

**The Association for Progressive Communications:
A Cooperative Effort to Meet the Information Needs of
Non-Governmental Organizations**

A Case Study Prepared for the
Harvard-CIESIN Project on Global Environmental Change
Information Policy*

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I. INTRODUCTION

The volume of information and resources pertaining to global environmental change has been increasing rapidly in recent years due to more public and professional attention devoted to these subjects. Keeping pace with this ever-increasing flow of information has been a challenge for many organizations. The Association for Progressive Communications (APC) will be examined as a successful institutional model for incorporating a diverse spectrum of users and providing mechanisms to facilitate the exchange of policy relevant information among them. Based on interviews with over 30 founders and key players in this diverse networking system, this institutional study is intended to illuminate the social system effects of networking on international cooperative efforts for social change.

Beginning in 1982, several regional non-profit computer networks emerged as viable information and communication resources. In 1990 the APC was founded to coordinate the operation and development of several of these independent networks. A non-profit organization, the APC is a consortium of 16 international member networks serving approximately 25,000 community activists, scientists, natural resource managers, educators, policymakers and non-profit and non-governmental organizations (NGOs) in 94 countries.¹ (See Table 1 for a listing of APC member Networks and Figure 1 for the number of users at each APC network). The APC is the most extensive global computer networking system dedicated to social and environmental issues. These networks cooperate to provide electronic mail, computer conferences, information databases and other services to subscribers around the world. In addition, the APC member networks can be accessed through 46 affiliated networks worldwide. These affiliated networks serve regions, predominantly in developing countries, that are not directly served by APC member networks (see Appendix 1 for Maps of Member and Affiliate Networks of the Association for Progressive Communications).

The accomplishments of the APC on different fronts provides a framework to understand the impact these services have on their user community and in international policy-making efforts. At least three distinguishing characteristics of the APC deserve study:

- the APC has a **diverse user community** with representation by academia, industry, government, and non-governmental organizations (NGOs);
- the **size of the enterprise** is extensive geographically, with a strong northern and southern country representation; and
- the **practical uses** of the system in policy-making fora are important to many users; the APC has helped to enable NGOs to participate in important policy-making arenas such as the United Nations Conference on Environment and Development (UNCED).

The Association for Progressive Communications (APC) has distinguished itself from the myriad of other information service providers. The APC has proven to many within the environmental advocacy community, that telecommunications can promote the work of non-governmental organizations in policy-making efforts in the U.S. and abroad. In addition, the APC has attracted a diverse user base that encompasses players from many sectors involved in global environmental change policy. The APC has been chosen by more than 17 United Nations offices as an information provider and communications medium for collecting and disseminating information on global change issues. A few of these UN agencies include: the Food and Agriculture Organization (FAO), the Inter-Governmental Negotiating Committee on a Framework for Climate Change Convention (INC/FCCC), and the UN Center for Human Rights, among others.

The APC networks have also been chosen as official carriers of information for UN conferences which has proven valuable for facilitating the communication and coordination of the global NGO community in international policy-making. The APC plans to be present at all UN conferences through 1995.

The APC has been effective at establishing a communications infrastructure organized to serve the information needs of the global policy analysis community. Some efforts are underway to provide access, and incorporate research from scientific researchers on the APC networks, but smaller gains have been made on this front.

In the following five chapters, the organizational structure, history, and practical uses of the system are documented. Chapter 2, "Organizational Structure and Processes of the APC" details the mission, policies and internal organization of the APC. This provides an understanding of the structures that have encouraged this diverse consortium of computer networks to evolve and sustain itself. Chapter 3, "History of the APC Member and Affiliate Networks: An Integrated Information System" looks at the creation and organizational structures and policies of the Institute for Global Communications (IGC), the U.S. member network of the APC. The institutional policies and practices created by the IGC have been transferred into the diverse networking system represented by the APC. This paper also examines the genesis of selected member networks of the APC for their unique contributions to the structures and practical uses of this diverse consortium of computer networks. Chapter 4 describes the practical use of the system as a policy tool with a diverse user base represented on the networks. Chapter 5 focuses primarily on the APCs involvement at the United Nations Conference on Environment and Development (UNCED) and how the networks became the mechanism that enabled NGOs to participate before, during, and after the conference. Chapter 6, "Social System Effects of Networking Technology in the International Arena" discusses the social uses for networking technology, and how they have the potential to increase communication between diverse social groups.

Table 1: Member Networks of The Association for Progressive Communications

<u>Name of Network</u>	<u>Location</u>	<u>Founded*</u>
Alternex	Brazil	1990
GreenNet	England	1990
IGC Networks	United States	1990
Nicarao	Nicaragua	1990
NordNet	Sweden	1990
Pegasus	Australia	1990
Web	Canada	1990
Comlink	Germany	1991
GlasNet	Russia	1991
EquaNex	Ecuador	1992
Chasque	Uruguay	1992
SangoNet	South Africa	1993
Wamani	Argentina	1993
GLUK	Ukraine	1993
Histria	Slovenija	1993
LaNeta	Mexico	1993

* This date signifies the year each network became an APC member. Many of these networks were operating independently prior to these dates.

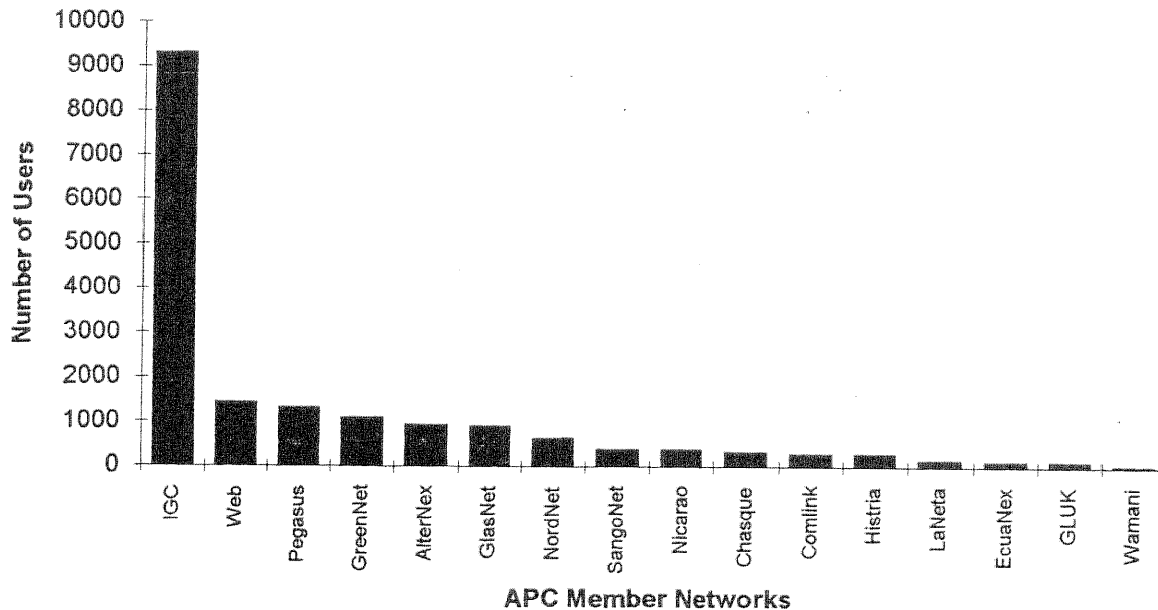


Figure 1: Number of Users at Each of the APC Networks

II. ORGANIZATIONAL STRUCTURE AND PROCESSES

This chapter examines APC organizational structures and processes and illustrates the role of management in establishing guidelines and policies for the development of this system. The decision-making processes and power structures of the APC have remained flexible and inclusive to the needs of member networks which has helped to enable the development of new member networks. The APC's structures have encouraged stakeholder interest and participation in larger APC organizational processes, and have contributed to its expansion to other countries. A key element in the success of these networks has been the coordination of internal organizational structures. The mission and organizational policies are outlined to show the structure of the APC as it exists at present.

The Mission

The APC arose in response to the need for a more efficient and effective tool to promote international communications among non-profit organizations, non-governmental organizations (NGOs) and individuals working in the peace, environmental, conflict resolution, health and public interest communities. The APC networks are used primarily by citizens and NGOs working in related issue areas. APC networks serve to educate and meet the organizational and advocacy needs of international users, providing users with the tools and services for communication, collaboration and information sharing.²

An APC network must accommodate, without prejudice, a wide range of NGOs and social change groups, and be committed to a non-censorial flow of information between these groups. An APC network is independent of any political or ideological alliance that would inhibit differing views from being expressed freely.³

A major impetus behind the creation of the APC is the perception that technology had traditionally prevented many groups, especially in the non-profit and non-governmental sectors, from participating in significant policy debates in the U. S and abroad. The APC is committed to filling an information niche for these communities by providing timely, quality information that serves the public interest.

Organizational Structure and Policies

The APC is governed by the North American Regional Office in the U.S, the APC International Secretariat in Brazil and the APC Council (See Figure 2: Diagram of the Organization). The APC currently employs one person, Edie Farwell, who works at the North American Regional Office in San Francisco. Farwell is an environmentalist and anthropologist, specializing in cross-cultural communication, and she brings a strong people-focus to the organization. Jeremy Mortimer, the past APC employee, is a

technician, and the APC shifted their focus in recent years by hiring Farwell. Farwell was hired to work closely with representatives of the member networks who compose the APC Council, and to develop new international networks. Once a network is established, the director of the network is chosen to represent the new network on the APC Board of Directors. This guarantees that both small and large networks can participate in the decision-making processes that affect all APC networks.

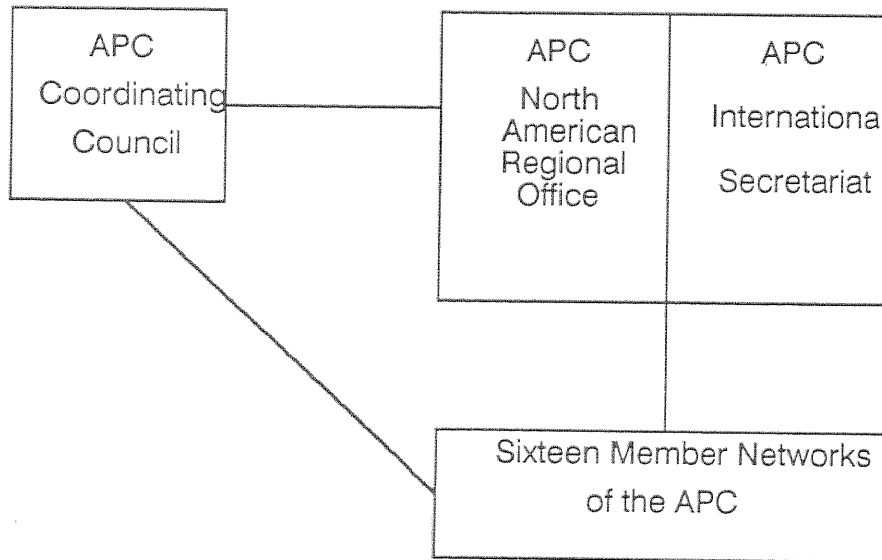


Figure 2: Diagram of the Organization

The APC Council

The Board of Directors is synonymous with the APC Coordinating Council. As stated in the "APC Charter and By-Laws," authority for decisions resides in the Council, with each member network allowed one representative on the Council. The APC has no advisory board. The "Charter and By-Laws" require that the Council formulate policy and monitor an implementation plan for each decision, determine and collect member fees, adopt network connectivity standards and coordinate administration, financial reporting, fundraising efforts, and joint technical development and support. The member networks must abide by decisions made by the Council, and respect the integrity and autonomy of all APC networks.⁴

The APC Council has instituted a unique voting formula that has proven effective for dealing with such a large, and geographically diverse networking system. The Council makes every effort to reach agreement on decisions by consensus. If consensus cannot be reached, then a two-thirds majority of total member votes is required with votes counted as follows: one vote for networks with up to 100 subscribers, two votes for networks with 100 to 1000 subscribers, and three votes for networks beyond 1000 subscribers.⁵ This formula does not give an undue advantage to the U.S. networks (the IGC) who possess

approximately one-half of all APC subscribers, allowing all APC member networks to have stakeholder interests in the decisionmaking processes of the APC.

The Council has defined a method of computer-facilitated decision-making that has worked well for its members. The Coordinating Council formulates APC policy primarily on-line using 30 private electronic conferences. Decision-making occurs predominantly in two conferences, and other conferences are used for coordination, operations, reporting, internal discussion, and the exchange of information. The APC Council has quarterly "meetings" on-line and a face-to-face meeting on an annual basis. Decisions are made and policies formed in these private conferences which are accessible only to Council members and other APC staff.⁶

For official Council decisions such as new policy, acceptance of new member networks, and re-structuring the dues rate, all Council members need to vote. Edie Farwell facilitates the discussion of a particular issue and then calls for a vote. All Council members are required to post on-line whether they approve or disapprove of a stated issue. Farwell often sends 2-3 private e-mail messages urging a Council member to vote if they have not done so. If a Council member continues to remain silent, this signifies agreement with the majority vote.

Most Council voting is conducted at quarterly on-line meetings. Smaller issues, such as the purchase of new computer equipment for the APC office, and informal decision-making occur throughout the quarter as need arises in the internal staff conferences. For smaller decisions, Farwell posts information in an on-line conference and the first three Council members to reply, assuming they all vote the same, decide the issue for the entire Council. If a Council member does not agree with a certain decision, the decision is reconsidered and a re-vote takes place.⁷

The last face-to-face meeting of the Council occurred in August 1993. This was the first meeting held after the APC had participated in two UN conferences, the UN Conference on Environment and Development (UNCED) and the UN World Conference on Human Rights. The Council reached many decisions to guide the APC in coming years. The Council decided to continue to concentrate on developing communication and information tools, but not at the expense of user support services. Concurrently, a decision was reached to proactively affiliate with NGOs and individuals worldwide working in diverse issue areas to encourage the continued contribution and monitoring efforts necessary to ensure quality information is on-line.⁸

The planning for this face-to-face meeting took place on-line in an internal conference. The agenda was set on-line, initial reports were presented, and committees assigned and some decisions were reached by participants. Using on-line communication enabled the meeting to be more organized, focused and effective.⁹ The APC is involved in an experiment with their own medium, and uses on-line decision-making to vote on most organizational decisions and prepare for and optimize the expensive and valuable time invested in face-to-face meetings.

Operational/Management Issues

APC networks are held accountable to standards set forth in the "APC Full Membership Guidelines." There are five primary responsibilities of member networks according to the APC Secretariat. In addition to abiding by the Charter and Bylaws each individual network must ensure that operations are stable and available 24 hours a day, that each network is committed to outreach, training and user support, and is financially stable. Member networks must also be committed to the growth and diversity of the APC, and not exclude what might be seen as competing views.¹⁰

The Charter also requires member networks to charge the lowest possible price to users without compromising the responsibilities mentioned above. A full member network must enter into a legally binding contractual agreement with the APC, agree to be a member for a minimum of 2 years and refer disputes with any APC networks or network users to the APC Council for binding arbitration.¹¹

In addition, according to the Charter, the membership of an APC network may be terminated by the member organization or by a vote of the APC Council. The Council must reach a consensus, or at least a 2/3 majority vote with the number of votes calculated based on the number of users in each system (as described above). Termination requires six months advance notice by the member network and one month by the APC.¹² And the APC itself may be terminated by the Council with a 2/3 vote as defined above. Assets would be distributed among Member Organizations based upon total recorded member contributions. Liabilities would also be apportioned based on a 2/3 vote as described above.¹³

The "APC Charter and Bylaws" has set forth a foundation of principles that are periodically amended as organizational needs change. A recent amendment to the structure of the APC is the requirement that only full member networks, not affiliate networks, officially constitute the APC. Member networks provide the administrative and technical backbone for the APC. Affiliate networks are smaller, local host networks with whom APC exchanges information. Farwell feels that affiliate networks unofficially benefit from and add value to the services of the APC and are "our respected and valued colleagues and friends." Until affiliate networks can guarantee the level of service required to be an APC member, they are not be allowed to use the APC name as their own.

Farwell feels that the APC exists on three levels: "first and foremost we exist for our network users, secondly we exist for the benefit of our member networks, and thirdly, we exist at the APC organizational level."¹⁴ The Charter states that member networks must "ensure that users are aware of other APC networks in their region and assist them in transferring to another network if they wish to." Many APC networks have accepted a significant loss of users and revenues due to the creation of new member networks. The APC Secretariat upholds this principle and regulates complaints in this area.

Funding Structure

Revenues from APC member networks go to promoting the growth of member networks in other countries and administration and support services for the APC Council. All APC member networks pay a quarterly membership fee to the APC Secretariat, with fees assessed according to the number of paying users at each network. Currently the annual fee is US\$7.50 per user, with a minimum annual fee of \$5,000 and a maximum of \$25,000. Networks may apply for a subsidy of between \$1,000 and \$5,000 annually. (The absolute minimum that a smaller network owes is \$1,000 annually.) Non-subsidized members are responsible for submitting a quarterly report of their number of users to the APC Secretariat. Membership fees are paid on a quarterly basis, and the APC Secretariat calculates the costs and reimbursements and charges each network accordingly.

The APC is in the process of re-structuring the dues rates to provide a funding structure that is more viable for networks from countries where the financial situation is unstable. There is a strong likelihood that in coming months the fee rates will decrease or be more flexible depending on the needs of each member.

Subscription fees for users of the sixteen member networks are calculated to be the lowest possible rates that can guarantee quality technical and administrative services. Most networks charge approximately \$10 a month plus telephone carrier charges and information storage charges. The APC seeks to attract a large number and wide diversity of users, and is willing to adapt the fee structure to accommodate users who are not able to pay full subscription rates. Internet connectivity through telnet, has lowered rates substantially for many users.

Procedures For a Network to Join the APC

In order to join the APC, a prospective member network must contact an existing full member to act as its sponsor. The prospective member completes a membership application form with the assistance of the sponsor network, and prepares a business plan. The sponsor network is usually an APC member network operating in the region of the prospective member and assumes a liaison position between the prospective member and the APC for the duration of the membership process. Membership of new networks is determined at quarterly APC on-line Council meetings. New member applications are usually submitted at one quarterly meeting and voted on at the next.

Structural Model for an APC Network

The IGC authored a "New Network Work Plan" which the APC uses to outline successful operational procedures for administration, billing, user support, training of users and technical operations for new members. This document frames a set of

recommendations that are based on the successful experiences of the IGC and other APC networks. It advises each network to strive to become self-supportive through user fees. This goal is often unattainable for a newly established network, and often the creators of a new network are not paid which can often last for several months. Larger more established networks have managed to fund all of their operating expenses through user fees. All networks must develop marketing and fundraising strategies to supplement their operational costs and fund specific projects. A minimum of three full-time staff are recommended for a new network and a budget of at least US\$53,100 plus local expenses should be expected for the first year of operations (See Appendix 2: Sample implementation plan for Human Resources and Sample Budget).¹⁵

New networks to the APC are allowed to choose the system software they will use and service. Most Networks use the APC Unix-based Software which was developed largely by IGC technicians with assistance from technical staff at other APC networks. This software uses a Unix operating system that was chosen based on its multi-user capability, low cost, and abundance of free high-quality software. APC Unix-based Software is provided free or at a very low cost to APC members and many affiliated networks as a benefit of membership. This software allows users to read prompts in Spanish, Portuguese, and English. The languages of Russian, French and Swedish are in the process of being implemented on the system.¹⁶

APC partner networks have often worked together to write grants or to assist a new network in becoming operational. Some networks have received free or low cost equipment from Sun Microsystems. The experiences and lessons learned from older APC networks in their struggle to become financially secure and attract a large user constituency have greatly benefited new networks. The APC is committed to establishing new partners in many poor countries, and has made efforts to assist these networks financially and structurally. Often networks in poorer countries have problems not only with their internal communications infrastructure, but also of convincing users of the value of computer networking when many are unfamiliar with even the possibilities of electronic mail. Computer networking technologies have not received the same level of publicity in developing countries as they have in more industrialized nations.

III. HISTORY OF THE APC MEMBER AND AFFILIATE NETWORKS: AN INTEGRATED INFORMATION SYSTEM

As discussed in previous chapters, the APC is a diverse, and autonomous partnership of member networks that has appealed to a broad-range of users from many social and environmental change movements. This chapter begins with a detailed account of the history of the Institute for Global Communications (IGC) in the U.S, the largest and oldest APC member. The IGC has provided a sound structural model for computer networking in the U.S. and institutional policies and practices created by the IGC have often been transferred into the diverse networking system represented by the APC. The work of the other member networks is examined for unique and distinguishing contributions to international computer networking. Affiliate networks are also discussed at the end of the chapter.

Birth of the U.S. Networks: The Institute for Global Communications (IGC)

The goal of implementing an international networking system was articulated early-on by the Institute for Global Communications (IGC) in San Francisco, California, an organization that manages the PeaceNet and EcoNet computer networks. In 1990, the IGC and six other affiliated international networking systems, gave birth to the parent organization of the APC in order to further the development of computer networking abroad.

Scott Weikart, co-founder of PeaceNet, and later IGC, was formerly with Hewlett-Packard designing proprietary local and wide-area network architectures. He found that "there was a great need among non-profit organizations [for a data communications tool]. When Unix became available on microcomputers, I saw the real opportunity to provide sophisticated computing to non-profit organizations." ¹⁷

These ideas led to the creation of Community data Processing (CdP), a non-profit consultancy founded by 10 technical professionals, including Weikart. In 1986, CdP and the other non-profits involved with PeaceNet and EcoNet established the IGC to manage these networks.

In 1988, the IGC initiated, with the help of individuals from affiliated networking systems, a major program to develop low-cost access to computer networking from outside the United States, especially from non-industrialized and Southern hemisphere countries. A founding principle of the IGC (and later the networks of the APC) has been to empower local, indigenous organizations by transferring expertise and capacity in computer networking. The IGC has provided these emerging networks with much of the technical expertise and support needed to sustain their operations.

Weikart explained that the IGC grew naturally from a local to a national to an international presence. From the start, IGC recruited both information providers and users. "We looked for groups doing progressive work and asked them 'Could you use e-mail, conferencing or better communications?'" The user outreach and marketing for PeaceNet was based in the U.S, but from the beginning people logged on to the system from all over the world.¹⁸

The Institute for Global Communications (IGC) is the U.S. member of the APC, and has evolved into an umbrella organization encompassing many different social and environmental change movements. In 1985, Ark Communications Institute, the Center for Innovative Diplomacy, Community data Processing (CdP) and the Foundation for the Arts of Peace, all located in the San Francisco Bay Area near Silicon Valley, California, joined forces to create "PeaceNet I," an experimental electronic mail system operating on Tymnet. In August of 1986, "PeaceNet II," a more sophisticated on-line service, opened to the general public. In March 1987, PeaceNet became a division of the Tides Foundation, and the Institute for Global Communications was formed to direct and support the activities of the network.¹⁹

Also in the early 1980's an effort was underway to use telecommunications to coordinate the work of environmental organizations internationally. With funding from the Apple Corporation and the San Francisco Foundation, the Farallones Institute created EcoNet in 1982 to support organizations working to advance the cause of global environmental protection and sustainability. According to the document *IGC Mission and History*, "EcoNet rapidly evolved from a small-scale exploration and evaluation exercise into an international network of individuals and organizations involved in environmental issues."²⁰ Initially the network was using a primitive telecommunications system, and many people recognized that EcoNet needed a stronger organizational structure and increased levels of technical support. Therefore, the Farallones Institute transferred EcoNet to the IGC in June of 1987.

Mark Graham, former director of PeaceNet, was advised to create the IGC for legal purposes. He explained that "the name IGC sat on the shelf until EcoNet was added as a service in 1987. We didn't want EcoNet to grow out of the side of PeaceNet. It was critical to make an organizational shift, so we took IGC off the shelf to balance the structure and relationships within the organization." ²¹

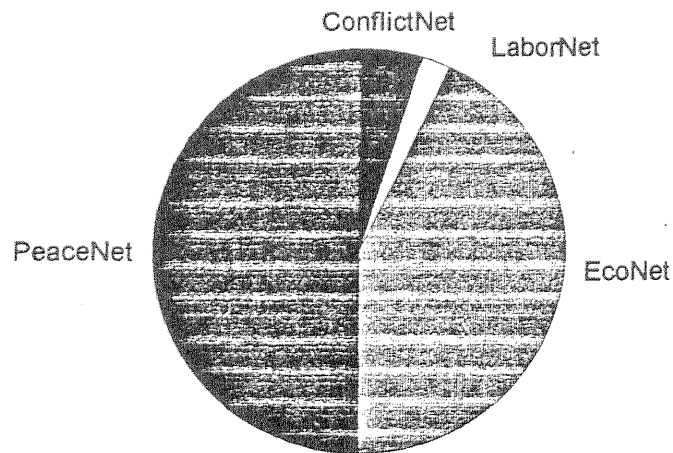
Presently, there are four main networks that comprise the IGC: PeaceNet, EcoNet, ConflictNet, and LaborNet. The IGC networks of PeaceNet and EcoNet, which preceded the formation of the APC, have evolved into a model of organizational stability and recognition. The IGC networks have made a significant contribution to creating and helping to maintain APC networks internationally. The IGC has played a key role in the development of networks in many countries including Brazil, Nicaragua, Russia, and most recently in Mexico.

The IGC networks underwent a dramatic reorganization and re-evaluation of their internal structures in July 1988. Geoff Sears, the current executive director of the IGC networks, came back from Brazil at this time to find the IGC Advisory Board had appointed him to lead a transition from the cooperative style of management into a structured form of management. He recalled "the organization was very busy at this time, growing in a lot of different directions. Staff were pursuing their own projects and the cooperative mechanisms of managing were not working." He was relieved when staff continued to work, even without being paid, during a "fiscal and management crisis." He asserts that the IGC is very stable and organized today, due in large part to the support of the staff and users of the system.²²

The IGC networks historically have appealed to a diverse user community which is an important element in their success. Each of the IGC networks has a different subscriber base that forms an issue-oriented user community within each network. An individual or organization can subscribe to one of these networks based on the issue area that is most important to them. Yet once a subscriber has joined one of these networks they have access to information databases, conferences, and e-mail exchange within all IGC networks, and all internationally based APC member networks, as well as some affiliate networks. As Jillaine Smith, Assistant Director of IGC Networks stated, "people associate very strongly with the social meaning behind being an EcoNet or PeaceNet member, they have name recognition. It is like having four doors into the same house. Once inside the house one can go into any room, but the doors entering the house (on the exterior) look different." ²³

She also believes that providing the public with a distinction between the networks allows for more inclusiveness throughout the IGC. The name recognition of the PeaceNet and EcoNet networks has served as a marketing advantage to IGC. PeaceNet and EcoNet had an established user base upon joining the IGC, so the names carried a common, shared history that users did not want to separate from upon joining with the IGC. This issue has been a topic of discussion and debate at IGC board meetings every 1-2 years, but every year they have decided to keep the names. She claims it has been a "struggle to merge (the networks) under one name and this has been a source of ongoing discussion," and in recent years ConflictNet (1989) and LaborNet (1992) have been initiated, which has served to further the differentiation of the networks. (See Figure 3: Pie Chart of Users for the Four IGC Networks). ²⁴

Figure 3: Pie Chart of Users for The Four IGC Networks



According to Jillaine Smith, there are very different reasons why a potential user would join EcoNet as opposed to PeaceNet. The movements from which these networks emerged have different shared histories. The peace movement tends to be perceived as catering to the far left, shown by the roster of organizations and content of postings on PeaceNet. Therefore, Smith feels that other networks exist to have a counterbalancing effect.²⁵ EcoNet encompasses many diverse viewpoints from within the environmental movement, a movement that appeals to conservatives and liberals alike. The diversity of users on EcoNet is dramatic, with members from such diverse groups as Dow Chemical, the Environmental Defense Fund, and Earth First!.

PeaceNet: The First IGC Network

PeaceNet was initiated to serve the global peace and social justice community working in the areas of human rights, disarmament, and international relations. PeaceNet is committed to the promotion of alternative sources of information that differ from the mainstream press. PeaceNet offers its users a number of alternative news services including the Pacific News Service, the UN Information Service, Greenpeace News, the Environmental News Service and PeaceNet World News Service (PWN), an e-mail delivered news publication. PWN has complete coverage from the InterPress Service (IPS), the largest news agency of the Third World, and from other news services, alternative media and NGOs. Subscribers can choose from several issue and region oriented digests covering Africa, Eastern Europe (including Russia and CIS), Latin America and the Caribbean. These news services emphasize the global interdependence of many issues, primarily in aid and development, international environmental issues, human rights, and distributes timely reports from the United Nations.²⁶

EcoNet: A Computer Network For the Environmental Movement

EcoNet began in 1984 when Apple donated five computers to the Farallones Institute. EcoNet has become a central clearinghouse for information dissemination and discussion for a wide variety of environmental interest groups, industries, and government offices on the state and federal levels.²⁷ At least one oil company uses EcoNet to keep informed about developments in the environmental movement. EcoNet facilitates the coordination of individuals and organizations working primarily in the fields of environmental preservation and sustainability.

A sampling of the issues covered within EcoNet's electronic conferences and databases include: energy policy, global warming, rainforest preservation, water quality, toxics, and environmental education. EcoNet offers access to a union catalog of the Environmental Protection Agency Libraries, a worldwide directory of national parks and protected areas, and a calendar of environmental events.²⁸ The directory section of the database area contains files listing the names and addresses of scientists in various fields. Also listed in the directory section of the database area is the Environmental Grantmaker Association, the Harbinger file, the Rocky Mountain Environmental Directory, Environmental Education Funders and the Technical Information Directory, all searchable by keyword.²⁹

EcoNet can be accessed through other channels (the Internet) making it the first and largest network serving the environmental movement. EcoNet provides subsidies and financial incentives to environmental organizations and committed individuals who seek to foster the effectiveness of organizations through the use of electronic networking.

ConflictNet and LaborNet: Newcomers to the IGC

ConflictNet joined the IGC in 1989, and has one staff person at present. ConflictNet focuses on nonviolent conflict resolution, dispute mediation and arbitration. The Academy for Family Mediators is on-line and holds board meetings and private conferences, since members are located all over the U.S. ConflictNet's resources include: guidelines for choosing a neutral third party, sample case development in conflict resolution, legislative updates, bibliographies, educational materials and newsletters. Unlike the three other IGC networks, ConflictNet's user base is not composed mainly of activists, but caters almost exclusively to practitioners and career professionals from organizations in the field of conflict resolution.³⁰

The newest IGC network, LaborNet, created in 1992, is a community of labor unions, activists and organizations working globally for the economic and human justice of workers. LaborNet is committed to increasing awareness among the U.S. labor movement of the different computer networks available to them, and in assisting them in coming on-line through training and technical assistance. LaborNet is committed to establishing connections between local, national and international computer networks, and is currently building partnerships with a number of key networks and bulletin boards including the Right-to-Know Computer Network, LaborLine BBS, GeoNet and SOLINET.³¹ Issues

covered on LaborNet include: workplace and community health and safety issues, trade issues, and international union solidarity and collaboration.³²

LaborNet is a project composed of volunteers. A steering committee which is open to the public, has been initiated to help direct the technical and organizing agenda of the network. The outreach done by volunteers to promote this new network has led to approximately a 13-20% monthly user growth rate.³³

Organizational Structure of the IGC

Funding Structure: IGC

Revenues from subscription fees go into many services to keep the system running including technical support, customer service, system administration (keeping the network up and running) and billing. A small percentage of revenues go to membership dues to the APC Secretariat to help expand progressive, international networking. The IGC fundraises to support several other projects and activities, some of which include technical, international and content development.

Many large foundations have contributed to the start-up of PeaceNet and EcoNet and several projects under their guise. The MacArthur Foundation contributed the first \$60,000 to start PeaceNet. And the Pew Charitable Trust enabled EcoNet to become operational for its first few years. The Ford Foundation, an active supporter of the IGC, like other foundations, has on a few occasions contributed between \$2,000-\$50,000 in grant money. In recent years since EcoNet and PeaceNet have become more established, Geoff Sears, IGC executive director, has had to change his strategy when applying for grant money. PeaceNet and EcoNet used to be presented as individual projects, but now when he applies for money he must have a specific project in mind, for example, to support work to develop a network of groups involved in population issues.³⁴ The number of projects to which these grants can be applied has been limited in recent years.

After its first two years, the IGC had achieved near self-sufficiency in the basic functions of the networks with user revenues in excess of \$150,000 per month.³⁵ User fees cover 100% of basic operations and approximately 80% of the IGC's total budget.³⁶

The Tides Foundation

The IGC and APC are both divisions of the Tides Foundation, a 501(c)(3) non-profit, charitable institution. The IGC has become one of Tides' largest projects. The Tides Foundation receives 5.5% of the IGC revenue, and 8% of the APC revenue (of the dues paid to the APC Secretariat from member networks) to provide the following services: bookkeeping, payroll, tax return preparation, and legal aid. Tides provides an easy means for both organizations to acquire non-profit status. Also, being affiliated with Tides allows the IGC and APC more time to focus on new developments in their systems, instead of

burdening themselves with other financial, legal or administrative logistics of running a non-profit organization.

Under the regulations applying to tax-exempt, not-for-profit organizations, the IGC has had to openly pronounce that its networks are for educational and charitable purposes only. In the IGC user manual under the usage rules and guidelines section it states "the network shall not be used in any substantial way to carry on propaganda, to influence legislation, or to intervene in any political campaign. It may be used, however, to discuss in a nonpartisan way legislation, politicians, and campaigns."³⁷ And only up to 5 percent of the total resource time of staff may go to working on political causes, towards lobbying efforts. This regulation was decided by the Tides Foundation Board of Directors under the guidelines of the IRS, and an annual review is conducted of each Tides organization to determine compliance.³⁸ The networks profess to exist for educational purposes, and cannot be used to directly influence the outcome of legislation or elections, but this is a fine line that staff at IGC admit is difficult to define at times.

Advisory Board

The IGC is governed by an advisory board made up of individuals most of whom have been affiliated with either EcoNet or PeaceNet from their inception, and who have different areas of expertise to bring to the table. Board members are chosen for their time, energy, expertise, and ability to assist in fundraising efforts for the IGC. The professions and areas of expertise represented on the board include: one lawyer, one businessperson, a professional fundraiser, and two representatives: one from the environmental community, and one from the social justice and peace community. Currently, two new members are being actively recruited. Attempts are being made to find one member with significant business expertise, who is also well connected to the computer industry, and another member who has worked for an international organization in a developing country. Organizations represented include: the Energy Foundation, Tides Foundation, Community data Processing (the technical home of IGC), and the Sierra Club Legal Defense Fund. (See Appendix 5: Members of the IGC Advisory Board).

The IGC board has quarterly meetings where decisions are reached by consensus whenever possible, or a majority of the vote. An issue that is currently being discussed is how to build a better interface for the network, and determining possible financial supporters for this project. The advisory board is not fiscally responsible for the IGC; this responsibility lies with the Board of Directors of the Tides Foundation.

IGC Staff

The management team of the IGC is composed of the executive director and directors in charge of the following departments: technical, financial, marketing, and customer relations. The management team makes recommendations to the rest of the staff. The executive director, Geoff Sears, is responsible for fundraising and overall operations and growth of the IGC.³⁹ Currently only one individual is employed by the Community data Processing group (CdP), which provides the technical home for the IGC hardware, and has been responsible for the creation of the APC Unix-based Software.

Several individuals within the IGC and CdP were responsible for creating a structure and framework that is now used by the APC Secretariat to measure new networks.

Genesis of the APC and Member Networks

In 1987, IGC donated its software to GreenNet in the United Kingdom, and these networks existed as parallel networks, carrying the same conferences and allowing e-mail use between all the users of the different networks. With the support of the MacArthur, Ford and General Service Foundations and the United Nations Development Program, the IGC helped to establish five more networks in Sweden, Canada, Brazil, Nicaragua and Australia. In 1988 Web in Canada became linked with GreenNet and the IGC. And in 1989, four new networks, NordNet (formerly PeaceNet Sweden) in Sweden, Nicarao in Nicaragua, AlterNex in Brazil, and Pegasus in Australia were emerging on the international networking scene, sharing conferences and e-mail with the IGC.⁴⁰

After the trans-Atlantic link with GreenNet had been established, the idea of an international association for progressive communications was being discussed, and a draft charter was in-the-process of being written, but had not been adopted. Many individuals involved with the IGC and GreenNet in 1987 became frustrated with a lack of motivation and determination by some in getting the international networking concept off the ground. As Mitra, creator of GreenNet stated, "we operated without a charter for several years, with no basis for sharing funding. People at IGC wanted to have more people involved with the writing of the charter, but this translated into a reluctance to move forward on the international front, and the organization was not as dynamic as it could have been." He would have liked to see a charter written and adopted early-on. New member networks who joined would be required to agree with the basic principles of the charter, and could add to or alter it only after they became APC members.⁴¹

Steve Fram, IGC technical director, agreed that "we struggled for a long time about what an organization should look like, and after a lot of discussion, settled on the idea of the APC."⁴² The concept of a formal organization such as the APC was not institutionalized until 1990. By this time seven networks were already operating in a collaborative manner sharing resources with one another. These seven networking organizations met and wrote the charter and bylaws in 1990, and formally founded the APC to coordinate the operation and development of this emerging global network.⁴³

A Closer Look at Selected Networks

The APC was founded to support the establishment of a diverse user community in different countries. The APC is an international non-profit secretariat dedicated to facilitating progressive social change. The computer networks of the APC are cooperative, independent, and locally-based in their host countries. Member networks share information and collaborate on social and environmental change projects and advocacy-issues.

APC networks have been developed through different channels, and in different political, social, and economic climates in their individual countries. All member networks are autonomous and internally managed and operated. Over half of all APC member networks are located in the southern hemisphere, and the APC provides the only computer networking, or electronic mail service in some countries. Also, networks are based in the countries that they are servicing, accessible to the users of that country or region. The following descriptions were selected to illustrate how different political, financial, and structural factors affected the creation of these networks in their host nations. Less than half of the member networks will be examined in order to highlight unique contributions to the structures and uses of this diverse networking system.⁴⁴

The GreenNet, Web, Nicarao, EcuaneX, GlasNet, SangoNet, and Wamani networks have been chosen for their unique contributions to the diverse consortium of networks that form the APC. **GreenNet** proved that an international linking of networks was possible and provided an important service for the global NGO community that had not existed before. In the two years following the successful trans-Atlantic connection between GreenNet and the IGC, five new networks became established. The **Web** network was the next to join, and in recent years Web has been successful at incorporating a diverse group of users mostly from the Canadian environmental advocacy community. Web has a strong representation from both the public and non-profit sectors. **Nicarao** in Nicaragua, has been successful at attracting a large group of users from all Central American and many Caribbean nations working in universities and research centers in these regions. **Nicarao** also proved that it was possible to establish computer networking services in a developing country. **EcuaneX** in Ecuador is examined for its unique structure in comparison with other APC networks and for providing the first electronic mail service available in Ecuador.

More recently, **GlasNet** in Russia has been established as a medium promoting democratic reform and providing a valuable internet connection to the West to its users. Scientific research organizations are well represented on GlasNet. **SangoNet** in South Africa serves a dual function for its users by publishing information for the development community and providing electronic mail facilities to facilitate communication within this community. Lastly, **Wamani** in Argentina, in addition to the three other APC networks in South America (**AlterneX**, **Chasque**, and **EcuaneX**) are successfully connecting the South American research community with NGOs working in similar issue-areas. These individual histories provide insight into the structures and practical uses of this complex consortium of member networks.

GreenNet: The First Trans-Atlantic Link for the APC

GreenNet, the first international network of what was later formalized as the APC, was connected to the IGC in 1987, giving the concept of international networking for the international NGO community a promising start. At this time, Mitra, Mark Graham, a founder of PeaceNet, and others decided to extend the network to other countries. Mitra explained that he witnessed some other networks, primarily in Europe and the U.S. who wanted to provide a service to the NGO community, emerging and quickly disappearing. Mitra explained that once GreenNet and IGC had found a networking formula that worked

in the U.S. and Britain, they were eager to promote these concepts and strategies in other countries.⁴⁵

GreenNet used the "APC Unix-based Software," installed by Scott Weikart of Community data Processing (CdP) and bought X.25 lines from British Telecom, who at that time was Britain's monopoly phone and data-line company. At the outset, Mitra, and Jeremy Mortimer, GreenNet's technical director, used money from their consulting practices and received a sizable grant from the Rowntree Trust to keep the network running. In its first few years, GreenNet became about 70% supported by user fees, with the remainder of support from private foundations. At this time, GreenNet supplemented its income by running commercial networks for Apple UK and a music network. Today GreenNet is 100% supported by user fees for its basic operations, with additional funding received to support specific projects.

From the beginning, GreenNet actively sought out social change organizations to educate them on the benefits of global networking. Scientific and research based organizations were also approached including the UK based Association of Environmental Scientists.

Mitra left GreenNet in December of 1988, and went to work at the IGC office in San Francisco. Mitra tried to identify groups working in other countries with the right combination of technical expertise and movement support to provide a stable foundation unto which a networking system could sustain itself.⁴⁶ The work of Mitra and others in these early years, proved that computer networking for social and environmental change was a service that many advocacy communities needed and welcomed.

The Web Network in Canada: A successful Forum for Government, Industry, and Non-Governmental Organizations

Web, based in Toronto, had existed for a few years with a large user base when approached by the IGC and GreenNet. At this time, Web was a project of the Ontario Environmental Network, an umbrella organization for over 400 environmental organizations in Ontario. Today Web has attracted a large user community in Canada, encompassing all levels of government, many businesses and an extensive constituency primarily composed of environment and development groups.⁴⁷ The well-known environmental organization, The International Institute for Sustainable Development (IISD), facilitates several electronic conferences, coordinating up-to-date information databases, including a large set of databases for text references and international contacts. The Canadian government uses Web to stay in contact with the NGO community in Canada and abroad, and works with the staff of Web on projects promoting the use of information technology in the province of Ontario and throughout Canada.

Web is operated by the Nirv Community Resource Centre, a non-profit organization that assists other non-profit groups in acquiring and accessing the tools available in information technology. NirvCentre provides consultation, computer equipment, customized software and training to NGOs in Canada, Africa, and abroad. The startup of

the APC network in South Africa, SangoNet (also known as WorkNet) was supported in part by Web. NirvCentre and Web are governed by a board of directors that is one-half community based, and one-half staff based.⁴⁸

Web is involved in many projects with the federal government and government of Ontario.⁴⁹ In 1994 the federal government is implementing a searchable database on Web of the 50,000 environmental assessments it performs each year. NirvCentre in conjunction with the Ontario Environmental Network, has recently submitted a proposal to develop an environmental inter-network (EIN) to aid over 250 groups in Ontario in developing new technologies and database capabilities for use by the government and the people of the province of Ontario. This environmental inter-network will provide mechanisms to stimulate the use of networking technologies among environmental groups, industry, the educational system, and government. This proposal is expected to be approved in 1994. The provincial government of Ontario has created a \$100 million fund to develop networks and networking infrastructure. Over the next three years this fund is expected to provide \$1.3 million of the \$3 million EIN project.⁵⁰

Web, a founding network of the APC, has taken the lead in developing networking technologies for use by many sectors within Canadian society. Web has provided a reliable, cost-effective service to its users for over six years, and expects to greatly expand its user base in coming years.

Nicarao: Providing Electronic Access for Central America and the Sustainable Development Network

Another founding network of the APC is Nicarao, based in Managua, Nicaragua. In 1988, the IGC opened electronic mail channels with Sistemas Industriales (SI), a software cooperative in Managua, Nicaragua. Access to the IGC afforded Nicaraguans their first access to the Internet.

In June 1989, Nicarao formally became a network of the emerging APC. IGC staff helped Nicarao become operational and transferred the Central American subscribers of IGC to Nicarao. Nicarao has been successful in attracting a large group of users from all Central American and many Caribbean nations working in universities and other research centers in these regions. Oxfam-UK links all their Central American offices through Nicarao, and through this service they have access to information on environmental and social justice issues in different languages. Nicarao can be accessed via local access numbers from many cities within Costa Rica, Honduras, El Salvador, Guatemala, and Panama.⁵¹

Nicarao has benefited from being under the operation and management of The Regional Coordinating Agency for Economic and Social Research (CRIES), a non-profit and non-governmental organization. CRIES is an umbrella organization and functions as the Executive Secretariat of a network of 34 research organizations in 14 countries. CRIES offers Nicarao financial, administrative, and overall institutional support. CRIES also uses the network extensively for electronic publishing and information dissemination.

In addition to providing important e-mail and networking services to the research and NGO community in Central America, the work of Nicarao has also provided an important venue for the technical training of Nicaraguans. Nicarao, because of its range of technical and user-support services in Nicaragua, has recently been appointed by the UN Development Programme to be a host to the Sustainable Development Network in 1994.

Ecuanex: The First Electronic Connection for Ecuador

Ecuanex, the APC network in Ecuador, is unique in its structure and management, in comparison to other APC networks. Users of Ecuanex are often part of subnetworks, where there can be several end-users at each subnetwork. For example, a user at a university who opens an account on Ecuanex often allows others to open sub-accounts on that account. The idea of sub-accounts within an account has proven to be cost-effective and convenient for a group of users.

Ecuanex, which began in 1991, was the first electronic mail system to exist in the country of Ecuador. The UN Development Program offered to set up the network in 1990 and provided equipment and technical assistance in the early days to get it running. IGC technicians also went to help set up the network and offer their expertise. Ecuanex existed for the first 1-1/2 years with no external funding, and relied on volunteers from the 21 founding organizations of INTERCOM for day-to-day operations. Recently, in Ecuador there is Internet connectivity, but access can only be obtained through a private bank.

Ecuanex is run by the sponsoring organization INTERCOM.⁵² INTERCOM is a non-profit association of 21 non-governmental and academic institutions, which includes universities and NGOs involved in development work, ecology, education, research and communications.

Unlike other APC networks, policies are set for EcuaNex by an annual assembly held with the 21 member organizations who establish and vote on policies for INTERCOM and EcuaNex. Sally Burch, founder of Ecuanex and INTERCOM, feels that she has created the first and only APC network run by institutions who are end-users of the system. The technically-minded people are employed to run the equipment of the network, but do not set policy affecting the users of the network. Decisions are reached by consensus when possible, or majority by the founding institutions of INTERCOM.⁵³

Ecuanex is a pilot program for the entire country of Ecuador, and had to overcome many obstacles in its development including: infrastructural deficiencies, scarce financial resources, a lack of Unix specialists, a deficient telephone system and a public that was skeptical of their services. Ecuanex has been growing at a steady rate since it was founded, and its unique management structure has enabled a diverse group of stakeholders, the members of INTERCOM, to help direct its activities which has also contributed to its growth.

GlasNet: Networking to Promote Democratic Reform

GlasNet, the Moscow based Russian APC network, began in 1991 in an effort to provide an accessible and affordable medium for both non-governmental organizations and research institutions to communicate and share information. But links between the IGC and Russia go back much farther. In 1987 the staff of PeaceNet were trying to open Soviet society through the use of electronic communication technology. According to Mark Graham, former PeaceNet director, "by using appropriate Soviet channels and hooking up first with Soviet scientists, members of PeaceNet developed a kind of 'track-two diplomacy'" wherein ordinary civilians began to talk about how to solve the problems of the two superpowers.⁵⁴ Today the APC is spreading the concept of 'track-two diplomacy' all over the world.

In the case of GlasNet, its creation did not simply signify an advance in technology, or improved coordination as a result of computer networking. GlasNet has a unique role in Russia, and has become a channel to the west functioning as a mechanism fostering the growth of democracy in Russia and the republics of the former Soviet Union.

GlasNet, founded jointly by the International Foundation for the Survival and Development of Humanity (IFSDH) and the IGC, was established to promote communication between Russia and the West. The board of directors of the IFSDH have included the head of the Soviet academy of Sciences as well as a previous U.S. Secretary of Defense.

After the fall of communism, the IGC pursued the development of GlasNet. The IGC dedicated its time, resources and people to get GlasNet started. Geoff Sears of the IGC and Dave Caulkins were its principle founders. GlasNet has full internet connectivity due to the George Soros financed channel to the West transmitting 64 Kilobits per second. GlasNet was the first network to have access to the Internet costing 1 million rubles to the Moscow Telephone Company which is the monopoly selling direct copper lines. The IGC installed a \$20,000 system, helped raised funds, and provided technical training to GlasNet staff. As a result, GlasNet is able to have many links to the West previously not thought possible for some time.⁵⁵

Anatoly Voronov, Director of GlasNet and formerly a journalist at the newspaper Moscow News, thinks that it is very important to provide a non-profit networking service to the people of his country. He wants to see GlasNet grow into an educational tool for the development of a civic society in Russia. He explains, "In Russia, we don't yet have a real party system..we don't have democratic-minded people and networking could help. Networking could be the basis for the development of democracy in Russia."⁵⁶ He states that "GlasNet is a child of perestroika..it was created for the purpose of being a democratically accessible network for non-profit Soviet environmental and academic groups and Soviet citizens." Users include Greenpeace, the Soviet Society for Ecology and environmental groups in the Ukraine and Siberia.⁵⁷

Even though many Russians are excited about the communications possibilities as a result of computer networking, the average Russian still cannot afford a computer. Networking is typically used by businesses and scientific research institutions that can understand and afford to use the technology. The Relcom network is the largest networking system. Yet Relcom is quite exclusive in Russia, used primarily for commercial purposes, and based on high user fees or trading schemes. Most non-profit organizations have small revenue bases, and no goods to trade, and therefore are unable to access the Relcom network. GlasNet has two subscription costs, and charges commercial organizations more money to access the network.

GlasNet is the only system in Russia that was created to serve the non-profit, NGO and research communities. Many Americans have sponsored accounts for Russians on GlasNet. According to Dave Caulkins, Russians are very interested in the resources available on the networks. Since it was founded, GlasNet has experienced a startling rate of growth. Caulkins has predicted that in the next 2-3 years GlasNet will expand to 4-5 times its size, which will greatly benefit social change efforts in Russia.⁵⁸

GlasNet is connected to the Internet and has a strong scientific focus. On the Board of Directors are two scientists, a laser physicist and a magnetic field physicist. Both of these individuals are committed to incorporating prominent scientific journals on the network. The network allows access for scientists and researchers to interact with their colleagues in America and throughout the western world.

New APC Members: 1993 and 1994

Five new APC networks have become APC members in the last six months. These include SangoNet in South Africa, Wamani in Argentina, GLUK in the Ukraine, Histria in Slovenija, and LaNeta in Mexico. GLUK, Histria, and LaNeta are new networks to the APC, and were accepted as APC members at the December 1993 quarterly on-line meeting. This section examines SangoNet and Wamani, for their contributions to the structural diversity of the APC networking system.

SangoNet (South African NGO Network) is a regional non-profit electronic information and communications network. It is linked to other African affiliate networks, such as Mango in Zimbabwe, and Unza in Zambia. SangoNet is a project of two South African non-governmental organizations: SangoNet, and the Development Resources Centre. SangoNet serves a dual function for its users by publishing information required by development workers and providing electronic mail capabilities to facilitate communication between them. The work of SangoNet is unique in comparison with other APC networks since the information on the networks has been geared towards the needs of specific constituencies, mostly in the development community in Africa.

The network emphasizes dissemination of local information. SangoNet is cooperative and decentralized in its structure, and as its mission states, strives to bring

development information to NGOs at an affordable cost. By joining the APC, SangoNet is able to meet these goals more effectively by receiving support and advice from others in the APC.

SangoNet "emphasizes the need to integrate all information-related tasks: data collection, collation, dissemination, and follow up training and support." Information is collected by organizations that formally agree to put information into SangoNet. One or more organizations within each sector have taken the lead in building one or more subject areas on the network.⁵⁹

Information content on SangoNet falls into one of two categories. The first category of "general information" is of interest to anyone working in development. This information includes directories of donors, NGOs, consultants, trainers, evaluators, planners, and others working in development, fundraising, organizational management and financial administration information. There is also a national development calendar of development-related events. Policy analyses and news summaries pertaining to development, as well as statistical profiles of poverty are also of general interest. The second category of "special information" is available in substantive subject areas such as health, education, housing, and community development, rural development, environment, youth, gender, income generation and other topics.⁶⁰

A lot of careful planning was involved in establishing the SangoNet. Meetings were held beginning in 1991 with over 200 NGOs and other development agencies who had a growing awareness of the benefits of information technology as a tool for sharing information. In 1992, the Development Resources Centre (DRC) and WorkNet talked of forming a cooperative management team. WorkNet had been operating a non-profit computer network since 1987 but had realized through a process of evaluation of its services, that improvements needed to be made to increase its capacity for delivering relevant information to its users. The DRC since 1991 had focused on building the capacity of NGOs through the dissemination of information. The DRC envisioned the medium of a computerized information sharing and communication tool as central to its activity.⁶¹

Wamani: Linking Researchers in South America

Wamani is the APC network based in Argentina and is one of four APC networks operating in South America. AlterNex in Brazil and Chasque in Uruguay played a key role in the development of Wamani. These networks, with the addition of EcuaneX in Ecuador, provide a valuable service by linking researchers with NGOs in South America.

Wamani is a project of the Information and Communication Center (CCI), a civil, non-profit, NGO that provides a legal shelter to Wamani. Wamani, the smallest APC node in number of users, is in the process of trying to secure outside funding. Yet, Carlos Alvarez, a founder of Wamani is skeptical of receiving outside funding. He feels that if an organization donates funds, there is a strong likelihood that the donor will attempt to impose conditions on the content and uses of the system. Wamani would like to be able to

support their operations primarily through user fees, and is doing outreach to many communities to build their user base.

Presently the user base for the network is small but their sense of mission is strong. Alvarez feels that the network promotes the "breaking of hegemonic structures of information and communication, equalizing relations between groups, exposing opportunities to be involved, and cultivating possibilities for action."⁶²

The Center of Scientific Communication of the University of Buenos Aires helped Wamani obtain international connections across the academic Argentinean network.⁶³ In June 1992, Wamani became operational, but without any external funding. The motivation and personal funds of a few talented individuals have made Wamani a reality.

APC Affiliate Networks

Many affiliate networks cannot guarantee a level of reliable administrative and technical operations due to the technical and socio-economic history of their countries which is required to be an APC member network. Some networks start as affiliates and eventually grow to become members. Others prefer to stay small and do not strive for membership.⁶⁴

APCs affiliate networks abroad are typically run through non-profit organizations or universities, by people who have worked in an activist community, or as part of a movement for social change in their country. It is common that APC technicians informally train these smaller networks, often spending a significant amount of time free-of-charge. Through their efforts, e-mail capacity has been established in many developing countries.

Mike Jensen, a close colleague of the APC, has been responsible for setting-up numerous APC affiliate networks, primarily in Africa. He has also worked on the Web, GreenNet, Pegasus, and SangoNet member networks. He feels that there is no alternative to what the APC offers to progressive affiliate networks in computer networking. He would like all affiliates, especially those he has helped create in Africa, to eventually join the APC when their operations become stable. But he is worried that the requirements for joining the APC have become increasingly strict which may prohibit many developing country networks from being able to join. He feels it is crucial for more information from African researchers and NGOs to be on-line to provide a more balanced perspective on many different issue areas, especially on issues relating to sustainable development. According to Jensen, other networks do not have the communications infrastructure or the same level of commitment to progressive social goals as the APC. He hopes that more affiliate networks in developing countries will be able to join as APC members in the coming years..⁶⁵

IV. USE OF THE SYSTEM AS A POLICY TOOL

The APC networks provide a number of very specific services to their users. Users have a centralized means to access information through on-line databases and news services. The information databases connect users to accurate, up-to-date data that is otherwise difficult to obtain or has a limited distribution. In addition, e-mail, fax, telex and electronic conferencing enhance more traditional means of communication, making international collaboration and cooperation between NGOs affordable and effective. Computer networks, such as the APC, are often used in a policy analysis context, for the exchange of information, correspondence, policy-related projects or papers, or other exchanges of research and ideas between people using personal computers (see Appendix 3: APC Gateways to other Networks and IGC Conference Subject Headings and Appendix 4: "List of Services on the APC").

The APC provides an information infrastructure, "a silicon skeleton which is filled by a worldwide community of users." Each time someone leaves a message or uploads a piece of information, it feeds this infrastructure, this body of knowledge. "EcoNet is a living database" according to Carlos Afonso, director of AlterNex in Brazil.⁶⁶

In Papua New Guinea, for example, local activists trying to protect rain forests use EcoNet to exchange information and strategies with some of the main rain forest protection groups in the United States and Latin America, including the Rainforest Action Network and Greenpeace's Rainforest Campaign. In addition, APC networks have proven to be a powerful marketing tool for publicizing the development of new technologies and environmentally responsible products.⁶⁷

There are countless examples of how this technology has aided a political or social cause. In addition to the representation the APC has at UN conferences, NGOs have used the APC networks to coordinate involvement in a variety of international negotiations, including World Bank meetings and the global warming talks.⁶⁸

The User Base

The APC has put-in-place a networking system amenable to the information needs of a unique community of users interested in affecting global change policy.⁶⁹ Users of the system include NGOs, government and industry representatives. The APC networks are host to a variety of prominent organizations including: Amnesty International, Friends of the Earth, Oxfam, Greenpeace, labor unions and organizations dedicated to international peace. EcoNet's on-line user directory, which provides names, addresses and phone numbers for users, "reads like a bibliography of the American Environmental movement." EcoNet has an abundance of users from U.S. state and federal government offices.⁷⁰

The APC networks may appear small in comparison to the millions of users on other private systems such as Compuserve or America-on-line. Yet approximately 60

percent of the APCs members are organizations or individuals representing organizations.⁷¹ A typical user, according to Scott Weikart, co-founder of and consultant with the IGC, may be a staff member of a non-profit or government group or a committed volunteer working for a local peace or environmental group.⁷² Users of the APC form a community "of thousands of people actually living the information they are conveying to the network", according to Jill Small, a past assistant director of EcoNet. EcoNet then, isn't so much silicon, ASCII text and packet-switched data networks; EcoNet is an on-line diverse community of users.⁷³

Conferencing and E-mail Capacity on the Networks

Electronic conferences and e-mail are the most common uses of the networks. Several hundred electronic conferences can be accessed via the APC Networks. Yet, the quality of information and range of postings varies considerably. Conferences on energy and climate issues are some of the most current, up-to-date and widely-read conferences, and have received a variety of postings from respected organizations in the field. Yet other conferences have not had new information posted to them in six months or more. There is an effort underway to rid the system of these inactive conferences or put them in archives to make it easier for users to find current, and relevant information.

Private conferences allow groups to "meet" on-line, and projects can be planned and executed more efficiently. Also many different groups and individuals can share resources that by acting independently they would not have been able to afford. In addition to enabling on-line meetings to take place, and saving on travel costs, conferencing breaks down traditional hierarchical barriers to communication within organizations, allowing for more people to be included in decision-making processes.

Michael Stein, EcoNet program manager, explains that "the conference allows a group process, an interactive relationship among activist organizations working on environmental issues. Conferencing creates a virtual space or virtual community where people can exchange information, swap news, and provide information resources. It is a technical means to share strategies and work together."⁷⁴

V. THE APC IN ACTION: THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT (UNCED)

The UN Conference on Environment and Development (UNCED), the largest international gathering of heads-of-state, provided the first opportunity for the APC to participate in an international conference of such large size and importance. The Earth Summit resulted in an unprecedented level of involvement by NGOs in official and unofficial events, and signified the growing role of NGOs in international policy-making. The growing NGO role in UN conferences can at least partly be attributed to the APCs work at providing training and access to information technology at these conferences.

In this chapter the impact of the APCs representation at UNCED on the NGO community, and recommendations for future UN conferences is analyzed. Also the APCs involvement at the UN World conference on Human Rights (UNWCHR) in 1993, and future UN conferences are discussed.

In 1990 the UNCED Information Strategy Project in Rio (UNCED ISP/Rio) was proposed by IBASE (Brazilian Institute of Social and Economic Analyses, a Rio-based research and consultancy NGO which operates the AlterNex network in the APC) to the UNCED General Secretariat. Maurice Strong, Secretary General of UNCED, approached Carlos Afonso, Director of AlterNex, to propose his idea. According to Afonso, "The main objective was to make available at almost no cost an internationally, interconnected electronic information exchange system that would allow NGOs and other users to exchange messages between the official site of events (RioCentro) and several sites of NGOs' events in Rio." ⁷⁵ AlterNex would design, implement, and operate this system, which would provide Internet and APC services in all major sites of the conference. The UNCED ISP/Rio services included: international e-mail exchange, an international electronic conferencing system, fax and on-line access to UNCED-related documents, and an informal daily news service and bulletin.

The UNCED Secretariat designated the APC as the official network where UNCED information was posted by the UN Secretariat. EcoNet received grant Money from the MacArthur Foundation to facilitate the UNCED information on-line. The information was then distributed by the APC to its other networks. Official documentation, including key PrepCom documents, updates, reports of meetings, and important press releases, were uploaded into computer conferences on these three networks by the Conference Secretariat. Translations of key documents into French and Spanish were also available on the APC and Poptel-GeoNet networks.

These networks became the medium that NGOs could use for up-to-the-minute reports and official documents, before, during and after the Earth Summit. When Jean-Claude Faby, director of the New York UNCED office, was asked by reporters for the best way to obtain information and official documents for the conference he replied "Use

EcoNet."⁷⁶ Mr. Janos Pasztor, previously a Senior Officer for the UNCED Secretariat, with responsibilities for UNCED's Information System and atmosphere, energy and transport, worked closely with the APC in setting up the information system during the preparatory process and at the Earth Summit itself. He credited the APC with allowing users "to reach a very large, and important environment-development community worldwide with the information generated during that period in a timely, and cost-effective fashion. Without the APC communication channel, the involvement of non-governmental organizations in the official UNCED process, as well in the various parallel processes simply could not have been as effective as they were." ⁷⁷

The APC networks enabled NGOs to participate more effectively in PrepCom negotiations in the 22 months leading up to the June 1992 conference by providing timely access to official UN documents. NGOs not able to attend the PrepComs could stay informed of the day's negotiations through daily updates posted on the networks. At the conclusion of PrepCom I, NGOs announced that through the use of electronic communication they were able to send "daily news and full text versions of official PrepCom documents to over 9,000 organizations and individuals for distribution in over 70 countries," according to NGO activist Langston James "Kimo" Goree VI.⁷⁸

There has been continued involvement from a diversity of groups especially in the areas of biodiversity and sustainable agriculture as a result of the conference. For example, out of UNCED the Commission of Sustainable Development was formed, as well as the Inter-governmental Negotiating Committee. And dialogue has continued in a dozen of APC's UNCED related conferences on the network. The entire text of Agenda 21 and other official documents and information from UNCED follow-up committees can be found in conferences on the APC networks. The APC networks have made communication and organizing around specific issue-areas easier for many environmental advocacy groups

A few individuals have voiced concern about the organization of APC conferences on UNCED. Criticism has been articulated by NGO activist Langston James "Kimo" Goree VI, and stemmed from the overload of data and lack of quality control mechanisms to ensure information was of high quality and relevant to the conference where it was posted. According to Goree, the same information was often cross-posted in many different conferences, which made the information redundant. He felt that structures needed to be put into place to make information more accessible to users. ⁷⁹

Nancy Gabriel, in her thesis entitled, "The Electronic Road to Rio: Lessons from NGO Use of Computer Networks During the UNCED Preparatory Process," makes recommendations for improving the organization and content of information on the APC networks.⁸⁰ She felt that in the future NGOs should be included in the planning stages to help determine the structure and content of information posted for use at future conferences. The process should be more user driven, and include feedback mechanisms. Also, the creation of a database that can be searched by keyword and author would help users identify relevant documents, and be more cost and time efficient, especially for NGOs in developing countries who have very limited resources.⁸¹

NGOs need reliable, inexpensive ways to communicate with technical experts, government officials, policy makers, as well as with each other.⁸² These networks have the potential to be an invaluable tool for NGOs to build coalitions around a common set of positions, and communicate these positions to their governments. This will enable resources to be preserved and a duplication of efforts to be avoided, a situation that is common across many non-industrialized countries.

The UN World Conference on Human Rights (UNWCHR) and Future UN Conferences

Due to their success at UNCED, the APC was the sole computer communications provider at the UN World Conference on Human Rights in June, 1993 in Vienna. APC staff worked at three rooms serving NGOs in which they installed a mini APC system for the duration of the conference. Sun Microsystems donated the computer that enabled hundreds of global human rights organizations to be introduced to telecommunications and their potential uses.⁸³

The APC's efforts at the UN World Conference on Human Rights were successful in helping the Dalai Lama attend the conference. The Tibetan delegation used the APC networks to rush messages, appeals, and press releases around the world on behalf of the Dalai Lama. Their efforts paid off and the Dalai Lama did attend the conference, and through this process, many Tibetans have recognized the efficiency and importance of electronic communications, and continue to use computer networks.

"By providing vital information and communication services for the duration of the conference, the APC lay the groundwork for a permanent on-line network that will connect participants after the conference, when the real work begins," stated Farwell who organized the APC at the UNWCHR.⁸⁴ Due to the work of the APC, UNCED and UNWCHR have resulted in a global advocacy community linked together and able to continue the work of the conference.

Since the APC networks played an instrumental role in facilitating the transfer of policy documents and information from the UN Conference on Economic Development (UNCED) to individuals and NGOs around the world, the APC Council decided to continue providing communications services both in preparation for, and during, upcoming UN conferences. The APC will be the primary information provider at all UN conferences through 1995, with the possibility of extension. The APC plans to be involved in the 1994 UN Population Conference in Cairo with help from the Chasque network in Uruguay; the 1995 UN Social Development conference in Copenhagen with help from NordNet and AlterNex; and EcuaneX has initiated a womens' outreach program to prepare for the 1995 UN Fourth World conference on Women in Beijing.

VI. SOCIAL SYSTEM EFFECTS OF NETWORKING TECHNOLOGY IN THE INTERNATIONAL ARENA

The APC, and computer networking in general, are new endeavors and require many future studies, and evaluation mechanisms to predict their impact on societies. To date, few studies of the APCs impact on policy-making have been initiated. The APC has evolved and grown in an unplanned manner, existing in its own information niche. The true impact of the APC, in policy-making arenas, especially in UN fora, is only starting to be realized.

Two social purposes of the APC are especially important. The impact of the APC on policy-analysis efforts, especially within the environmental advocacy community has been widespread in many countries. The social effects of computer networks on the internal work of organizations, and within social groups is also significant to understanding the role these technologies have in societies. New institutions, such as the APC, are needed to assist users in locating and identifying relevant information. Computer networks have alleviated the temporal and geographic barriers of the past and helped build consensus behind many complex policy issues.

Computer networking has been successful at crossing sectoral, temporal, geographic, and political boundaries between social groups. Interpersonal structural barriers to communication such as hierarchies have also been redefined through the use of this technology. Computer networks can lead to increased participation and involvement in organizational decision-making processes by a diverse group of users.⁸⁵ Networks have made the cost of participating extremely low in time and effort expended, and are likely to change the structures of organizations and social meaning of work in the future.⁸⁶ Through the decentralization and democratization of information, the APC reinforces a politics of inclusion, where equal access and representation on the networks is a basic tenet of networking. Networks allow social groups to work across organizational boundaries on common goals. Unlike work with formal coalitions, it is not necessary to have agreement prior to cooperating on the networks.⁸⁷

The APC is a social tool that has established a new form of connectivity between concerned citizen movements, government, industry, academia, and non-governmental organizations. These groups must work together in analysis efforts for policies to be successfully implemented. APC networks have been a model for fostering communication among advocacy communities and may be a model worth emulating by the scientific research community. The success of the APC among advocacy communities and users may lead to the breaking of social barriers, encouraging participation from the scientific community. The APC is engaged in an international cooperative effort that is unique in its scope and mission, uniting geographically and socially diverse groups in common policy-making pursuits.

Notes

- ¹ There are 18,000 known users, many of which are shared accounts within organizations. The APC estimates that about 25,000 people actually use the system. Edie Farwell, "List of Services on the APC", In APC private conference: apc.documents, 1993.
- ² Jillaine Smith, "IGC Mission and History" in APC Conference:CDP:ideas, April 1, 1992, p.1.
- ³ _____, "New Node Work Plan: Setting Up and Operating an APC Node", in apc.documents, November 19, 1992, p.1.
- ⁴ _____, "APC Charter and Bylaws", in apc.documents, Amended August 1993, p.2.
- ⁵ Ibid.
- ⁶ Edie Farwell, personal interview, January 24, 1994.
- ⁷ Edie Farwell, personal interview, December 20, 1993.
- ⁸ _____, IGC NetNews, September/October 1993, Volume VII, Number 5, p.1, 3.
- ⁹ Ibid.
- ¹⁰ Edie Farwell, personal interview, December 20, 1993.
- ¹¹ _____, "APC Charter and Bylaws of the APC," p.2.
- ¹² Ibid, p.2-3.
- ¹³ Ibid, p.3.
- ¹⁴ Farwell, personal interview, December 20, 1994.
- ¹⁵ _____, "New Node Work Plan: Setting-Up and Operating an APC Node" , p.4-5.
- ¹⁶ Ibid.
- ¹⁷ Jerry Lazar, "Weikart Brings Networking Tools to Non-profit Organizations Around the World", Network World, August 24, 1992, p.57.
- ¹⁸ Ibid.
- ¹⁹ Smith, "IGC Mission and History", p.2.
- ²⁰ Ibid.
- ²¹ _____, "Mark Graham Leaves IGC", IGC NetNews, Winter 1990.
- ²² Geoff Sears, personal interview, January 10, 1994.
- ²³ Jillaine Smith, personal interview, December 16, 1993.
- ²⁴ Ibid.
- ²⁵ Ibid.
- ²⁶ _____, "What is PeaceNet World News Service?", IGC News Desk, News of Development, November 8, 1993, p.2.
- ²⁷ A sampling of the users on EcoNet include: the National Audobon Society, the Army Corps of Engineers, the Cable News Network-Network Earth (CNN), Atlantic Richfield Company, and the Department of Energy.
- ²⁸ Mick O'Leary, "EcoNet Backs Global Environmental Action; Evaluation", Information Today, Vol.10, No. 1, January, 1993, p.14.

²⁹ The Harbinger file is a directory of citizen groups, government agencies and environmental organizations concerned with California environmental issues. The Technical Information Directory contains a listing of institutions around the world which provide information on energy-efficient-technologies. In addition, numerous newsletters, publications, and other resources and channels to the information resources and directories of other systems are available on EcoNet.

³⁰ Smith, personal interview, December 16, 1993.

³¹ The Right-to-know Computer Network (RTK NET) is promoted nationally as an important resource for labor activists concerned with health and safety issues. For the AFL-CIO, LaborNet promotes LaborLine BBS at the George Meany Center in Washington, D.C. Geonet, with its extensive international connections, is utilized to contact International Trade Secretariats. Lastly, in Canada, SOLINET is a partner network for building North American union solidarity.

³² Promotional Materials, IGC Networks.

³³ This figure was based on the user growth rate for the months of September, October, November and December of 1993. Smith, personal interview, December 16, 1993.

³⁴ Geoff Sears, personal interview, January 10, 1994.

³⁵ Smith, "IGC Mission and History", p.2.

³⁶ Smith, "Who's Who at IGC", in *igc.netnews*, March 12, 1992, p.4.

³⁷ _____, *IGC User Manual*, p.iii.

³⁸ Andrea Cousins, The Tides Foundation Projects Program, personal interview, January 4, 1994.

³⁹ Smith, "Who's Who at IGC", in *igc.netnews*, March 12, 1992.

⁴⁰ The Brazilian APC network, Alternex, in Rio de Janeiro, was created in 1989, by the group IBASE (Instituto Brasileiro de Analises Socias e Economicas), the IGC (to support popular movements in Brazil) and the United Nations Development Program (UNDP). IBASE is leading the "campaign against hunger" in Brazil, and publishes many books and periodicals on social issues of which "Primeira e Ultima" has 200,000 copies printed every two weeks. They are internationally known and respected for their work for social change in Latin America. User accounts on Alternex are in 35 countries, mostly in Latin America, of which approximately 80% are based in Brazil. Staff at Alternex have been instrumental in the creation of other networks, most of whom are in Latin America.

⁴¹ Mitra, personal interview, December 22, 1993.

⁴² Steve Fram, personal interview, December 28, 1993.

⁴³ The Seven networks that wrote the charter and bylaws and formally founded the APC were: the Institute for Global Communications (IGC) in the United States, GreenNet in England, NordNet in Sweden, Web in Canada, AlterNex in Brazil, Nicarao in Nicaragua, and Pegasus in Australia.

⁴⁴ The eight APC networks that are not mentioned in this section include: AlterNex in Brazil, Comlink in Germany, Chasque in Uruguay, GLUK in the Ukraine, Histria in Slovenija, LaNeta in Mexico, NordNet in Sweden, and Pegasus in Australia.

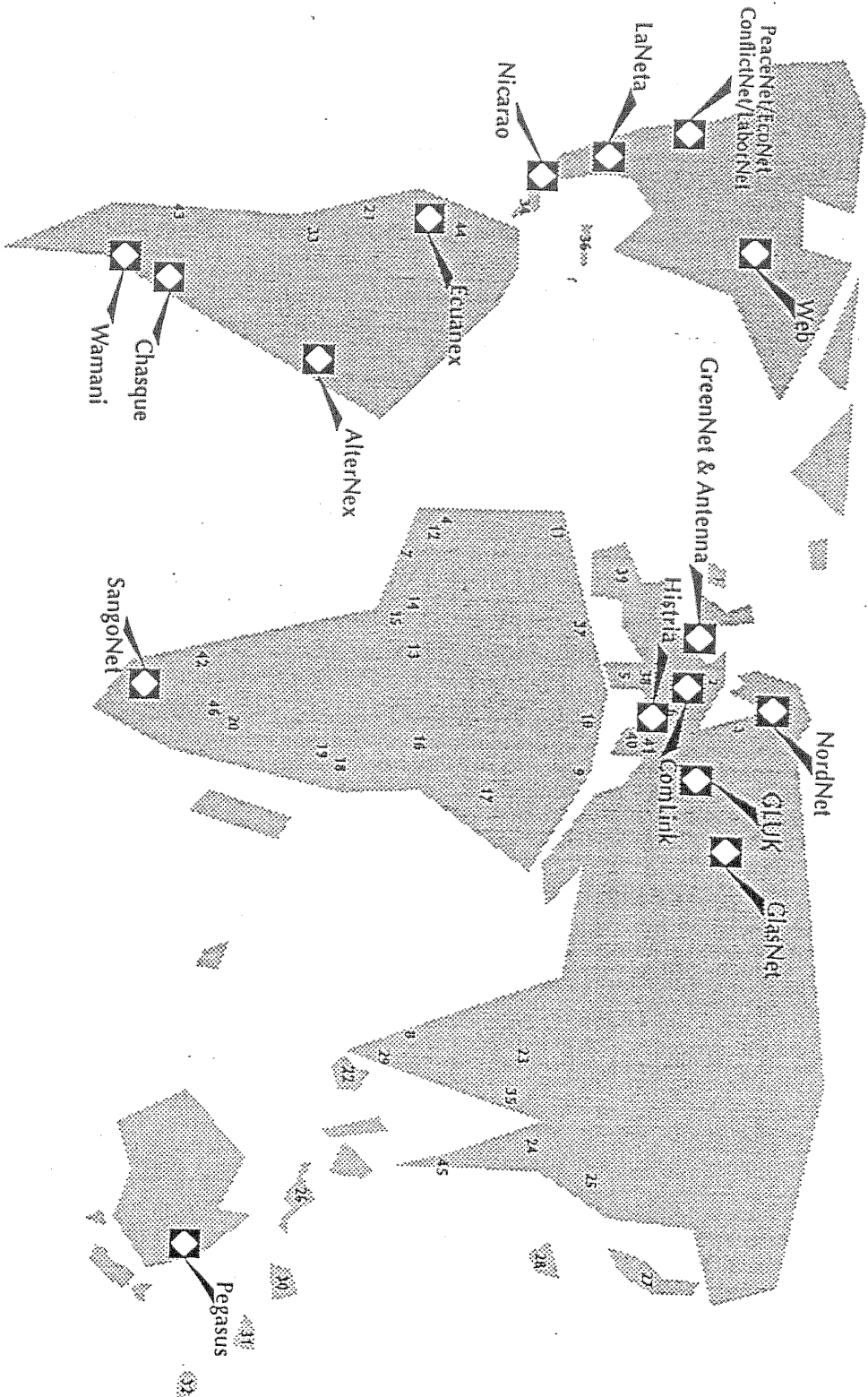
The Pegasus networks in Australia, a founding member of the APC, started its operations in 1989. Ian Peter, founder and director for its first six years, is an environmentalist who is well known for his work in helping to stop deforestation. He staffed the network with others who had extensive experience in the peace and environmental movements, which helped to further legitimize the networks to others within these social movements. Pegasus had a high number of users from the beginning, which can also be attributed to Australia's generally high level of environmental awareness and large number of NGOs. From the start, prominent groups in the Australian environmental community were well represented on the network, including Greenpeace Australia, Friends of the Earth, and the World Wildlife Fund, among others.

- ⁴⁵ Mitra, personal interview, November 9, 1993 and December 22, 1993.
- ⁴⁶ Mitra, personal interview, November 9, 1993.
- ⁴⁷ Each year, Web grows in revenues and users by 65-80%, with approximately an 80% annual subscription renewal rate among users. Annual subscription to Web is \$180 year for non-profit organizations, and \$270 year for governmental and private sector groups.
- ⁴⁸ Rory O'Brien, personal interview, December 14, 1993.
- ⁴⁹ Currently, an effort is underway that has been quite successful, and provides an example of how Web has improved the organizing efforts in a government/NGO environmental project, according to Rory O'Brien, Web Programme Coordinator. A Green Community project is linked through Web to government offices in Ontario and to NGO's in 8-10 communities. This project's goal is to share information among these groups and coordinate efforts that will lead to an increase in energy efficiency in homes. Those involved hold private conferences on Web and their organizing efforts have helped to publicize this project to many communities that otherwise might not have known about the project. Rory O'Brien, personal interview, December 14, 1993.
- ⁵⁰ O'Brien, personal interview, January 23, 1994.
- ⁵¹ LaNeta, the new APC network in Mexico, also exists in Central America, providing access for Central American users. Three new networks were approved at the on-line Council meeting in December 1993: LaNeta in Mexico, Gluk in the Ukraine, and Histria in Slovenija.
- ⁵² Sally Burch serves on the APC Council and is in charge of INTERCOM relations with the APC, but is currently neither Director of INTERCOM nor EcuaneX, unlike other APC Council members. She founded both INTERCOM and EcuaneX, and met Steve Weikart and other IGC/APC people at a conference on international networking.
- ⁵³ Sally Burch, personal interview, January 5, 1994.
- ⁵⁴ Brock Meeks, "The Global Commons", *Whole Earth Review*, no. 71, Summer 1991, p.22.
- ⁵⁵ With a staff of seven and a powerful host computer with two 400-megabyte hard disks, 8 modems, 9 phone lines and three computers, Glasnet is able to link its users to the Internet, MCI, Compuserve, Twics, and other APC nodes and worldwide systems. Judi Buehrer, "Reaching Out For Rubles", *Moscow Guardian*, January 10, 1992, p.9.
- ⁵⁶ _____, "Russian Networking: It's a Jungle Out There", *GlasNews*, 3.3.1, Autumn 1993, p.6.
- ⁵⁷ Buehrer, Judi "Reaching Out For Rubles", *Moscow Guardian*, January 10, 1992, p.9.
- ⁵⁸ GlasNet Ukraine (Gluk) was recently established with the help of the staff at GlasNet. Because of the different forms of currency and difficulty in communicating between the various republics of the former Soviet Union, GlasNet decided to help Gluk become operational. Gluk was formally accepted as an APC node in December of 1993.
- ⁵⁹ A substantive area on the network is called a "forum", and the lead organization(s) the "forum manager(s)". A forum manager is responsible for designing the structure of the forum, identifying and assisting other information providers, abstracting and posting material in a useful format, keeping the information updated and timely, and responding to users' information needs, SangoNet, promotional materials, p.2.
- ⁶⁰ SangoNet promotional materials, p.2.
- ⁶¹ Ibid.
- ⁶² Carlos E. Alvarez, e-mail communication, December 11, 1993.
- ⁶³ Wamani is involved with the Argentinean Academic and Research Network to improve its access to Internet gateways. Also, plans are underway to establish a regional sub-nodes network, whose first step will be the Rosario and Bariloche Nodes.

- ⁶⁴ Edie Farwell, personal interview, December 20, 1993.
- ⁶⁵ Mike Jensen, personal interview, January 14, 1994.
- ⁶⁶ Brock Meeks "Think Global, Dial Local; EcoNet is a Global Network of Local Heroes", Link-Up, Vol.8; No. 4; p.21, July 1991.
- ⁶⁷ Hagerman, Erik, "One Computer, One World", World Watch, January/February 1992, p.5.
- ⁶⁸ Ibid.
- ⁶⁹ A few large international organizations represented on the APC include: the Third World Network, World Resources Institute (WRI), World Wildlife Fund (WWF), Centre for Our Common Future, Environment Development Action in the Third World (ENDA), and Amnesty International, among others.
- ⁷⁰ Hagerman, Erik, "One Computer, One World", World Watch, January/February 1992, p.5.
- ⁷¹ Ibid.
- ⁷² Jerry Lazar, "Weikart Brings Networking Tools to Non-Profit Organizations around the World", Network World, August 24, 1992, p.2.
- ⁷³ Brock Meeks, "Think Global, Dial Local; EcoNet is a Global Network of Local Heros", Link-Up, Vol.8; No. 4, July 1991, p.21.
- ⁷⁴ Mick O'Leary "EcoNet Creates Virtual Communities; Online Information Service", Link-Up, Vol. 10; No. 1; January, 1993, p.24.
- ⁷⁵ Afonso, Carlos, "UNCED Information Strategy Project in Rio: A Final Report", September 6, 1992, in en.unced. general., p.1.
- ⁷⁶ Hagerman, "One Computer, One World", World Watch, January/February 1992, p.7.
- ⁷⁷ _____, "APC at the Earth Summit-Statements from the Users", from the APC.
- ⁷⁸ Nancy Gabriel, "The Net Result: Computer Networks, NGOs and UNCED", *Concordare*, The International Environmental Negotiation Network at the Harvard Law School, Spring 1993, No.4, p.8.
- ⁷⁹ Langston James Goree VI, comments in EcoNet conference, en.unced.general, September 15, 1990, p.1.
- ⁸⁰ Nancy Gabriel has extensively studied and written on the impact of the APC networks on the NGO community at the Earth Summit. She currently works at SatelLife in Cambridge, Massachusetts, a firm dedicated to improving communications on health and the environment in the developing world.
- ⁸¹ Nancy Gabriel, "The Electronic Road to Rio: Lessons from NGO Use of Computer Networks During the UNCED Preparatory Process ", Thesis for Master of Arts in Urban and Environmental Policy, Tufts University, Cambridge, MA, February, 1994, p. 82-3.
- ⁸² Ibid, p.7.
- ⁸³ Farwell, IGC Netnews, July/August, 1993.
- ⁸⁴ Schneider, Bernd, "Computers are Linking the World for Human Rights", *Terra Viva-NGO News*, June 11, 1993.
- ⁸⁵ Sproull, Lee, and Kiesler, Sara, "Computers, Networks, and Work", in Global Networks, Edited by Linda Harasim, MIT Press, 1993, p.118.
- ⁸⁶ Ibid, p.116.
- ⁸⁷ Mitra, personal interview, November 9, 1993.

APC Networks

Association for Progressive Communications



◆ APC Member Networks

These networks form the backbone of APC. They are interconnected via telephone networks and the Internet. Electronic mail, news, and databases are exchanged regularly between all APC nodes.

1-46 Affiliate Networks

These networks indicate 'on demand' connections made via Fido, UUCP, and Zconnect transfer protocols.

APPENDIX 1: MAPS OF MEMBER AND AFFILIATE NETWORKS OF THE ASSOCIATION FOR PROGRESSIVE COMMUNICATIONS

Source: APC

Association for Progressive Communications (APC)

APC is a worldwide partnership of computer networks that link people working for peace, environmental sustainability and universal human rights. By providing communications and information-sharing tools, APC empowers organizations and individuals to organize efficiently and effectively around their specific issues on local, national, and international levels.

The APC Member Networks provide the administrative and technical backbone for APC. Affiliate Networks are smaller, local host nodes with whom APC exchanges information while also expanding progressive global networking.

To connect to the APC Networks, you need a personal computer, access to an ordinary telephone line and a modem (or the Internet), communications software, and an account on any APC Network. To join this global communications revolution, contact the APC Member Network that serves your region (as listed on reverse).

APC Member Networks

AlterNex •

Rua Vicente de Souza, 29
22251-070 Rio de Janeiro, Brazil
Tel: +55 (21) 286-0348
Fax: +55 (21) 286-0541
E-mail: suporte@ax.apc.org

Chasque

Casilla Correo 1539
Montevideo 11000, Uruguay
Tel: +598 (2) 496-192
Fax: +598 (2) 419-222
E-mail: apoyo@chasque.apc.org

Comlink e.v.

Emil-Meyer-Str. 20
D-30165 Hannover, Germany
Tel: +49 (511) 350-1573
Fax: +49-511-350 15 74
E-mail: support@oln.comlink.apc.org

EcuaneX

12 de Octubre 622, Of. 504
Casilla 17-12-566, Quito, Ecuador
Tel: +593 (2) 528-716
Fax: +593 (2) 505-073
E-mail: intercom@ecuanex.apc.org

GlasNet •

Dom 4, Komnata 16, Third Floor
107078 Moscow, Russia
Tel: +7 (095) 207-0704
Fax: +7 (095) 207-0889
E-mail: support@glas.apc.org

GLUK - GlasNet-Ukraine

14b Metrologicheskaya str.
Kiev, 252143 Ukraine
Tel: +7 (044) 266 9481
Fax: +7 (044) 266 9475
E-mail: support@gluk.apc.org

GreenNet •

23 Bevennden Street
London N1 6BH, England
Tel: +44 (71) 608-3040
Fax: +44 (71) 253-0801
E-mail: support@gn.apc.org

Antenna

Box 1513
NL-6501 Nijmegen, Netherlands
Tel: +31 (80) 235-372
Fax: +31 (80) 236-798
E-mail: support@antenna.nl

Histria

Zherlova 43 61
Ljubljana, Slovenija
Tel: +38 (61) 211-553
Fax: +38 (61) 152-107
E-mail: support@histria.apc.org

LaNeta

Tlalpan 1025, col. portales
Mexico, df. Mexico
Tel: +52 (5) 277-4791
Fax: +52 (5) 277-4791
E-mail: soporte@laneta.apc.org

Nicarao

Apartado 3516 Iglesia Carmen
1 cuadra al lago
Managua, Nicaragua
Tel: +505 (2) 621 312
Fax: +505 (2) 621 244
E-mail: ayuda@nicarao.apc.org

NordNet

Huvudskärsvägen 13, nb
S-12154 Johanneshov, Sweden
Tel: +46 (8) 6000-331
Fax: +46 (8) 6000-443
E-mail: support@nn.apc.org

PeaceNet/Econet/ConflictNet/Labornet •

Institute for Global Communications (IGC)
18 De Boom Street
San Francisco, CA 94107 USA
Tel: +1 (415) 442-0220
Fax: +1 (415) 546-1794
E-mail: support@igc.apc.org

Pegasus Networks •

PO Box 284 Broadway 4006
Queensland, Australia
Tel: +61 (7) 257-1111
Fax: +61 (7) 257-1087
E-mail: support@peg.apc.org

SangoNet

13th floor Longspeak Building
187 Bree Street
Johannesberg 2000 South Africa
Tel: +27 (11) 838-6944
Fax: +27 (11) 838-6310
E-mail: support@wn.apc.org

Wamani

Talcahuano 325-3F
1013 Buenos Aires, Argentina
Tel: +54 (1) 382-6842
E-mail: apoyo@wamani.apc.org

Web •

401 Richmond Street West, Suite 104
Toronto, Ontario M5V 3A8 Canada
Tel: +1 (416) 596-0212
Fax: +1 (416) 596-1374
E-mail: support@web.apc.org

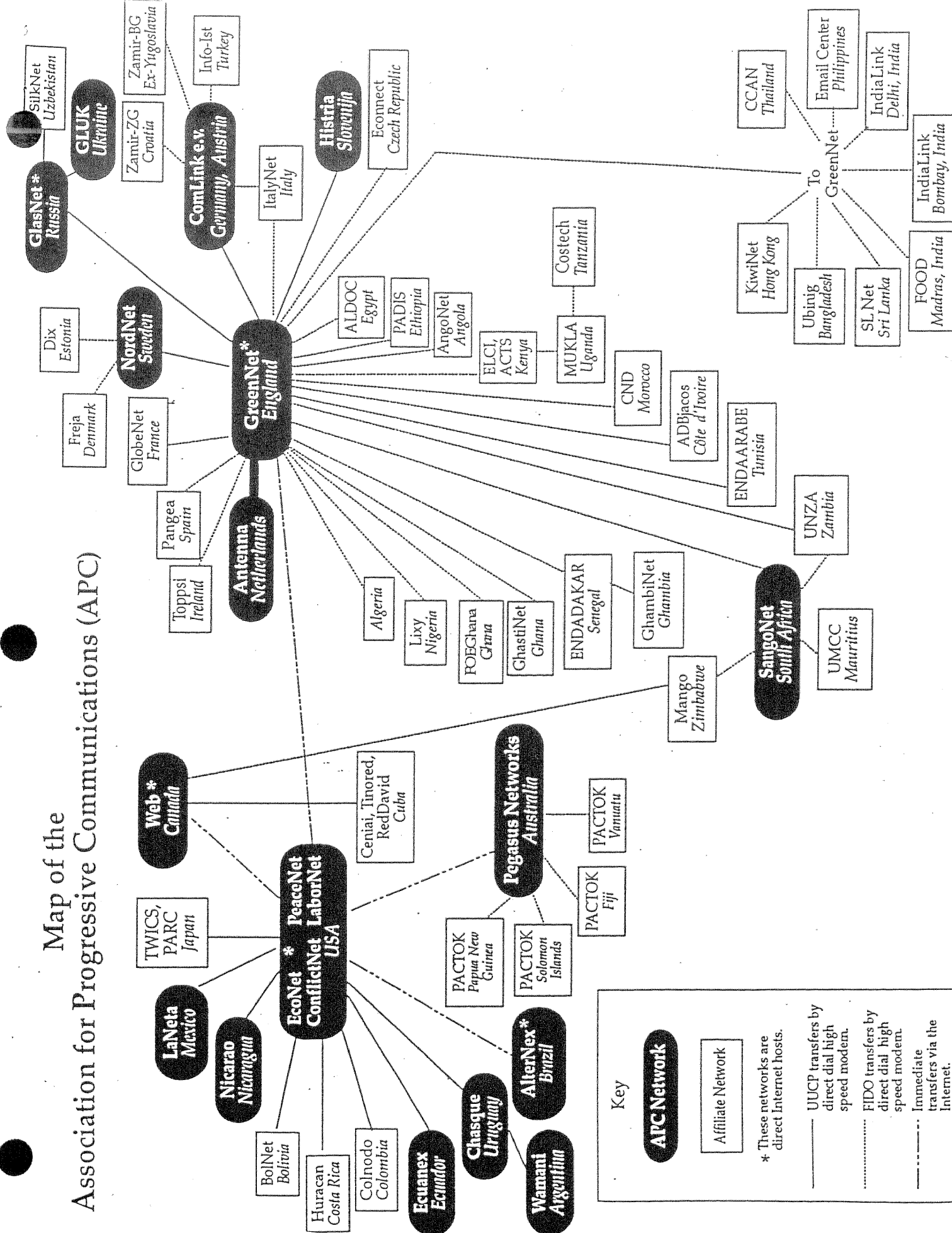
- These networks are direct Internet hosts.

APC Affiliate Networks

(Numbers correspond to map on reverse)

- Ireland (Topsis)
- Denmark (RodNet)
- Estonia (Dix)
- Gambia (GhasNet)
- Italy (ItalyNet)
- Czech Republic (Econnect)
- Côte d'Ivoire (ADBabacos)
- Bombay, India (India Link Bombay)
- Egypt (ALDOCI)
- Tunisia (ENDARABE)
- Morocco (CND)
- Senegal (ENDADAKAR)
- Nigeria (Iky)
- Chana (FOEChana)
- Uganda (MUKLA)
- Ethiopia (PADIS)
- Kenya (ELCI, ACTS)
- Tanzania (Costech)
- Zambia (UNZA, ZangoNet)
- Peru (RCP)
- Sri Lanka (SL Net)
- Delhi, India (Indialink Delhi)
- Thailand (CCAN)
- Hong Kong (Kiwinet)
- Papua New Guinea (Pactok)
- Japan (TWICS)
- Philippines (Email Centre)
- Madras, India (FOOD)
- Solomon Islands (Pactok)
- Vanuatu (Pactok)
- Fiji (Pactok)
- Bolivia (BolNet)
- Costa Rica (Huracan)
- Bangladesh (Ubrinig)
- Cuba
- (Central, Tinored, RedDavid)
- Algeria
- France (GlobeNet)
- Spain
- Ex-Yugoslavia (Zamir-BG)
- Croatia (Zamir-ZG)
- Angola (AngoNet)
- Chile (Reduc)
- Colombia (Colnodo)
- Malaysia (Pactok)
- Zimbabwe (Mango)

Map of the Association for Progressive Communications (APC)



Appendix 2: Sample implementation plan for Human Resources and Sample Budget for the First Year of Operation from "New Node Work Plan: Setting Up and Operating An APC Node", Updated November 19, 1992

Sample Implementation Plan for Human Resources

Operating a node requires the following functional areas. We recommend that a full-time person fill each of the four main areas at the beginning of operations.

The organization, as a whole, could be part of an existing organization, or a new, independent organization.

Administrative

- o Organize an advisory group of users (this has been useful in Brazil and in Bolivia).
- o Manage finances - equipment purchase, software purchase, support contracts, telecommunication (telephone) costs, salaries.
- o Maintain relationship with other APC systems.
- o Employee relations.
- o Maintain relationships with external entities (landlord, PTT, etc.)

User Support and Outreach

- o Train users on how to use the system.
- o Answer user's questions.
- o Suggest equipment for users to purchase.
- o Set-up equipment for users.
- o Requires expertise in the DOS/IBM PC environment.
- o Prepare and/or translate information and documentation.

Education and Promotion

- o Educate NGOs on how electronic networking works in general.
- o Describe concrete benefits and cost savings by transferring information electronically.
- o Explain to NGOs and other users how their organization can benefit from international connectivity.
- o Actively promote and advertise use of the node. Technical
- o Responsible for installation and maintenance of the Host software and hardware.
- o Day to day administrative needs.
- o Communicate with other APC technicians.
- o Develop custom software (e.g., database applications).
- o If the chosen software is IGC Tools (see Section 3.3), then the following experience is generally needed:
 - o UNIX operating system
 - o UNIX shell script programming
 - o Modem administration under UNIX
 - o Communications on personal computers

- o ability to assemble, disassemble, diagnose and repair simple faults in microcomputers.
- o Also desirable is:
- o C programming language
- o Foxplus or DBase clone programming
- o Other choices of software may require a different equivalent set of skills.

Depending on the skills of local people, a training program could be arranged. Also, the node may wish to contract with an APC organization that has sufficient technical expertise for long-distance technical support.

Sample Budget for the First Year of Operations

At this time, all numbers are estimates only. Areas marked "_____" are local (i.e. non-US Dollar) costs.

Local Staff (recurring expenses)

Administrative (1 Full-time)	_____
Support (1 Full-time)	_____
Technical (1 Full-time)	_____

Hardware & Software (one-time expenses for machine to support 500 users)(all amounts below are in U.S \$)

Base Machine	6,000
386/486 computer; 1Gigabyte disk; 8 serial ports; reliable power supply and cooling; 16MB RAM	
UNIX Operating System	1,200
High Speed Modems	1,200
FAX hardware and software (optional)	800
X.25 hardware and software (optional)	1,500
AC Power protection	400
Spare parts	4,500
Miscellaneous (modems, cables, terminal,)	3,000
Total equipment costs	18,600

Consultancies

These are consultancies by staff from an APC node with sufficient technical staffing. Consultancy needs will vary, depending on the facilities and experiences of local technicians and administrative staff.

Installation	\$10,000
o Assistance purchasing equipment	
o Assistance configuring system	
o Testing	
o 4 weeks travel	

- o Preliminary training of local technicians.
- o Local programming jobs - configure local FAX, electronic mail, and conferencing gateways.
- o Assistance configuring multi-lingual system for local usage.

Training and support

6,000

- o 2 trips for training and configuration.
- o Possible visit of local Technical Director to an APC node for training.

Facilities (recurring expenses, as well as one time installation. Costs to be determined for your specific location and application)

2-8 telephone lines _____

X.25 Interface & lines (2) _____

Office facility _____

Security _____

Translation of manual and prompts (as needed) _____

Other (US Dollars)

1 year long-distance support

4,000

Either to GreenNet (U.K.), IGC (USA) or AlterNex, (Brasil).

The need for such support depends on the technical needs at the local site.

1 year administrative support for conferencing system 1,500
Telecommunications setup expenses 2,000
(for testing while establishing node)

1 year int'l telecommunications expenses

- if node calls

local cost

- if IGC calls and bills node

6,000

1 year APC membership

5,000

The APC membership is assessed at US\$7.50 per user, with a \$5,000 per year minimum, and \$25,000 per year maximum. Some nodes can request a subsidized \$1,000 per year fee. Membership fees are used to support software development, distribution, and network administration.

TOTAL COST, First Year only

\$53,100

+ local expenses

(*Please note that local expenses must be added to TOTAL COST)

Appendix 3: APC Gateways to Other Networks and IGC Conference Subject Headings

Networks accessible through APC gateways include: Applelink, AT&T Mail, AT&T LandMail, Bitnet, BIX, CARINET, CGNET, CIGnet, CompuServe, CONNECT, COSY, CSNet, DASNET, DECNET (Digital Corp.), DIALCOM, EARN, EasyLink, ECONET, EIES, Envoy 100, FAX, Fidonet, Galaxy, GeoNet, GTE, HandsNet, IMC, INET, ISISHQ, Janet, MCI Mail, MetaNet, MicroLink, NWI, Pactok, PANDORA, PINET, Portal, Prairie, PsychNet, ScienceNet, TCN, Telecom Gold, SprintMail, Telex, TWICS, Tymnet/Ontyme, UNDP; UNDRO; UNINET, UNICOMP UNISON, UseNet, WELL

If available with the local PT&T, this provides packet-switched access nationally and/or internationally.

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IGC Conference Subject Headings

(there are over 1200 conferences on the IGC networks alone)

Activism	Europe	Nuclear weapons Testing
Africa	Food & Agriculture	Pacific
Air & Climate	Forests	Peace
Alerts	Gender & Sexuality	Philosophy & Spirituality
Announcements	General Interest	Politics-General
Asia	Global Action & Information Ntwk	Seas & waters
Calendars	Government Sources - U.S.	Social Justice
Central America	Greens Movement	Spanish- Language
CIS/xUSSR	Health	Technology
Community	Homeopathy	Toxics & Waste
Computers & Software	Human Rights	U.S. Regional
Conflict Resolution	Indigenous Peoples	United Nations
Development	Labor - Trade Unions	Utne Reader Online Salon
Disarmament	Latin America	Wilderness & Wildlife
Economics	Media	Women's Issues
Education & Research	Middle East	Youth
Energy	Military & Security	
Environment - Education	News Articles/Press Releases	
Environment - General	News Services & Magazines	
Environment - Legislation	Newsletters	

Appendix 4: "List of Services on the APC" By Edie Farwell, April 1, 1993

Services:

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-- Electronic Mail --

connectivity with every major computer network service worldwide, including the Internet, Bitnet, CompuServe, Dialcom (including TCN and UNINET), MCIMail, Connect (including HandsNet) and more than 30 others.

-- Information resources --

discussion forum on issues and values ranging from Environmental Education to strife and social change in Eastern Europe; Energy policy, Climate change and Biodiversity, to the full facts on the Earth Summit; from democratic change in Africa to the latest on East Timor.

-- News Wires --

including the InterPress Service, Pacific News Service, Africa Information Afrique, CERIGUA and Greenpeace.

-- Fax and Telex --

interconnectivity at extremely low rates.

-- Local dialup --

access facilities and experienced local support staff in Australia, Brasil, Canada, Ecuador, England, Germany, Nicaragua, Russia, Sweden, the United States, Uruguay.

-- Access --

from more than 40 countries via the Internet, and access through packet-switched services (including US Sprint and BT Tymnet) from more than 90 countries.

-- Computer Conferencing --

with multiple-site participation, and private, semi-private and unrestricted access options. Capability of interchange in USENET and other formats.

-- Remote system support --

using either the UUCP or FIDO protocols.

-- Mailing List and File distribution services --

using multiple message formats.

- Online Databases --
full-text databases including Agenda 21, Environmental GrantMakers, Rocky Mountain Environmental Directory, Third World Resources, Greenpeace Press Releases, United Nations Information Service, Shortwave Radio Transcripts, and Pesticide Information Service.
- Custom login banners --
computer conferences and billing services for groups.
- Internet Services --
including TELNET and WAIS.
- Consulting and Technical Assistance --
ranging from installation of complete email and BBS systems to full support for your organization's specific needs for computer communications and information exchange.

Appendix 5: Advisory Board of the Institute for Global Communications

China Brotsky

Executive Vice President of the Tides Foundation. Formerly deputy director of the Exploratorium. Active in the environmental justice movement.

Gil Friend

President of Social Entrepreneurs Network Direct, Inc.; former CEO of Foundation for the Arts of Peace; serves on the board of the International Alliance for Sustainable Agriculture.

Hal Harvey

Executive Director of the Energy Foundation in San Francisco; formerly Executive Vice-President of the International Foundation, Director of the Security Program at the Rocky Mountain Institute; board member of the Center for Innovative Diplomacy, the New Land Foundation, the Mertz-Gilmore Foundation, the Freud Museum in London, First Law Products of New Hampshire, and the Ploughshares Fund.

Joanne Kliejunas, Ph. D.

Principal of Rhino Associates, a consulting firm in organizational development and fundraising. Formerly Vice President for Special Projects and Development Director of the Sierra Club Legal Defense Fund. Vice-Chair, Executive Committee of Earth Share; member of the Policy Board of the Center for Research on Women at Stanford University.

Drummond Pike

President of the Tides Foundation; a founder of Working Assets Money Fund; board member of Affirmative Investments (Boston) and American Capital Strategies (Washington, D.C.).

Charlie Metzler

Instructor in Computer Science, City College of San Francisco; MS in Mathematics from Syracuse University; Formerly manager of data processing for MA department of corrections.

Geoffrey Sears

IGC's Executive Director. Mr. Sears holds a BS in Mechanical Engineering and an MS in Resource Planning from Stanford University. Formerly a program officer for a major Philippine foundation and has worked in energy management. Fluent in Russian, he has studied and travelled extensively in the republics of the former Soviet Union.

Scott Weikart, Ph.D.

Founder and Director of Community Data Processing. Ph.D. in Computer Engineering, University of Illinois. Developer of the Plato educational computer system; formerly a systems engineer at Hewlett Packard.

HARVARD UNIVERSITY
CENTER FOR SCIENCE AND INTERNATIONAL AFFAIRS

March 1, 1994

*John F. Kennedy School of Government
79 John F. Kennedy Street
Cambridge, Massachusetts 02138
Fax (617) 495-8963*

Dear Mitra:

I have enclosed the final draft of the case study on the Association for Progressive Communications written for the Harvard/CIESIN Project on Global Environmental Change Information Policy. Thank you for your help in providing me with valuable information about APC. I hope that you find this historical document of APC informative and relevant to your work.

I presented this research on APC at a conference on information policy in Washington D.C in February 1994 and I found there was tremendous interest in the work of APC by governmental agencies and non-governmental organizations at this conference. Many people I have spoken to had never heard of APC and are thinking of joining as a result of the conference. This research will be published in a book of case studies on different organizations to be released in September 1994. I also distributed approximately 200 copies to conference participants and I am forwarding a copy to all APC member nodes.

I have also been invited to present this research in Korea in July 1994 for the International Association for Mass Communication Research and to be published in their journal, but I am unsure if I will attend due to lack of funding. Any ideas for funding to present my research on APC would be greatly appreciated.

I have really enjoyed these last few months that I have devoted to researching the APC. I would like to expand this study to provide more information on APC nodes in different countries, but for the purposes of our project I needed to put a lot of focus on IGC networks. I would be interested in any comments you may have on this study. I can be reached at sallin@ksgbbs.harvard.edu or at the addresses listed in the beginning of the document. Also, if you are interested in other information on APC not found in the case study, or would like a copy of our book of case studies please do not hesitate to contact me. Thanks again for all your help!

Best Regards:

Susanne Sallin

Susanne Sallin

*Please stay in touch
Mitra + let me
know when you are
on the E-coast!*