

Internet for the Third World - Chance or threat?

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1 Internet - another panacea to solve world's problems?

Nearly all papers and studies about telecommunication describe this technology crucial for the development of economic and social progress in our world. Intensifying the use of telecommunication and especially the use of international computer networks would reduce the gap between the rich North and the poor South and would help overcome poverty in opinion of the most important representatives of telecommunication firms in the North. In cooperation from [World Bank](#), [UNESCO](#), [USAID](#) and other international institutions they try to convince decision makers of the Third World, that an investment in the new media would be inevitable for participation in progress and improvement of life conditions for all. Here the particular interest of multi national consortiums of industrialized countries is obvious, because they will mainly participate in implementing telephone and data lines in developing countries. They all will get a big part of the estimated 500 billion Dollar cake in the communication sector.

Like the automobile that was celebrated as the most promising achievement, now the telecommunication is thought to be the panacea for all problems. Despite the unsolved problems of computer waste and the unforeseeable implications for the different societies and communities the use of computer networks is still propagated in an uncritical manner, because it promises great profits for multies from the North.

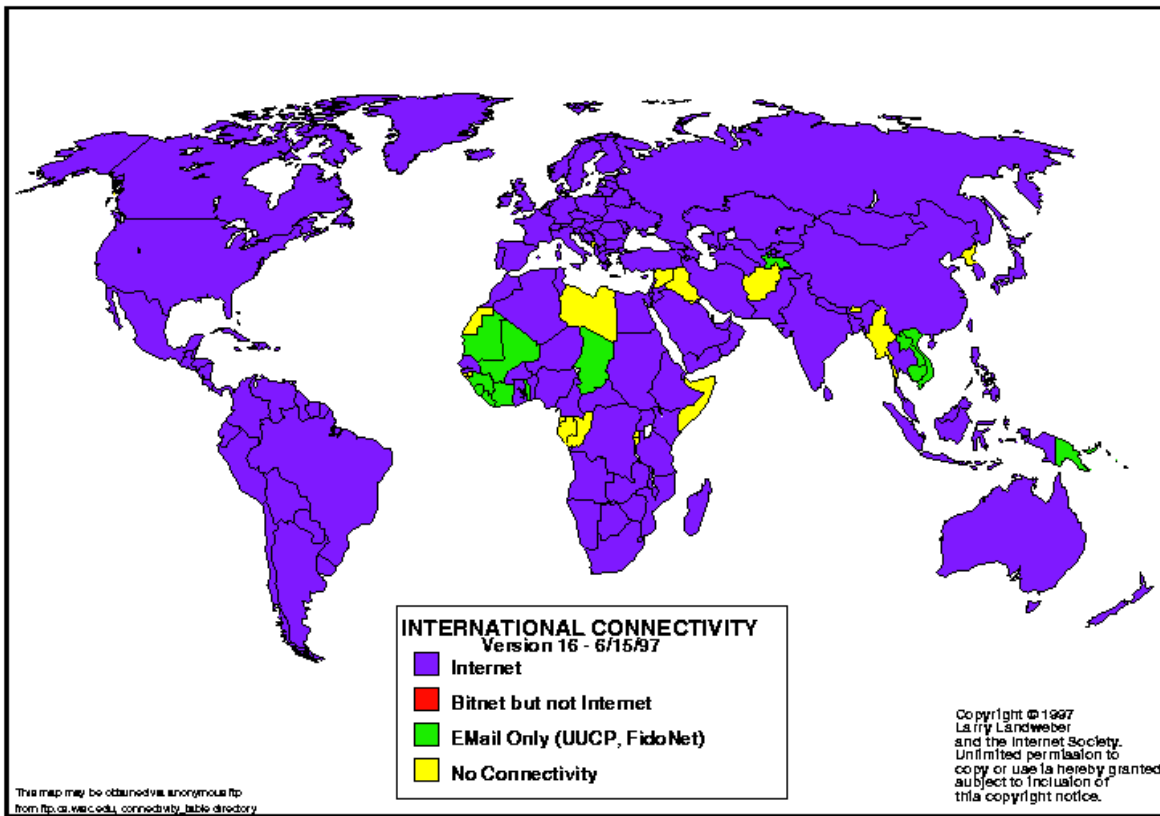
Paula Uimonen [[The Internet as a tool for social development](#)] of the UN Research Institute for Social Development in Switzerland noted: "After all, it was not long ago that the Green Revolution was heralded as the solution to world hunger, yet the implementation of these new technologies exacerbated the plight of many of the world's poor, largely due to a lack of political will and the contradictory interests of economic forces."

1.1 Internet statistics

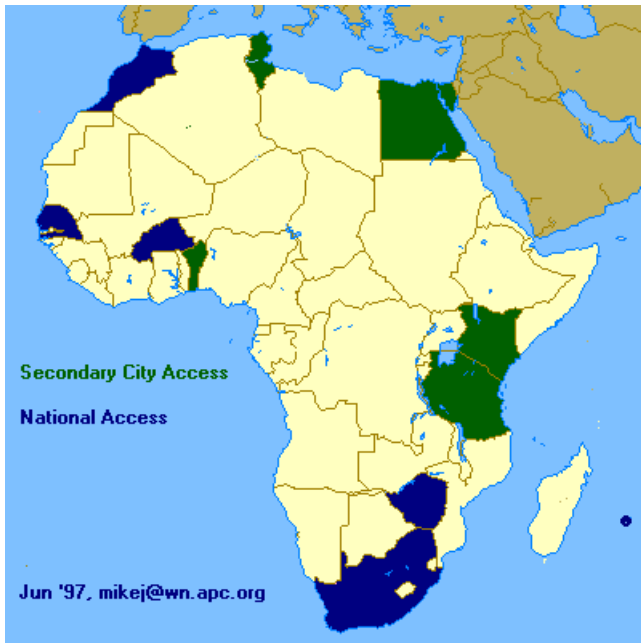
1.1.1 Host distribution and user demography

Let's have a deeper look at the actual stand of use of telecommunication networks and especially of Internet and its possible benefits or negative consequences.

In July 1997 there were about 19,5 million hosts on the Internet. [[Network Wizards](#)] For many times the number of hosts has doubled every year but it seems that the growth rate is slowing down actually. But the distribution of hosts by countries and regions hasn't changed much in this period. Third World is still participating with a mere three per cent, while the United States get about 60 per cent of all internet hosts. About 81,5 % of worldwide Internet hosts are in the G7-countries, which make up only about ten per cent of world population. On the other hand the most populated countries of the Third World, China, India, Brazil and Nigeria all together make up only 0,6 % of all hosts although they possess about a third of world population.

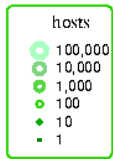


In many countries there are only a few internet connections and there are still some blank areas in Africa and Asia on the Internet map. In January 1997 the 100 million state Nigeria possessed only four Internet hosts. In developing countries there are only full Internet connections with all services in the capital cities. Outside the cities there exist sometimes possibilities for the use of e-mail only. In Africa with the exception of the Republic of South Africa and Senegal there are no direct Internet connections in rural areas.

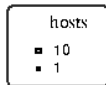


This is the hosts distribution worldwide:

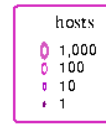
The Matrix Jan 1997



The Internet



BITEARN

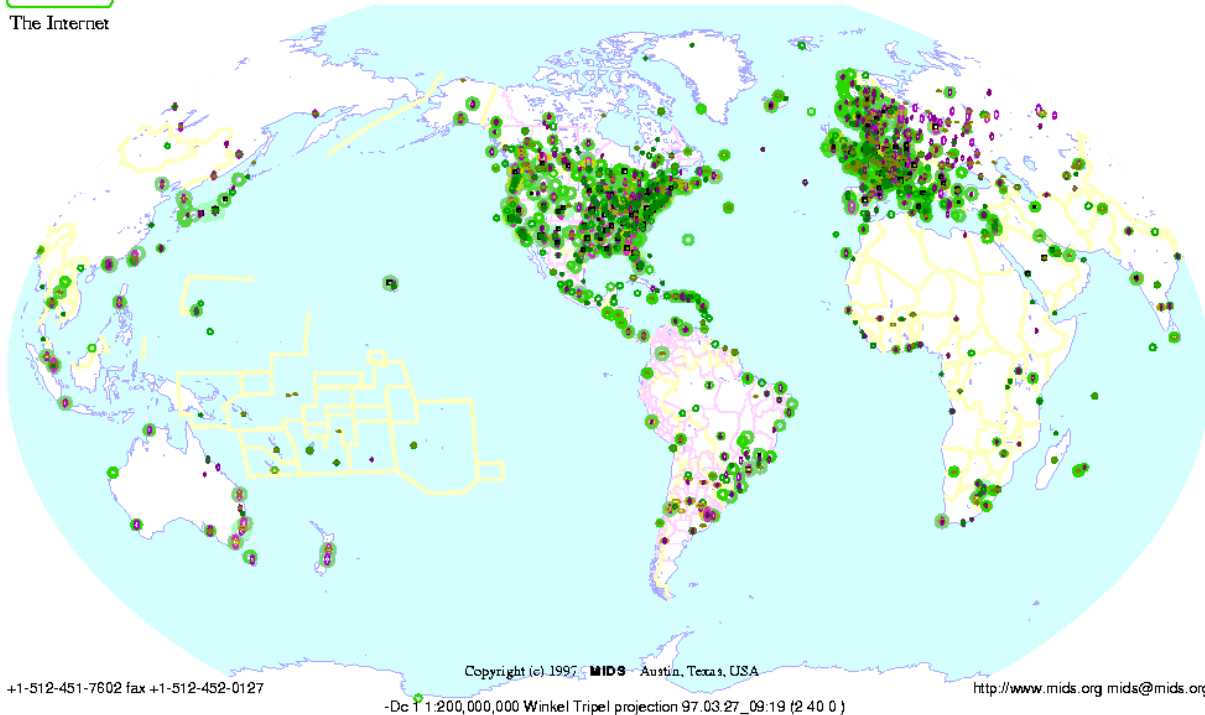


FidoNet

The World

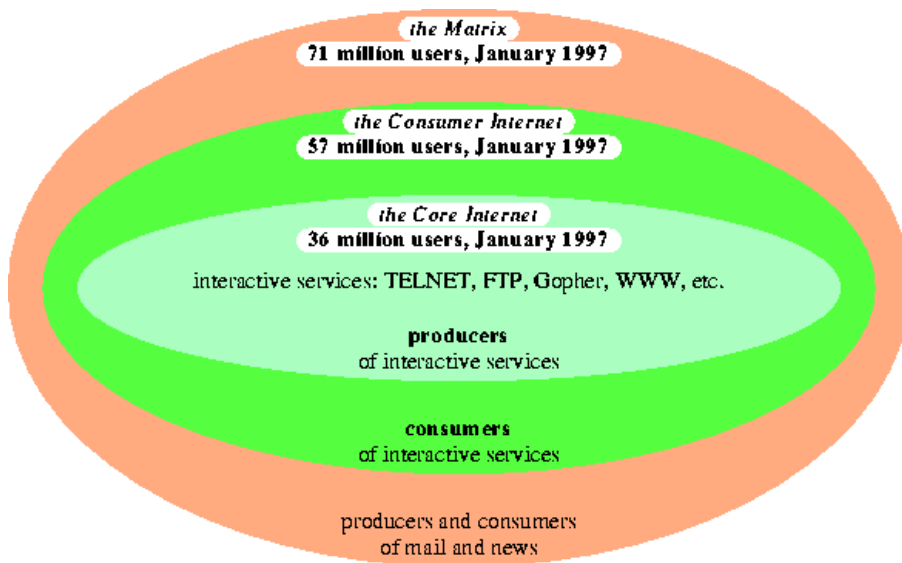


UUCP

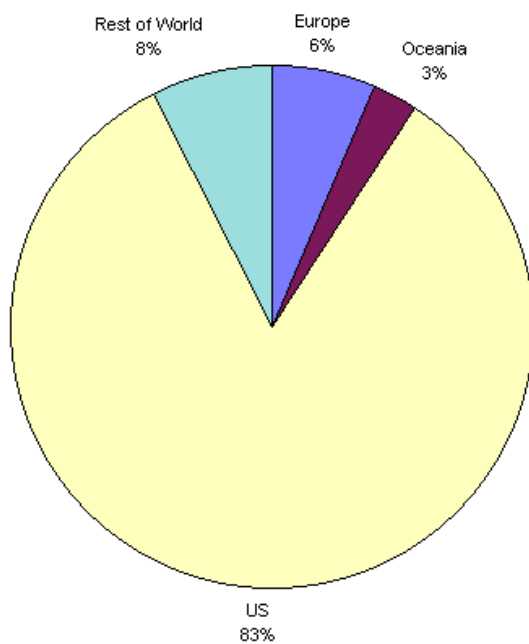


Most of Third World countries are connected to the Internet by satellites which transmit Internet data to the United States. In Africa there is a project to connect the continent by means of a fiber glass undersea cable around the whole continent. [AT&T](#) has proposed this project called [Africa ONE](#). It will need investments for 2,6 billion dollars. The German competitor Siemens, who has an alternative project called [Afrilink](#) for Africa, is speaking of "colonialism of new technology" in regard of Africa ONE. But, except for some large cities, the land mass of Africa is likely to be untouched by an information highway for a long time to come. Villagers of rural Africa have so little spending power that they are of little interest to the big players of the information highway. [[Statement of the 7th MacBride Round Table on Communication](#)]

In January 1997 there were about 57 million users on the net, using WWW and 71 million using e-mail services. [[MIDS](#)]

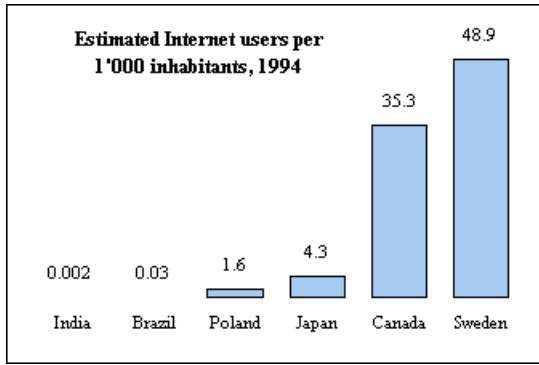


And this is the distribution of Internet users in the world in 1996:



The fact of being connected to the Internet doesn't say anything about the number of users.

Here are some numbers which show the immense differences in use of Internet between First World and Third World.



Source: <http://www.itu.ch/WTDR95/c1c.htm>

In Africa with about 700 Million inhabitants only 0,1 % of the population has access to the Internet. 550 000 of this Internet users come from the Republic of South Africa, 50 000 come from North Africa and only 40 000 come from the other countries. [[Beyond Basic Connectivity](#)]

1.1.2 Prerequisites for Internet use - telephone and electricity

There are three pre-conditions for using Internet. First you need a phone connection, second a computer and a modem and third electricity. Such prerequisites are the exception rather than the norm in Third World. Let's have a look to the actual situation of this pre-conditions in developing nations.

With regard to electricity this is mostly a first insurmountable obstacle. Characteristic for many developing countries is the missing of a stable power supply system with frequently power failures in cities and the total lack of power supply in rural areas is. 70 % of all Africans live in rural areas without any power supply. Also on the Indian subcontinent more than half of all houses in rural areas lack any power supply.

Here are some figures about electricity in Latin American countries:

Chile	95 %
Uruguay	91,4 %
Argentina	91,3 %
Venezuela	89,4 %
Columbia	82 %
Brazil	77,6 %
Ecuador	69,2 %
Paraguay	56,1 %
Bolivia	56 %
Peru	43,5 %

Source: *Expreso* (Peru) from 14th of August 1994

As mentioned above the other prerequisite for an Internet connection of a PC is a telephone line. But 80 % of world population doesn't have one. In 49 countries there are less than one telephone mainline per one hundred inhabitants and 35 of these countries are in Africa.

Telephone mainline density in selected countries

Country	inhabitants per telephone	consume of electricity per person in kWh
China	60	593
India	200	324
Brazil	16	1589
Nigeria	hardly no private lines	109
Germany	2	5683
Japan	2	6262
USA	2	11236

Source: CIA The World Factbook 1995

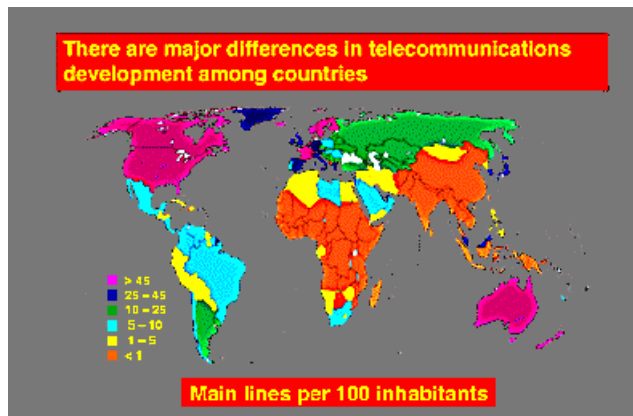
The ten richest countries with twenty per cent of world population have three quarters of all telephone mainlines. The average density of telephone mainlines in developing countries is 5,2 per 100 persons while in industrialized countries it is 52,3. The following table demonstrates the fact that there are immense differences in Third World regions too.

Telephone density in Third World regions

Region	Number of telephone lines per 100 persons
Central- and East Europe	18
Latin America	8
Asia	5
Africa	1,6

Source: Alain Servatie et al: European Community Cooperation with Countries in Transition and Developing Countries in Telecommunications and Information Society, in Health, Information Society and Developing Countries, Editor Marcelo C. Sosa-Tudicissa et al, IOS Press 1995

In Third World regions most telephone lines are in city areas. In rural Africa with 78 % of the population there are only 228 000 lines in total. This means that 1700 person should share one telephone. The aim to install ten lines for thousand persons claimed by the [International Telephone Union](#) in 1990 is far from being a reality.



Bill Gates, founder and head of Microsoft, thinks instead, that the fact of lacking telephone infrastructure can be an advantage for developing countries, as they do not need to use the roundabout way of mainlines but can use directly mobile radio stations.

So it isn't surprising that Microsoft in conjunction with McCraw, an United States mobile telephone services firm, has announced to implement the satellite based communication system named Teledesic.

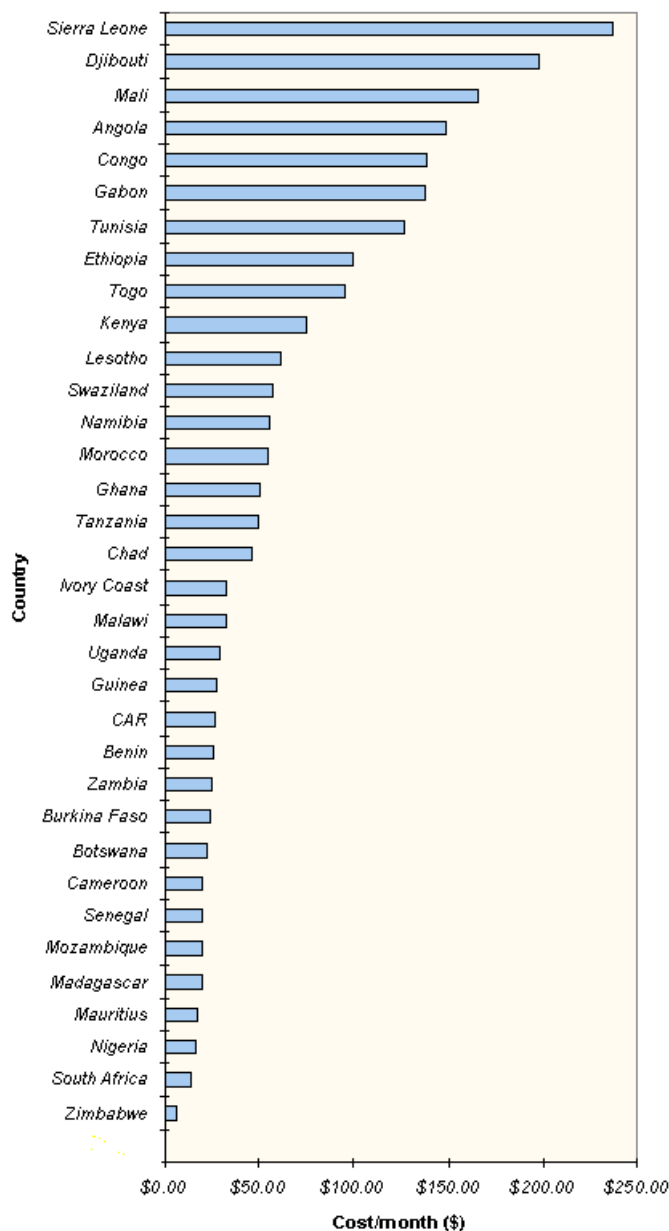
1.1.3 Costs and fees

For countries without direct access to Internet the costs of being connected to the net are especially very high, because they should pay for telephone calls on abroad. Monthly fees for an Internet account are often unreachable for common people in developing countries. In Peru, South America, the fee is about 18 dollars and in India you should pay 35 dollars. Taking the average income of ordinary people it results prohibitive for the majority. The average cost of a low volume Internet account in Africa is about 65 dollars a month, nearly the per capita income of Mozambique. [[Africa-Development: More than just Internet Connections required](#)]

African Connectivity Cost Comparisons

Estimated costs per month (US\$) for Internet access in African countries

(Cost is for email access where no full Internet is available)



Beside this costs and fees, acquiring a computer and a modem is much more expensive in Third World than in First World. The average cost of a PC and a modem, US\$ 2,000, is clearly an astronomical amount of money to most people in developing countries, with an average GNP per capita of US\$ 970, compared to US\$ 16,394 in the industrialized world. ([UNDP Human Development Report, 1996](#))

Although with the WTO agreement on reduction of customs duty for telecommunication infrastructure and PCs from February 1997 in Geneva, Switzerland, and the liberalization of world market it remains somewhat doubtful if this will lead to more investment in the Third World.

There are fears, for instance, that liberalization will conduct to telecommunications being developed for wealthy urban businesses, and not for the rural poor.

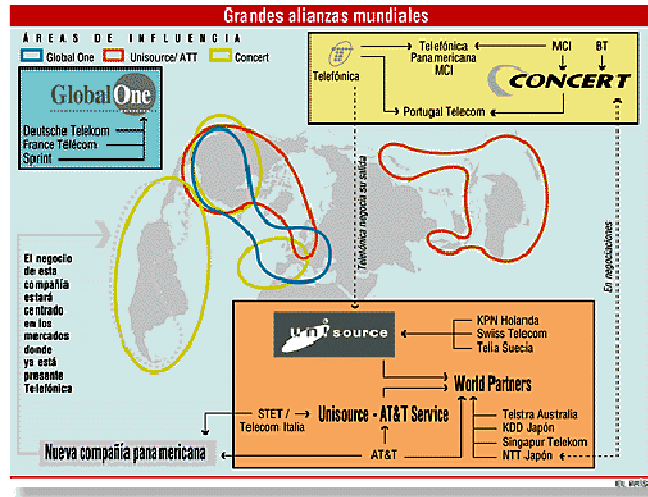
"Developing countries are rushing into legislation enabling liberalization without thinking through the requirements for their people," says Edwin Hanamwinga, a senior Zambian telecommunications engineer. "Legislation will favor

Western companies and systems and not the interests of the millions of poor people who have never made a phone call." [Panos: Telecoms Liberalization - Bypassing the poor]

1.1.4 Commercialization, monopolization and concentration

After being created for the U.S. Pentagon the Internet was a net for communication between universities in the United States and later for the whole world, but now it is commercialized by big firms. About a quarter of Internet hosts belong to the com-domain. Many of the former free services are now offered only for cash. In analogy to the highway you must now pay a toll for its use.

After liberalizing telecom-markets for many years there is now a trend of concentration in every area. The telecom market is dominated by three global alliances as there are Concert with British Telecom and MCI and some others, Global One with Deutsche Telekom, France Telecom and Sprint, and Unisource with AT&T and NTT.



1.1.5 Other computer networks beside Internet

Beside Internet there are numerous other networks which connect computers in different countries. IBM Bitnet exists since 1981 and was created first in the United States. Meanwhile Bitnet consists of the American Bitnet, EARN from Europe, ASIANET from Asia, NetNorth from Canada and GULFNET from Middle East.

One should not forget Fidonet, a computer network for PCs created for NGOs to serve for BBS and e-mail. Fidonet is wildly spread in Africa. Some Africans call it "Third World Software", but it is an appropriated technology to the mere quality of African telephone lines.

2 Demands, hopes and expectations for Internet use

2.1 NGOs' view - The Declaration of New Delhi

From 9th to 12th of February 1994 various delegates of non governmental organizations (NGOs) from all over the world met on an International Symposium on New Technologies and the Democratization of Audiovisual Communication in India. One result of this meeting was "[The Declaration of New Delhi](#)".

In this declaration the signatories refer to the UN Declaration on the Right to Development; the UN Covenant on Civil and Political Rights; the [UN Declaration on Human Rights](#); the declarations of the [MacBride Round Table](#); and the [Quito Declaration](#). They emphasize the fact of increasing monopolization and commercialization of information and the expansion of a global economy which has led to a subversion of democratic processes and reduced popular participation. Particularly women and indigenous cultures are excluded from democratic control mechanisms. In this context it is further apparent that as new technologies are introduced, human dignity is diminished. Therefore the signatories of the declaration demand a global democratization instead of the creation of a global supermarket. All men have the right to be informed and to inform other people. So the new media of information transport should serve for great part to the public interest and for the community. By taxation of commercial use the non commercial information exchange should be subsidized and by means of a decentralized organization cultural diversity should be guaranteed. Information is no commercial product but a media that we shall share all together.

2.2 Governments' view - the African example

Naturally the governments of the Third World have expressed how they see the possibilities of applications using the new information technology. As one example I would like to present the attitude of the [Highlevel Working Group](#) of the UN Economic Commission for Africa. In their report from April 1996 for an African Information Society they list the following fields of application:

- Job creation: Creation of new working places in the information technology sector and more and better statistics about the situation of the employment situation.
- Health: Setting up of health information systems and use of tele-medicine, reducing of costs in health sector.
- Education and research: Tele-learning, interconnection of research institutions at regional and worldwide level, and reduction of costs.
- Culture: Creation of African museums in the Internet, keeping historical documents and other information on CD.
- Trade and commerce: Connections to foreign chambers of commerce, reducing of costs, information over import and export of products, developing and marketing of news products.
- Tourism: Strengthening of international tourism, reducing of costs for advertising, improvement of image.
- Food security: Improvement of import and export of agriculture products, improvement of production, reducing the premature decay of food by means of better distribution.
- Gender and development: Improvement of rights and possibilities of women, use of new technologies for propagating gender equality.
- Man-made crisis and natural disasters: Management of environment degradation and natural disasters; information systems about region with disasters; communication in emergency situations; warning systems.

It's obvious that they do not mention the problem of poverty, settlement conditions, corruption, justice, and crime. They try to solve social and economic defects by technical means. ***Injustice and poverty are not technical problems, they need other solutions. Technology may only help in solving these problems, if used properly.***

Let us have a look how people of developing countries, NGOs and governments in Third World are using the Internet and how they are supported by international organizations and institutions or governments from the North. In this context I will discuss the question if Internet is really a tool to achieve improvements in basic needs for people in the Third World.

3 Internet in action

3.1 Computer networks and NGOs

Using usegroups and discussion lists people working or studying abroad can keep up contact with their countries and inform themselves what is going on in their native countries. NGOs can communicate with each other of their partners in the North.

"Electronic conferences and mailing lists are an appropriate technology for decentralized communication, they are effective and are a low cost communication for NGOs. The informal and interactive character of this technology makes it possible for grassroots and international organizations to participate in a dynamic dialogue and lets them cooperate in many different strategic matters. One great advantage of electronic conferences is that they are non hierarchical." [Roberto Bissio: La cibernética y el Tercer Mundo, Red del Tercer Mundo, 4.8.1995]

Besides many NGOs had used the Internet to inform from various places of UN conferences or to communicate with their native partners.

For the first time NGOs reported from the RIO summit in 1992 by means of computer networks. There were similar actions from the Human Rights Summit in Vienna in 1993, the World Conference on Population in 1994 in Cairo, the World Summit of Social Affairs in Copenhagen, the Summit on Climate in Berlin in 1995 and the World Summit on Women in Peking in 1995.

One promising association of Non Governmental Organizations in computer networks is the [APC](#), Association for Progressing Communication. Up to May 1997, there are 25 member networks who form the backbone of the APC. Member networks commit time and resources to support the growth and diversity of the APC, and exchange information and technical support with over 40 partner networks. Partner networks work closely with APC members, and often provide the only source of computer communications for NGOs in their country. More than 15000 members in 133 countries are using APC services.

The foundation of the APC dates from 1984, when [Peacenet](#) was initiated. Joining Peacenet, [Econet](#) and [Conflictnet](#) in 1987 was the birthday of the [IGC](#), Institute of Communication in San Francisco. In 1990 APC was founded. Its main focus is on human rights, protection of the environment and improvement of life conditions for human beings in the Third World.

APC has computer connections all over the world and maintains over 900 electronic conferences concerning topics from AIDS to Zimbabwe. Many English speaking African countries are connected to the Internet by [Greenet](#) in Great Britain.

Francophone countries are often connected to the [RIONet](#) from [ORSTOM](#), L'Institut Français de Recherche Scientifique pour le Développement en Coopération in Montpellier/France.

The Netherlands [TOOLNet](#) from Amsterdam facilitates Internet connection for NGOs in Africa, Asia and Latin America by means of so called TOOLNet Hubs. They normally use FidoNet software to offer e-mail to their members. TOOLNet sees itself as an provider for access roads to the global information highway.

As of September 1st, 1997 TOOLNet stopped its activities and no longer exists.

In the Asian Pacific Region there is [Pactoc](#) from Sidney. It's a decentralized communication net for e-mail with members in Cambodia, Fidschi Island, Indonesia, Malaysia, Papua New Guinea, Solomon Island, Vanuata and West Samoa. With help of [Peegasus network](#), the Australian member of APC they can access the Internet.

In Southern Africa there exist [SANGONet](#), Southern African Non governmental Organization Network, a union of NGOs working on developing projects.

Another NGO which joined APC in February 1997 is [ENDA - tiers monde](#) from Dakar in Senegal. Its main focus is on environment and development in Third World. ENDA is committing on publications, networking and disseminating information in the African francophone zone.

I want to terminate this part about grassroots organizations and Internet presenting some critical observations by professor Claudia Pinhanez from Brazil, expressed in an article titled "[Internet in Developing Countries: The Case of Brazil](#)".

"There are, however, two big risks in this process of "wiring up" NGOs which are both related to representativeness issues. First, the ability to post information world-wide is orthogonal to the actual representativeness of the NGO. For instance, a small organization with a good hacker can create very effective WWW-pages, while another organization with more members and more popular participation may have considerably less visibility just because it lacks a member with computer skills. The existence of a reliable global civil society requires stable, representative, and credible NGOs, and relying too much in Internet exchanges can jeopardize the foundations of this structure.

A similar problem may develop inside the organizations through a process of empowering too much the middle class, literate leaders in those movements. If the NGOs start to depend too much on their Internet connections, there is a tendency of giving priority to more "academic" type of leadership and broadcasting the "1st world" versions of the solutions for the "3rd world".

3.2 Human rights in Internet

Internet offers a great help against human rights violation. Human rights groups can disseminate information about violation of human rights very quickly using e-mail, thus obtaining an international attention for their urgent actions.

For the first time Internet was used to inform about the ongoing massacre on the Tianamen place in Beijing in 1989. And it was possible to correct the false information about the Gulf War by American authorities in 1991 or to focus on the xenophobic riots against foreigners in the new German federal states in 1991 using the computer network NGO [Comlink](#) in Germany and activate protests against these attitudes.

I also want to mention the role of Internet in the conflict of Chiapas between Zapatistas and the Mexican

government beginning in January 1994. The Mexican newspaper [La Jornada](#) publishes the declarations of the EZLN and its subcomandante Marcos. Meanwhile there is a own [Web-Page for the EZLN](#).

When the Peruvian guerilla group [MRTA](#) took the Japanese residence in December 1996 public was informed about the facts in Peru by Human rights groups as well as by MRTA themselves using WEB-Pages in different countries.

In the case of the occupation of the Japanese residence in Peru the intervention of Human rights groups was as unsuccessful as in the case of Ken Saro-Wiwa from Nigeria who was murdered by Nigerian authorities.

Today many Human rights groups are present in Internet as there are [Amnesty International](#), [Human Rights Watch](#), [WOLA](#), [Centro de Documentacion e Informacion sobre Derechos Humanos en America Latina](#), [Inter-African Network for Human Rights and Development](#) and many others.

3.3 The Conference of Rio and its effects on computer networks

Computer Networks got a big push from following programs and implementation programs of the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in June 1992. The states present at the conference adopted [Agenda 21](#), the action plan for environmentally compatible and sustainable development. [Chapter 40 of Agenda 21](#) titled "Information for Decision making" mentions the issues of collecting and using information for sustainable development and monitoring the implementation of Agenda 21 and requests the United Nations subsidiary organizations to make accessible all their information by means of computer networks. It invites all international organizations to cooperate with developing nations on the field of electronically networking. One direct consequence of Agenda 21 is the initiative for Sustainable Network Development (SDN) from [United Nations Development Program](#), UNDP. The SDN initiative was replaced by the [Sustainable Network Development Program](#), SNDP and completed by [Capacity 21](#) program in 1993 to translate into action chapter 40 of Agenda 21.

The task of both projects is to support countries in access to information about environment issues and help them use new technologies to achieve economic growth without damaging resources for future use.

In March 1994 the [Buenos Aires Action Plan](#) was passed on the first world summit by International Telecom Union for development on telecommunication. The action plan pays attention to cooperation between industrialized nations and developing nations in improvement of telecommunication in rural areas.

3.4 Network initiatives by UN Organizations and other international agencies

One special program for Africa is PADIS, [Pan African Development Information System](#). PADIS is an initiative of the Economic Commission for Africa from United Nations. Its aim is to build up an information system in assistance of African states to improve their abilities to collect, store and use data for development. PADIS uses a FidoNet technology and connects 34 countries.

One main emphasis of PADIS is the capacitation program [CABECA](#) for electronic communication from July 1993. Electronic communication is seen as a resource for economic and social development and as a tool for regional integration. Cabeca is financially supported from Canadian IDRC.

The U.S. development agency [USAID](#) supports among others two computer network projects. One project is [AfricaLink](#) from March 1995 and the other project is [CARPE](#), Central African Project for the Environment from October 1995. Both are initiatives for e-mail use.

In June 1996 the U.S. government started its [Leland initiative](#) supported by USAID to connect 20 nations of Sub-Saharan Africa on Internet.

Two other networking initiatives on networking in Africa have come from ORSTOM, Institut français de recherche scientifique pour le développement en coopération. One project is named "[Réseau web en Afrique francophone](#)" and the other project is "[Internet en Afrique](#)".

The IDRC Study - [Bridging the Gaps in Internet Development in Africa](#) by Mike Jensen gives a good overview of the current state of Internet in Africa.

The [Canadian International Development and Research Centre](#) (IDRC) has established its [Pan Asia Networking Program](#). PAN is a pioneering program about information networking, linking together people and computer-based information databases from many geographical locations, and making information available to users worldwide. Its aim is to extend electronic networking in Asia and support the development of communications and sharing data

resources around research and policy issues. By promoting collaboration in research and development, through information access, use and exchange, PAN is connecting individuals and institutions for knowledge sharing across Asia. PAN main Internet server is located in Singapore. An [Asian survey](#) of the current state of internet use and infrastructure is available on the same server.

World Bank created in 1995 its program [INFODEV](#) for information and development. It has two main goals:

- Support for countries in transition to a information economy
- Application of information technology to combat poverty and to achieve sustainable development in economy

INFODEV's priorities are:

- Creation of a information friendly environment, which means privatization of telecommunication and liberalization of telecommunication market
- Reduction of poverty and isolation
- Improvement of education, wealth and living standard
- Protection of natural resources and environment
- Improvement of productivity and ability of competition

Projects are supported from the World Bank with up to US\$ 250 000 when they are co-financed by other organization.

In October 1996 161 projects applied to the World Bank. More than one third of the presented proposals obviously didn't fit the criteria for support. They were rejected immediately. It is striking that until July 1996 only one per cent of all presented project proposal came from developing agencies. In the [InfoDev report from October 1996](#) developing agencies are absolutely absent as applicants, one indicator more for the doubtful use of Internet as a tool for development of countries in the South.

Although agriculture and farming are main goals for developing policies, only 4,4 per cent of all proposals came from this area. The goal to achieve a better and more democratic control of governments by use of Internet is only the plan of 3,7 per cent of the proposals. Main areas of proposed Internet applications are the academic and research areas. On September 1, 1997 there were 12 projects approved and funded. [\[see InfoDev Forum Report: Approved Projects\]](#)

3.5 Foreign aid for development

Using Internet countries of Third World can apply for development projects from international organizations or inform themselves over such projects. So there is access to data of the UNDP and USAID, World Bank and other organizations of the United Nations. [\[see Official Web Site Locator for the UNITED NATIONS System of Organizations\]](#)

Persons doing Voluntary Service Overseas can use e-mail services on Internet to maintain a better and more efficient contact to the donor states and get access to sources of information in their home countries. After return this persons can keep up contact to the developing country and the ongoing project which otherwise normally breaks down. Losing contact with the project often results in terminating the whole project.

In regard to assistance to Third World countries I want to present the U.S. based NGO organization called [VITA](#), Volunteers in Technical Assistance. VITA was founded in 1959 by persons to support people in Third World informing them how to improve their living conditions. Actually more than 5000 experts are working for this organization. VITA's main areas for support are in Africa and the Asian-pacific region. It works giving assistance for farming and renewing energy, but also on water supply, health care, food supply, housing, and disaster information. For this purpose VITA edits its monthly e-mail and on-line letter [DevelopNet News](#).

Other governmental driven foreign aid organizations which focus on networking issues are the above mentioned USAID, IDRC, ORSTOM and [Bellanet](#).

3.6 Job transfer into the Third World

Development of high speed networks and progressive services are leading to international distribution of work. Distances are vanishing. Local niches in foreign countries can be used in a better way. There is a shift in using man power into developing countries, and outsourcing is emerging, for example software production in Asia. Employees in Third World are less expensive than in Western industrialized nations. More than one billion employees in developing countries earn only three dollars a day while their colleagues from United States or the European Union earn 85 dollars.

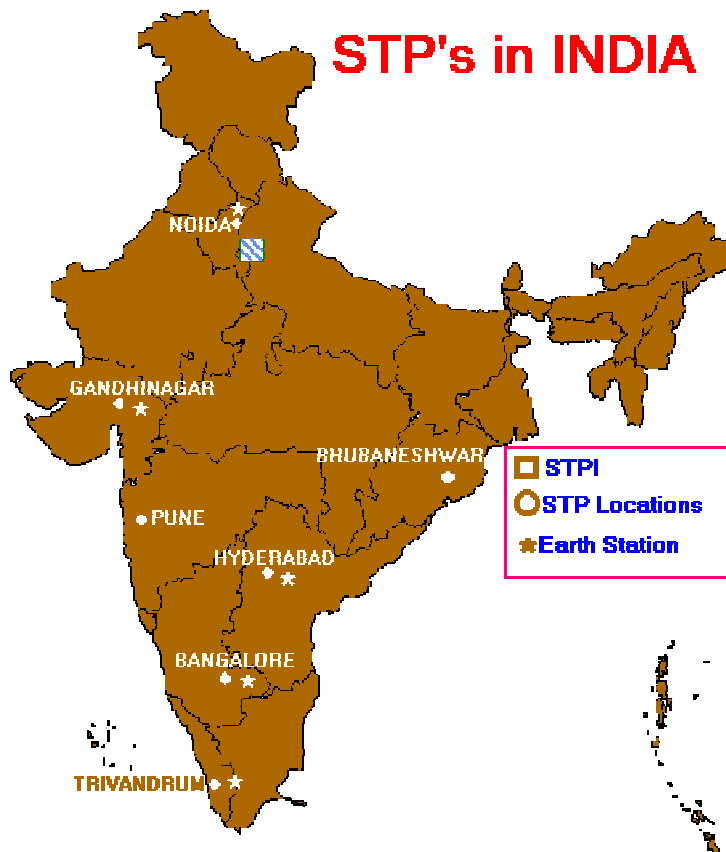
India

Another form of using Internet is the export of qualified office work in countries in transition to be industrialized as there is for example India, where there are low wages, a wide-spread knowledge of English and where a comfortable access to computer networks exists. Workers in this countries are more undemanding, less labor organized and more easily persuadable. Therefor Indian software industry is well known.

The Indian subcontinent possesses twice the software developers of Germany and reach nearly 70 % of the U.S. capacity.

Annual Salaries of Programmers, 1994 (U.S. Dollars)	
India	3975
Mexico	26528
UK	31247
Hong Kong	34615
France	45521
USA	46600
Japan	51730
Germany	54075
Source: Der Spiegel, March 18 th , 1996	

The Indian government launched under the guidance of the Department of Electronics its so called [Software Technology Parks](#) in the most significant cities to stimulate company in 100 % of export oriented software production. Indian government tries to attract foreign investors by good knowledge of English language of Indian software specialists and the low wages. A simple programmer costs about 150 Dollars monthly and an experienced one 300 dollars.



Source: <http://www.stph.net/cguide/centres.html>

Actually there are 40 software technology parks, which are using its own SoftNet intensely. The 40 technology parks, united under its umbrella organization Software Technology Parks of India, have network connections to the United States, Great Britain, Germany, and the Netherlands.

In 1994 India's software industry had a turn over of 800 million dollar.

India's software programmers wrote a logistic program for the container quay in Bremerhaven, Germany, and a reservation system for German Lufthansa. Other German companies which had developed software by Indian Programmers are Siemens, Bosch, and Deutsche Bank.

Today the "Indian Silicon Valley", the high tech city [Bangalore](#), is location for Texas Instruments, IBM, Motorola, Hewlett Packard, Sun Microsystems, Digital Equipment, and Oracle.

Beside India there are also the new East European countries emerging in software market. A Lettonian softworker for example costs about 300 DM per day while his German colleague costs 1200 DM.

Brazil is another emerging competitor on the software market and recently opened dependencies in Germany and China.

3.7 Job creation

There is no great probability for job creation with Internet or telecommunication as a whole. Experiences in privatizing of the industrialized countries show that there is much more probability of working place destruction. For example, since British Telecom was privatized in 1984 this former state owned company has lost 110 000 employees while on the other side job creation in new sectors and competitor company account for only 40000 jobs. [El País (Spain), August 8, 1997]

In the developing country of Peru, Telefónica Peruana, privatized in May 1994 and now owned by Spanish Telecom has fired more than 7000 of his employees. [La República (Peru), April 4th, 1997]

The European Commission stated in its Report "The Markets for Electronic Information Services in the European Economic Area: Supply, Demand and Information Infrastructure" from October 1996 in Chapter IV.2 in regard of new jobs: "But Europe's employment problems have to be solved mainly outside the sector of electronic information services (and even the media sector)." [[Report in WinWord Format](#)]

3.8 Health

Internet seems to get more and more significance in health sector for developing nations. Salah Mandil from WHO, [World Health Organization](#), reports from use of worldwide networks in the area of public health and combat of tropical diseases. The WHO maintains for example the Regional Bureau for Latin American and the Caribbean, called [Pan American Health Organization](#), PAHO. PAHO offers information about publications, news and information of development on its computer systems in Baltimore, USA.

Beside PAHO there exists the medical database MEDLARS (Medical Literature Analysis and Retrieval System) in Maryland, USA, which is connected to over 40 online databases specially for Latin America.

There are also possibilities for African and Asian countries to get access to up to date information in medical area. Using micro technology for satellites and other technology for communication professionals in health working in remote areas or catastrophic regions can get access to [HealthNet](#).

HealthNet was founded in 1992 by SatelLife, an NGO for physicians providing medical information to Third World. HealthNet serves approximately 4,000 health care workers in more than 30 countries worldwide.

SatelLife is managing two satellites for connecting developing countries by ground stations in various countries to its FidoNet based HealthNet.

By means of the special software tool [BITNIS](#) (Batch Internet National Library of Medicine Information System) developed in Chile, user of HealthNet can consultate about 21 medical databases by simple e-mail .

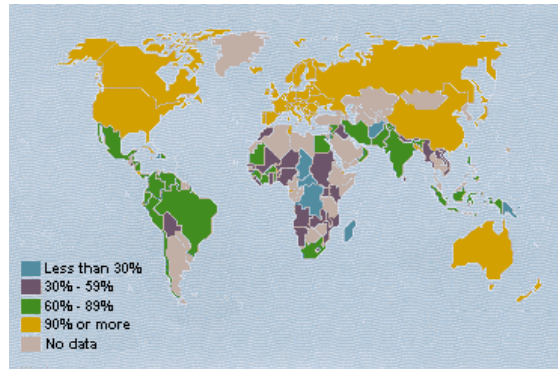
The HealthNet Node in Cameroon was established by the German Society for Technical Assistance ([GTZ](#)) in April 1993.

The General Secretary of SatelLife, John Malluaney, declared on the Inter'96 in Canada referring to the role of Internet: "Unfortunately, in the area of telecommunications, the lessons of the past are being ignored. The emphasis - by the multi-laterals and by developing world governments - is on the latest, hottest technology, regardless of whether the system is appropriate, affordable, or sustainable. ... While there are hundreds of World Wide Web sites containing information on cancer or heart diseases. there exist very few sources of information on diseases like leprosy, malaria, or cholera that have major consequences outside of the industrialized West. Even sites that deal with tropical diseases are often cursory and unhelpful to clinicians dealing with the disease in hospitals and clinics in the field. ... Like the big, expensive tertiary care facilities funded by World Bank and others, direct, high-speed Internet access is a national status symbol. But, as the World Bank itself concluded in a report two years ago, the tertiary care facilities increased in costs without increasing quality of care." [[SatelLife: Pioneering the Path for Electronic Communication and Health Information in the Developing World](#)]

SatelLife is opting for more simple approaches to support physicians in Third World by connecting users to HealthNet via UNIX-to-UNIX-Copy (UUCP) or Fido when telephones are available, and by satellite when appropriate.

SatelLife edits an online newspaper named [SatelLife News](#) mainly available by e-mail.

As the causes of most diseases are insufficient nutrition and bad housing and living conditions, use of modern telecommunications technology as Internet, can't solve the health problems of Third World, because. Typical diseases are diarrhea, respiratory problems, tuberculosis, sleeping sickness, cholera and typhus. The causes of these diseases are all well known and consulting medical databases doesn't bring any new knowledge.



Access to safe water in 1990 - 1994

There remains the question whether the use of new communication technologies will consume funds that are elsewhere more necessary. What lacks are more doctors everywhere in rural areas. Tele medicine by amateurs can't replace professionals.

3.9 Education and research

As in industrialized countries use of networks between universities and educational institutions in developing countries can offer access and exchange of information otherwise being accessible only in capital cities. Besides scientist, academics and university students can consult databases outside their countries and get knowledge otherwise closed for them. Most libraries in Third World countries have only a few books and students cannot afford to buy expensive books from abroad.

But it is not sure that every information from the North is really important for developing nations. Every thing which is important in industrialized countries may not have they same importance in Third World and certainly there are other priorities.

Network connections by Internet render possible the access from geographical locations far from main cities. Thus way people may participate in scientific dialogue.

But there are mostly private universities which can afford to build up the necessary infrastructure in communication technology. Here study fees are often higher than the monthly income of common people. So only the rich elite can profit from new technology. All demographic internet surveys prove this matter of fact: Internet is used by a minority all over the world, the rich people. A typical Internet user in Peru lives in the residential suburbs of Lima with high income structure and the typical user in the United States has an monthly income much higher than average income.

China has the Chinese academic network named CERNET since late 94/ beginning 95. Beginning with ten universities it now connects more than a hundred educational institutions.

In Latin America there is the Red Hemisférica Inter-Universitaria de Información Científica y Tecnológica named [ReDHuCyT](#) initiated by the [Organization of American States](#) sponsored by the United States.

In Central America the [CUNet](#), Caribbean Academic Scientific and Technologic Network, was founded in the early 90's.

In 1995, the World Bank initiated the preparation of the [African Virtual University](#) (AVU), a satellite based distance education project whose objectives are to deliver to countries of Sub-Saharan Africa, university education in the discipline of science and engineering, non-credit/continuing education programs and remedial instructions. Preparatory work leading to the pilot phase started in September 1995 with financing from African Region and the INFODEV program. Subsequent financing was obtained from bilateral donors. (United States, Belgium, France, Ireland, Switzerland; interest also by Canada and Japan).

AVU will involve six English speaking countries and similar number of French speaking countries. It is expected that by the 2nd quarter of 1998 some programs might be ready for transmission to Portuguese speaking countries.

Demonstration workshops have been organized in February 1997 in Addis Ababa in English language and in April 1997 in Dakar in French language.

Since June 1995 the [Association of African Universities](#) connects 119 African Universities from 42 countries by a store-and-forward system for e-mail. AAU-headquarter in Accra automatically dials an Internet connected computer in South Africa and picks up its incoming e-mail messages, and fires off outgoing ones.

Certainly [UNESCO](#) has taken part in actions on computer networks. This organization created the [Intergovernmental Informatics Program](#), IIP. The developing objectives of the IIP revolve around the principle of developing human resources through informatics to ensure that it is mastered and put rational use in the context of comprehensive, sustainable development, as follows:

- Objective of development through qualitative and quantitative improvement in training
- Objective of production through the establishment or strengthening of infrastructures for software production or maintenance
- Objective of optimization and innovation

The Intergovernmental Committee for the IIP is composed of 35 member nations. Every six months, half of its members are renewed. There are 253 projects submitted with a budget of round about 8 million dollars. Actually there are the following numbers of financed projects:

- 21 in Africa
- 45 in Latin America and the Caribbean
- 19 in Asia and the Pacific
- 12 in Arab States
- 12 in Eastern Europe

The following projects are in action:

- [RINAF](#) Regional Informatics Network for Africa. This project link seeks to link up Academic and Research institutions in Africa.
- RINAS Regional Informatics Network for the Arab States in Algeria and Egypt
- RINEE Regional Informatics Networks for Eastern Europe in Russia and Estonia
- LANIA National Laboratory for Advanced Informatics
- RINSEAP Regional Informatics Network for Southeast Asia and the Pacific

Another UNESCO project is [ASTINFO](#) Regional Network for the Exchange of Information and Experience in Science and Technology. It's a satellite based network for e-mail, delivery of documents and databases access

A more complete overview of UNESCO's engagement in networking programs in developing nations offers [UNISIST Newsletter](#).

Regarding the many projects of wiring up schools to Internet and the intentions propagated mostly by computer or telephone companies I want to cite Claudio Pinhanez:

"I don't believe that providing Internet access to students in poor schools is feasible or useful. Most schools can not afford even to provide books for their students, and in some areas the perspective of receiving a meal is still the most powerful attractor for students. Putting computers connected to telephone lines, under these conditions, is completely unreal."

3.10 Trade and commerce

Many foreign companies working in developing nations use Internet to get a quick and cheap connection to their parent branch in the USA, Japan or Europe. Fees on Internet are essentially less expensive than charges for telephone use.

For transmission of 2000 words from Ghana to the Netherlands, the following cost comparison exists:

Transport media	transmission time	charges
telephone	10 minutes	34 \$
fax	2 minutes	7 \$
e-mail (14400 bps)	7 seconds	0,40 \$

Source: [M. Hegener: Telecommunications in Africa](#)

In July of 1995 the National Society for Industry in Peru (SNI) concluded a treaty with the [International Development Bank](#) to establish a center for dissemination of technology, offering this way a direct access to databases in the USA. Besides this the center should help to achieve funds in the agro-industrial sector of Peru. [[Caretas \(Peru\), July 27, 1995](#)]

In many West African countries there are packet switched networks to satisfy requirements of international oil companies. France Cable & Radio, a subsidiary company from France Telecom, AT&T and MCI are players in African telecommunication market. Projects to improve communication infrastructures are financed by World Bank and the African Development Bank.

Apart from legal commerce Internet is used for illegal business too. Alonso Carral Cuevas, secretary general from Compuserve Mexico stated on a hearing before the Mexican Senate, that 60 % of communication between drug dealers is made in Internet. [[La Jornada, December 7, 1995](#)]

The main argument to connect Third World companies to the Internet is the hope of improving the competition abilities by quicker reaction to changes on export markets. This contradicts the fact that the most developing countries depend from mono culture and export of a few raw materials, which are mainly in the hands of multi national consortiums. Moreover these states don't have any influence on world's market policy

Unequal conditions for exchange of goods and customs barriers are another burden for developing countries to improve living conditions for its population. For example, Germany has made much profit in 1995 in trade with the Third World. Trade surplus with developing countries has risen from 6,6 billion DM to 14,9 billion DM in 1995. Entire balance for export of Third World was 104,4 billion DM but import reached only 89,5 billion DM. [epd: "Deutschland profitiert von Käufen der Dritten Welt", Frankfurter Rundschau, April 25th, 1996]

Whether Internet could improve commerce remains even questionable in industrialized world. Until now there are only a very few companies on Internet which make profits in selling goods. The only goods which sell well on Internet are hardware or software products. Beside tele-shopping there are only a dozen Internet sides which make profits in advertising. Jupiter Communications found out that 1 percent of sites get 90 percent of all revenue. [Jupiter Communications, August 15th 1997]. In 1996 non US online advertising was estimated at 1,5 percent of the world total. [[World Online Ad Revenue Well](#)] And last but not least only 1 percent of cybercitizens frequently shop online, while 9 percent do so sometimes. [Business Week: Number of Web Users Doubled From Year Ago; April 25th, 1997] Average income of a typical Internet-shopper is about 75000 \$. [[Survey Reveals Repeat WWW Shoppers are Worth Their Bandwidth in Gold!](#)]

3.11 Official use of Internet

After Bill Clinton had started offering governmental official electronic information systems in Internet, now over 174 government from industrialized and non industrialized countries use this media for the same purpose.

When in January 1994 the frontier dispute between Peru and Ecuador once again was emerging, a battle of electronic propaganda begun to spread in Internet.

Lately Nigeria has announced to setup four web pages in foreign countries (London, New York, Washington, Bonn) to correct the bad image which this country has with respect to human rights. ["Nigeria wehrt sich per Internet gegen "feindselige Propaganda", Deutsche Welle Monitor, 22.8.97]

Recently China launched its own home-page. Beijing's "[Welcome to China](#)" site, in both Chinese and English, offers a mix of information ranging from scathing attacks on critics of China's human-rights policy to advice on how to cross the street safely in Beijing.

Internet analysts see the Web page as a positive sign in China's love- hate relationship with global communications. Russell Liu, director of a Beijing-based Internet company, said: "Even the Chinese government is starting to realize how important the Internet is."

Telecommunications Minister Wu Jichuan said that the government "is of the view that it must take advantage of the Internet while eliminating its shortcomings."

A good overview of official web sites from governments all over the world contains the home page [Worldwide Governments on the WWW](#).

Another area using Internet are the possibilities of supporting consular activities, for example to issue visa and to renew passports. It is much easier to manage consular mail by e-mail than by normal postal service.

3.12 Tourism

Beside consular work Internet offers possibilities to improve this country's image and to promote tourism, in the same way as the Highlevel Working Group from Africa has proposed. Last year for instance Cuba began promoting for tourism. [<http://www.cubaweb.cu/>] [Rita Neubauer: "Im Cyberspace à la cubana", Frankfurter Rundschau, September 28, 1996]

Initially, tourism Web site were almost the only category of web site to be found in African countries north of South Africa. These include [Tour Egypt](#), the [Namibian Ministry of Environment and Tourism](#), [Uganda Tourist Board](#) and [Kenya Association of Tour Operators](#). [NATW, March 31, 1997]

In this context I want to put emphasis on the terrible consequences for environment which long distance tourism could cause.

3.13 Agriculture

In 1983 the World Bank in cooperation with the UNDP and the WHO initiated the network project [CGNET](#), to offer e-mail service to the [Consultative Group on International Agricultural Research](#), CGIAR. CGIAR is an umbrella organization of 16 international agricultural research centers all over the world.

CGNET offers PC and telephone based store-and-forward e-mail services for over 300 research centers in more than 100 countries. In 1993 CGNET launched a gopher service and now operates a web service too. Its spectrum of electronically conferences reaches from forestry information to rice yellow mottle virus.

After successful initial phase CGNET was transferred into private ownership.

How new communication media could serve for farming remains to be shown. Hopefully the expectations will not be disappointed as they were by the Green Revolution, which should solve world's hunger problem but had led to more inequality, underdevelopment, more dependencies, and more environmental destruction. As long as developing countries are still opting for mono culture and exporting their products and the rich North maintains its trading barriers or is invading the local markets in Third World with highly subventioned agricultural goods, the situation of the poor in the Third World will not change. Instead of information highways, developing countries need real highways and feeder roads to sell its own products to its own population.

3.14 Gender and development

In different declarations women from developing nations claim the democratization of communications and gender sensitive communications as an indispensable element in the consolidation of democratic practices. They claim the

right of access to new communications technologies as tools that favor more horizontal and democratic communications. One such important is the [Declaration of Quito](#) in April 1994. Another recently published declaration of women in the Third World is the [GK'97 Gender Declaration](#) from Toronto from June 1997. This declaration mentions three basic principles essential to ensuring sound planning for new information and communication technologies (ICT):

- designs of ICT systems that ensure that men and women have equal opportunity to be involved in every facet of ICT development, from infrastructure through front-end use, recognizing that this may involve strategies to support the contributions of and address the barriers to women's full participation;
- assessments of the differential impacts on both men and women of the effects of any and all ICT development programs;
- evaluations of ICT development to take into account the distinct situations and resources of women and men, to ensure that all have learning.

None of this is possible without the concerted effort of all development sectors to support women's full participation in decision making, access to, contributions to and benefits from the generation of knowledge for development.

Let's have a look at the current situation of women in our world. Women are underrepresented in almost all fields of public interest.

According to James Gustave Speth (UN Development Programme) this situation is widespread. He observes, "Women are considered unequal to men by legal systems in developing countries, they constitute 70% of the world's poor and two-thirds of its illiterates. They occupy only 14% of managerial and administrative jobs, 10% of parliamentary seats and 6% of cabinet positions. They often work longer hours than men, but much of their work remains unvalued, unrecognized, and unappreciated."

As expressed by women from NGOs in the declarations mentioned above Internet perhaps can help to overcome this situation. Here are some examples how women use computer networks to advocate for gender equality and their rights.

Women from Brazil were connected by their [Alternex](#) network to Internet to disseminate information from Huariou/China on the NGO-Forum about the UN Conference on Women.

In Angola there exists [Angonet](#), a network organization about education and health topics. By means of new media they achieved progress in social issues.

In the Philippines women have founded an [e-mail center](#) to achieve a country wide cooperation between different groups overcoming the difficult communication conditions due to the many islands. They were connected to the UN Conference on Women in Peking too.

[WomensNet](#), a membership of the Institute for Global Communications, has members in Africa, the Asian-Pacific region and in Europe.

ENDA-[Synfev](#) in Senegal is a meeting-point for information on activities by and for women in the various entities of ENDA, with a regional or topical focus in the various zones of the third world.

ENDA-SYNFEV also provides a service for women and women's groups in the Third World, particularly in Africa: the research and dissemination of information, publications, documentation and contacts.

The network acts in specific cases to fill certain gaps identified as handicaps for women in the improvement of their living conditions.

Last but not least in the Asian region there has emerged a new group called [Women Leaders' Network](#). "The Women Leaders' Network (WLN) was founded in 1996 to promote the integration of gender perspectives into APEC (Asia Pacific Economic Cooperation) and the recognition of women's vital contribution to their economies. The Network aims to constructively affect the decision-making of APEC through the contributions of women leaders. The WLN recognizes the critical role needed for the inclusion of gender perspectives from the outset, if policies and programs are to achieve the APEC vision of equitable and sustainable growth. Thus, the Network assists in optimizing the benefits - and mitigating the costs - of trade liberalization and facilitation.

The WLN is an international network composed of women who wish to make a contribution to the policy and decisions of APEC and its member economies. They are women who are leaders in their fields, from all 18 APEC

economies - women who make a difference. The Network taps into the expertise of women in business, government, academe and civil society (NGOs, community groups and labour)."

If women can really improve their influence in public affairs using Internet still remains doubtful. Up today women's participation in Internet is still lower than men. In Peru they make up 24 per cent of Internet users [[see Peruvian Survey](#)] and in Chile 31,1 per cent. One interesting aspect of the Chilean survey [[Demographics and behavior of the Chilean Internet population](#)] is the fact that in lower middle class section with 29.6% of all Internet user in Chile women make up the majority of users. Perhaps it is because of the fact that 80 % of these user do not pay anything for their connection. Normally they have access by means of an educational institution.

Participation of women in Internet

country	women's share	source of data
Peru	24 %	
Chile	31,1 %	
South Africa	17 %	Nua February 1997
Singapore	22 %	Net Across the World May 5th 1997
Malaysia	15 %	Net Across the World May 5th 1997
Japan	12,5 %	Nua November 1996
Italy	12 %	Nua November 1996
Ireland	31,4 %	Nua June 1997
Great Britain	31 %	Nua August 18th 1997
Estonia	38 %	Nua July 21st 1997
USA	34,4 %	Nua 1996 Review of the Year
Europe	15,2 %	Nua 1996 Review of the Year

3.15 Environmental protection

There are also many environmental protection groups in Internet. Of course [Greenpeace](#) has its own home-page. Greenpeace is an independent, campaigning organization which uses non-violent, creative confrontation to expose global environmental problems, and to force the solutions which are essential to a green and peaceful future.

The [World Bank](#) has created its project named Regional Environment Information Management Project (REIMP). [REIMP-CA](#) seeks to offer full Internet services to membership countries. This project designed for a five year period, covers the following countries: CAR, Cameroon, Congo, Equatorial Guinea, Gabon, and Zaire. This project also defined a so called sustainable Internet connection:

- use of robust technical solution
- a market for the service
- a non hostile regulatory environment

Another organization working on environmental issues and with presence in Internet is the African [N.E.S.D.A.](#) At a workshop in Dublin, Ireland, in 1990, participants from 17 African countries and multilateral organizations, formed the "Club of Dublin". The main objective was to contribute to the reinforcement of African capacities, human resources and institutions in environmental planning.

Since then the "Club of Dublin" (which was renamed the "Regional Facility for Environment") subsequently became the "Network for Environment and Sustainable Development in Africa" (NESDA). NESDA has been incorporated as an International NGO with its Secretariat based in Abidjan, Cote d'Ivoire.

The Network for Environment and Sustainable Development in Africa (NESDA) is a resource and forum of African experts in the management of environment and natural resources.

It has three different characteristics:

- It is an African initiative run by Africans open to global trends of thoughts and action on environmentally sustainable development.
- NESDA maintains a long term vision on the environment and natural resources in Africa within the framework of efforts to promote environmentally sustainable development.
- Backed by its members and its donors, NESDA provides practical services to African "green planners" in their efforts to draw up strategies and translate them into reality.

N.E.S.D.A. is publishing a newsletter called [FLASH](#) which is accessible online too.

[EcoNews](#) Africa from Nairobi, Kenya, is a NGO initiative that analyses global environment and development issues from an African perspective and reports on local, national, and regional activities that contribute to global solutions. It is supported by the Humanistic Institute for Cooperation with Developing Countries (HIVOS) and NGONET based in Montevideo, Uruguay. This NGO publishes an online Circular on Environment and Development.

4 The shady sides of Internet

4.1 *Ecocide - the other side of the coin*

Use of Internet and other computer networks in environmental issues also has its shady sides, as by the production of computers and other electronic goods the environment is damaged mainly in developing countries. Nearly all resources for production of computer come from Third World. To produce a PC you need the amount of 2250 kilowatt hours electricity. This is about the half of the yearly consumption of a German citizen or 160 times the consumption of a person from Cambodia. 60 kg garbage, 25 kg of it as special rubbish, arise from producing PC's. 33000 liters of water are polluted and 50 million cubic meter of air is polluted near limiting value. After three years of use this computer is outdated and is very probably brought to waste disposal in some developing country. Now it's their turn to look after arsenic, lead, cadmium, strontium, tin and other chemical elements which pressure the environment.

To cover up this fact "donations" of old computers are made by charity organizations to supply Third World countries with "new technology" as is done by a New York based Association for Information Technologies supported by the United Nations. We all know "progress" in software always requests more and better hardware resources. So users from developing nations won't be able to visit new web-sites on the Internet, which are constructed for new multi media browsers by use of outdated PCs. [[U.N. Advocates Internet Access For Developing Nations](#)]

Besides computer waste, we have electronic litter from TVs, FAX, and video recorder etc. In Germany every year 3.5 million TVs out of 41 million are carried to the dump. [Martin Baum: "Schrottreif schon nach drei bis fünf Jahren", Frankfurter Rundschau, August 8, 1996]

Another unexpected negative impact of computer use is the rising of paper production which has conducted to further environmental destruction.

Thus the computer industry is one that has most consistently produced the least sustainable products.

4.2 Censorship

The Internet offers a better access to information for people which is otherwise inaccessible. But one should have in mind, that they are mainly persons from upper class or upper middle class who can afford spending surfing in Internet. Specially in dictatorially or authoritarian governed countries Internet often is the only possibility to get critical information.

In authoritarian countries like China, Singapore, Vietnam, Indonesia and Malaysia there are different types of restrictions for free press, as there are in African countries too. But the more economically strong a country is the more its citizen can afford buying a PC and a modem to get connected to the information highway to overcome this way the imposed restrictions.

Data from Peru about Internet use prove the assumption that mostly well suited people are using the information power of Internet. There are mainly Peruvians living in the United States who access the web sides of the Peruvian scientific network with its online newspapers. [[Diario El Sol, May 17th 1996](#)] Most editors of online newspapers from developing countries maintain mirrors in the United States, for example Peruvian, Mexican and Argentine press media.

Countries in authoritarian developing nations are in a dilemma. They want to be modern and economically successful, which obliges them to give open access to Internet. But on the other hand they want to maintain their power by all means. Nearly an insoluble contradiction. One possible solution is to implement a strict control for access to Internet and supervision of Internet content. [[Asiaweek: WATCH THIS CYBERSPACE, September 9, 1995](#)]

Since February 1996 China has opted for this way. All round about 40000 users of Internet and other computer network had to register in police stations.

Singapore has a similar divided attitude against new information technology to China's. On one hand Singapore produced - beside Japan - the most computers, has more than 20000 well skilled computer professionals, and produces one half of all sold harddiscs, and 30 % of all households have a PC. On the other side Lee Kwok Cheong, responsible for Singapore's Information Technology Plan 2000, said: "We must create a safe belt to protect our Asian values. We don't want to put our people to pornography."

Critical voices about government politics, for example the Business Time, who doubted data about economic growth given by government in 1992, are persecuted. Foreign newspaper are totally banned out of Singapore. Since mid of 1996 the Singapore Broadcasting Authority is monitoring content of Internet coming into this nation.

In Indonesia in June 1994 the weekly [Tempo](#) was prohibited, because of informing the public about the acquiring of arms by Indonesian government. Since March 1996 this weekly is online in Internet. It remains to see if this is a way to overcome censorship.

But control is not restricted on developing countries. The U.S. American FBI prepares for monitoring Internet too. FBI wants to have the right to control one percent of all e-mails.

Also in Germany, there are efforts to prohibit e-mail encryption. And the Bavarian authorities ordered the blockade of newsgroups offered by German Compuserve in regard to pornographic contents.

In March 1996 the German Minister for Research, Mr. Rüttgers, expressed his opinion how to solve censorship on Internet. As there can't be a national solution for this problem, he opted for an international approach and he knew very well who has to decide which laws to adopt. For him the only ones who can do this are the G7 countries. One more time that the rich nations should determine over the vast majority of other nations.

4.3 Culture clash

As Internet is a media mostly for industrialized nations, nearly all information available on the net is in English. Although there are over 6000 different languages in the World and only about 470 million people are speaking English, 90 percent of information is stored in this language. Beside some information in Spanish (2 percent), French (5 percent) and German the other languages are nearly absent on Internet. [[Are the French fighting a losing battle on the Internet? NATW April 21, 1997](#)] This contributes to a globalization of the English language and western and U.S. American culture and at the same time to less importance of other languages and cultures. There is emerging a second conquest of Third World and not an exchange of culture values. The Internet serves as an "electronic trojan horse". Or as France's Justice Minister, Jacques Toubon expressed: "If we do nothing, it will be too late. We will be colonized."

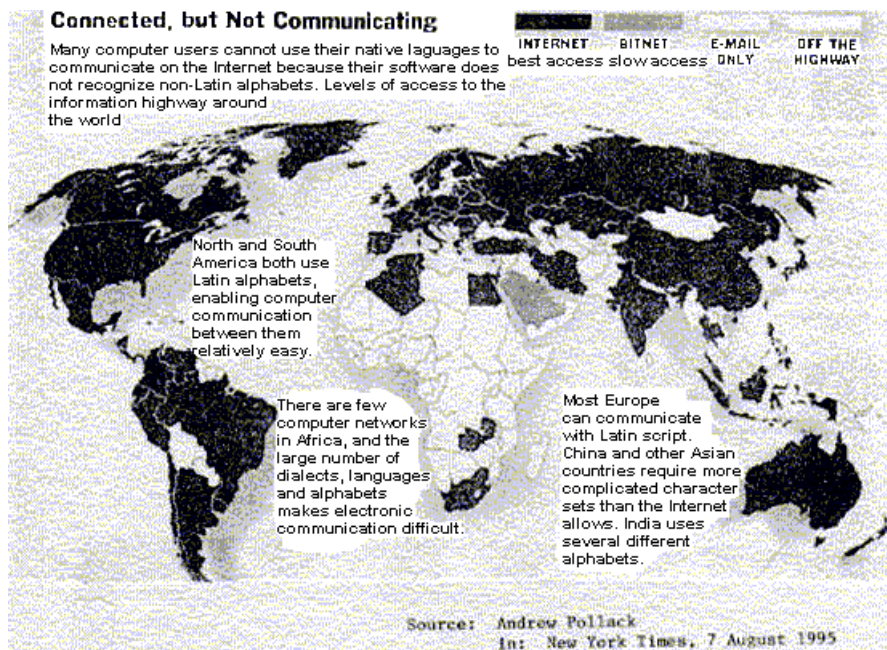
The [Panos study](#) from 1995 sees the risk that by means of Internet values from the North could be transferred into the South. The effect of the broader cultural context will, though, be more important. As Northern (mostly US) businesses move onto the internet, they naturally express their values - a more socially conservative free-trade capitalism.

But television is considered to be a larger threat than Internet, because there are more people who have a TV, about 1 200 million TVs, than a telephone mainline, that are about 640 million. One remedy against the fear of uncritical taking over of northern consuming attitudes and northern values could be a contra production from the South. Perhaps this way the South could prevent the loss of cultural integrity, loss of national values and identity. Otherwise "culture shock" may easily become a disease. [Jerry Stratton: Computers, Telecommunications, and Western Culture, 1995]

The news services [Interpress Service](#), [Agencia Latinoamerica de Información](#), and [Panafrican News Agency](#) are attempts to break dominance of western news agencies.



One major concern about languages is written language. Written languages which do not use Latin alphabet are due to use of ASCII 7 bit code, which is used in international networks, at great disadvantage. But also Germans who use Latin alphabet know about problems with "Umlaut".



The problem of a possible superseding of cultures through use of modern communication technology was one subject of the [G7 meeting in Brussels in February 1995](#). Especially France, Canada and Italy emphasized they would not concede that their cultures should vanish in 21st century for American computers, telephones and American TV.

Although members of the G7 summit in February 1995 in Brussels opted for the preservation of different culture and languages, they didn't propose any measures against U.S. dominance in media sector.

4.4 Increase of inequality

Another aspect in judging the spread of Internet in Third World nations that should not be neglected is the danger of widening the existing differences between the poor and the rich in these countries. Already today these gaps are

greater in developing countries than in industrial nations.

In Western industrial nations the gap between the poor and the rich is big, about 1 to 6, in Latin America the income is even more unequally distributed. Here the relation between the poor and the rich is 1 to 32.

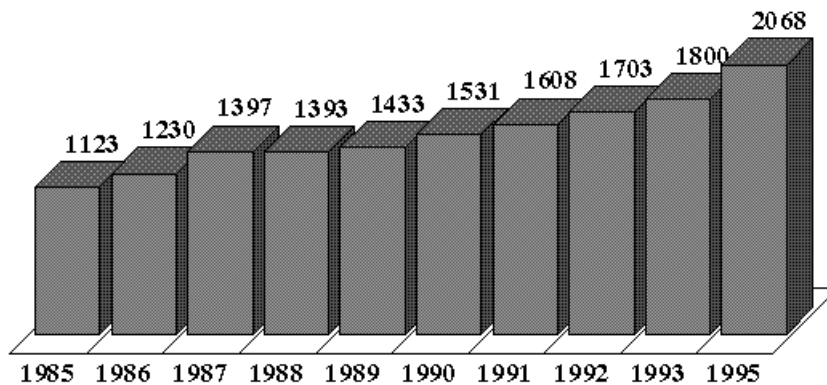
Besides the abysmal gap from North to South the gap will steadily increase in developing nations, a gap which is also perceptible in industrialized societies.

I spoke about the "software forge" in India and the transfer of jobs from Northern countries to the South. But the example of India demonstrates that this fact isn't combined with improvement for all Indian people. Today there are only 13 percent of the 570000 villages in India linked to the nationwide telephone network. The Indian government tried to change this and called for an international convocation to establish telephone infrastructure in 13 of 20 regions. But there wasn't any bid for 8 of the 13 regions, because establishing the telephone mainlines didn't promise sufficient income. That's not surprising, as only 3 percent of all Indian owners of mainlines make up 80 percent of sales and the remaining 20 percent are made by 11 percent more users. That is only a very little upper class that can afford such service. It's obvious that there is no need to think on Internet connections.

To achieve all the benefits from connecting Third World to Internet you must spend much money. In accordance with data from World Bank the costs for one telephone connection in inner-city regions of the Third World is about 500 to 1500 dollars. The ITU's objective to connect thousand persons with ten telephone mainlines in Sub-Saharan Africa would consume 28 billion dollars. [[Hans d'Orville: United Nations - Technology Revolution Study, 1996](#)] However today the developing countries have a foreign debt burden of 2 000 billion dollars and their debt burden is increasing.

Developing countries: Debt continues to grow

Debt burden in billion dollar



Sources: Frankfurter Rundschau, October 23rd, 1993
Frankfurter Rundschau, January 23rd, 1995
Frankfurter Rundschau, March 13th, 1996

1,5 billion human beings are living in absolute poverty, i.e. they have less than one dollar to spend every day. This corresponds to a monthly income of less than 30 dollars. One year ago there were "only" 1,3 billion living in absolute poverty, i. e. poverty is on the rise despite technical progress.

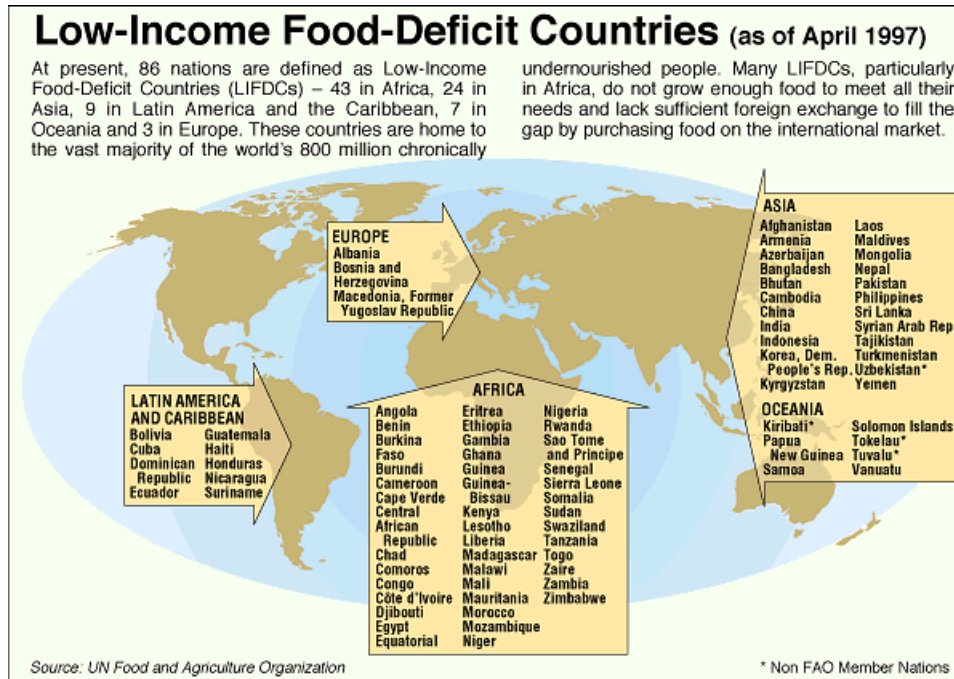
The relation of income between the 20 % of world population who are the richest and the most 20 % poorest people increased from 30:1 in 1960, passing 59:1 in 1989 to 61:1 in 1991 in spite of advancing technology in developing nations. In 1994 the relation reached a startling new high of 78:1. [[Overview of HDR 1997](#)]

Just in midst of 1996 when the successful introduction and growth of Internet was celebrated, the demonstrations of hungry Jordanians reminded the elite in an impressionable manner what the really needs of the big majority of Jordanian population are. [Net Across the World, [Demand For Internet Service Mushrooms In Jordan, April 29,](#)

[1996 and Jordanian Conference To Highlight Internet Advantage, August 19, 1996](#)

If we compare the 30 dollars monthly income of the poor with the 75000 dollar yearly income of a common Internet shopper, the question about the importance of Internet access for people in developing countries certainly raises.

Aren't civil wars, hunger, malnutrition, diseases, lack of jobs, and unequal distribution of income in Third World a more important challenge than the almost not realizable plan to connect all persons to Internet?



In many countries the demands of UNESCO in regard to information supply aren't fulfilled. The demands are:

- 10 newspapers per 100 inhabitants
- 2 Radios per 100 inhabitants
- 2 seats in cinema per 100 inhabitants

The only country from Third World fulfilling these demands is Cuba.

In any case the opinions of experts monitoring the G7 Summit in Brussels in February 1995 differed, if the information highway planned by the North for the South would be a benefit or a loss for poor nations.

I want to terminate this chapter citing John Seymour from an interview with the German newspaper "Frankfurter Rundschau" from November 26, 1995 when he was asked about the need of information highway to solve the current problems of the world: "I can't eat bits and bytes."

5 Conclusions

The use of Internet in Third World has its benefits, but usually only the elite of the countries will profit from it. Although the various use of Internet by engaged groups is something good, the implications for improvement of the vast majority is limited.

Medical networks may help in emergency situations and contribute to a limited success, but most diseases in Third World are typical diseases caused by poverty, which cannot be eradicated by consulting specialized databases.

Promoting human rights are not only useful but are also necessary. But the fact that violations against human rights are getting known more rapidly by use of Internet can't prevent the violation in most cases, as was demonstrated painfully by the murder of the Nigerian writer Ken Saro-Wiwa.

Internet used by NGOs and by education and research institutes on high level as well as in government influenced areas will only help, if the elite is conscious of its responsibility for the well being of the whole society and if we, the people of the wealthy North, don't continue to monopolize the new communication media at the cost of the others.

Perhaps the Peruvian example realized by the Peruvian Scientific Network, RCP, with its public Internet offices ([cabinas públicas](#)) can serve as an example of how to use Internet access in a collective way instead of individual use. In this way we can avoid increasing computer scrap and can achieve access of information highway for poorer people too. Although the actual fee of 15 dollars makes it nearly impossible for most Peruvians to participate even in this way. Taking into account the average income of 82 dollars, this solution aims to the right direction.

Last modified: October 6th, 1997

List for URLs:

Titel	URL
World Bank	http://www.worldbank.org/
UNESCO	http://www.unesco.org/
USAID	http://www.info.usaid.gov/
The Internet as a tool for social development	http://www.isoc.org/isoc/whatis/conferences/inet/97/proceedings/G4/G4_1.HTM
Network Wizards	http://www.nw.com/zone/WWW/report.html
AT&T	http://www.att.com/
Africa ONE	http://www.att.com/africaone/
Afrilink	http://www.itu.ch/WTDR95/c3a.htm
Statement of the 7th MacBride Round Table on Communication	http://tdg.uoguelph.ca/~drichard/macbride/7thstat.html
MIDS	http://www.mids.org/press/pr9701.html
Beyond Basic Connectivity	http://www.africaonline.com/AfricaOnline/newsstand/pressrelease04.html
International Telephone Union	http://www.itu.ch/
Africa-Development: More than just Internet Connections required	http://www.oneworld.org/ips2/jun/net.html
African Connectivity Cost Comparisons	http://demiurge.wn.apc.org/africa/afcosts.htm
UNDP Human Development Report, 1996	http://www.undp.org/undp/news/hdr96.html
Panos: Telecoms Liberalization - Bypassing the poor	http://www.oneworld.org/panos/feb97/tel1.html
The Declaration of New Delhi	http://www.spp.umich.edu/spp/courses/744/misc.hyper/0010.html
UN Declaration on Human Rights	http://www.unhchr.ch/HTML/menu3/B/A_UDHR.HTM
MacBride Round Table	http://tdg.uoguelph.ca/~drichard/macbride/
Quito Declaration	http://www.ecuanex.apc.org/alai/quitoesp.txt
Highlevel Working Group	http://www.idsc.gov.eg/aai/
APC	http://www.apc.org/
Peacenet	http://www.igc.org/igc/peacenet/index.html

Titel	URL
Econet	http://www.igc.org/igc/econet/index.html
Conflictnet	http://www.igc.org/igc/conflictnet/index.html
IGC	http://www.igc.apc.org/
Greenet	http://www.gn.apc.org/
RIONet	http://www.rio.net/
ORSTOM	http://www.orstom.fr/rio/sommaire.html
TOOLNet	http://www.tool.nl/~toolnet/
Pactoc	http://www.pactok.net/
Peegasus network	http://www.peg.apc.org/
SANGONet	http://wn.apc.org/sangonet.html
ENDA - tiers monde	http://www.enda.sn/
Internet in Developing Countries: The Case of Brazil	http://www.ibase.org.br/~esocius/t-pinhan.html
Comlink	http://www.comlink.apc.org/
La Jornada	http://www.nuclecu.unam.mx/~jornada/
Web-Page for the EZLN	http://www.ezln.org/
MRTA	http://users.cybercity.dk/~ccc17427/
Amnesty International	http://www.amnesty.org/
Human Rights Watch	http://www.hrw.org/
WOLA	http://www.wola.org/
Centro de Documentacion e Informacion sobre Derechos Humanos en America Latina	http://www.derechos.org/diml/
Inter-African Network for Human Rights and Development	http://www.zamnet.zm/zamnet/afrohome.htm
Agenda 21	http://www.mbnet.mb.ca/linkages/vol02/0213000e.html
Chapter 40 of Agenda 21	http://www.mbnet.mb.ca/linkages/vol02/0213031e.html
United Nations Development Program	http://www.undp.org/

Titel	URL
Sustainable Network Development Program	http://www3.undp.org/
Capacity 21	http://www3.undp.org/c21/
Buenos Aires Action Plan	http://www.itu.int/itudoc/itu-d/wtdc/wtdc1994/baape_25294.html
Pan African Development Information System	http://www.sas.upenn.edu/African_Studies/Padis/menu_padis.html
CABECA	http://www.idsc.gov.eg/aii/care.htm
USAID	http://www.info.usaid.gov/
AfricaLink	http://www.info.usaid.gov/alnk/
CARPE	http://www.info.usaid.gov/alnk/old/carpedoc.htm
Leland initiative	http://www.info.usaid.gov/regions/afr/leland/index.html
Réseau web en Afrique francophone	http://www.rio.net/rio/webafrique.html
Internet en Afrique	http://www.rio.net/interafrique/
Bridging the Gaps in Internet Development in Africa	http://www.idrc.ca/acacia/studies/ir-gaps.htm
Canadian International Development and Research Centre	http://www.idrc.ca/
Pan Asia Networking Program	http://www.panasia.org.sg/homepage.htm
Asian survey	http://www.panasia.org.sg/closed/survey
INFODEV	http://www.bellanet.org/partners/infodev/main/about.html
InfoDev report from October 1996	http://www.worldbank.org/html/fpd/infodev/annrpt.html
InfoDev Forum Report: Approved Projects	http://198.62.158.137/infodev/infocold/cf_funded.cfm
Official Web Site Locator for the UNITED NATIONS System of Organizations	http://www.unsystem.org/
VITA	http://www.vita.org/
DevelopNet News	http://www.vita.org/dnn.html
Bellanet	http://www.bellanet.org/
Software Technology Parks	http://www.stph.net/

Titel	URL
Bangalore	http://www.soft.net/
The Markets for Electronic Information Services in the European Economic Area: Supply, Demand and Information Infrastructure	ftp://ftp.echo.lu/pub/imo/mssww.zip
World Health Organization	http://www.who.org/
Pan American Health Organization	http://www.paho.org/
HealthNet	http://www.healthnet.org/
BITNIS	http://www.healthnet.org/info/bitnis.html
GTZ	http://www.gtz.de/
Satellife: Pioneering the Path for Electronic Communication and Health Information in the Developing World	http://www.isoc.org/isoc/whatis/conferences/inet/96/proceedings/a3/a3_2.htm
Satellife News	http://www.healthnet.org/sn/sn.html
ReDHuCyT	http://www.oas.org/SP/PROG/RED/covers.htm
Organization of American States	http://www.oas.org/
CUNet	http://www.oas.org/SP/PROG/RED/cunets.htm
African Virtual University	http://www.idrc.ca/listproc/infodev-l/mhonarc/log9707/msg00007.html
Association of African Universities	http://www.tool.nl/txtonly/africa.html
UNESCO	http://www.unesco.org/
Intergovernmental Informatics Program	http://www.unesco.org/webworld/iip/iip.htm
RINAF	http://spcons.cnuce.cnr.it/RINAF/
ASTINFO	http://www.unesco.org/cii/regoff/astinfo.htm
UNISIST Newsletter	http://www.unesco.org/webworld/unisist/unisist.htm
M. Hegener: Telecommunications in Africa	http://www.tool.nl/txtonly/africa.htm
International Development Bank	http://www.iadb.org/
Caretas (Peru), July 27, 1995	http://www3.rcp.net.pe/CARETAS/1373/mdf/mdf.html

Titel	URL
La Jornada, December 7, 1995	http://serpiente.dgsca.unam.mx/jornada/1995/dic95/951207/INTERNEV-PG.html
World Online Ad Revenue Well	http://www.jup.com/jupiter/release/feb97/worldad.shtml
Survey Reveals Repeat WWW Shoppers are Worth Their Bandwidth in Gold!	http://www.urgepr.com/reportrelease.htm
Welcome to China	http://www.china.or.cn/
Worldwide Governments on the WWW	http://www.gksoft.com/govt/en/world.html
Tour Egypt	http://touregypt.net/
Namibian Ministry of Environment and Tourism	http://www.iwwn.com.na/namtour/namtour.html
Uganda Tourist Board	http://www.tomco.net/~jssemwog/utb/utb.htm
Kenya Association of Tour Operators	http://www.kenyaweab.com/kato/kato.html
NATW, March 31, 1997	http://www.internetnews.com/business/NATW/970331natw.shtml
CGNET	http://www.cgnet.com/intro/
Consultative Group on International Agricultural Research	http://www.cgiar.org/
Declaration of Quito	http://www.ecuanex.apc.org/alai/quito.txt
GK'97 Gender Declaration	http://www.igc.apc.org/gk97/gk97.gender/entries/386300068.html
Alternex	http://www.ax.apc.org/
Angonet	mailto:sysop@angonet.gn.apc.org
e-mail center	mailto:sysop@phil.gn.apc.org
WomensNet	http://www.igc.org/igc/womensnet/index.html
Synfev	http://www.enda.sn/synfev/synfev.gb.htm
Women Leaders' Network	http://www.bellanet.org/partners/wln/wlngen.html
Peruvian Survey	http://ekeko.rcp.net.pe/VFORO/memorias/esp/diaz5.htm
Demographics and behavior of the Chilean Internet population	http://jcmc.mssc.huji.ac.il/vol3/issue1/mendoza.html
Greenpeace	http://www.greenpeace.org/
World Bank	http://www.worldbank.org/

Titel	URL
REIMP	http://naic2.arc.nasa.gov/hsi/survey/reimp.html
N.E.S.D.A.	http://www.rri.org/nesda/nesda.html
FLASH	http://www.rri.org/nesda/flash.html
EcoNews	http://www.web.net/~econews/
U.N. Advocates Internet Access For Developing Nations	http://www.internetnews.com/business/NATW/96/961125natw.shtml
Diario El Sol, May 17th 1996	http://ekeko.rcp.net.pe/rcp/PRENSA/960517-2.htm
Asiaweek: WATCH THIS CYBERSPACE, September 9, 1995	http://www.pathfinder.com/@nxVkbwQAxg@wUALT/Asiaweek/95/0908/feat2.html
Tempo	http://www.idola.net.id/tempo
Are the French fighting a losing battle on the Internet? NATW April 21, 1997	http://www.internetnews.com/business/NATW/970421natw.shtml
Panos study	http://www.oneworld.org/panos/briefing/internet.htm
Interpress Service	http://www.ips.org/
Agencia Latinoamerica de Información	http://www.ecuanex.apc.org/alai/
Panafrican News Agency	http://www.africanews.org/PANA/
G7 meeting in Brussels in February 1995	http://www.ispo.cec.be/g7/g7main.html
Hans d'Orville: United Nations - Technology Revolution Study, 1996	http://eagle.uccb.ns.ca/undp/techn.htm
Overview of HDR 1997	http://www.undp.org/undp/hdro/overview.htm
Demand For Internet Service Mushrooms In Jordan, April 29, 1996	http://www.internetnews.com/business/NATW/96/960429natw.shtml
Jordanian Conference To Highlight Internet Advantage, August 19, 1996	http://www.internetnews.com/business/NATW/96/960819natw.shtml
cabinas públicas	http://ekeko.rcp.net.pe/rcp/servicios/cabina/cabina.htm