to such networks has the potential for enhancing their operations. On this subject, many cautious voices have been raised about exaggerated claims that ICT can lend itself to development purposes. Indeed, it is true that applications of ICT cannot, in themselves, alter power relationships and social arrangements, and consequently they cannot resolve the problem of poverty. Too many other social-economic adjuncts are necessary:

Accessing ICT-carried information requires a lot of overt resources including a telecommunications infrastructure to provide network access, an electrical infrastructure to

⁴ Jane Fountain, *ibid.*, p.106.

⁵ Elizabeth Shove and Peter Simmons, "Research contexts and policy knowledge: linking social science research and environmental policy," in *Science and Public Policy* 24 (4), p.216, August 1997.

*make the ICTs work, a skills infrastructure to keep all the technology working, money to buy or access the ICTs, usage skills to use the ICTs, and literacy skills to read to the content. The poor simply don't have these resources.*⁶

Empirical assessments of the risks versus opportunities of applying ICT in any country or region, including developing countries, have been few. In 1995, a working group was established by the United Nations Commission on Science and Technology for Development (UNCSTD) which drew its experts from a great range of countries but especially transitional and developing economies. A paper summarizing results reports that:

*UNCTAD's conclusion was that the cost of using ICTs for building a new technical and social infrastructure for sustainable knowledge-based development is high. The cost of not doing so, however, is even greater...The application of information and communication technologies cannot eradicate poverty, but some applications can create a new distribution of opportunities for people in developing countries to join together with others to forge knowledge and learning-intensive partnerships.*⁷

Having developed a definitional concept and rationale for a multi-sectoral and multi-disciplinary network, we now propose to merge this with our understanding of the prospective vision and membership of the global information network on medicinal plants. Drawing on the concept paper "Towards a Global Information Network on Medicinal Plants" (distributed to participants of the November 1999 meeting) several features, or criteria emerge and can be used to characterize the type of knowledge network envisaged. Such a network might:

- Be NGO-led, grass-roots led, or academic-led;
- Involve research and development;
- Involve government, as well as government/policy uptake;
- Involve indigenous communities;
- Involve industry or other private sector organizations;
- Include advocacy activities;
- Include community-based, public education activities and a public communication policy
- Use ICTs to advantage;
- Operate locally, regionally and internationally using a variety of communication techniques;
- Demonstrate commitment to personal linkages among different disciplines and organizations. (For example, through regular workshops, exchange of personnel, meetings, etc.);
- Have the capacity to craft a network of networks.

⁶ Richard Heeks, "Information and Communication Technologies, Poverty and Development," Development Informatics Working Paper Series, Paper No. 5, Institute for Development Policy and Management, University of Manchester, p.7, June 1999.

⁷ Robin Mansell, et.al, "Opportunities for knowledge-based development: capabilities, infrastructure, investment and policy," in Science and Public Policy 26 (2), pp. 92, 99, April 1999.

These criteria were used to make choices about the types of existing networks which might serve as case studies or examples for the benefit of participants and supporters of a global information network on medicinal plants. They are documented in what follows.

The Case Studies

The following cases have been selected according to the closest "fit" with the above criteria, and/or the valuable lessons learned from their experiences which would be useful for the participants to the medicinal plants initiative.

The Mountain Forum

The Mountain Forum (<http://www.mtnforum.org/>) is a global network of networks connecting individuals and organizations concerned with sustainable development in mountain regions of the world. Constituting the Mountain Forum are over 40 regional and sub-regional mountain networks, in addition to local, national and international NGOs, UN agencies, government departments, universities, private sector consultants, academics, and researchers. The roots of the Mountain Forum date back to the 1970s and the activities of a small group of dedicated mountain researchers. Over 20 years later the activities of this initial group catalyzed at the 1992 Earth Summit in Rio de Janeiro, with the increased interest and support of about a dozen institutions concerned with sustainable mountain development. From this time onward, NGOs added to the collaborative efforts to expand the exchange of ideas and advocacy on behalf of mountain peoples and environments.

The decision to form a global network was arrived at in February 1995 in Lima, Peru, at a meeting organized by the Consultative Group on International Agricultural Research's (CGIAR) International Potato Centre (CIP), and the Mountain Institute, an NGO in the US with field programs in the Himalayas, Andes, and Appalachian mountains. Over one-hundred mountain NGO leaders and inter-agency and government representatives attended the consultation, which was endorsed by the UN Food and Agricultural Organization (FAO) and supported by the Swiss Development Corporation, as well as other donors.

The overall goal of this consultation was to devise strategies to assist in the implementation of a prioritized action plan called the "Mountain Agenda" - part of the global movement to increase the focus of sustainable development on mountain areas within the framework of Agenda 21: the plan of action for the world's governments and citizens that emerged from the 1992 Earth Summit. It sets forth strategies and measures aimed at halting and reversing the effects of environmental degradation and promoting environmentally sound and sustainable development throughout the world. This meeting had its interest in Chapter 13, "Managing Fragile Ecosystems: Sustainable Mountain Development". Arising out of this initial NGO consultation was agreement to create a global network of NGOs and interested organizations for the purposes of facilitating the implementation of the Mountain Agenda.

It was at this consultation that regional representatives were nominated to form an "Initial Organizing Committee" (IOC). The IOC was made up of a multi-sectoral group of twenty-seven people from five continents. The Mountain Institute was asked to convene the participants. Technical and financial assistance in facilitating the first meeting was provided by the Global Excellence in Management (GEM) Initiative of Case Western Reserve University's Weatherhead School of Management. The Mountain Forum was formally established on June 1st, 1996.

Today, the Mountain Forum consists of three regional nodes and an information server node. The Asia/Pacific Mountain Network is housed at the International Centre for Integrated Mountain Development (ICIMOD) in Kathmandu, Nepal; the Latin America Mountain Forum is hosted by the International Potato Centre (CIP) in Lima, Peru; and the European Mountain Forum is a registered NGO which shares offices with IUCN in Gland, Switzerland. The Global Information Server Node is hosted by the Mountain Institute in West Virginia, USA. The African Node of the Mountain Forum is in the final stage of development at the International Centre for Research in Agro-forestry in Nairobi. A North American node has yet to be established, but the process of building awareness and coalitions continues. These nodal points coordinate a network of many organizations and individuals. In addition to over 1,200 registered members, more than 40 mountain networks are linked: 7 of these have a global scope, 6 are in Africa, 12 in the Asia/Pacific Region, 12 in Europe, 9 in Latin America, and 6 in North America. Mountain inhabitants account for 26 percent of membership.

Formal governance consists of a Mountain Forum Council and a Secretariat. The MF Council meets twice a year to review progress and plan for future cooperation. It is a non-hierarchical, representative, policy-making governing body. Initially, it was made up of a total of 27 members, with three members from each region (Africa, Asia/Pacific, Europe, Latin America, North America, Global), the members of the Secretariat, plus three donor representatives. It has recently been streamlined, and now consists of one member of each regional node, one member from the Global Information Server Node, one member from the FAO, and one donor observer. The Council felt that while it had been an important body in creating broad ownership of the Mountain Forum in the initial stages of the Network, it was now important to have a smaller, more efficient working Board to carry out the increasing demands for governance of the established network. The Council coordinates membership, activities and input of international organizations, UN agencies, and independent members. Members are chosen by the implementing agent responsible for networking in that region; for example, in Asia-Pacific ICIMOD selects the members who will represent their region.

Responsible for the overall management of the Mountain Forum is the Secretariat, a tri-partite, rotating team which oversees the day-to-day governance activities as well as convenes the Council. The convenor (1998-99) is ICIMOD (Asia-Pacific Regional node). The other two members of the Secretariat for this period are The Mountain Institute (Global and Information Server Node) and the International Potato Centre (Latin American Regional Node). The basic values underlying the Forum are to be "open, democratic, decentralized, accessible, transparent, accountable, and flexible".

Contributions to the Mountain Forum come from well-established research and academic communities, but the main interest of the Mountain Forum is to seek out contributions from marginalized groups, solicited from relatively isolated mountain communities through NGO or government liaison. This is one of the greatest challenges of the network. According to Elizabeth Byers, Senior Project Officer at the Mountain Institute, "Sharing and dissemination of knowledge is key, since many mountain people and professionals tend to work in isolation. As knowledge is shared, however, new paradigms are always being created. One of the critical new areas of knowledge is the community of issues that make up what we call the mountain agenda. In other words, a policy framework is being created, which has an increasingly broad ownership from mountain advocates around the world." Other types of information and knowledge shared include promising examples of sustainable mountain development, lessons learned, case-studies, events, and new resources. Participants also share frustrations, queries, collaborative research inquiries or results, and activist appeals.

Policy development and the fostering of appropriate policies is a main focus of knowledge generation and sharing. To give an example, an E-conference on Mountain Policy and the Law began with the dissemination of information on existing policies and laws pertaining to mountain regions, many of which were unknown outside of local contexts. The relevance and effects of policies were discussed at local, national, and international levels. Out of this exercise, the Partners in Mountain Conservation Community Group, located in KwaZulu-Natal Drakensberg (South Africa), adapted elements of the following three separate undertakings in its own local area: the Nepalese Forest Legislation Protocols, the Management of Human Waste in the Rocky Mountains, and the Antananarivo Declaration of African Mountains.

The Global and Information Server Node (GISN), is based at The Mountain Institute. The GISN, which does not have any regional affiliation, provides a means of communication among the participating regional networks, as well as among other members with no regional affiliation. It facilitates interregional information exchange through the provision of technical support, including ICT services. It provides server space and takes advantage of a number of Internet-based devices to enable the operations of the Mountain Network. It provides a moderated discussion list, a Mountain WWW Page, a calendar of events, a global membership contact list, and an on-line library.

The library is a key resource, containing documents specific to mountains and mountain issues: archives, case-studies, policy statements, best practices, and mountain laws. The library's holdings include about 1000 full-text documents and many more document summaries. Documents are in HTML format, and larger documents are increasingly uploaded in both HTML and .pdf formats. The most important facet of the library, however, is that it is available in its entirety by plain E-mail — without attachments — or as customized attachments depending on the user's available software. Whenever new additions are announced, it is specified that these documents are also available directly through the moderator by E-mail request. This is an important service for participants who have E-mail but do not have web access, or who have very slow and expensive web access.

Several forms of information exchange are used to reach participants with varying levels of technological capability. At the regional levels, the Mountain Forum communicates with members through workshops, a printed bulletin, documentation centres, training opportunities, radio outreach, E-mail discussion lists and Web page archives. There also is a parallel E-mail library to the on-line library, so documents can be requested and sent out through E-mail, and printed in hard copy for distribution. E-mail gateways are vital to Mountain Forum's outreach. Efforts are made to design E-mail and Web services which are accessible both to users with a minimum level of technology, and to those who must pay by the byte or by the minute for their access.

Communication is mainly in English, although moderator groups can respond in French, German and Spanish. Regional and sub-regional networks communicate in their own languages. The network takes advantage of free automatic translators on the Internet. These have already proven useful to E-mail networks, expanding their range of languages to include Italian and Portuguese.

The Forum has been cautious in its approach to certain key stakeholders - the mining, timber and hydropower sector in particular. The hope is that they eventually will be included and will become more receptive to equitable and ecologically sustainable development while not allowing their economic power to dominate. How to integrate these stakeholders into the network has not yet been determined. The other group of critical stakeholders that have been difficult to reach are the isolated mountain communities who have neither E-mail nor collegial connections with any mountain network and sometimes only speak a language that is unique to themselves. The Forum is working on improving linkages with such groups wherever possible, through grass-roots organizations, NGOs, and local governments.

The primary target groups of the Mountain Forum are local NGOs, local governments and private sector institutions which have a direct impact on local mountain communities and environments. Other participants in the forum - experts, international NGOs, universities, and so on - are seen as resources. According to Byers: "...the well-connected experts do seem to come to us, even when we don't seek them out. There is a constant pressure to serve the expert community, because they are the most active, well-connected, and articulate. We need to constantly remind ourselves of our target groups. One of our working hypotheses is that if we are successful in bringing first-hand or grassroots information to the network, the network itself becomes highly attractive to experts, who then will be willing to act as resource people to it". In sum, the hope is that gains in knowledge will be mutual — the periphery will benefit as much or more than the centre in terms of information, analysis, practice and policy so as to benefit themselves and their environment; while the centre will benefit in terms of contributing to global environmental well-being and ultimately their long-term future.

The Network is now funded primarily by the Swiss Agency for Development and Cooperation. Efforts are being made to broaden the funding base in order to meet the expanding needs of the mountain community, and to provide much-needed

support to local and sub-regional networks. Membership fees are under discussion for the northern regions, and a charge has been instituted for publications, which are sold for the price of the printing and postage.

The Biodiversity Clearing-house Mechanism (CHM)

Just emerging from its pilot phase, is the Clearing-house Mechanism (CHM) of the Convention on Biological Diversity (CBD). The CHM is a network of parties and partners working together to facilitate implementation of Convention, which was signed in Rio at the 1992 Earth Summit. The CBD has to date 176 country members. Article 18.3 of the Convention created a mechanism to translate the goal of partnerships and cooperation into action: the "Clearing House Mechanism".

*In its original meaning, a Clearing House was an establishment where financial institutions adjusted claims for cheques and bills and settled mutual accounts with each other. The term has extended in meaning to refer to mechanisms of sharing information (not only financial) through an independent intermediary for mutual benefit of the concerned parties. Thus a clearing house "to facilitate technical and scientific cooperation (in biodiversity)". It is also a facility for the open exchange and dissemination of information for mutual benefit on the state of biological resources, and related research and technology.*⁸

The goals of the CHM are to promote and facilitate scientific and technical cooperation for the implementation of the three objectives of the Global Convention: the conservation of biological diversity; the sustainable use of its components; and the fair and equitable sharing of benefits arising from the use of genetic resources. To do this, participating countries and agencies have committed to:

- develop and strengthen national capabilities through human resource development and institution-building;
- facilitate the transfer of technology; and
- promote the establishment of joint research programs and joint ventures for the development of relevant technologies.

The guiding principles of the CHM are to be "neutral, cost-effective, efficient, accessible, independent, and transparent".

The global CHM network includes Parties to the Convention, that is, nation-states who have ratified the convention, and partners (e.g. sister conventions, international initiatives, institutions, organizations and individuals) working to implement the convention.

⁸ The Biodiversity Clearing House: Concepts and Challenges, World Conservation Monitoring Centre, Cambridge, England, on CHM web site: <http://www.biodiv.org/chm>

The main features of the CBD is that it is nationally driven, decentralized, needs-driven and is being constructed step by step. Different types of focal points are in development: national, regional, sub-regional and thematic. Each focal point has the responsibility of developing its own supporting network, which is why the CHM is called a "network of networks".

National Focal Points are housed within government departments or ministries, such as Natural Resources, Forestry, or Agriculture. They are responsible for coordinating the activities of the Clearing House at the national level within their countries. Ideally, these Focal Points promote awareness and activities, and facilitate information exchange and partnerships among local stakeholders (for instance, educational institutions, local governments, NGOs, indigenous groups). Since its pilot launch in 1996, the CHM has evolved into a network with 137 National Points around the world. A wide range of organizations make use of the network: other conventions, international agencies and institutions, government departments, NGOs, indigenous groups, scientists, and the private sector.

Under the authority of the Conference of Parties to the Convention, the CHM is assisted by a Secretariat based in Montreal, Canada. The Secretariat provides information to the CHM nodes, facilitates partnership and information-sharing, and carries out coordination activities of the clearing house mechanism in collaboration with all Focal Points. The Secretariat receives advice from the Informal Advisory Committee (IAC): a group of 15 people; 2 drawn from each UN Geographic Region, and 5 non-country members representing international institutions. Their role is to assist and guide in the development of the network. Advice from the IAC is developed through consensus.

The CHM server is hosted at the CBD Secretariat in Montreal at a Web address of: <http://www.biodiv.org/chm>. The support provided by the Secretariat is substantial: a wide number of internet-based tools and services are available. On the side of communications, there is *The Disseminator*, a CHM newsletter that is available electronically and in print. There is also a CHM tool kit, which is a CD-ROM based practical tool that has been designed to assist National Focal Points in their establishment of web pages and web sites, a CHM brochure (in English, French and Spanish) and E-mail listserves for all the officially nominated CHM National Focal Points and biodiversity-related and Rio Conventions. On the information side, there are on-line databases, and specialized search engines such as BIOSEEK, which provides assistance in finding global biodiversity related information on the Internet; and lists of Focal Points contacts, and experts.

To date more than 4,000 web pages and documents have been electronically posted.

The types of information exchanged deal with the main provisions of the Convention, namely: *in situ* and *ex situ* conservation, sustainable use of biodiversity, national reports, technical and scientific cooperation, incentive measures, research

and training, access to genetic resources, equitable sharing of benefits, access to and transfer of technology, handling of biotechnology (Biosafety Protocol), financial resources, as well as agro-biodiversity forests, inland waters and marine and coastal biodiversity, indicators, etc.

The Independent Review of the CHM, conducted in 1999, identified many opportunities for the next strategic planning phase of the CHM. Participating in the independent review were more than 100 parties to the convention, 5 sister conventions and international initiatives, the financial mechanism of the Convention (GEF), as well as the Secretariat, and the Informal Advisory Committee.

The Review provided the opportunity to determine the accomplishments attained to date. With the National Focal Point Infrastructure in place, NFPs are receiving and filling information requests related to biodiversity (105 NFPs have E-mail and 41 have web sites). They are also working in partnership with organizations locally and internationally in support of the objectives of the Convention. Importantly, there are tangible examples of how the CHM has been successful in facilitating scientific and technical initiatives, essential to successful implementation of the Convention.

The independent review participants identified that the most useful elements of the Global CHM Network were: provision of information and documents, facilitation of partnerships and information sharing and support to the CHM nodes. The review also addressed questions on who uses the network, for what purposes, and how successful the search efforts are. It concluded that 80 percent of participating nodes in the network receive up to 25 requests per week. The advice requested is most often for general advice and information related to biological diversity (80 percent). Requests most commonly come from students, research/education institutions, government in the same country as the node, and from NGOs. Importantly, over 35 percent of the nodes received information requests from governments in other countries, as well as from business and industry. Local nodes search for information from the global CHM node to meet requests: 50% report a general success rate, while just over 30% reported that these searches are generally unsuccessful.⁹

When responding to requests, 60 percent of nodes generally use E-mail, while 50 percent of nodes use fax, mail and the telephone. "In person" responses have also been provided in 37 percent of cases. 32 percent of the nodes indicated that they direct people with information requests to the WWW.

The major challenges experienced by the networks range from technological problems (less than 30 percent experience problems such as: difficulty finding and retrieving information, difficulty using the browser, problems downloading and

⁹ The full text of the Final Report Independent Review of the Clearing House Mechanism Pilot Phase as well as the Strategic Plan and longer-term programme of work can be downloaded from <http://www.biodiv.org/chm/Review/index.html>

printing files, software and hardware problems). Also noted were insufficient and outdated information, pointing to the need for more standards, methodological guides, information on the CHM and more materials on the results/experiences of implementing the convention. The limited number of languages into which documents were translated (6 UN official languages) was raised by 15 percent of respondents.

*Sharing expertise and information with countries and partners from around the world requires a leading-edge knowledge of communication and information management infrastructures. Challenges arise when different users of the CHM use different infrastructures. To maximize participation in and access to a global CHM network, it is important to identify a minimum level of technological infrastructure required to participate in the CHM. Efforts need to be made to ensure that Parties and partners meet this minimum threshold.*¹⁰

As has been identified by the Strategic Plan and reflected in the longer-term programme of work (1999-2004) the respondents of the independent review stated a need for more local capacity-building. The top four needs identified were for more training, improved information management systems, strategies, and standards, improved partnerships for information sharing, and increased financial support.¹¹

The work of the CHM staff at the CBD Secretariat is funded through the core Convention budget, as well as additional voluntary contributions. National Focal Points to date have only received funding up to \$14,000 for hardware, software, and some basic training from the Global Environmental Facility (add-on module of the Enabling Activities). About 34 respondents also received funding from their national governments; however, this is more the case for developed than for developing countries. Funding from other sources — local partners and international donors, is received by less than 10 percent of the responding nodes. The review pointed to the need to plan for the long term sustainability of the network, and for access to resources that are essential to sustainability — financial, technical, human, and information.

The CHM is an open and decentralized network in progress. It is evolving through a process of evaluation, implementation, and testing and adapting new strategies as it moves forward.

GARNET

GARNET, the Global Applied Research Network in Water Supply and Sanitation, is an electronic forum designed to facilitate information exchange in the water supply and sanitation sector throughout the world. Its main concern is to facilitate the sharing of *applied* research in this sector for the resolution of common problems in *developing* countries. Network activities encompass all aspects of the water and sanitation sector, including technology, management, health, and social issues.

¹⁰ *Ibid.* p.30

¹¹ *Ibid.* p.21

The initial impetus for the network came from the Water Supply and Sanitation Collaborative Council (WSSCC). This international body was formed at the end of the United Nations International Drinking Water and Sanitation Decade (1981-1990) to provide a framework for collaboration between sector agencies in both developed and developing countries. In September 1991 at the WSSCC Oslo meeting, participants identified applied research as a priority issue. The Working Group on Applied Research, established after this meeting, acted as the advisory committee to GARNET, formulating terms of reference and guiding developments, until the Rabat meeting of the WSSCC in 1993. At this meeting, a mandate was conferred on GARNET to act as a focal point for the WSSCC's activities in applied research in the sector. Launched in 1993, GARNET has been coordinated by its Global Network Centre (GNC), based at the Water, Engineering and Development Centre (WEDC) at Loughborough University in England.

GARNET is designed for researchers, users of research, and its funders, including universities and colleges, government ministries, international organizations, NGOs, and consultants. Currently the Network consists of a range of low-cost, informal networks that are either geographic- or topic-based. The geographic, or Local Network Centres (LNCs) operate out of Latin America (CINARA, the Instituto de Investigación y Desarrollo en Agua Potable, Saneamiento Básico y Conservación Hidrico, at the Universidad del Valle in Colombia), West Africa (CREPA, the Centre Regional pour L'eau Potable et L'assainissement a Faible Cout, in Burkina Faso) and South Asia (the International Centre for Diarrhoeal Disease Research, in Bangladesh).

The LNCs allow for greater decentralization of activities, and wider multi-lingual operation. Each LNC is operated by a coordinator who is responsible for keeping network members informed of new developments and research within the field, putting researchers in touch with other members working in a similar area, and reporting back to the global network coordinator on a regular basis. Activities include the publication of resources such as digests of research projects, and consultation events such as workshops. Initially, GNC provided a small seed fund to each local network to stimulate local networking. The intention was for LNCs to then lobby for local funding. This has proven more difficult than anticipated, and the GNC has since provided a second tranche of funding to help with activities.

The GNC is responsible for the global coordination and promotion of the network. It serves as the source of information for the network as a whole, and applied research in the sector more generally. It establishes guidelines and formal practices for the operation of topic-based or regional networks and actively seeks to establish new networks. It provides human resource and technical assistance to local and thematic nodes. Funding for the GNC comes through the Department of International Development (formerly ODA) of the United Kingdom.

GARNET offers a wide array of resources. The main Web site at <http://www.lboro.ac.uk/garnet/> provides access to applied research reports, documents, conference papers, newsletters and journals, databases, archives, glossaries, and links to organizations and individuals in the field. The GNC also publishes and distributes

a regular Global Network Newsletter. At the regional level, topic network centres provide periodic updates from the Coordinator in the form of a network newsletter distributed by E-mail or post, which reports on projects, insights and developments. Regional coordinators also assist members with technical queries. Thematic, or topic-based networks are run by different institutions or individuals, but are accessed mainly through listservers, hosted at the main web site. One of the most successful areas of expansion has been electronic conferencing. GARNET is running a series on issues in the sector.

Contributing to GARNET's knowledge base are both members and the nodes (whether thematic or geographical). The main benefits for participating and contributing are: reducing professional isolation; avoiding duplication of effort; providing opportunities for collaboration; and capacity strengthening. In terms of incentives, GARNET has adopted a strategy of linking inputs to outputs; for example, the electronic conference series makes explicit that all participants will receive a copy of the synthesis report at the end. The main incentive for hosting a thematic discussion are that it keeps the individual or organization abreast of recent developments; it may offer opportunities for collaboration; and it may bring further insights into the subject.

*The biggest challenge has been providing an appropriate incentive structure that users of the network will buy into. It is relatively easy to set up a skeleton of a network, the bigger issue is how do you convince busy sector professionals to stop what they are doing, read what you are circulating and encourage them to respond?*¹²

The present users of the network are as follows: NGOs (37%), higher education institutes (23%), government departments (22%), consultants (14%), and international organizations (4%). For this latter group, it appears there has been limited buy-in, and the network is in the process of seeking wider strategic alliances with key international agencies, such as the UNDP-World Bank Regional Water and Sanitation Groups.

The International Model Forest Network

Due to the success of the Canadian Model Forest Network, established in 1990 to develop, test and share best sustainable forest management practices across Canada, the Canadian government announced an initiative to develop this concept internationally at the Earth Summit in Rio in 1992. The International Model Forest Network was created soon after. Several international model forest sites have since been established or are being established, in Canada, Mexico, Russia, the United States, Chile, Argentina, Japan, and China. Many other countries and agencies have since come forward to indicate interest in participating. The International Model Forest Network has three main objectives:

¹² Darren Saywell, E-mail communication, 9/29/99

- to foster international cooperation and exchange of ideas relating to the concept of sustainable forest management;
- to support international cooperation in critical aspects of forest science and social science that underlie the search for new models of forest management;
- to use these concepts and applications to support ongoing international discussions on the criteria and principles of sustainable forest management.

Through the program, national governments provide incentives for diverse interest groups to form broad-based partnerships and to develop a common vision of the socio-economic benefits, as well as the methods of conservation required to obtain them in particular forest ecosystems. Stakeholder groups include such diverse actors as municipalities, wood-lot owners, industry, local communities, NGOs, and government. This multi-stakeholder group defines the model forest proposal, and develops strategies to ensure that healthy and productive natural resources are maintained for current and future generations. Each model forest is unique as it reflects the social, economic and ecological issues at stake in a given area. They have also adopted different organizational structures. In all cases, though, wide partnership groups have been created, and governance structures have been developed that allow for the assembly of all stakeholders. The model forest stakeholder group interacts through face-to-face meetings, workshops, field tours, and electronic communications, to give some examples. Networking occurs at different levels: locally, regionally, nationally and internationally. In IMFN member countries, national network structures are in place or are being established to facilitate collaboration nationally and with other member nations.

In September 1999, representatives from 12 participating countries met in Halifax, Canada, to share examples of how model forests apply principles of sustainable forest management, and to discuss strategies to enhance global networking. What was a Canadian initiative is evolving an international initiative, with new participants taking on a more active role in the evolution of the network.

The "how" of facilitating access to information across the Network through the development of an interactive information system is being considered — a system that can be accessible to all, and which would present information on the experience and knowledge generated at every local site, which might be relevant to other model forests. There are plans to expand the web site, (<http://www.idrc.ca/imfn/>) which at this time contains general information on the International Network, and to develop distributive lists for E-mail. A combination of ICTs and face-to-face communication is envisioned as an efficient support to Networking. "A mix of communication tools is important given the reality that for the time being, not all participants can download a file."¹³

The Network is headed by an International Steering Committee (ISC), supported by a small full-time International Secretariat (IMFNS), housed at the IDRC in Ottawa.

¹³ Kafui Dansou, IMFN Secretariat, 27/8/99

At present, it is funded by the Canadian International Development Agency, the Department of Foreign Affairs, IDRC, and National Resources Canada. The Secretariat provides the central day-to-day coordination for the Network. It also serves as a channel for the introduction of new ideas and technologies, the use of results of scientific research in improving the performance and output of model forests, and the planning and organization of workshops, seminars, and discussions. Its tasks include: coordination, facilitating networking, promotion, administration, technical advice and guidance, assistance to countries in fund-raising, and public relations. It is also the Secretariat to the International Steering Committee.

*Model forests provide solid insights into why partnership and a bottom-up approach are essential in the question of decentralized decision-making and sustainability of natural resources. On the one hand, local groups must be central in the definition of socio-economic goals, but they must also work in concert with technical, and professional experts who can help them make those goals become reality.*¹⁴

Other Useful Examples

CONDESAN

CONDESAN (<http://www.condesan.org/>) is the Consortium for Development of the Andean Region. With over 60 active members from government, NGOs, universities, and the private sector in Ecuador, Columbia, Peru and Bolivia, its mission is to strengthen the scientific capacity — research, technology development, training, and policy - of agricultural institutions in the region. The four thematic focus areas of CONDESAN are: biodiversity; water and land-use; production systems; and the elaboration of socio-economic development policies.

*"In the five years since its creation, CONDESAN has become recognized throughout the region as an important integrating mechanism for collaboration in research and information-sharing on natural resource management issues of the Andes. Expertise is brought to the Consortium that would otherwise not be available...Advances have been made in land and water management, integrated production to market systems, policy issues, information and decision-making processes, and InfoAndina, a modern information and communication system for members"*¹⁵

InfoAndina, the information system in support of CONDESAN activities, was created in 1993 as the means to enhance and facilitate interchange. Since 1996, it has operated out of Foro de Montanas en America, and has been supported by the Swiss Technical Cooperation Agency, and IDRC. InfoAndina supports the connectivity of members through pilot projects between local providers, supports E-discussions on different themes, and publishes an E-bulletin called InfoNotas which is sent out to

¹⁴ from the IMFN Web-site, verbatim

¹⁵ IDRC Web site B MINGA

members. Its web site <http://www.condesan.org/> provides access to summaries of the results of E-forums, and reports on network activities.

The International Campaign to Ban Landmines

On 1 March, 1999, the Mine Ban Treaty, which bans the use, production, stock piling, and transfer of anti-personnel land mines (AP mines) became international law. This event came about through the combined actions of many agencies and actors, but by far the most important was the International Campaign to Ban Landmines (ICBL).

The ICBL (www.icbl.org) is a global movement based wholly on the activities of NGOs. Launched in 1992, its success as a global movement to reverse and alter concrete policy directions — in this case defence policy - is unmatched in the history of civil mobilisation on any measure of scope, speed and effectiveness. The goal of ICBL is explicit and unwavering. It fought for and achieved an international ban on AP mines. Initially, many governments argued for the use of AP mines under certain circumstances, but later, most became convinced of the need for a total ban.

Although advocacy and policy development were ICBL's first concerns, other activities were instrumental to these aims, including: data collection in the field by NGOs such as the International Red Cross Society, in-house research, linkage with academic groups, liaison with government policy people, and the judicious selection of consultant expertise (senior, retired military officials). ICBL became expert, as well, at building a global, personal network on the basis of regional and national ones, and relying on an effective communications policy which had internal and external orientation, and used ICT for maximum effectiveness.

With respect to network-building, one of the key issues which became apparent mid-campaign was the lack of participation by mine-affected countries and the developing world in general. This was a serious problem given that the distribution and damage caused by AP mines largely takes place in the developing world. In 1995, the ICBL held its 4th International NGO Conference on Landmines in Mozambique, to draw attention to the mine infestation problems in the Southern African region. As the momentum to ban the production of landmines continued to build in the north, developing countries — most notably Cambodia but a great many others - began to develop ban campaigns of their own, with the assistance of local and international NGOs, and the ICBC.

As for the use of a communications policy and ICT, much of the unity and success of the coalition can be traced to a commitment to a constant exchange of information, both internally among members of the ICBL as well as with governments, the media and the general public. In the early years, this was achieved by the extensive use of the fax machine and telephone. The shift to E-mail in late 1995 and early 1996 enhanced these communications, having a great impact on the ability of civil society organizations from diverse cultures to exchange information and, relatively quickly, develop integrated political strategies.

Once E-mail became established within the ICBL, its lower costs and increased reliability relative to telephone and fax made it particularly important in facilitating communication with campaigners in developing nations. It allowed the campaign not only to share information and jointly develop strategies more effectively, but it was also crucial to joint planning of major activities and conferences...¹⁶

NGO Oceans Network

The NGO Oceans Network was formed in 1995 after the conclusion of the UN Fisheries Conference. It was recognized that there were critical gaps in information-sharing among NGOs regarding UN oceans-related activities, and a network was formed to remedy these. This network aims to provide output of UN meetings — especially that coming from the Commission on Sustainable Development (CSD) and the General Assembly (GA) — but it is also dedicated to facilitating information sharing, raising general knowledge of UN mechanisms, and building capacity among relevant NGOs, particularly in the south.

An example of the flow of information coordinated by the NGO Oceans Network was the circulation of the series of resolutions on the moratorium on large-scale pelagic drift nets. Another was its energizing of debate around fish stocks during 1998, the "Year of the Ocean". To encourage action on the issue, it assembled a "Basic Checklist for Implementation."

This network is run by volunteers but its original motivation came from the UN. Its Web site, www.tiac.net/users/oceannet/, provides summaries of ocean-related UN General Assembly sessions, and other UN output, information on upcoming meetings, etc., though this information has not been kept up-to-date. In fact, the overall information available at its Web site would suggest that it has not been updated for a year or more. Key Canadian NGOs, such as Greenpeace and World Wildlife Fund, seem not to be aware of this network.

Canadian Network of Toxicology Centres

Established in 1992, the Canadian Network of Toxicology Centres (CNTC) is a network of collaborating institutions including participants from academia, government and industry. The Network conducts collaborative, interdisciplinary environmental and human health related research at three nodes: the toxicology research centres at each of the University of Saskatchewan and the University Guelph, and a centre jointly managed by the Université de Montréal and Université du Québec à Montréal.

This network is legally incorporated as a not-for-profit foundation with its head office located at the University of Guelph. An 11 member Board of Directors, with

¹⁶ Jody Williams and Stephen Goose, "The International Campaign to Ban Landmines," in *To Walk Without Fear: The Global Movement to Ban Landmines*, 1999, p.7.

5 from the academic community, 2 from government, and 4 from the private sector, makes decisions and provides overall policy direction. A smaller "Management Committee" deals with routine operational issues of the network, while the scientific programs are guided by an Expert Advisory Committee. This last committee undertakes an annual review of the four major programs and the projects of which they are comprised. It approves new projects, which may be undertaken by any researcher in Canada, not just those located at the nodes. Projects are selected on a competitive manner on the basis of excellence.

A feature of the CNTC which sets it apart from other formal, research-based networks in Canada is its focus on public communication and education. Although it sees research as its core mandate, it incorporates the design of educational materials and short courses into its workplan. For example, it has designed a computer game called "PERIL": Project Earth Risk Identification Lifeline", "The Toxicology Study Guide," "A Primer on Toxicology," and a survey course called "Advanced Principles in Toxicology." The CNTC also maintains Internet links of interest to science educators and others interested in environmental education information, as well as a broader range of toxicology related links that can be found on the Links page at its web-site, www.uoguelph.ca/cntc/. Its newsletter, CNTC NEWS, is designed to promote communication among CNTC member scientists and the public, and further the goal of educating Canadians about toxicology.

It is not known what impact these public education materials have. Because the CNTC sees the provision of these educational resources as a complementary role of the network, they do not have the resources for further effort or for evaluations of their effectiveness.

Indigenous Peoples Biodiversity Information Network

The idea for the Indigenous Peoples Biodiversity Information Network (IBIN) emerged from a number of "enabling" activities that took place after the Earth Summit in Rio, which brought together First Peoples of the North and the South. IBIN was developed as a mechanism to help indigenous peoples to communicate and build capacity in implementing article 8(j) of the Convention on Biological Diversity, which is to:

"...respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote wider application with the approval and involvement of holders of knowledge, innovations and practices and encourage sharing of the benefits arising from the utilization of such knowledge, innovations and practices."

The mandate of the network, based in Kamloops, BC, is to serve the private, internal needs of indigenous groups and to facilitate the public sharing of information, to foster communications globally, and to aid indigenous groups to form their own

locally appropriate communications plan. It received its initial funding from the Ford Foundation, and IDRC.

The Web site at <http://www.ibin.org/> contains links to indigenous and non-indigenous organizations providing information relevant to indigenous capacity building and participation in biodiversity issues. There are a number of forums listed, which have been designed to allow users with web browsers to have on-line discussions on topics related to the Convention. However, at the present time, none of these forums are active. The IBIN Library, a clearing house for information that others produce, is empty. The web site, although still publicly accessible, was last updated approximately 2 years ago, in November 1997.

It is difficult to say with certainty why the IBIN has floundered. Lack of funds and other resources no doubt is a key reason — the network received some support for initial meetings in the beginning from IDRC, and the site was arranged by the Ford Foundation — highlighting the problems which can arise when such an activity is heavily dependent on one or two donors. Another factor is that IBIN was pre-empted by the work that began under the Clearing House Mechanism on Biodiversity, which has a Thematic Node sharing the same mandate. Other networks, (for instance, the Indigenous People's Biodiversity Information Network, and the Indigenous Knowledge and Innovation Network) are likely competing for the same constituency and funding.

There is pressure from certain Indigenous groups to keep IBIN alive. However, within IBIN itself, there have been tensions over who should ultimately host the network. At the present time, the "IBIN dream" is still in the minds of some, and a new proposal for funding is being formulated. However, actively working on this initiative are a handful of representatives from Canada and the United States. Efforts to involve more First Nations peoples would involve a large commitment of resources. Whether other First Nations outside of North America will embrace this IBIN network restoration exercise remains to be seen.

Lessons learned

The Launch Process

All of the cases and examples studied demonstrate that *a network is formed around an issue or problem*; one that has been identified and that lends itself to solution only through joint action by many actors and agencies. Sometimes this issue represents a multidimensional, interrelated problem set involving a great many disciplines and actors, such as the Biodiversity Treaty which the CHM is addressing, in other cases it is a problem that can be effectively tackled as a single issue, such as the AP landmines example. The global nature of many contemporary public policy problems — especially environmental ones - is readily apparent from these case studies and examples. However, there certainly remain problems at regional and national levels that can and are addressed appropriately by the creation of multi-actor networks at

these levels. Examples in our paper are CONDESAN and the toxicology network CNTC, and/or regional networks, which are contextually and linguistically specific for their areas, which have become part of a global network without losing their own identity or mandate. We see this latter development in most of our global network examples.

All of the successful networks studied began with a *critical number and inclusive range of dedicated participants*. What is lowest possible number? What is the critical range? Our study cannot answer these questions other than pointing to the finding here that the more complex the issue, and larger the scope, the greater is the number of participant-founders. At minimum, there must be enough participants involved to enable useful information sharing, network management, and technical/ administrative support. This number must be sufficient to build up an output beneficial from the perspective of participants, and which they would not, on their own, be able to secure without proportionately more effort. In terms of range, our view, drawn from this and previous work¹⁷, is that successful networks can be mounted based on initial activities of a small, committed group, but the majority of the key representatives from the socio-economic/ environmental problem area or policy community must be part of this group, in order to draw adherents as momentum develops. On the basis of information collected at the time of this study, the NGO Oceans Network and IBIN seem to point to a failure on these variables. In these two cases the networks appear to have been created for the participants, rather than by them — we wonder, did these networks ever have enough participants to sustain them, or did they not have the inclusive range of NGOs and groups that were needed to secure confidence and commitment?

In many of our studies, the nature of participation is multi-disciplinary and multi-sectoral, but not in all. It is the *nature of the issue or problem which defines the character of participation*. Although it can be argued that the CNTC and ICBL do have a multi-sectoral membership and that many types of disciplines exist within them, in fact their key interests tend more toward the production of one or two outputs (research and training in the former, policy change in the latter). Consequently researchers are the backbone of the CNTC and political activists the core group of the ICBL. The Mountain Forum is perhaps the best example in our study of a complex problem which requires a truly multi-sectoral, multi-disciplinary global membership drawn from small mountain communities, and northern and southern research institutes, economic sectors of research, education, policy development, advocacy and so on.

The participation of *influential agents, and/or the use of a window of opportunity* played a role in the launch of many of the networks, successful or not. Where the above two conditions of problem acknowledgement and critical mass of founders were met, the launch of the network with the moral and sometimes funding support

¹⁷ The establishment of a national, Canadian network on university-industry linkage and technology transfer offices, called *Trans-Forum*.

of key agencies — such as the UN — was helpful. Although substantial funding might not come from the supportive sponsor, in-kind administrative support and giving the nascent network credibility and profile helped to lever financial resources from other sources. For example, the Mountain Forum was strengthened by the UN Earth Summit and endorsed by CGIAR, CIP and FAO in 1995, although the actual funding came from the Swiss Development Corporation and other donors. Likewise the idea of GARNET was formed within the context of a UN council, but the funding of the main node and to some extent other nodes comes from UK's Department of International Development. Linking these influential agents with windows of opportunity have been important for most of the networks: the Earth Summit in Rio was a launch site for many, for others important meetings provided the venue.

Having an *adequate budget and the availability of expertise, management and technical support* is important for network launch. Participant organizations involved in network development bring with them specific fields of knowledge and expertise that may well not include expertise in network-building and management. In the case of Mountain Forum, technical and managerial expertise and assistance was brought in from outside of the stakeholder group, provided by Case Western Reserve University's Weatherhead School of Management. Both GARNET's and the CHM's recent independent reviews pointed to the need to ensure that network nodes meet the minimum threshold of technical infrastructure, and the ability to effectively use this infrastructure. Hence the importance of local capacity-building in information management systems, strategies and standards, and the financial support to facilitate it.

Building funding and other partnerships with sponsors, donors and other supporters at the very outset is a key feature of a number of the networks studied. Although a consideration at the launch of the network, this aspect of network development is key to its sustainability, and therefore we discuss it in detail in the relevant section, below.

An element of trust must be evident among participants, and the smaller the budget, the greater is the need for this variable. This is especially the case where organizations representing competing interests are involved in the launch of a network. A member of the International Secretariat of the IMFN describes the often-times highly conflictual process of reaching consensus as long and tedious. Trust is formed through open channels of communication from the start. The IMFN stresses the importance of face-to-face communication in establishing consensus in developing model forest strategies. Political and moral commitment can sometimes compensate for lack of money, but, as in the case of ICBL, a fairly high consistency of viewpoint on a single problem area helps to generate trust and convince participants to commit time and labour resources. A contrasting example is the toxicology network, CNTC, where Centres gravitate toward more collaboration on the basis of a new funding source, which in other circumstances they might compete for.

All of the networks studied required a start-up *location, or site*, including a server and host on the Internet, from which it was administered. For the international

networks, these were global nodes that took on the roles of administrative and technical coordinators and facilitators of the wider networks, providing capacity-building assistance (human and technical) for their entirety. The perceived neutrality of this site proved to be important for the successful ones, including the Mountain Forum, Biodiversity CHM, GARNET, IMFN, CONDESAN and ICBL.

Maintaining Momentum

Throughout the process of establishing and consolidating a network, *a degree of democratic and participatory practices* is essential. This practice may or may not extend into the internal arrangements of the member organizations themselves, but it does necessitate a capacity for horizontal coordination and distribution of decision-making power among the nodes and/or the participating organizations. Certain of our cases show democratic and participatory practices which demand more depth and scope than others: for example the Mountain Forum, IMFN, GARNET and ICBL, all of whom help to broker information exchange and resource sharing at the highest global level AND at the local level in multi-stakeholder groups.

All participants to a network must have the capacity and *be willing to agree on a delegation of power* within the network, to enable the establishment of a policy guidance structure on a rotating or permanent basis. Likewise, if the network is large and complex, it will necessitate a *day to day management structure* to which all participants must agree. In all but one of the cases studied, this process seemed to be managed adequately, although the boundaries set for this work did not permit for a closer look on this important issue. For example, remarks by IMFN indicated that this is not an easy process. What seems to emerge from our study is that IBIN has had difficulty in devising a leadership mechanism which is satisfactory for a wide range of ethnically diverse groups. This finding points to the special challenges involved in building networks across cultural and linguistic divides - achieving trust among participants is necessarily more elusive in these contexts.

Having articulated the issue/problem, participants must *define their goals and objectives* through a democratic process. Given the complexity of most networks and the time required to build them, words — at a certain level of generality - must be chosen carefully so that these can be considered valid for the long term, and both existing and new adherents have a common understanding and agreement on what they are pursuing. Our cases have shown that, under conditions of scarce or limited funding, where participants need to commit their own resources, leveraging others, the goal and objectives of an evolving network cannot be established *apriori*. The degree to which people and organizations contribute to network building will depend on the calculation of future benefit they perceive. In order for network participants to maintain commitment to the network, the network must evolve to the benefit of all participants B whether these are specific benefits related to particular sectoral and disciplinary interests, or more broadly defined benefits, such as policy impacts at national and international levels.

Defining the goal and objectives firmly and permanently also will aid in *defining boundaries on who should participate*, and prevent activities that subvert or re-align the network. For example, we saw that the Mountain Forum is carefully considering the role of financially powerful stakeholders, and has not yet decided on how to approach them or respond to their offers. Recalling our definitional remarks about the need for boundaries and clearly defined objectives, and graduated sanctions to restrict inappropriate actions, it is worth emphasizing that the discussion of goals and objectives should include a thorough consideration of selection criteria for membership.

While goals and objectives should remain concrete, the *strategies and tactics* that a network uses to achieve them *can be decided upon in a dynamic, iterative and participatory fashion*, to take into account expanding membership, the new learning that results, and the greater institutional scope. New opportunities — for funding, other kinds of support, technology, action, and so on will emerge over time so the network must be flexible enough to take these in stride, accommodate and innovate in order to continue to be relevant to its members and its goal. As we discussed at the outset of this paper, "*new configurations in the various relations of knowledge production also signify new possibilities*", therefore networks must be constituted in such a manner that they are able to take advantage of these.

Deciding on action items and recruiting participants to undertake them was a feature of many of the successful networks. Such a process lends itself to more participation and ownership on the part of members. GARNET, for example, encourages member organizations to host electronic thematic discussions, a practice which not only lends itself to more commitment, but also implies capacity-building on the part of the relevant member organizations as they master both the content and technical aspects of the area in question. The point is this: nodes must be more than repositories of information; they must actively participate and contribute to network building in order that the whole reaches the knowledge threshold of "a sum more than the parts" and becomes a new learning entity.

On the subject of knowledge accumulation, successful networks *learn to take advantage of internal expertise, along with information*, and develop formal and informal channels for sharing this expertise. Literature on learning networks¹⁸ indicates that they often have a large basket of expertise that can go untapped for lack of mechanisms. The formal channels can be meetings, workshops, the exchange of personnel, collaborative research, devising joint training programs, etc. Recruiting volunteers/participants to subprojects can also help to draw out the expertise. Networks must also learn to *take advantage of external expertise* as much as possible, on the network's own terms. This feature was evident in many of our case studies, especially the Mountain Forum, GARNET, CONDESAN and ICBL.

Importantly, to maintain interest and commitment in a busy world, the network requires *proactive, positive, and regular animation, usually by a Coordinating Node*. Our

¹⁸ See a summary in: *Models of Community Learning Networks in Canada*, on the Web site of Human Resources and Development Canada,

studies point to the need for an administrative/technical coordination unit which is responsible for implementation and day-to-day liaison with all participants. In the case of the successful global networks we examined, such as the Mountain Forum, the Biodiversity CHM, GARNET, IMFN, and ICBL, there was an international coordinating node, and also regional or national nodes who took on regionally specific activities consistent with overall policy guidelines and the directions of a management board or committee. This Coordinating node might be a neutral agency, that is, having no regional affiliation nor a member of the network *per se*, such as the Montreal Secretariat for the Biodiversity CHM, and IDRC for IMFN, but it might also be a participant with no regional constituency, such as is the case for GARNET and the Mountain Forum. This coordinating node, wherever it is, must have institutional support for the network, stable infrastructure, and technical capacity for developing ICT aspects. Based partly on previous experience with Canadian initiatives,¹⁹ and partly on our studies, this coordinating node should be able and willing to host the initiative for the long-term, because of the capacity-building involved. However, while there are costs to moving, if implementation should fail at one site, it is not inconceivable for a Web site initiative to be moved elsewhere — what is important to consider are the human resource implications that must accompany this move.

Our work indicates that *all nodes need to assign responsibility to a person* within their organization who can respond, participate and organize action for the network on its behalf. Sometimes this responsibility will involve more than one person, particularly where a node or organization is involved in an aspect of implementation on behalf of the global network, such as the thematic discussions that GARNET nodes conduct.

Providing channels for disagreement/conflict resolution and opportunities for self-assessment and evaluation are very important. In three of the networks studied, we determined that the review processes underway or complete for GARNET, the Mountain Forum and the Biodiversity CHM were important tools for determining the next steps to be taken in the evolution of the network. These reviews also allowed for a broad range of network members to assist in the process.

Reasonably stable and sufficient funding is of course critical for the network, the more so where there is a lack of resources at national and regional levels. Furthermore, and as discussed above, where there is a lack of familiarity and consequently trust among relevant organizations, there is a relatively greater need for public funding. This support can provide the catalyst for more interaction that would not occur otherwise, and help to draw organizations together. Funding must be adequate to the task of bringing people and organizations together on a regular basis for person-to-person contact and the solidification of relationships.

¹⁹ *Trans-Forum* and *SchoolNet*.

Communication Policies and Technologies

From the perspective of overall operation of a network, our study and other experience suggests the need for *an internal communications policy*, one that is conscious of language and cultural differences, contextual and infra-structural variations, and so on. Nodal organizations should all be aware of their obligations to respond to E-mail, communicate with members of their regional networks, and report to higher units in an administrative chain, such as a national or international Node or other coordinating body. Devising a communications policy is critical where there is relative equality between nodes — the alternative can prove chaotic and ultimately counter-productive.

As part of this internal communications policy, there must be an *awareness and willingness to adopt any and/or all technologies to reach participants*. This element proved critical for all of the networks studied, but it has particular cogency for global networks whose members are located in developing countries. Information and communication services will need to be provided in many forms to remain useful to all participants who operate at various levels of technical complexity. The IMFN made this point clearly, stating that "*A mix of communication tools is important given the reality that for the time being, not all participants can download a file*"²⁰. Another illustration from our study was a conclusion of the evaluation of the Biodiversity CHM. Here it was determined that building up information management systems to a minimum level among all participants was essential to success. Otherwise those member organizations facing national technical and other resource constraints could not justify their time contributing to the CHM, as opposed to mounting their own national information strategies.

Consistent with the above, successful networks in our study often featured mechanisms for the *technologically rich to subsidize the technologically poor*. If there truly is commitment to involve all participants, then the technical devices that permit this must be put in place. Some of the network funding should be set aside to ensure that all nodal organizations have approximately the same technical resources — otherwise the aim of participatory practice and horizontal coordination is obscured and ultimately lost. For example, in the case of The Biodiversity CHM — participants in LDC's lack the same funding as national counterparts in OECD, plus they start from a smaller base of technology. If nothing is done to alleviate this problem, the end result will be stronger nodes in the OECD, and the gradual erosion of nodes in the developing countries. (This is a problem that is currently being addressed in CHM policy.)

Using Email, listserves and discussion group technologies can help to build the network into a participatory structure and help to confirm the conception that the network is more than a repository of information. These technologies, combined

²⁰ Kafui Dansou, IMFN Secretariat.

with effective social process strategies, were applied with considerable success for some of our examples such as GARNET, and certainly were key to the ICBL. In these cases, effective facilitation of these group technologies was central to their effectiveness.

Adopting *standards for the provision and exchange of documents* and other materials is key for effective information sharing. Often this means adopting the lowest common denominator technology options which are available to everyone for day-to-day document sharing, but final products can then be published in a variety of formats, from the most simple to the more complex.

As described earlier, but contingent on leadership and support, the *coordinating node should be at the most technically advanced location, one with a server and host on the Internet*. Other nodes can take on responsibility as capacity is developed throughout the network.

Finally, in the effort to raise profile, maintain membership and keep funding sources secure, it is *vital to develop a public education/communications package*. In most countries, the public sector is financially strained, and often, given pressing social needs, science policy and programs for research, development and related activities can be delegated a lower priority relatively easily. Part of the problem, especially in developing countries, is that relatively few people are engaged in areas of science, and their votes and voices can be overlooked. Another reason is that science and technology are long-term endeavours which are expensive, and results cannot usually be traced back to all the original investments. Most importantly, for the network we studied which had advocacy as its key aim, ICBL, learning to deal with the media, and arousing public sentiment was a key factor.

Risks

All networks face the risk of losing funding especially from a single, public source. This was the case with a global research network not included in our cases: the Global Urban Research Initiative (GURI). This network, in existence for 7 years, was the largest urban research network in the world, bringing together urban researchers from 12 sub-regions in Africa, Asia, Latin America and the Middle East to research policy-relevant urban issues and to discuss and disseminate their findings. GURI was funded solely by the Ford Foundation, and when it decided in 1997 not to renew funding for the network, the activities of GURI ground to a halt. IBIN has suffered a similar fate, relying on small amounts over the short term from the Ford Foundation and the IDRC. The ideal is to secure financial resources from the start, whether from donor institutions or through strategic partnerships, such as national agencies, or appropriate private sector partners. Similarly, potential donors will be interested in the future economic viability of a proposed network, and may require some assurance of future plans for sustainability and cost recovery. This requires a level of acceptance that there will be competing agendas among potential funding sources. A carefully researched determination of the differing objectives, and factoring in appropriate safeguards, is perhaps preferable to having no money.

Relating to this latter point is the risk that, *networks relying on one or two funding agencies are vulnerable to domination*. Although none of the cases we have documented have had this experience, it has been mentioned as a concern by both GARNET, and the Mountain Forum, and cited as a prime motivation for seeking a diversified basket of funding.

There also exists the *risk of excluding participants*. Particularly at risk are isolated communities lacking connectivity and the human resource capacity to access the network. These groups might prove to be one of the network's most valuable resources and beneficiaries: the people closest to the problems, and therefore those who know them best. The Mountain Forum adopts a policy of prioritizing the ultimate beneficiaries — those that have a direct impact on mountain environments. The bridge to local communities is local leaders and organizations. The "expert community" of users are not explicitly targeted in the same fashion; they come to the network because it is a source of knowledge for them, precisely because of the involvement of those closest to the ground. As discussed above, a careful communications/cross subsidization strategy should minimize this risk, along with open channels for conveying problems and discontent.

Other participants might require specific attention. Although none of the cases point specifically toward the unique problems of women's exclusion arising from unequal gender relations, many studies do. In a policy paper prepared by the UN University Institute for New Technologies (UNU/INTECH) and the UN Development Fund for Women (UNIFEM) in 1998, it is argued that the benefits of ICTs may bypass women regardless of adequate access to relevant infrastructure and service delivery. The risks in this regard are geographically and culturally specific. But it is a general truism that *"...traditionally, for socio-cultural reasons such as limited mobility, double workload, and lower educational levels, women will not be the first accessing, using and experimenting with these new technologies nor benefiting from their enormous potential..."*²¹

There is also the risk of the exclusion of women's knowledge. To give just one example, women's and men's specific domains of "traditional" expertise in healing and medicine differ in many societies. The exclusion of women's expertise may well mean the exclusion of half of existing knowledge. Related to this point is the risk of excluding participants whose modes of communication are largely oral, and whose cultures and languages pose challenges to inclusivity. These are often the communities whose livelihoods and ways of life are dependent on medicinal plants. While documenting indigenous knowledges for the benefit of the network as a whole is important, perhaps more important is ensuring that benefits will accrue to the sources and sharers of that knowledge. Conscious practices of seeking out the organizations and local leaders that represent the interests of local stakeholders are likely to be difficult and costly; however they are vital if in fact a network claims to serve the

²¹ From *Gender and Telecommunications: An Agenda for Policy*, UNIFEM, 1998, p.3 <http://www.ids.ac.uk/cgi-bin/dbtcgi.exe>). Urban bias in telecommunications infrastructure and women's concentration in rural areas; and the costs of connectivity; and cultural barriers to women's participation are cited.

"grassroots". This may also mean adopting strategies that allow for the movement of information and knowledge through different channels — including oral, print, and illustration.

In communities where only the vernacular is spoken, strategies and policies must be devised to ensure channels for information sharing, either through translation, or a local intermediary organization or network. In some cases, it might be possible to solicit the participation of network that functions in the local or regional language. For example, a multidisciplinary network in Quechua is already in place in the Andes. Given the importance of medicinal plants to many Quechua communities, it is conceivable that such a network could be the bridge for this particular linguistic group.

All networks run the *risk of erosion/slow deterioration*, due to inadequate animation, facilitation, or not responding to changing context, and the needs of network participants. It is vital, therefore, to keep on top of current needs, through a proactive communications policy, as well as technologies.

Finally, there is the risk of *unrealistic expectations*. All sponsors and donors, as well as those involved in building networks, must be cautioned about the time it takes to establish networks — especially where there are budget constraints. Government departments and agencies often create funding request documents outlining ambitious outcomes so as to compete more effectively for limited resources. Then, recipients find themselves under pressure to deliver on grandiose plans and find that they fail on this count, though in fact they might have achieved quite reasonable gains. However donors might not be satisfied. In sum, the real and potential obstacles need to be taken into account in the support of networks, and realistic assessments of the time and efforts involved must be done. This latter point turns our attention to the question of sustainability.

Sustainability

The costs of networks in money, time and energy are high, especially at the front end, making any network which does not last beyond 2-3 years especially wasteful. Often to the frustration of donors and members who want quick results and clear impacts, networks take time to "take" (estimates are 5-7 years...) to establish links with policy-makers and to generate legitimacy within the sector. Pressures put on networks to show concrete products and progress in the short-term, and decisions to withdraw support quickly where they don't, ironically risk undermining the very capacity and impact for which they aim: networks don't produce much fruit in only a few years: the foundation is set and opportunities exist, but the risk is that everything will disappear if donors back out to soon.²²

The long term sustainability of the network needs to be considered from the start. This is especially crucial in the case of nodes in the developing world, as the case of the

²² IDRC Networks: An Ethnographic Perspective p. 29

differential access to resources between developed and developing nodes of the CHM demonstrates. In addition, in the West, communications costs are lower, and required expertise — technical and human - is more widely available. Geographic nodes in the south may well require higher, and more sustained levels of funding and capacity-building.

Networks should plan for the funds required to implement activities. In general, guiding principles should be: to keep overhead and operational costs to a minimum; funding needs to be managed by a broad range of members to maintain credibility; and networks require a recognized structure to secure and manage funding. The greater the degree to which a network is user supported, the stronger it will be, User supplied resources do not need to be financial, but can stress contribution "in kind" ...for the inclusion in network outputs.²³

As the network examples evolve, they are planning for long-term sustainability. IMFN is doing this through the establishment of a donor consortium of donor countries, the network, and participating model forests. GARNET is developing an approach to the larger international organizations who could also become an important group of stakeholders in the network. The Mountain Forum is actively making efforts to expand its funding base. Both GARNET and the Mountain Forum are exploring the idea of charging user fees to some of their northern partners, (although neither have definite plans to raise fees at this point).

It is clear that the initial costs of network-building are high. However, there is a need for networks to move toward self-sufficiency. Some networks, particularly those whose primary stakeholders include local groups in developing countries, may never be self-sustaining. (This, for example, was a conclusion reached by a recent study on the future sustainability of Mountain Forum.) Hence the importance, from the start, of *carefully considering the building of links to the financial and human resources that are available*; for example, with interested government departments in the north, with existing knowledge networks, and private business and industry. This is not to say that this is a straightforward process. Indeed, careful consideration has to be taken of which organizations to involve, and appropriate policies and safeguards have to be built in to ensure that the network cannot become dominated by strong players, or that it loses its original mandate.

For example, it could be that networks might be able to share certain resources at a cost to business or industry. Powerful stakeholders need not be central to the running of the actual network (for example, sitting on boards, or advising on policy), but there might be opportunities for cost-recovery through careful and managed involvement of these groups.

But sustainability goes beyond the financial, a point that has been previously discussed.

²³ Darren Saywell, "Keynote paper on management and maintenance of Networks, GARNET, 29/9/99 p.2

Ownership is the key to network sustainability. Revealed typically in members being actively engaged, ownership expresses the phenomenon of "members working within a network, not for it... not simply performing the business of the network, but taking responsibility for ensuring that the business remains important, beneficial, and well-implemented"²⁴

Conclusion

It is our hope that the networks examined in this study provide some guidance to the prospective global information network in medicinal plants. It is clear that, with so many strands of globally interdependent factors at stake - the health of many of the world's people, the survival of indigenous communities, the disappearance of centuries-old knowledge, the extinction of plants essential to ecology and human well-being, and the looming threat of intellectual property rights on genetic material — a global, multi-disciplinary, multi-sector action is required; action of the highest order and commitment.

Networks offer the possibility of sharing, transforming, and putting to use knowledge that emerges from local communities, articulated by those who know it best, in concert with people working towards an understanding of how the parts fit into the whole. As the world's problems grow in complexity, there is greater need for holistic understandings and holistic solutions, incorporating a wider range of disciplines and perspectives. In a recent edition of *Development Dialogue*, Pat Roy Mooney presents the image of a quilting bee:

*Each person selected her own materials, made her own design, and was responsible for her own patch. In the end, the pieces came together to form a remarkable whole. There's hardly a museum or art gallery in Canada that doesn't boast of some of these quilts, and the best of them have toured internationally — to mingle with other counterparts in Europe or Africa. Was the theme dictated? Did one 'queen bee' lay down the law and others submit? Undoubtedly this happened, at least occasionally, but...I prefer to think...that decisions regarding the theme and final arrangement of the patches were just one more process of community living and negotiation...sometimes creative, fulfilling, and democratic, sometimes not. ...The solutions to the world's problems can only come through a patchwork quilt. Each piece must have its own integrity...but there is no quilt until each patch is complete.*²⁵

We can apply the same metaphor to the building of networks. In the cases documented, networks, some even in their initial stages, have made considerable strides in forwarding their specific agendas, whether it is sustainable mountain or forest development, the global elimination of landmines, preserving biodiversity, improving water supply and sanitation where it is poor. These processes are just beginning. All participants bring to the forum their particular art or science,

²⁴ IDRC *Networks: An Ethnographic Perspective* p.25

²⁵ Pat Roy Mooney, Introduction, "The Parts of Life: Agricultural Biodiversity, Indigenous Knowledge and the Role of the Third System, *Development Dialogue*, Special Issue, November 1977, p.6.

knowledge or expertise, but the product is the whole — the interchange and the process — that allows for solutions to emerge.

Appendix I - Questionnaire

The following questions were used to guide the case studies and examples. In a few cases the Web sites provided answers to some or nearly all questions, however in most interviews were necessary to obtain useful information. These interviews were accomplished through a combination of E-mail and telephone approaches.

1. Please briefly describe the network and its purpose.
2. What was the impetus for the establishment of the network?
3. Who initiated the network, and subsequently, who has been involved? Who funds the network?
4. What is the management structure of the network?
5. What are the network's goal and objectives?
6. What is being done specifically with regard to knowledge creation, accumulation and application?
7. How is the network handling its management of knowledge creation, accumulation and dissemination? (For example, are there formal or contractual agreements between participants? Are there policies on knowledge creation and sharing? What is the management structure?)
8. What forms of communication are being used and how? Are there communication policies?
9. Is the network sustainable, or are there plans in place for sustainability? What partners are involved? Is government involved?
10. What has the impact of the network been, and what are the lessons learned?

Appendix II B List of Contacts

Marc Auer

Head of Unit, Clearing-house Mechanism Secretariat, Convention on Biological Diversity
marc.auer@biodiv.org

Elizabeth Byers

Senior Project Officer: Mountain Institute
Ebyers@mountain.org

Kafui Dansou, Project Officer for Latin America and the Caribbean
IMFN

Kdansou@idrc.ca

Josh Locher, Communications Officer
WWF Canada

Darren Saywell
GARNET
d.l.saywell@lboro.ac.uk

Beatriz Torres
Information Officer, Clearing-house Mechanism Secretariat, Convention on
Biological Diversity
beatriz.torres@biodiv.org

Ms. D Warner, Project Coordinator
Canadian Networks of Toxicology Centres

Appendix III B Literature and Web Sources

Bernard, Anne K., "IDRC Networks: An Ethnographic Perspective." Evaluation Unit, IDRC, September, 1996.

Byers, Elizabeth, "The Mountain Forum: networking for mountain conservation and development." *Unasylva* 195, vol. 49, 1998.

Clarke, Howard C., *Formal Knowledge Networks: A Study of Canadian Experiences*. International Institute for Sustainable Development, 1998.

Crain Ian, et. Al., "The Biodiversity Clearing House: Concepts and Challenges." World Conservation Monitoring Centre, Cambridge, 1996.

Fountain, Jane, "Social capital: its relationship to innovation in science and technology," *Science and Public Policy* 25 (2), pp.103-109, 1998.

Heeks, Richard, "Information and communication technologies, poverty and development," Paper No.5, Development Informatics Working Paper Series, Institute for Development Policy and Management, University Of Manchester, UK, 1999.

Hewitt, Tom and David Wield, "Networks in Tanzanian industrialization," *Science and Public Policy* 24 (6), pp.395-404, 1997.

Mansell, Robin, W. Edward Steinmueller and Uta Wehn de Montalvo, "Opportunities for knowledge-based development: capabilities, infrastructure, investment and policy," *Science and Public Policy* 26 (2), pp.91-100, 1999.

Moonney, Pat Roy, "Editorial Note" in *Development Dialogue*, Special Issue, November 1997.

Saywell, Darren, "Keynote Paper on Management and Maintenance of Networks." Unpublished, 29/9/99.

Shove, Elizabeth and Peter Simmons, "Research contexts and policy knowledge: linking social science research and environmental policy," *Science and Public Policy* 24 (4), pp.214-242, 1997.

UNIFEM, "Gender and Communications: An Agenda for Policy", Paper prepared for the World Telecommunications Development Conference, 1998. URL: http://www.undp.org/unifem/pap_itu.htm.

Williams, Jody and Stephen Goose, "The international campaign to ban landmines," in M.A. Cameron, R. Lawson and B.W.Tomlin (eds.), *To Walk Without Fear: The Global Movement to Ban Landmines*, Chapter 2, 1999.

Web Sites:

Clearing House Mechanism of the Convention on Biological Diversity: <http://www.biodiv.org/chm>

Canadian Network of Toxicology Centres: <http://www.uoguelph.ca/cntc/>

CONDESAN: <http://www.condesan.org/>

GARNET: <http://www.lboro.ac.uk/garnet/>

Indigenous Peoples Biodiversity Information Network: <http://www.ibin.org/>

International Campaign to Ban Landmines: <http://www.icbl.org>

International Model Forest Network: <http://www.idrc.ca/imfn/>

Mountain Forum: <http://www.mountainforum.org/>

NGO Oceans Network: <http://www.uoguelph.ca/cntc/>

USING THE WEB TO ADVANTAGE:

**A Guide to Information and Communications Options
for a Global Information Network on Medicinal Plants**

November 1999

By:
Conseil Equilibrio Consulting
48, chemin de la Rivière
Wakefield, Québec
Canada J0X 3G0

TABLE OF CONTENTS

INTRODUCTION	138
BUILDING A SOCIAL NETWORK	138
Defining the users	139
Shared problems	139
Diversity of user-participants	140
Determination of needs and contributions	140
Range of different needs	140
Differing contributions	141
THE CONTEXT	142
The Internet	142
The Internet in the developing world	143
INTERNET-BASED APPLICATIONS: THE OPTIONS	144
Hosting a Web Site	144
Protocols for Information Transfer	145
Communications devices	146
E-mail and listservers	146
Newsgroups	148
Newsletters	148
On-line conferencing	149
Information Provision	150
Sharing existing resources	151
Centralised, relational databases	151
Distributed databases and search engines	152
Conclusion	153

USING THE WEB TO ADVANTAGE:

A Guide to Information and Communications Options for a Global Information Network on Medicinal Plants

Introduction

This paper is prepared as background to the International Meeting: Towards a Global Information Network in Medicinal Plants, November 17-19, 1999 in New Delhi, India. The focus of this paper is on the *technical aspects* of the network building process — the "nuts and bolts" of network building. It complements another background paper prepared for meeting, called *Models of Multidisciplinary, Multisectoral Networks: A Collection of Case Studies to Aid in the Development of a Global Information Network on Medicinal Plants*, which looks more to the *human aspects* of network-building.

The aim of this paper is to describe some of the information and communications technology (ICT) options for the benefit of participants at the meeting, to increase understanding and aid decision-making in the area of ICT applications. The first section of the paper is a consideration of the *social process* aspects that are critical to the effective deployment of ICTs to the building of a network. In the second section, a brief history of the Internet is presented, and its status and applicability in the developing world is described. The third section of the paper consists of an inventory of selected, Internet-based resources and tools that could be used to enhance the operations of the network.

Building a Social Network

Although this paper focuses on electronic networking, it is our belief that technology cannot compensate for the necessary social factors required in the building of a group, virtual organization, or a network based on the development of linkages between people and organizations for knowledge exchange, accumulation and action. Our understanding of the vision of the prospective information network in medicinal plants is that it will be a multisectoral, multidisciplinary knowledge network, with elements of research, development, training, advocacy and policy development. As such, it will be first and foremost a *social network*. Social networks can take advantage of ICT technologies, but these technologies cannot compensate for lacks in personal and organizational commitment. Hence a first step in this process is often a person to person meeting. Here user-participants can begin the development of relations of mutuality and trust, and begin to identify ways to work together.

It is also understood that the electronic aspects of the network will not be appropriate for all contexts and situations. Other forms of communication and information distribution will continue to play key, and often critical, roles in the prospective network.

Electronic networking is a tool for enhancing the effectiveness of face-to-face meetings and complementing existing methodologies for gathering and disseminating information. Information rescues should be seen in the context of a continuum, which comprises a spectrum of information resources from paper (hard copy), to multimedia resources...¹

Defining the users

Shared problems

Before initiating the development of a knowledge network based, at least partly, on Internet communications technologies and a Web site, the key question to be asked is: who is to be served by this network? The community of user-participants must be identified, they must be convinced of the advantages to tackle issues that affect all of them on a collaborative basis, and they must come to an agreement to work together. They must decide on their goal and objectives, and strategies and delegations of responsibility for reaching them. Once at this point, user-participants can begin the design of a network based on information and communication. It is these prospective network members, coming from different contexts, who will bring value to the initiative by offering their information and other resources to the network.

It is quite possible to develop a Web site without user participation — certainly countless such sites exist. However Web site developers will not be able to take advantage of expertise, resources and knowledge that exist within a given community, and the Web site that results will likely not be as relevant to users as it could be. Consequently there is a risk that the "target group" will ignore the site.

Should agreement be reached among user-participants to build a Web site and a network, to settle on a goal and objectives, and to delegate tasks, a launch process can begin. However, this is only the beginning. Commitment — in time, effort and financial resources - will continue to be required.

Once access is established for members of a research network, the single most important ingredient to ensure its success is commitment from members of the network to the concept of electronic networking. Without fundamental buy-in, any electronic network is doomed to failure. The reason for this is that it requires more effort than any organization currently expends to share information within the context of an electronic network. The benefits of such information sharing are extremely powerful, yet it is important to realise that this sharing constitutes a new kind of work not currently being undertaken by partner organizations.²

¹ Steve Song, A Guidelines on the Use of Electronic Networking to Facilitate Regional or Global Research Networks, © 1999, p1. On the Bellanet Web site at <http://www.bellanet.org/lists/documents/>

² Ibid., p.3.

Diversity of user-participants

Effective networks can thrive on diversity among user-participants — information and knowledge flows across disciplinary, sectoral and geographical barriers can contribute to learning in a dramatic way. However success in this regard is dependent on the constant recognition of these differences, and in order to serve its membership, a network must take account of variations in technology, institutional support, funding, culture and language. The last issue is important, for language is a significant barrier to participation in many existing networks, most of who host Web sites in English. However, it is possible to take advantage of Internet-based translation tools, and also to devise networking strategies that devolve certain areas of responsibility and coordination out to regional nodes to undertake in their language choices.

Being forthright about potential areas of difference, competition and even antagonism is important. Although participants might share certain problem areas, they may be competing for the same clients³, or the same funding sources. They may have different perspectives on a problem area, or the priority areas, methods of approach, etc. Network members are likely to come from different institutional contexts, with different administrative mechanisms in addition to varying missions or points of view.

An often-overlooked aspect of inter-agency work, surprisingly, is the necessity to reconcile myriad institutional and person-to-person perspectives so that the work can be carried out smoothly. This is not a trivial concernThese differences, difficult though they may be to overcome, can only be ignored at the peril of partnership....If (the) divergent perspectives are not identified, acknowledged and worked through, they will at some point create significant implementational difficulties.⁴

Determination of needs and contributions

Range of different needs

It is the user-participants who define their communication and information needs. With their help it can be determined what exists in terms of available information resources and communication infrastructure, including Internet-based communication devices and information sources.

Strategies to address needs within different regions will have elements and demands that are particular to the locale, and elements and demands that are similar to other regions. Global and regional information services will take account of these

³ For example, the development of a national, Canadian Web-based initiative called *Trans-Forum* (<http://www.trans-forum.gc.ca> which depends on collaboration among university-industry liaison offices has elements of collaboration in terms of sharing certain resources, and competition for clients.

⁴ Riff Fullan, "ICT-Enabled Development Collaboration at the National Level: The Bellanet Perspective," Paper presented to the International Information Technology Conference, Colombo, Sri Lanka, 7-8 October, 1998, p.8. On the Bellanet Web site at <http://www.bellanet.org/lists/documents/>.

and work to integrate them as a multi-level approach with information and communication services that meet the demands held in common by most or all of the regional networks/members.

It is important to consider what already exists in terms of communication infrastructure, information resources, and channels of communication. Consideration should be given to what can be applied to network building for the benefit of equipped and capable institutions and the network itself. Building on the strengths of these institutions, providing them with resources to help strengthen weaker institutions, particularly in the rural areas, will also help to open the channels of communication.

Differing contributions

As prospective members of an information network, user-participants will also be called upon to provide sources of information, tools and resources for the benefit of others participating in the initiative. This is a key value of relatively horizontal social networks enabled, to some degree, by ICT.

New computer-networking technology currently has many attributes that could undergird communication...that are truly democratic. Since it supports 'many-to-many' communication, community, regional, national and even international 'conversations' on any topic are possible. This new media is unlike traditional media like newspapers and television that are 'one-to-many'... or telephones and letter writing that are usually 'one-to-one'.

Many in the community network, or "freenet" movement, see community networks as having great promise for more input and influence by broader sections of civil society. Community may be defined as a geographic entity, or it might be a "community of interest" which spans a wide geographic area but whose members are linked by a common interest or goal.

...community networks intensively collate community knowledge and experience, leading to a bottom-up...sharing ...the pay-off for individual participation in a community network is more in the experiential learning that occurs.⁵

The learning dividends that come from inclusionary practices can be high. However, widespread and uncontrolled participation can lead to an undesirable proliferation of information and "noise", so it is important to establish boundaries by defining and limiting membership, while at the same time being mindful of the need to include the technically disadvantaged, linguistic minorities, or other potentially reticent participants. Assigning the task of facilitation to certain people for the animation, monitoring, and filtering if necessary, of electronic dialogues on listserves or electronic conferences, is a useful technique for *selective inclusion*.

⁵ Garth Graham, "A domain where thought is free to roam: the social purpose of community networks," Background paper for *Telecommunities Canada*, 1995, on the Internet at <http://www.freenet.victoria.bc.ca/tc/crtc.brief.html>.

The Context

The Internet

The Internet is an international network of computers, or *hosts*⁶, that communicate according to a series of basic standards for the transmission of data. In July 1998 there were approximately 19.5 million such hosts on the Internet connected to one another by a telecommunications infrastructure consisting of satellites, land stations, and digital transmission lines including optical fibre.⁷ It is through hosts that Internet users access and distribute information where access is usually provided through an intermediary, like an Internet Service Provider (ISP). The Computer Industry Almanac estimated in April 1999 there were 150.9 million users regularly accessing host computers world-wide.⁸ These estimates are echoed by NUA Ltd., which has published an 'educated guess' of total world Internet usage of 171.25 million users as of May 1, 1999.⁹

In the early stages of its development, the Internet was a series of networked computers linked together by the US Advanced Research Projects Agency (ARPA) and used to explore different software designs for communicating. These software designs became a series of shared standards, or protocols. Later this experiment became a cross-country communicating device among selected American research and development institutions, using computers and telephone lines. Thus, as time went on, the first country hosts on the Internet typically began at the larger academic and research institutions, and government departments. In the beginning, the dominant methods of communication on the Internet were File Transfer Protocol (FTP) and electronic mail.¹⁰ Electronic mail remains the principal means by which users around the world communicate on-line. However, in the meantime and in dramatic fashion, the Internet has blossomed into an enormous information and media source — though some might call it a jungle - of international scope and broad subject matter, ranging from gardening to human rights.¹¹ The methods of information exchange have similarly expanded, with the World Wide Web (WWW or simply, the Web) and Hypertext Text Transfer Protocol (HTTP) poised to eclipse e-mail as the most common form of on-line communication.

⁶ A host is a computer directly connected to the Internet backbone (see below), usually providing on-line services, and running computer networks.

⁷ Computer Industry Almanac, Inc., *Over 150 Million Internet Users World Wide at Year-End 1998*, Computer Industry Almanac (Illinois, April 1999), <http://www.c-i-a.com/199904iu/htm>.

⁸ Ibid. As many as 230 million if you include occasional Internet users.

⁹ NUA Internet Surveys, *How Many People are On-Line?*, NUA Ltd (Dublin, May 1999), http://www.nua.ie/surveys/how_many_online/index.html.

¹⁰ Henry Hardy, *History of the Internet*, University of Michigan (Michigan, 1994), <http://www.ocean.ic.net/ftp/doc/nethist.html>. The Internet began as a research exercise conducted by the Advanced Research Projects Agency of the United States Department of Defence. It was a network designed to facilitate the exchange of research information robust enough to withstand the destruction of a number of network nodes in the event of nuclear war. Electronic mail and file transfer were the primary uses of the network.

¹¹ NUA Internet Surveys, *Internet Increases All Around*, NUA Ltd. (Dublin, May 1998), <http://www.nua.ie/surveys/>.

Technical advances in the world's telecommunications networks have paralleled innovations in software programming and protocols over the last two decades. The capacity and speed of the world's telecommunications network systems have expanded dramatically, due to such factors as the advent of fibre optic cable. In addition, satellite-based networking has proliferated, and applications of broadcast technologies for Internet communication have broadened the reach of the Internet. Bandwidth, a measurement of the quantity of data that can be transferred at a given time, is expanding. The consequences of these changes for the Internet include rapid growth in the number of users world-wide, the emergence of new approaches to sharing information, significant diversification in the type of information shared, and an expansion in high-bandwidth uses such as multimedia.

The Internet in the developing world

While the expansion of the Internet has been dramatic, to date most of its growth has occurred in developed countries. An estimated 97 percent of the Internet's host computers are located in countries representing only 15 percent of the world's population.¹² Two thirds of all Internet hosts are registered in the United States.

Although Internet and telecommunication infrastructures in the South are diverse, it is fair to say that many limitations exist. Factors hindering the growth of the Internet in the developing world include: limited telecommunications infrastructures, and consequently unreliable service and low bandwidth; the high price of telecommunications service, including charges for local calls; and the high cost of personal computers. Indeed, the scarcity of computers and their links to the Internet conspire to keep users in queues for E-mail access and Web searches where these are possible. Moreover, the dominant language on the Internet is English, tying Internet literacy to English literacy. For many Internet users in the South, access to the Internet outside of university, government and community facilities in large urban areas is beyond reach.

Nevertheless, there is reason for tempered optimism despite these problems. With liberalization and free trade, monopolies are breaking up and costs for telecommunications service are falling world-wide. Many telephone carriers are eliminating charges for local calls. Companies such as Motorola and Microsoft are investing in the development of low-earth satellite systems that will encircle the globe, enabling the provision of faster and cheaper telecommunications and networking service to populations in both developed and developing countries. Because of changes such as these, Internet usage is actually growing more rapidly in certain parts of the developing world than anywhere else. But it will likely be many years before Internet usage is of much significance for more than the relative few in developing countries who work at academic, government and similar institutions in the South.

¹² Henry Chiasa, Deputy Secretary General of the International Telecommunications Union, quoted in Rob Guth, *Internet Favours Developed Countries*, Computer World Hong Kong (Hong Kong, February 1998), <http://www.cw.com.hk/News/n980224005.htm>.

Thus, faced with the present and contemplating the future, the designers of regional or global knowledge networks based to some extent on the Internet will still have many challenges. They will need to strive to:

- Develop tools and mechanisms for collaboration that optimize delivery for low-bandwidth and high-bandwidth users;
- Develop tools and mechanisms for collaboration that allow users to quickly download materials and use them off-line;
- Ensure that information and collaboration can be achieved using a variety of Internet protocols and applications; and
- Ensure that participants "at the end of the technological line", with limited or no access to E-mail or the Internet, are ensured participation through more traditional means of gathering and disseminating information.

We will look more closely at the social, organizational and technical aspects related to these challenges in the sections that follow.

Internet-Based Applications : The Options

This section briefly describes some of the technical considerations to be made, and some of the current Internet-based tools available to prospective network builders. It is not meant to be comprehensive, but rather, provides participants at the International Meeting with some basic knowledge of applications that might prove appropriate given the infrastructure and cost challenges. Each option would require more research, planning, dialogue with technical experts, and pilot testing before sound choices could be made. This list is, therefore, a departure point for those who are able and willing to take on the responsibility for developing a Web site and electronic communication tools, should the prospective information network on medicinal plants be launched.

Hosting a Web Site

Among the first technical decisions to be made for the development of a Internet-based information resource are those concerning the quality and location of the *server*, and where to host the Web site, if there is to be one. Although the server is sometimes referred to as the computer which stores files and provides services, it is the actual software application running on the host computer, which can be linked to a network, including the Internet. It is a network computer that accommodates multiple users and multiple functions at the same time. For this reason, host computers on the Internet are usually servers.

With respect to quality, though there are different types of servers, the most reliable are Unix or WindowsNT systems that are part of a closely and professionally administered network environment. In considering location, the designers of an Internet-based network must assess the availability and proximity of a network backbone. In developed countries high-speed fibre optic network backbones are

capable of transferring data at very high rates. Many developing countries do not have these high speed network backbones, however. Satellite networks, which permit high volumes of data transfer from the source and delivery to a high speed network or backbone elsewhere, is one method to circumvent this problem. Another is through the use of digital microwave, and a third alternative is a direct line to Internet backbones elsewhere. These alternatives are becoming increasingly available in developing countries.

The speed and dependability of access by *clients* to the server will also be affected by other factors. The term clients refers to the computer softwares that are communicating with the server software to request information, and these are the different softwares on multiple computers. Proximity to the network backbone is important, but so too are the number of connections that the host system has to it. One very important feature of reliable servers is a *redundant multi-homed connection* to the network backbone. This means that there is more than one high bandwidth connection from the server to the Internet which greatly increases the reliability of the system.

Human resource factors must be taken into account in decisions related to the server and Web site. Sufficient technical support for infrastructure issues must be available, perhaps provided by an institution. Ample programming support is also critical.

In sum, then, a global information network might begin with the selection of a server where a Web site could be hosted and other Internet services could be gradually developed and offered, and to which user-participants are likely to have reliable access. The chosen host organization would be on a national backbone, and have programmers, servers and equipment adequate to the development of the services for an international site.

Protocols for Information Transfer

Information is transferred on the Internet by means of a series of shared standards, or *protocols*. Unlike a local area network (LAN), which is created by wiring together a limited set of computers, the Internet poses the challenge of allowing interaction between specified senders and recipients through "anonymous space", i.e. a transmission system which is world-wide and composed of countless computers. If Internet hosts and networks are the backbone of the Internet, then protocols can be understood as the nervous system. They permit both for the sharing and the interpretation of data sent or obtained on-line. Most of these protocols are non-proprietary and they span all elements of the operating structure of the Internet.

The universal language on the Internet is *Transmission Control Protocol/Internet Protocol* or TCP/IP. This protocol permits computers to "talk" to one another, allowing all machines, no matter what their operating systems (e.g. UNIX or Windows) to exchange information.

We will briefly describe some other protocols where relevant to the sections that follow, to provide the reader with some grasp of the terminology and their definitions.

Communications devices

Given the relatively long history of the Internet and the various phases of development it has undergone, it is not surprising that there are a variety of methods for accessing and exchanging information over the network - each of which draws on a specific set of protocols. The characteristics sought in the development of methods to exchange information include the ability to: archive, sort, search and classify content, and in turn, to automate many of these functions. In what follows, we outline some of the current techniques for communicating and exchanging information, and the ways in which these can operate together.

E-mail and listservers

The most widely used application of the Internet is Electronic mail, or E-mail. E-mail enables users to send messages to one or more people who also have E-mail programs or E-mail addresses. Most E-mail programs adhere to a set of protocols called *Simple Mail Transfer Protocol/Post Office Protocol (SMTP/POP)*. A variety of E-mail softwares exist, many of them for free. These include built-in E-mail programs within Web browsers such as *Netscape* or *MS Internet Explorer*, and stand-alone programs such as *Eudora Lite* or *Pegasus mail*.

E-mail is useful for communicating one-on-one, or among reasonably small groups. Most E-mail software programs permit the storage of names and E-mail addresses for ease of mailing, and also allow for the constitution of distribution lists for mail-out to a group of people defined by the sender. However E-mail is unwieldy for discussion topics demanding active participation by a large group.

Electronic mailing lists, or listservers, offer a simple but very effective method for distributing information or sharing perspectives on particular topic areas. This method uses E-mail to deliver messages to a single address where software then redistributes it to individual subscribers. However, unlike regular E-mail, all subscribers can usually send mail to the listserve and everyone receives them.

Listservers give subscribers wide latitude in the choice of software for participating since there are probably hundreds of E-mail client programs in existence, and E-mail is one of the most robust and widely available of all Internet services. On the server end where the list mail originates, there is a range of softwares to choose from, such as *BeroList*, *Majordomo*, *minordomo*, *ezmlm*, *Listserv*. Listserver messages are easily archived and can be made searchable, another aspect in their favour.

When the number of participants on a mailing list become large and the mail traffic threatens to become voluminous, it is usually helpful to assign the task of moderator to a person. This person is equipped to screen messages and ensure that

the dialogue remains within the boundaries established by the group on the mailing list. If dialogue remains unmanageable, there might be a wish to launch new mailing lists that deal with new or derivative topics.

In other cases, for example where an initiative is just getting started, or the number of participants is low, it might be useful for a moderator to also act as an animator or facilitator, to encourage participation, or to persuade the relatively "silent" members to share their views in a new and somewhat foreign electronic "forum" or "workspace". Not everyone feels comfortable in the new environment, and this problem is compounded by language differences. Being aware of who else is on the mailing list is usually helpful, especially if personal contact has previously been made. An animator can also be given the role of informing participants of any new developments or innovations within a network, be they of human resource, organizational, technical or other nature.

The SEA-AIDS network (<http://unaidsapict.inet.co.th>) provides an example of the successful use of a listserv. The SEA-AIDS network was established to increase information flow, enhance its quality, and widen its scope for the benefit of people living and working with HIV/AIDS in the south-east Asia Region. Among the findings of an evaluation of the listserv (extracted from an evaluation report and provided on the Web (<http://www.iicd.org/search/show-entry.ap?entryid'47>)) were a number of points worthy of a summary here:

- In the early stages, some people expressed cynicism about the value of E-mail networks and many of the initial contributions and related activity came from the North. However, as time went on, these attitudes and the nature of participation changed. An identity was established, and it became acknowledged that a regional network could inspire loyalty and enthusiasm, and bring people together who otherwise would not have become acquainted.
- It was found that the moderator was essential for the success of the network. This person had to have the time, knowledge of the subject matter, and dedication to the task. It proved to be important to develop criteria for the admissibility of postings right at the beginning.
- Observations on the degree of participation noted that "many people participate(d) in the network passively, mostly observing exchanges and rarely contributing to them. This reluctance to play a more active role (was), in part, related to the often ambiguous relationship of participants to this new medium...in some cases, a lack of confidence in using a second language (was) a barrier..."
- It was concluded that, despite the problems of Internet connectivity outside capital cities and variations among countries, the costs of establishing the E-mail connections were small in relation to the potential savings in long-distance telephone and fax. Perhaps partly in consequence, E-mail was "rapidly and easily integrated into the communications strategies in a sustainable way."

In sum, a listserver is often a key communication vehicle that, with careful facilitation, can help to establish and consolidate a group. A global information network might choose to launch an initial listserver from the global host site, which would link participants of the International Meeting interested in contributing to its development. New participants and partners could be added as the network concept grew. Eventually, listservers on different topics could be established, dependent on the priority interest areas expressed.

Newsgroups

Newsgroups are actually discussion groups which are posted to the World Wide Web. Their access depends on a protocol called Network News Transfer Protocol (NNTP). Network news or *USENET* is one of the oldest and originally one of the most useful components of the Internet. Consisting of a series of articles classified by topic and interest area into groups with names like *comp.text.sgml* or *bionet.immunology*, news articles are posted and distributed world wide from a network of thousands of news servers which distribute the "feeds" for the hierarchy of USENET groups amongst themselves. Users can subscribe to a group that interests them and read articles as they are posted or access archives of posted articles. The articles themselves are not downloaded to the user's system except when or if they access the specific newsgroup.

Not all discussions are of equal utility, and this is one of the problems of public discussion groups. However, the underlying technology can itself be implemented in more private and secure settings. It is possible to create a private news server (or even a secure news server based on a password-protected log-in) that can be accessed using a Web browser such as *Netscape* or *MS Internet Explorer*, or other newsreading softwares. As an example, its URL¹³, or Web address, could be¹⁴:

news:securenews.medplants.org/medplants.fieldwork

In this example the "securenews" system at the "medplants.org domain" would be the host for the "medplants.fieldwork" discussion. The system would store all the posted articles that could be accessed using news client software. The host system might provide several additional specialized discussion groups such as "medplants.administrative", "medplants.science.health" "medplants.networking.technology", "medplants.net9working.advocacy", "medplants.science.species", "medplants.general", etc.

Newsletters

A monthly newsletter distributed by E-mail can highlight developments and upcoming events for the benefit of network members. Input could be collected from

¹³ URL is the acronym for Uniform Resource Locator, that is, the location for access to a particular Web page, or Web address as popularly called. An URL address includes the server name (www), the sub-domain (disney), the domain (com), the directory (pooh), and the file name (poohcorner.html) to create a complete location: www.disney.com/pooh/poohcorner.html .

¹⁴ This is not a real address.

user-participants of the network. Newsletters are particularly useful when listserver or newsgroup traffic is heavy. To illustrate, many contemporary software development and scientific working groups have taken to publishing edited *digests*, or "executive summaries" of list traffic.

Monthly newsletters can be circulated by E-mail, as attached documents or be made available on a Web site for downloading at regular intervals. They can be formatted with standard word processors, made available as Web documents in HTML, or, for a more professional and consistent look, in print oriented formats like PostScript or Portable Document Format (PDF).

Because of the problems of low bandwidth for some participants, and different protocols used in different countries and organizations, documents available on a Web site would also have to be made available by other protocols. One of these might be *Telnet*, which allows a user to access a host computer and dispatch typed characters to it in the same manner as if the user were working directly on the computer. Telnet permits users to invoke software applications on the host machine.

Another protocol, called File Transfer Protocol (FTP) is used by a number of Internet-based software applications. It provides the means for one computer to connect to another for the transfer of files or for file access. It is a simple and effective way to download (receive) or upload (send) files to or from any FTP server worldwide.

A third protocol, still widely used, is Gopher, which is a distributed document retrieval system. Many Internet hosts run Gopher servers, and these can hold a menu of different types of documents. To retrieve these documents, the user must possess gopher client server. This technology preceded the development of the WWW and HTTP, and was, for a time, widely used.

On-line conferencing

On-line conferencing is a method for Internet-users to "meet" on-line in a more organized manner than for E-mail or listservers. These collaborative and interactive *electronic conferences* can take place asynchronously or in *non-real-time*, that is, be comprised of messages posted at different times over an extended period. Alternatively, they can be conducted in *real time* through live interactive discussions or chats.

On a global basis, real-time conferencing faces limitations due to time zone differences and widely disparate network connection quality around the world. This problem is more acute the broader the geographic scope. However, regional groups with limited memberships and adequate connections to the Internet may find on-line conferencing a valuable resource for certain types of meetings where decisions must be made or ideas explored in a timely fashion. A conferencing facility could be set up at one or more regional nodes of a global information network.

The other option, non-real time conferencing, is more suitable for international "meetings" or discussions than real-time conferencing. Participants can tune into a meeting when convenient, and observe discussion "threads", that is, follow topic areas where the logged transcripts exist. A number of non-proprietary and commercially available softwares exist for this purpose. Non-real conferences can be conducted over whatever period of time the conference or meeting organizers choose: from days to months, for example. Such a service could be installed on the Web site of the global information network with relative ease. It could be used as a device for dealing with specific topics that come up that require attention by certain members, or of particular interest by some members, that are not relevant for all of the membership on a listserver, for example.

Perhaps most beneficial for the organizations involved, E-conferencing can substitute for certain types of meetings (though not all), saving on travel expenses and time, or teleconferencing costs, which are bound to be substantial for a global or regional event.

Information Provision

Information provided by means of a network with a distinct membership can be drawn from existing sources, and new sources can be developed on the basis of needs and contributions of user-participants. There already exists volumes of information on the Internet relating to medicinal plants, ethnobotany and biodiversity, for example, available in multiple languages¹⁵. These are accessible at FTP, Gopher and Web sites located in a number of countries and housed by organizations such as universities, government agencies, NGOs, pharmaceutical companies and other networks. An understanding of the nature and scope of this information must be achieved before embarking on a design for its provision.

The language of users is a significant consideration in the design of the network's search and retrieval functions. In the development of interfaces and data for both centralized and distributed databases interfaces and data may require adaptation and translation, such as the use of keywords in multiple languages, to enable functioning in more than one language.

In many parts of the world telecommunications infrastructure is not well developed and end users have fairly limited connections to the Internet with only E-mail access being available. It is possible to access a wide selection of Internet resources using E-mail gateway servers, a service called *Web-to-Email*. These servers will take commands for retrieving Web pages (via HTTP) or files (via FTP) found inside the message bodies of incoming E-mail, execute them, retrieve the resource, and return it to the requester via e-mail. Some of the mail servers and software application programs, which can do this, include Ftpmail, Getweb, Agora, and W3mail.

¹⁵ Mainly in English, Spanish, French and Portuguese, but also Japanese and Mandarin. Spanish information originating from organizations in South and Central America is often translatable to French and English at the Web sites concerned.

Sharing existing resources

Among the participants of a network there is usually a pool of resources which can be shared for the benefit of all, and can be used for the realization of more effective impact in the case of similar goals. For example, existing documents and materials, such as training manuals, workshop approaches, conservation methodologies, advocacy tactics, community outreach and public education can all be digitized and hosted on-line.

Similar to the example of the newsletter, discussed above, these could be formatted using a variety of low-cost off-the-shelf software packages. A number of on-line utilities make it relatively easy to publish and manage documents in HTML or in other formats, such as PDF.

To begin, they might be available as a list of downloadable resources on the host Web site accessible by any of Telnet, E-mail, FTP, Gopher and HTTP protocols. Later, if the volume grew, an on-line "library" of such resources could be arranged, that is, they could be catalogued and entered into a database which could include their Web addresses if they were hosted at different sites.

A key concern for many is the uneven access to the Internet across different countries, and also within particular societies due to socio-economic or educational and technological disparities. This is a significant problem. However these limitations should not dampen the enthusiasm of NGO's and community networks for pursuing Internet based technologies as a means of publishing information wherever possible. Creating, downloading and printing Web-published materials is often a cheaper alternative than the purchase of books, and material can be created for user-participants, which is up-to-date and precisely meets their needs. In addition, many publications can be distributed through E-mail, for those who have no Internet access, or who have very expensive and/or unreliable Internet access.

Centralised, relational databases

Centralized databases, known more formally as *relational databases*, hold and maintain information on one computer. They organize this information, the *data*, within the context of a software application, the *database*.

The primary advantage of the centralized approach to on-line database development is the consistency and reliability of data in a properly maintained database. The organization developing and maintaining the database can apply control over the format of data, the relationships between data elements, and in some cases the nature of data. However this responsibility carries with it many disadvantages, such as high maintenance costs, and dependence on a particular software and operating system. Moreover, data resident in a centralized database does not necessarily depend on the support of its user community, and it can be populated with little or no consultation with the holders of the data.

Despite these caveats, there is still ample use of databases and new ways to access on-line databases. Certain organizations, such as libraries, do have mandates to maintain databases for the benefit of the public or sections of it, especially where the data is of a nature where centralized control is necessary.

To make networked database searching possible over the Internet, the data and database must either reside on a host computer or be accessible from a host computer using a computer-to-computer information exchange protocol like Z39.50 riding atop the TCP/IP protocol. Usually a software application, the *user interface*, translates HTML information entered by the user into a language understood by query client software which submits the query to the database. Search results make the return trip, being translated into HTML and related to the user's browser by the user interface.

A global information network would want to take advantage of existing databases relevant to the interests of its user-participants. This might involve liaison by network representatives or a project team delegated with this responsibility with database-holders world-wide to develop search techniques. This project would likely be a medium- to long-term initiative involving certain costs, but overall those medicinal plants organizations dependent on the information in these databases are likely to save on individual budgets while gaining access to more databases.

Distributed databases and search engines

Most of the information available on the Internet resides there in the form of document files formatted for the WWW in HTML. The distributed search and retrieval database model is based on search engine technology developed by organizations such as Alta Vista, Lycos and Open Text¹⁶ that can locate words and phrases within HTML documents on the Web.

Search engines are useful tools for applying a basic level of organization to the disorder of the Internet. Services such as Yahoo, Alta Vista, Hot Bot and InfoSeek help users navigate through the disorganized array of information available on line. However, these basic search engines are not able to specify and locate information on a specialized subject with adequate results. New technology is permitting the development of specialized search sites, called *portals*, that can index and search highly specific varieties of information. These portals are based on search engines adapted for specific types of information, for example, it could be possible to adapt a search engine to search for expertise information in medicinal plants, or intellectual property rights materials, and so on.

Using the portal technique, any existing documents on the Internet could be indexed and subsequently accessed by the crawler. What is required is the

¹⁶ Lycos and Open Text are two of the earliest search engine developers, but they are not unique. There are no fewer than a dozen popular search engines and many, many topic specific engines available on the World Wide Web.

identification of all the URLs on a given subject of interest, not a trivial job of course, but once indexed, the crawler can automatically update the indexed information. The identification of useful URLs could proceed in an efficient manner if user-participants defined their topic areas and then provided URLs for the on-line documents and materials they were aware of and had a use for. Quality control and relevance would be within reach by engaging user-participants for the supply of this data.

This approach, the distributed search engine approach, avoids the costs of maintenance and risks of data irrelevance or unreliability with the passage of time which can sometimes occur with centralized databases. It puts the responsibility for Web page maintenance into the hands of the "owners", who normally have a keen interest in keeping data on themselves or their organizations current. The crawler automatically updates the information in the index to reflect any changes.

An application of this service to a global information network on medicinal implies that user-participants identify the Web-based resources that are important for their work. The organization hosting the global Web site might build a project team which could search for a software engineering company dealing specifically with search engines, interact with medicinal plant organizations and solicit their views on key, existing Web-based resources, and finally mediate between the two to ensure a correct adaptation of the search engine.

Conclusion

It is evident that there are a number of Internet-based tools and resources to apply to the prospective global information network on medicinal plants, and to the strengthening of regional networks. There are many ways for participating organizations to share information, learn about one another, and develop new ideas. There are options to save costs, increase access to valuable resources, and participate in a world-wide technical revolution. There are ways and means to "meet" on-line, discuss problems and deal with issues. Taking advantage of existing print infrastructure in institutions, linkages with organizations and other communications devices can help spread the resources on a network further afield, through their downloading, printing and re-distribution at electronic "end-points". It is certainly true that in some regions and some contexts there will be challenges to applying the ICT resources. However, it is our belief that, with sufficient information to make good choices, some patience, and the will to succeed on the part of all members of the global network, these problems can eventually be overcome.

NETWORK BUILDING PROTOCOL

From the beginning, participants were asked to assist in a network-building process, by lending their perspectives, ideas and suggestions to a three-day effort. Beginning on day one, meeting participants were asked to define the problem areas as they saw them for medicinal plants, and the scope for collaboration at regional and international levels. Then, and more concretely, on days two and three, they were requested to participate in the construction of a network-building protocol, essentially a framework for discussion derived from the conclusions of the Equilibrio background paper on the social aspects of multidisciplinary, multisectoral networks.

This background paper, which looked to existing, international, regional and national networks for ideas and notions on how to proceed regionally and globally, concluded that there are several interrelated steps involved in the establishment and sustenance of such networks. The authors understood that these steps often overlap and their content will vary in time and place. However, in the aspiration for mutual comprehension and a common departure point for a diverse, multilingual group, and the equally pressing desire to secure support and initial action items, these steps were simplified into a process-oriented, network-building protocol.

Transformed into a large wall map with the key headings: *Launch, Maintaining Momentum, Communications Policy, Applications of ICT, Management, Sustainability, and Risks*, facilitators explained the origins of the protocol, and asked the participants to assist in expanding and/or adjusting the framework. On the afternoon of day two, the first "step" of the protocol, network launch, was the theme around which small groups (10 groups of three people) were asked to comment on. On the morning of day three, the group work continued with "communications policy", and, due to time constraints, the remaining steps were presented in plenary in the afternoon. What this process did was to encourage debate, elicit ideas, help participants recognize their mutual concerns, and share in the crafting of conceptual and material solutions. It was an on-site process that signaled to participants the great value of networking B that, given a suitable social structure within which to operate, and the commitment to work together, new knowledge can be generated simply by bringing different disciplines, sectors, institutional contexts and cultural perspectives in the joint effort to solve a common problem.

The genesis of a network usually begins with the **identification of a problem area or challenge**, often a public policy problem area but not always. For meeting participants, the challenge was seen from different perspectives as one of improved supply, safety and efficacy of medicinal plants, sustainable use and conservation of the resources, equitable sharing of the benefits of medicinal plants for both consumers and suppliers, the need to focus on communities, and developing more transparency and a code of ethics in this area.

At the meeting, it was clear that the **development of an overall concept and operating principles, including an intra-network communication policy**, was a critical first step before a global information network on medicinal plants could be established. This result implies a different order in the protocol of network-building steps. On retrospect, this outcome is not surprising. Unlike Web sites or networks which are launched through sheer funding power, the prospective network is expected to be built on a combination of social commitment to a public policy goal, whose ultimate size of budget may be contingent on the support of participants, given the aspiration for multi-donor support. Hence it is very important to develop first principles, to ensure that the network is consistent with regional initiatives, and that it is designed in a manner that is supportive of the organizations and networks involved at this level.

The concept of a "network of networks", one that would both respect regional differences while helping regional organizations to strengthen their own networks was voiced many times throughout the three-day session. The issue of language was not resolved; some saw the global network using English as the common language for international operations, with regional networks choosing their own language(s) in which to work. Others were of the opinion that this technique would not be acceptable, and look to translation devices to permit communication in any of three languages: French, Spanish or English. Consequently, in this scenario, resources for translation would need to be factored into the global network budget and innovative human and technical solutions found for this feature.

A set of rules, code of conduct, or system of ethics was proposed as a key element, and though there was not time to properly address this feature, some examples were offered. There might be agreement that there would be no commercial exchange of information on the network, among members. The point of the network would be to freely share non-proprietary information of potential interest to other participants. Another guideline suggested was that there be no obligation to reveal unpublished information, and a fourth, that a single person could not be representative of a regional network. Various ideas revolved around the theme; the point was, there was a need to develop a code or set of rules. Consistent with the general thrust of this was the notion that if members collectively defined the rules, then they were more likely to be adhered too. Finally, given the difference of opinions expressed even at the meeting, the proposal that a mechanism be found to explore issues of contention and resolve areas of potential conflict found much resonance.

INFORMATION ON SUB, CONSEIL EQUILIBRIO CONSULTING, BELLANET AND UNGANISHA

A) Sustainable Use of Biodiversity Program Initiative (SUB PI) - IDRC

The goal of SUB PI is to promote the conservation and sustainable use of biodiversity by indigenous and local communities through the application of gender considerations and local and indigenous knowledge to the development of appropriate technologies, local institutions and policy frameworks.

The objectives of the SUB PI are:

1. To promote use, maintenance and enhancement of the knowledge, innovations and practices of indigenous and local communities that conserve and sustainably use biodiversity;
2. To support the creation of models for policy and legislation that recognize the rights of indigenous and local communities to genetic resources and to the equitable sharing of the benefits of the use of those resources in the context of intellectual property regimes;
3. To develop incentives, methods and policy options that facilitate community participation in the design and implementation of in-situ agricultural and aquatic biodiversity conservation and development strategies; and
4. To support the development of options for sustainable livelihoods and incentives for the sustainable use of natural products from biodiversity resources, especially medicinal plants.

For more information, see our Web site at <http://www.idrc.ca>

B) Conseil Equilibrio Consulting Inc.

Conseil Equilibrio Consulting Inc. is a Canadian company that is dedicated to more inclusiveness, effective dialogue and learning among citizens, organizations and institutions in the development of policies, programs and initiatives appropriate for a knowledge economy. Equilibrio Consulting enhances peoples' access to information and resources, be it social, scientific or technical, and assists with social processes and technologies which encourage knowledge sharing within networks and communities. The company consists of a multidisciplinary, distributed team of consultants across Canada, with its main office and support staff in Wakefield, Quebec. Policy expertise is available in the areas of science and technology, urban and community development, health, public information management, international affairs and socio-economic development.

Our basic product, service and project areas are as follows:

- Web site design, Internet-based publications and tools;
- Training, facilitation, conferences and workshops; and
- Policy development, design, research and analysis;

Drawing on these three foundational cornerstones, we provide:

- Knowledge networks/brokering assistance, that is, we help entities and/or individuals to build their own networks, based on a social process model enhanced by information and communication technologies; and
- *People for Policy Workshops*, a new service that encourages and manages citizen involvement in public policy development for the benefit of policy makers, citizens and society.

For more information, see our Web site at <http://www.equilibrio.qc.ca>

C) Bellanet

Bellanet is an international initiative, with a mission to increase the impact of development activities through greater collaboration. Collaboration is enhanced by more effective use of information and communication technologies (ICTs).

Bellanet's activities follow from our mission and are geared toward these objectives:

- strengthening the capacity of donors and partners in the South to use ICTs to enhance collaboration;
- identifying and solving problems hindering effective collaboration; and
- identifying, sharing and applying best practices and lessons learned.

Bellanet offers a range of services to a variety of partners. The services include:

- web-based workspaces offering discussion lists, databases and other resources;
- advice on ICT policies for organizations and collaborations;
- implementation of projects in the South on behalf of donors;
- user-friendly information management solutions;
- assessment of ICT impacts; and
- seminars and training.

For more information, see our Web site at <http://www.bellanet.org>

D) UNGANISHA

The goal of the UNGANISHA project is to extend the network of the IDRC's connectivity out beyond the Regional Offices to the actual projects that the IDRC funds. In addition, it is the goal of the UNGANISHA project to facilitate/explore/prototype better means for facilitating collaboration, between geographically diverse projects, between programme initiatives and programme officers, and between different departments at the IDRC. UNGANISHA is the Swahili word for connectivity. It also has the sense of meaning unity. The two words **connectivity** and **unity** are cornerstones to the project.

For more information, see our Web site at <http://www.idrc.ca/unganisha>

Information Networking on Medicinal Plants : Towards a Global Strategy Participant List

November 17-19, 1999

Neemrana Fort-Palace

Participants

1. Dr. Adelaide Agostinho
National Institute of Health
P.O. Box 264
Maputo
Mozambique
Telefax: 258-1-431103
Email: adelaide@cdins.uem.mz /
a_agostinho@hotmail.com
2. Dr. Amai Corn Alele
Natural Chemotherapeutics Research
Laboratory
P.O.Box 4864
Kampala
Uganda
Tel: 256-41-235-932/250 488
Fax: 256-41-530-412
Email: valour@swiftuganda.com
3. Mr. Vijay Barve
FRLHT
No. 50 MSH Layout
Anandnagar
Bangalore - 560 024
India
Tel: 91-80-333-6909
Fax: 91-80-333-4167
Email: vijay@frlht.ernet.in
4. Dr. KKS Bhat
109 Cherry Tree Road,
Beaconsfield, BUCKS
HP9 1BG
UK
Telefax: 44- 1-494- 671- 094
Email: sbhat@medplant.demon.co.uk
5. Ms. Sagun Bista
Research Officer
CECI - Nepal
GPO Box 2959
Baluwatar, Kathmandu
Nepal
Tel: 977-1-419-412/414430/426791
Fax: 977-1-413-256
Email: janieb@ceci.org.np
Email: mrsyadav@bom5.vsnl.net.in
6. Dr. Gerard Bodeker
Director
GIFTS of Health
Health Services Research Unit, Institute
of Health Sciences
University of Oxford
Oxford
OX3 7LF
United Kingdom
Tel: 44-1865-226880
Fax: 44-1865-226711
Email:
gerry.bodeker@green.oxford.ac.uk
7. Ms. Catherine Dhaussy
FUNREDES
PO Box 2972
Santo Domingo
Dominican Republic
Tel: 1-809- 682- 7060
Fax: 1- 809- 689- 3388
Res:
11 rue de Sofia
Paris, 75018
France
Tel: 33- 1- 44 9-2-9105
Email: catherine@funredes.org

8. Dr. S P Dhua
Regional Coordination of UNIDO
Project
UNDP
55 Lodi Estate
New Delhi 110 003
Tel: 91-11-462- 8877/462- 9112
Fax: 91-11-462- 0912
9. Dr. Fai Fominyen Ngu Edward
P.O.Box 1981
Yaoundé
Cameroon
Tel: 237- 22- 1608
Tel/Fax: 237-22- 59- 68 (residence)
Email: fai@iccnet.cm
10. Mr. Pushp Jain
Medicinal Plants Consultant
TRAFFIC India
WWF India, Secretariat
172-B Lodi Estate
New Delhi - 110 003
India
Tel : 91-11-469- 8578, 461- 6532
Fax : 91-11-469- 1226
Email: trfindia@del3.vsnl.net.in
Email: pushpjain@del3.vsnl.net.in
11. Dr. Tran Cong Khanh
Dept. of Botany – Hanoi College of
Pharmacy Director, Centre for Research
and Development of
Ethnomedicinal Plants (CREDEP)
9, Vu Huu Loi Street
Hanoi, Vietnam
Telefax: +84-4-826 9043
Email: Kh2836@hn.vnn.vn
12. Ms. Indira Khurana
Coordinator, Natural Resource
Management Unit Centre for Science
and Environment (CSE)
41 Tuglakabad Institutional Area
New Delhi - 110062
Tel: 91-11-6981110/6981124/6983394
Fax: 91-11-6985879
Email: indira@cseindia.org
13. Mr. S.A.D. Kingsley
Program Officer
Medicinal Plant Conservation Project
Ministry of Health and Indigenous and
Medicine
Colombo
Sri Lanka
Tel: 94-075-524-945
Fax: 94 -1-694227/ 94-01-852-962
Email: kingsleys@eureka.lk
14. Dr. Danna Leaman
Executive Secretary
IUCN Medicinal Plant Specialist Group
Canadian Museum of Nature
P O Box 3443, Station D
Ottawa, Ontario
K1P 6P4
Tel: 613-235-7213
Email: djl@green-world.org
15. Ms. Monica Litovsky
CEUTA
Santiago de Chile 1183
(CP 11.200)
Montevideo
Uruguay
Tel: 5982-902-8554
Fax: 5982-901-4004
Email: yuyos@chasque.apc.org
16. Mr. Myles Mander
Institute of Natural Resources
Private Bag X01
Scottville 320D
South Africa
Tel: 27-333-460796
Fax: 27-333-460895
Email: manderm@iwr.unp.ac.za
Email: ellis@inr.ump.ac.za
17. Ms. Nina Marshall
Deputy Director
TRAFFIC East/Southern Africa
Private Bag x11
Parkview 2122
South Africa
Tel: 27-11-486-1102
Fax: 27-11-486-1506
Email: ninatesa@mweb.co.za

18. Mr. Manoj Kumar Misra
Director
TRAFFIC India
WWF India, Secretariat
172-B Lodi Estate
New Delhi - 110 003
India
Tel : 91-11-469 8578/ 461- 6532
Fax : 91-11-469-1226
Email: trfindia@del3.vsnl.net.in
19. Ms. Camila Montecinos
General Coordinator CBDC Programme CET
Casilla 200, Temuco
Chile
Telefax : 56-45-248796 and 248835
Email: cettco@ctcreuna.cl
20. Dr. Ndabaneze Pontien
University of Burundi
P O Box 2700
BUJUMBURA - BURUNDI
Tel: 257-22- 5556 (O) 257-22-5395 (R)
Email: curdif@cni.cbinf.com
21. Dr. Vaidya Balendu Prakash
Director & Ayurvedic Doctor
VCP Cancer Research Foundation
Mandir Marg, Tuner Road
Clement Town
Dehradun, UP
248002
India
Tel: 91-640-792/640-405
Fax: 91-640-909
Email: vcpcrf@del2.vsnl.net.in
22. Dr. Philippe Rasoanaivo
Institut Malgache de Recherches
Appliquees
B. P. 3833
101-Antananarivo
Madagascar
Telefax: 261-20-2230470
Email: ratifa@ats.mg
23. Mr. Darshan Shankar
FRLHT
No. 50 MSH Layout
Anandnagar
Bangalore - 560 024, India
Tel: 91-80-333-6909
Fax: 91-80-333-4167
Email: darshan@frlht.ernet.in
24. Dr. Boonchuay Srithammasak,
Computer Specialist
National Center for Genetic Engineering
and Biotechnology (BIOTEC)
15th Floor, Gypsum Metropolitan
Building 539/2 Sri-Ayudhya Road
Rajdhevee
Bangkok 10400, Thailand
Tel. : 66-2-642 5322 / 31
Fax : 66-2-248 8303 / 4
Email: bsritham@biotec.or.th
25. Dr. Paul Vantomme
Program Officer
FAO of the UN
Viale delle Terme di Caracalla
00100 Rome, Italy
Tel: 0039-06-570-540-64 (direct)
0039-06-570-51 (general)
Fax: 0039-06-570-55618
Email: Paul.Vantomme@fao.org

Resource People

26. Ms. Meg Barker
Counseil Equilibrio Consulting
48 Chemin de la Riviere
Wakefiled, Quebec, J0X 3G0
Canada
Tel: 819- 459-2303
Fax: 819-459-2687
Email: mbarker@equilibrio.qc.ca

27. Mr. Peter Gillies
One World Training
#165-1472 Commercial Drive
Vancouver, BC V5L 3X9
Canada
Tel: 604-875-1504
Email: WAG@web.net

28. Ms. Colleen O'Manique
Counseil Equilibrio Consulting
48 Chemin de la Riviere
Wakefiled, Quebec, J0X 3G0
Canada
Tel: 819-459-2303
Fax: 819-459-2687
Email: comanique@albatros.cnb.net

29. Mr. Steve Song
Program Officer
Bellanet
P O Box 8500
Ottawa, Ontario K1G 3H9
Canada
Tel: 613-236-6163
Email: ssong@bellanet.org

IDRC

30. Ms. Liz Fajber
Regional Program Officer
IDRC-South Asia Regional Office
17 Jor Bagh
New Delhi 110 003
India
Tel: 91-11-461-9411
Fax: 91-11-462-2707
Email: efajber@idrc.org.in
Website: <http://www.idrc.ca>

31. Dr. Francois Gasengayire
IDRC-Regional Office for Eastern and
Southern Africa (EARO)
Liaison House, 2nd and 3rd floors, State
House Avenue
P O Box 62084, Nairobi, Kenya
Tel: 254-2-713 160/713 273-4/713355-6/
713578-9
Fax: 254-2-711 063
Email: fgasengayire@idrc.or.ke
Website: <http://www.idrc.ca>

32. Dr. Chusa Gines
Team Leader
Sustainable Use of Biodiversity Program
Initiative
IDRC
P O Box 8500
Ottawa, Ontario K1G 3H9
Canada
Tel: 613- 236-6163
Fax: 613- 567-7749
Email: cgines@idrc.ca

33. Dr. Madhav Kharki
Regional Program Coordinator
Medicinal and Aromatic Plants Program
in Asia
IDRC-South Asia Regional Office
17 Jor Bagh
New Delhi 110 003
India
Tel: 91-11-461 9411
Fax: 91-11-462 2707
Email: mkarki@idrc.org.in
Website: <http://www.idrc.ca>

34. Ms. Rolie Srivastava
Program Associate
IDRC-South Asia Regional Office
17 Jor Bagh
New Delhi 110 003
India
Tel: 91-11-461 9411
Fax: 91-11-462 2707
Email: rsrivastava@idrc.org.in
Website: <http://www.idrc.ca>

35. Ms. Valthsala
Program Assistant
IDRC-South Asia Regional Office
17 Jor Bagh
New Delhi 110 003
India
Tel: 91-11-461 9411
Fax: 91-11-462 2707
Email: Valthsala@idrc.org.in
Website: <http://www.idrc.ca>

36. Ms. Prabha Sethuraman
Executive Assistant
IDRC-South Asia Regional Office
17 Jor Bagh
New Delhi 110 003
India
Tel: 91-11-461 9411
Fax: 91-11-462 2707
Email: psethuraman@idrc.org.in
Website: <http://www.idrc.ca>

Head Office/Siège social/Oficina central
IDRC/CRDI/CIID
250 Albert
PO Box/BP 8500
Ottawa, Ontario
CANADA K1 G 3H9

Tel/Tél:(613) 236-6163
Fax/Télécopieur: (613) 238-7230
<http://www.idrc.ca>

Regional Offices/Bureaux régionaux/Oficinas regionales

CRDI, BP 11007, CD Annexe, Dakar, Sénégal.

IDRC/CRDI, PO Box 14 Orman, Giza, Cairo, Egypt.

IDRC, PO Box 62084, Nairobi, Kenya.

IDRC, PO Box 477, WITS 2050, Republic of South Africa

IDRC/CRDI, Tanglin PO Box 101, Singapore 9124, Republic of Singapore

CIID, Casilla de Correos 6379, Montevideo, Uruguay

South Asia Regional Office

208 Jor Bagh, New Delhi-110 003. India

Tel : (91-11) 461 9411-2-3

Fax: (91-11) 462 2707

Internet : saro@idrc.org.in

Website : <http://www.idrc.ca/saro>