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ABSTRACT

Sustainable development, biological diversity and conservation of tropical forests are only a few of the hot environmental and political topics where the actors involved have started to make use of the world-wide computer networks. The Internet (as a transport medium of information exchange) and the World Wide Web (as the favorite service to interconnect related movements) are being chosen by international organizations, scientific institutes, forest products industry and environmental activists for advocating their specific view on forestry, wood production and ecological concerns. This paper points out patterns of interaction by presenting Internet services of different institutions involved, for example the Food and Agriculture Organization of the United Nations, the Intergovernmental Panel on Forests (IPF), the International Union of Forest Research Organizations (IUFRO) and the World Conservation Monitoring Center (WCMC). Special attention is given to information services based on computer-mediated communication, such as the electronic clearinghouse Linkages, and to action groups advocating online such as the Rainforest Action Network (RAN) or Ecological Enterprises. The difficult task of information professional in this context will be to keep track of relevant documents and special interest networks on the Internet. Otherwise they will not be able to serve the user's need for adequate interpretation of accessible documentation from electronic resources. (Author/AEF)

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Advocating global forest issues on the Internet

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Abstract: Sustainable development, biological diversity and conservation of tropical forests are only a few of the hot environmental and political topics where the actors involved have started to make use of the world-wide computer networks. The Internet (as a transport medium of information exchange) and the World Wide Web (as the favourite service to interconnect related movements) are being chosen by international organisations, scientific institutes, forest products industry and environmental activists for advocating their specific view on forestry, wood production and ecological concerns. The paper points out a few patterns of interaction by presenting Internet services of different institutions involved, for example the Food and Agriculture Organisation of the UN (FAO), the Intergovernmental Panel on Forests (IPF), the International Union of Forest Research Organisations (IUFRO) and the World Conservation Monitoring Centre (WCMC). Special attention is given to information services based on computer-mediated communication, such as the electronic clearing-house Linkages, and to action groups advocating online such as the Rainforest Action Network (RAN) or Ecological Enterprises. The difficult task of information professionals in this context will be to keep track of relevant documents and special interest networks (SINs) on the Internet. Otherwise they will not be able to serve the user in his or her needs for adequate interpretation of accessible documentation from electronic resources.

Keywords: forestry information, Internet, resource discovery, virtual communities, networked information sources, international organisations, conservation activists, information filtering, restricted access, search engines, information quality, user guidance

1. Introduction

'As the end of the 20th century approaches, there is an increasing awareness of the role of forests and trees in human welfare, in our economic development and in sustaining our environment. Forestry issues have captured the world's attention as never before. Phrases like sustainable forest management, deforestation, climate change, biological diversity appear frequently (...). Canada and Canadian foresters have long been leaders in international forestry and have made important contributions throughout the world. More and more, we are looking beyond our borders to understand the issues. The Global Forest, like the Global Village, impacts on all of us' (Ralph W. Roberts at <http://www.infoserve.net:80/forest/global.html>).

This quotation from the International Forestry Home Page produced by the Canadian Chapter of the Commonwealth Forestry Association (CFA) sets the stage well for the increasing interactions observed on the Internet with respect to global forest issues (Ref 1). When I had the idea of preparing this paper it was rather an assumption, then confirmed knowledge, that international forestry was creating a new platform for information exchange through Internet network resources. The evidence found during a few additional visits on the World Wide Web in May 1996 made it clear that computer-mediated communication and the presentation of various interest groups are not of accidental. Glen Barry for example explicitly states in 'Using informational technologies for forest advocacy' (29 January 1996) that 'conservationists have no options but to embrace informational technologies at this critical junction' (see Ref 2). Information professionals and end-users may welcome this media shift of pressure group activities towards a globally accessible electronic forum because dissemination of news, facts, visions and events are fast and theoretically ubiquitous. The common transport channel makes it possible to build new partnerships and share knowledge within multinational working parties. But what is the impact of the virtual 'Global Village' on the 'Global Forest' on earth, to paraphrase the CAF statement above?

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2. Methodical approach

As well as its public functions, the Internet can serve as a toolbox for invisible interaction between individuals or within closed groups, as documented for the Consultative Group of International Agricultural Research CGIAR (Ref 3). Thus, information resources that are publicly available via the Internet are without doubt only the tip of the iceberg. This is important for the following description of forest advocacy cases which are based on openly accessible documents and services. The term 'advocacy' is used in its large sense to cover informational activities on a specific subject, i.e. global forestry. Due to the dynamic of the Internet services and the limitations of available network tools for the analysis of on-going changes and the mapping of the current interactions in a subject field, the chosen examples are only pointers for further retrieval and personal observations. To locate networked sources on advocacy for forest issues is essentially asking 'Who does what, where, when and why in reality?'. Virtual libraries (Ref 4), subject-oriented metadatabases (Ref 5) and lists of links on relevant hosts (Ref 6) have served as starting points for a focused network navigation in order to learn more about the actors in the field (Refs 7, 8, 9). Using the advanced features of existing search engines — preferably Alta Vista in our case — helped a lot in further following up traces of organisations, events or abbreviations discovered in the context of global forestry.

3. Facts and opinions on global forestry

'Geneva, Switzerland — While governments have spent the last two weeks talking inconclusively about forests, more than half a million hectares of forest have been destroyed worldwide' (WWF News release, 22 March 1996, about 2nd IPF meeting).

A lot of forest-related directory and bibliographic information concerning associations, institutions, experts or projects is offered via Internet services. Full-text versions of conventions, agreements of relevance to international forestry as well as reports about the state of world forests can nowadays be looked up online. Table 1 shows a small selection of the various document types found on the Internet (May/June 1996).

Table 1: Examples of networked information sources on global forestry.

Products/services	Internet reference (uniform resource locator)
Bibliographies at the University of Minnesota Forestry Library	gopher://minerva.forestry.umn.edu/11/
Oxford Forestry Institute, <i>Tropical Forestry Papers</i>	http://ifs.plants.ox.ac.uk/OFI/pubs/tfppubs.html
<i>IUFRO Newsletter</i>	http://iufro.boku.ac.at/news/newslet.html
<i>Forest Ecology and Management</i> , Elsevier's Tables of Contents Service	http://www.elsevier.nl/cas/estoc/contents/SAH/03781127/SZ955019.html
<i>Directory of Forest Pathologists and Entomologists</i>	http://www.ncfes.umn.edu/pubs/pdf/worlddir.pdf
US Forest Service, Phone Directory	http://www.fs.fed.us/intro/directory/welcome.htm
Current projects, compiled by ETRN	http://www.dainet.de/etfrn/pro.htm
Forest Conferences, from ERIN Australia	http://www.erin.gov.au/land/forests/conference.html
TROPIS Data Entry Form, from CIFOR	http://www.cgiar.org:80/cifor/tropis/tropisform.html
Agenda 21 (Rio'92), Chapter 11 on Deforestation	gopher://gopher.undp.org:70/00/unconfs/UNCED/English/a21_11
<i>World Rainforest Report</i> , from Rainforest Information Centre (RIC), quarterly	http://www.igc.apc.org/ran/info_center/wrr/index.html
<i>World Resources 1996-97</i> , A Guide to the Global Environment; Chapter 9 on Forest and Land Cover	http://www.wri.org/wri/wr-96-97/index.html
FAO State of the World's Forests	gopher://faov02.FAO.ORG:70/11Gopher_root%3A%5Bfao.worldfo.T1FF%5D
FAOSTAT, a facility to produce wood statistics on demand from a database	http://www.fao.org/waicent/forestry.htm
Countdown Forests 97, International Forest Policy, Issue 1/March 1996	http://iisd1.iisd.ca/forests/countdown/c97-1.htm

In harmony with the objectives of an organisation there must be a bias in the selection, compilation, dissemination and presentation of specific forest-related issues. Thus, pluralism in data interpretation and knowledge proliferation is expected. Consequently it is up to the user to decide what he or she thinks is right in a particular context. In this respect the situation does not differ from the one of a visitor in a traditional library or documentation centre. But improved access through electronic publication on the Web or due to accelerated document delivery to original documents which are otherwise barely available has contributed in forestry to intensive discussions and to an increase of participants involved. Explicit statements made by the different parties about their organisation, mandate and vision are important for outlining a sociogramme of computer-mediated interaction. To continue the above example in Barry's article, the case of the Ecological Enterprises Mobile Awareness Team in Papua New Guinea (PNG) follows (Ref 2):

'The objectives of Ecological Enterprises' awareness patrols are:

1. To help facilitate the protection of still intact tropical ecosystems and cultures of Papua New Guinea.
2. To provide information on environmental effects of industrial logging to the legally recognised owners of the land.
3. To encourage debate and discussion over what type of development options are best for the long term good of the Papua New Guinean people.
4. To provide counsel to the landowners on the issues of legal rights, making contractual obligations understood through advocacy work and explaining the procedures for logging negotiations.
5. To empower and support lasting local environmental initiatives. It is critical that indigenous people are able to gain skills and information to build their own grassroots movement.'

Similar statements can be retrieved from various decision making committees, task forces and pressure groups in the concert of global forestry (see Appendix). However, the user should be aware of encountering 'virtual personalities' and alias names in discussion groups as well. A summary of the FAO electronic conference 'Addressing Natural Resource Conflicts Through Community Forestry', running from 15 January to 28 April 1996, reports the creation of 'Laurie Amekufa' whose role was to provoke more participation (Ref 10).

4. Virtual interaction and missing links

'... I believe that too often the forestry problem is formulated to fit the available solution, and that forest policies do not make use of the past experience' (From the FOREST mailing list at listserv.funet.fi, June 1996).

Already a 'quick and dirty search' on the Internet makes it clear what the hot topics in forest advocacy presently are: biodiversity, boreal forests, certification and labelling of wood, deforestation, old growth, rain forests, sustainable forest management, tropical forests: in short, the recall covers mainly areas within the more general controversy on ecology versus economy. Therefore, information sources found on these issues also originated beyond the traditional forestry sector which, on the other hand, had integrated many of the environmental concerns in its old silvicultural concept of sustainability for decades. While some of the items, such as old growth, are of greater interest in North American and European regions, other topics are heavily reflecting aspects of the North-South development conflict. The history of CGNET (Ref 11), the creation of IUFROnet (Ref 12) and the growth of service providers like the Association for Progressive Communications APC (Ref 13) or the World Telecommunication Development Report 1995 of the International Telecommunication Union (Ref 14) give evidence of a geographically wider use of telematic applications during the last few years.

As a consequence of the technical infrastructure at hand, a wide range of information products were created to support 'networking' activities in the sense of advocating specific subjects: research institutes have contributed publications and project news, forestry libraries are offering bibliographies and document supply services, governmental agencies have started Questions & Answers hotlines, special clearinghouses provide value-added reference centres (Ref 15). Linkages, from the International Institute for Sustainable Development (Ref 16), runs among other services the Global Forest Policy Clearinghouse which stores a lot of important documents about the Helsinki Process (since 1990) and the Montreal Process (starting 1993), and information on the UN Intergovernmental Panel on Forests (IPF) or on the Forest Stewardship Council. The European Topic Centre (ETC) for Forest, a focal point mechanism of the European Union, is still in the planning stage (Ref 17).

'Alert services' and action oriented 'Archives' are two favourite network resources of information which is for public downloading or dissemination by many non-governmental organisations or regional activist groups. Table 2 lists a few of them selected from different forestry information meta-indices (Ref 6). Further data collections and forest-related movements can be found via the uniform resource locators (URL) given. The IRIS Forest Products Industry Directory, produced by Forest Products Industry Consultants and the World Timber Network and managed by Lejé International (Ref 18), contains many links referring to the forest industry sector (Ref 19).

Table 2: Internet resources of some environmental advocacy actors.

American Forests, Global ReLeaf	http://www.amfor.org/programs/plant.html
EnviroLink Library, Forestry Issuee	http://www.envirolink.org/EnviroLink_Library/Flora_and_Fauna/Plants/Plant_Wildlife/Forestry_Issues/
EnviroLink, Express Yourself	http://www.envirolink.org/express/
GAIA, Gaia Forest Conservation Archives	http://forests.lic.wisc.edu/gaiaarc.html
GAIA, Worldwide Forest/Biodiversity Campaign News Archives	http://forests.lic.wisc.edu/worldfor.html
Greenpeace International, Interactive Chat	http://www.greenpeace.org/icha.html
Rainforest Action Network, Action Alert Index	http://www.igc.apc.org/ran/info_center/aa/index.html
Sierra Club, Action Alerts	http://www.sierraclub.org/sc-action/
World Wide Fund for Nature, Global Action Alerts	http://www.panda.org/action/actmain.htm

Very popular features in the context of forest awareness promotion are 'mailto:' buttons, built-in for various purposes, and WWW forms as pre-produced reply documents. Discussion lists, bulletin boards or newsgroups are other frequent patterns of information exchange. As far as global forestry is concerned one can observe that different organisations have started electronic conferencing on similar topics. One example is the Global Web Forum of the Malaysian Timber Council (Ref 20) which demands registration to the different lists. Another example, the FAO Forestry Research Education and Extension (FREE) discussion groups (Ref 21), have chosen to moderate and structure electronic interaction through agenda suggestions.

To summarise some of the 'advocacy features' via computer networks, G. Barry (Ref 2), is cited once more. He describes the informational campaign strategies developed by Ecological Enterprises for Papua New Guinea as follows:

1. to organise local forest conservation information in a systematic manner to serve the needs of community development and empowerment work in PNG in particular, and in a less detailed manner, the world at large. This involves the collection, selection, compilation, sorting and dissemination of information;
2. to act as support and contact centre for community actions and campaigns;
3. to act as intermediary for receiving and disseminating information;
4. to provide consultation and services to the community and community-based organisations in PNG in particular, and the world in general;
5. to demonstrate to other environmental campaigners how information technologies can be used to network ecological information.'

5. Conclusions

'Should you or your organisation be added to this directory?' (The Sustainable Forests Directory).

The examples above have certainly not shown all the concepts for resource discovery and topic-oriented Internet navigation. Consequently, starting from a geographical approach (e.g. Amazonia, boreal forests, Indonesia) and searching for a specific theme (e.g. 'Santiago Declaration', 'Forest Principles') or for additional networks of special interest groups (SIN, e.g. scientists, activists, governmental committees, local population) would result in further background information. But do we get the right answer to our original question or are we only invited to visit other interesting sites that will shape and disturb our view? Do we in the end know who Glen Barry (Ref 22) is and what the effects of Ecological Enterprises (Ref 23) are on forest conservation in Papua New Guinea?

In my view, some paradoxical phenomena have to be reported with respect to information quality assessment (Ref 24):

- while global forestry has good coverage on the Internet, network access is still very limited from places where forests cover the earth;
- while we are able to locate who is already active on the Internet with respect to forests, there are only restricted tools available to measure the impact of network presence, in order to analyse the inter-linkages of services and to evaluate single documents for their contents' quality level;

- while networked information resources can heavily contribute to a better definition of the problem, the virtual interaction alone does not automatically lead to problem solving in the field, i.e. in the local forest.

In conclusion, a great challenge of Internet information retrieval on international forestry today is to manage the output of all the major actors from the different regions in the world. As we know, public awareness is still shifting from 'forestry' as an economic sector towards 'forests issues' as a multidisciplinary focus on human land use and forest habitats. Therefore end-users and information professionals will profit from any improvement of searching engines. On the other hand, adding value to information resources publicly available on the Internet will become an important task required from information specialists in the future. To do this properly, new tools for citation analysis of networked information and for impact studies of online interaction are needed. However, one should not neglect that the publicly available 'knowledge base' is only the visible part of the iceberg and does not tell us the complete story of the Internet-based information market.

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- [4] WWW Virtual Library Forestry, compiled by Jarmo Saarikko, Finnish Forest Research Institute, Helsinki at <http://www.metla.fi/info/vlib/Forestry.html> and the other VL collections in this document
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- [13] <http://www.apc.org/index.html>
- [14] <http://www.itu.ch/WTDR95/>
- [15] ETRFN at <http://www.dainet.de/etfrn/etfrnhtm.htm>; Australian Forestry from PIENet at <http://www.dpie.gov.au/dpie/forestryoz.html>; World Forest Institute at <http://www.vpm.com/wfi/>; INFOSouth Resource Centre at <http://www.fs.libs.uga.edu/>.
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- [17] <http://www.eea.dk/eionet/etc.html>
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- [21] <http://www.fao.org/waicent/faoinfo/forestry/free/free.htm>
- [22] Contact address at <http://forests.lic.wisc.edu/forests/current.html>
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Appendix: abbreviations and list of organisations (actors) cited.

Abbreviation	Organisation	WWW home page
CABI	CAB International	http://www.cabi.org/
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza	http://www.catie.ac.cr/english.html
CFA	Commonwealth Forestry Association	http://www.infoserve.net:80/forest/cfa.html
CGIAR	Consultative Group for International Agricultural Research	http://www.cgiar.org/
CIESIN	Consortium for International Earth Science Information Network	http://www.ciesin.org/
CIFOR	Centre for International Forestry Research	http://www.cgiar.org:80/cifor/
DPIE	Australian Department of Primary Industries and Energy	http://www.dpie.gov.au/dpie/home.html
ECNC	European Centre for Nature Conservation	http://www.ecnc.nl/
EFI	European Forest Institute	http://www.efi.joensuu.fi/
EIONET	European Environmental Information and Observation NETWORK	http://www.eea.dk:8080/
EMBRAPA	Empresa Brasileira de Pesquisa Agropecuária	http://www.embrapa.br/
EnviroLink	Online environmental information resource network, USA	http://www.envirolinks.org/
ERIN	Environmental Resources Information Network, Australia	http://www.erin.gov.au/
ETC	European Topic Centre	http://www.eea.dk:8080/frames/etc/
ETFRN	European Tropical Forest Research Network	http://www.dainet.de/etfrn/etfrnhom.htm
FAO	UN Food and Agriculture Organisation	http://www.fao.org/
FS-INFO	US Forest Service, Information Network	http://www.fs.libs.uga.edu/
FSC	Forest Stewardship Council	http://antequera.antequera.com/FSC/
FTPP	Forest, Trees and People Programme (FAO)	http://www.fao.org/waicent/faoinfo/forestry/ftpp/default.htm
GEF	Global Environment Facility, World Bank	http://www.worldbank.org/html/gef/Welcome.html
IDRC	International Development Research Centre, Canada	http://www.idrc.ca/
IIASA	International Institute for Applied Systems Analysis	http://www.iiasa.ac.at/
IISD	International Institute for Sustainable Development	http://iisd1.iisd.ca/
IPF	Intergovernmental Panel on Forests	http://www.mbnnet.mb.ca:80/linkages/forestry/ipf.html
IRIS	Industry Related Information Service	http://www.cdc.net/~primus/IRIS/irisfp.html
ITTO	International Tropical Timber Organisation	E-mail: info@itto.or.jp
IUCN	The World Conservation Union	http://www.iucn.org/
IUFRO	International Union of Forest Research Organisations	http://iufro.boku.ac.at/
MTC	Malaysian Timber Council	http://www.mtc.com.my/
OFI	Oxford Forestry Institute	http://ifs.plants.ox.ac.uk/OFI/OFI.HTM
RAN	Rainforest Action Network	http://www.ran.org/
RIC	Rainforest Information Centre	http://www.ran.org/info_center/index.html
TFP	The Forest Partnership	http://www.together.net/~wow/Index.htm
UN	United Nations	http://www.un.org/
UNEP	United Nations Environment Programme	http://www.unep.org/
USDA	United States Department of Agriculture	http://www.usda.gov/
USFS	United States Forest Service	http://www.fs.fed.us/
WCMC	World Conservation Monitoring Centre	http://www.wcmc.org.uk/
WFI	World Forest Institute	http://www.vpm.com/wfi/
WB	The World Bank	http://www.worldbank.org/
WRI	World Resources Institute	http://www.wri.org/
WTN	World Timber Network, by Lejé International	http://www.transport.com/~leje/wtn.html
WWF	World Wide Fund for Nature	http://www.panda.org/



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