LA-UR 92-653

LA-UR--92-653

DE92 011271

Los Alamos National Laboratory is operated by the University of California for the United States Department of Energy under contract W-7405-ENG-36

TITLE: Information Systems for Engineering Sustainable Development

AUTHOR(S): Raymond S. Leonard

SUBMITTED TO: Workshop on Engineering Partnerships for Sustainable Development
A Workshop in Conjunction with Prep Con IV of the United Nations Conference on Environment and Development

March 1-3, 1992, New York, New York

Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

Information Systems for Engineering Sustainable Development

Raymond S. Leonard, PE[1]

ABSTRACT

The ability of a country to follow sustainable development paths is determined to a large extent by the capacity or capabilities of its people and its institutions. Specifically, capacity-building in the UNCED terminology encompasses the country's human, scientific, technological, organizational, institutional and resource capabilities. A fundamental goal of capacity-building is to enhance the ability to pose, evaluate and address crucial questions related to policy choices and methods of implementation among development options. As a result the United Nations Conference on Environment and Development (UNCED) Agenda 21 planning process has identified the need for better methods by which information can be transferred between industrialized nations and developing nations. The reasons for better methods of information transfer include facilitating decisions related to sustainable development and building the capacity of developing nations to better plan their future in both an economical and environmentally sound manner.

Consequently, this paper is a discussion on both the various mechanisms for providing information and the technologies available for presenting the information to a broad population which comes from a variety of cultures and levels of technical literacy. Consideration is given to access to information technology as well as to the cost to the user. One concept discussed includes an "Engineering Partnership" which brings together the talents and resources of private consulting engineers, corporations, non-profit professional organizations, government agencies and funding institution which work in partnership with each other and associates in developing countries. Concepts which are related to information technologies include a hypertext based, user configurable cultural translator and information navigator and the use of multi-media technologies to educate engineers about the concepts of sustainability, and the adaptation of the concept of metabolism to creating industrial systems.

DISCLAIMER

---

[1] Consultant, Nuclear Technology and Engineering (M/S E561), Los Alamos National Laboratory, P.O. Box 1663, Los Alamos, New Mexico 87545, USA. Tel: (505) 667-5590, Fax: (505) 665-5346

Executive Summary

Information Systems for Engineering Sustainable Development

Raymond S. Leonard, PE[1]

The United Nations Conference on Environment and Development Agenda 21 planning process has identified the need for better methods by which information can be transferred between industrialized nations and developing nations. The reasons for better methods of information transfer include facilitating decisions related to sustainable development and building the capacity of developing nations to better plan their future in both an economical and environmentally sound manner. The topics discussed in this paper are related to Section IV, Chapter 5 of Agenda 21 which is entitled "National Mechanisms and International Cooperation for Capacity-Building".

The *basis for action* is based on the need for quality information in accessible, retrievable, and affordable forms in order for institutions and individuals to formulate plans which support the new paradigm of sustainable development.

As *background* the reader should realize that information systems can range from files in a consulting engineer's office to databases embedded in a distributed computer network. Other typical traditional information systems include the college or public library and technical journals. Summer sessions, short courses and on-the-job training can also be considered information systems.

More recently films and video tapes have come to be used as methods for storing and transmitting information. When the films or video tapes are combined with hard copy (paper) and displays you have a multi-media information system. Combining computer based multi-media with a user interface that allows the user to establish his interests you have a hypertext, multi-media information system, which may or may not be relevant, affordable or cost effective to the needs of developing countries.

---

[1] Consultant, Nuclear Technology and Engineering (M/S E561), Los Alamos National Laboratory, P.O. Box 1663, Los Alamos, New Mexico 87545, USA, Tel: (505) 667-5590, Fax: (505) 665-5346

The *objective* of an engineering partnership in the area of information should be that the information be: accessible, easily retrievable and affordable. A unique role of such a partnership in the area of information systems would be to identify, acquire, format, and make available the information and data needed by engineers and planners working on creating the infrastructure for sustainable development programs. The purpose would be to facilitate the exchange of the type of information needed to engineer sustainable development systems.

One necessary *action* is to establish a means to access and process economic, scientific, engineering, and socio-political data into information which facilitates sustainable development assessments. Another possible action is the establishment of an organization which facilitates the coalescence of resources, domestic and international, public and private, to implement a tiered as opposed to a centralized and hierarchical information network.

One *means of implementing* an engineering partnership is to utilize existing global electronic networks, which were established for developing Agenda 21. These systems are distributed and can be expanded to utilize existing structures such as NASA's regional data centers, current university and government networks such as edunet, internet and NASA mail and the databases of professional societies such as the American Society of Civil Engineers database of published articles. Types of information available include:

- Engineering data and technology,
- Geographical Information (GIS), and
- Resources that may be drawn upon for help.

In summary the challenge is to facilitate access to decentralized information resources in such a way that both the individual and governmental agencies can participate in the development of sustainable processes and operations. The world's professional engineering societies such as the World Federation of Engineering Organizations (WFEO) and the International Federation of Consulting Engineers (FIDIC) are well positioned to *accept the challenge* of creating a partnership between the individual, governments and businesses and international agencies to create, catalog, and disseminate the information and data needed to make decisions relatedto sustainable development.

The paper has three parts. The first part consists of the abstract and executive summary. The second part consists of an overview of the UNCED process, the relationship of information systems to the creation of engineering methodologies for sustainable development and suggestions about which systems meet which needs. This section, which was used as part of the UNCED PrepCon IV workshop on Engineering Partnerships for Sustainable Development, is in a format similar to that of UNCED PrepCon position papers. The workshop was held March 1 though March 3 of 1992 in New York. The last section, volume 2, is a detailed review of knowledge bases for engineering. Appendices provide additional background information.

printed: 2/27/92

Information Systems for Engineering Sustainable Development

Raymond S. Leonard, PE[1]

INTRODUCTION

The United Nations Conference on Environment and Development (UNCED) Agenda 21 planning process has identified the need for better methods by which information can be transferred between industrialized nations and developing nations. Types of information include:

- Engineering data and technology,
- Geographical Information (GIS), and
- Resources that may be drawn upon for help.

The reasons for better methods of information transfer include facilitating decisions related to sustainable development and building the capacity of developing nations to better plan their future in both an economical and environmentally sound manner.

The effort to provide information systems for sustainable development can be viewed as meeting the needs and wishes expressed in PC/100/ADD.11: A-21 Capacity Building entitled "National Mechanisms and International Cooperation for Capacity-Building" (Sect.IV, ChAp. 5 of Agenda 21). Chapters of Agenda 21, which are related to capacity-building include:

- Integration of environment and development in decision-making (Sect. I, Chap. 7);
- Transfer of environmentally sound technology (Sect. IV, Chap. 2);
- Science for sustainable development (Sect. IV, Chap. 3);
- Promoting education, training and public awareness (Sect. IV, Chap. 4). and
- Capacity Building (Sect IV, Chap. 5)

---

[1] Consultant, Nuclear Technology and Engineering (M/S E561), Los Alamos National Laboratory, P.O. Box 1663, Los Alamos, New Mexico 87545, USA. Tel: (505) 667-5590, Fax: (505) 665-5346

The unique role of an engineering partnership for sustainable development in the area of information systems is to identify, acquire, format, and make available the information and data needed by engineers working on creating the infrastructure for sustainable development programs. The purpose is to facilitate access to, as well as the exchange of, the type of information needed to engineer sustainable development systems. The information should be accessible, easily retrievable, and affordable.

BASIS FOR ACTION:

The ability of a country to follow sustainable development paths is determined to a large extent by the capacity or capabilities of its people and its institutions. Specifically, capacity-building in the UNCED terminology encompasses the country's human, scientific, technological, organizational, institutional, and resource capabilities. A fundamental goal of capacity-building is to enhance the ability to pose, evaluate, and address crucial questions related to policy choices and methods of implementation among development options. This requires:

- An understanding of the environmental potentials and limits of the country,
- Identification of needs as perceived by the people, and
- An understanding of available technology and the impacts of those technologies on development and the environment.

As a result, the need for quality information in accessible, retrievable, and affordable forms is shared by all countries. Fig. 1 is a diagram of one aspect of the problem we are trying to solve.

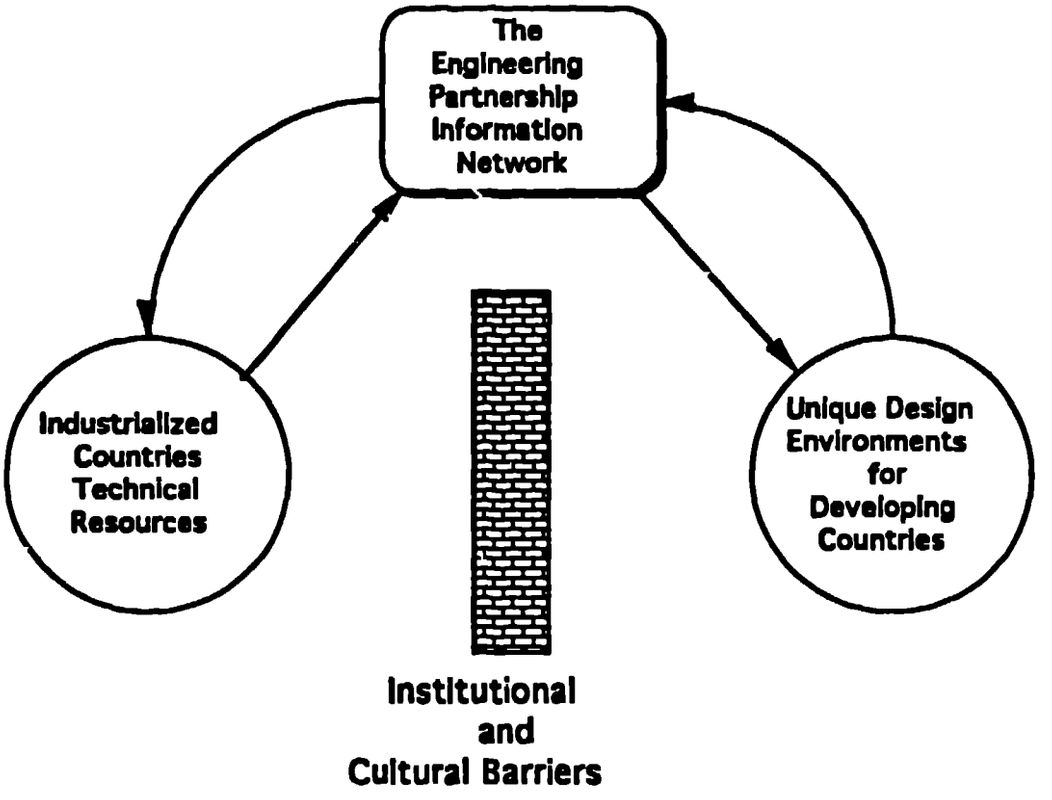

Fig. 1 - Overcoming Barriers to the Transfer of Information.

The barriers are many. They range from the obvious, such as, financial resources needed to purchase either information or access to information to cultural or linguistic differences. Linguistic misunderstandings result in information remaining hidden because the wrong question or wrong word was used in trying to obtain the information. An example is looking in the phone book for lawyers when they are cataloged as attorneys.

Fig. 2 shows one way that global information resources can be linked to facilitate engineering sustainable development initiatives. This figure is predicated on one of the many different structural concepts possible for EPSD. Fig. 3 is a more detailed diagram of the structure of the information system. The information should flow both ways and links should be available from user to user, user to different regions, user to their region, and user to international systems. Validation on one system provides at least limited access to all systems identified as common resource centers.

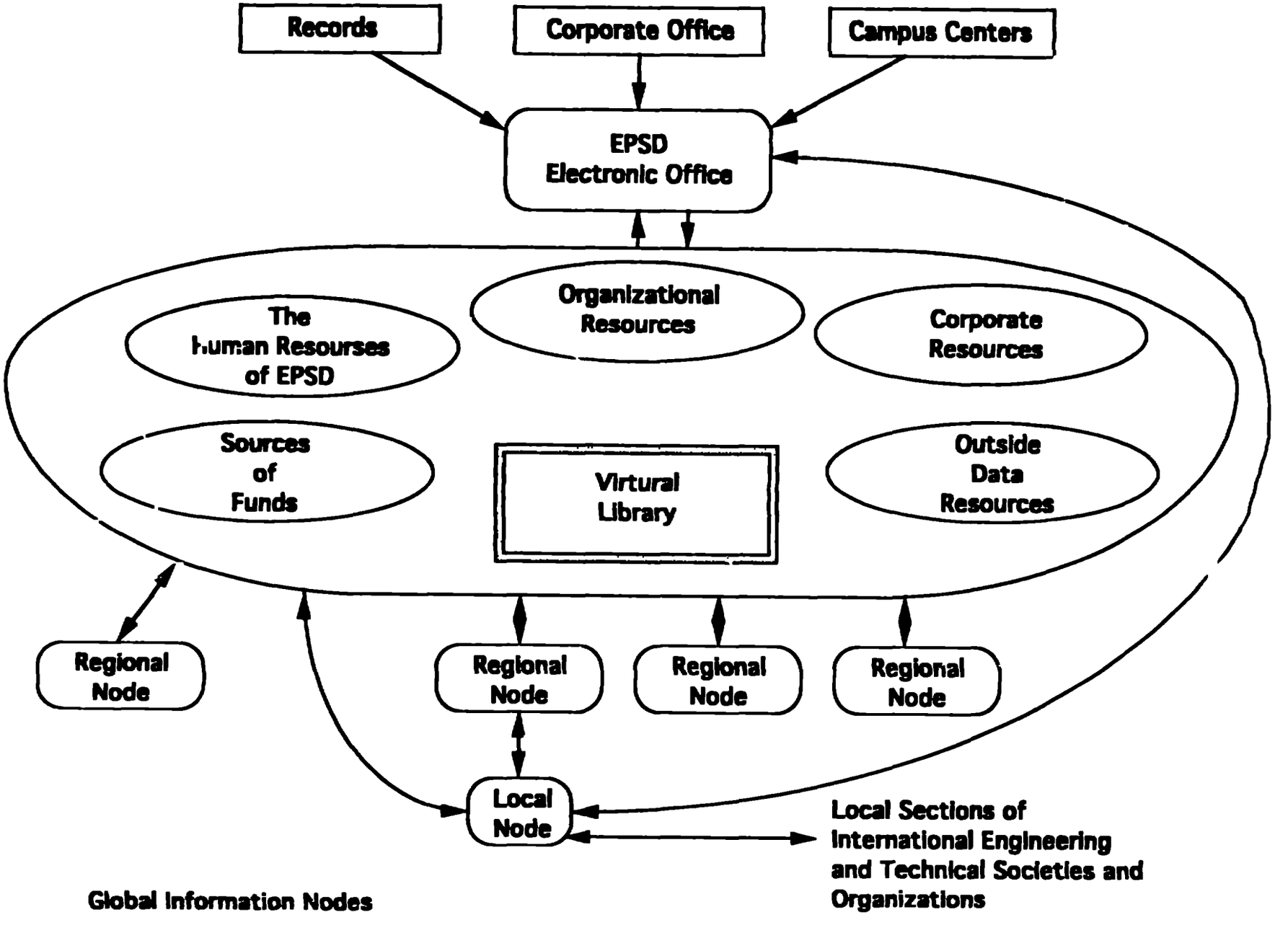

Fig.2 - International, Regional, and Local Information Nodes as part of a Partnership

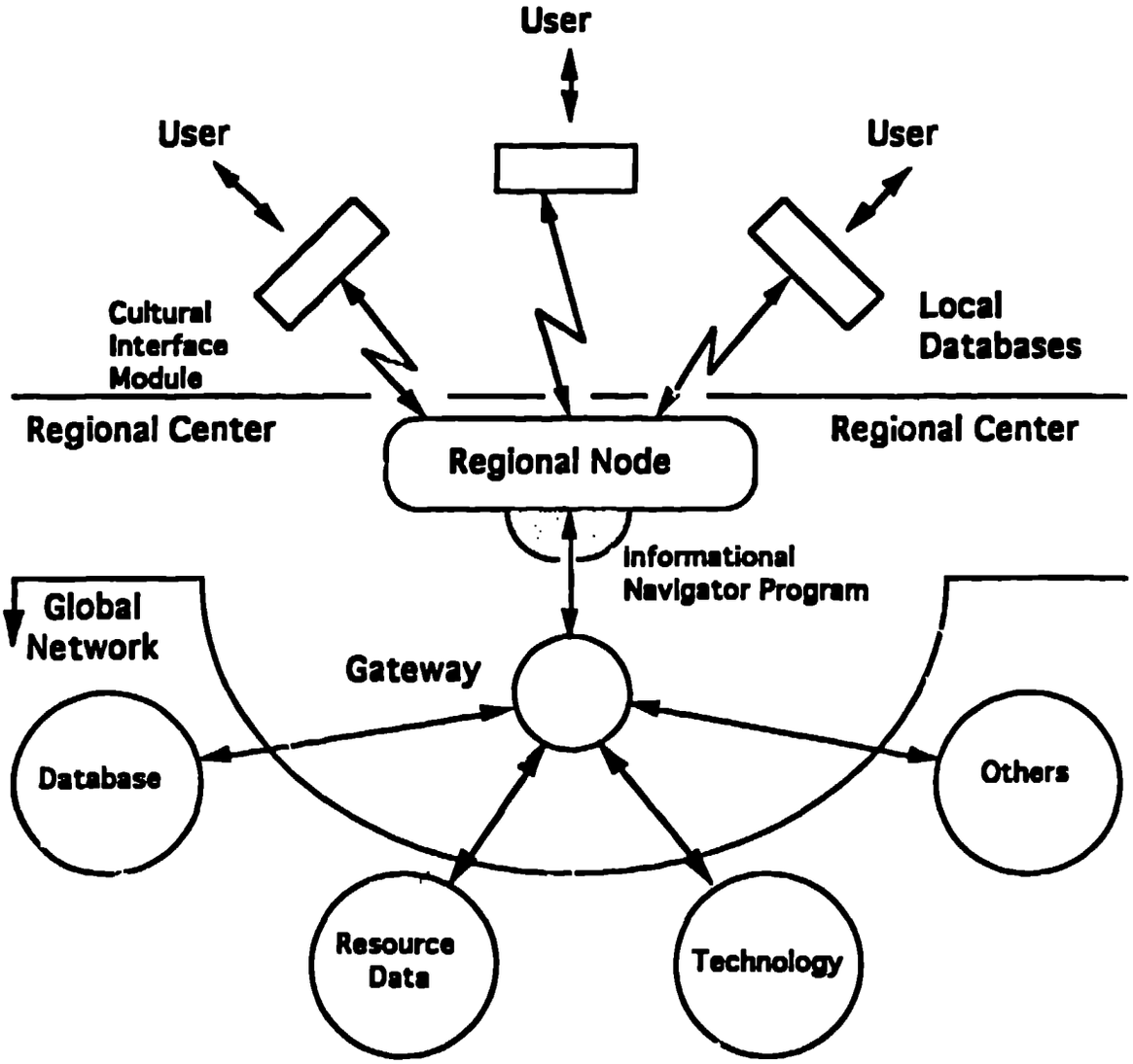

Fig. 3 - Conceptual System Description for an Informational Partnership.

Building information systems for economically viable sustainable development will require technical partnerships between nations, between nations and companies, between companies, and most importantly between all of the above and the individual or local agency trying to create and environment of sustainable development. Technical cooperation must encompass a wide range of activities designed to develop individual, group, and national capacities.

As shown in Fig. 4 this requires: access to knowledge, awareness of knowledge, acquisition of knowledge (education), implementation of knowledge (action), and creation of new knowledge in response to feedback from action. Technical cooperation including the providing of information or data is effective only when it is in response to a developing country's own strategies and priorities on environment and development.

OBJECTIVES

The primary objective of an engineering partnership is to provide information systems, which strengthen the overall national and international enabling processes, especially in the area of technical cooperation, needed to build national capacity for engineering sustainable development in an environmental benign way.

There are a number of specific goals that must be achieved if this objective is to be realized. One is to foster, develop, and maintain national, regional, and international information systems, which provide the data and information needed to create sustainable development environments.

Another goal is the continuation of ongoing UNCED participatory process to define a country's informational needs and priorities. This goal requires a continuous dialogue between consumers, providers, and creators of information. It requires that sets of users be defined and that different types of information using different delivery mechanism be provided. International, regional, national, and local users require different types and levels of information. As the infrastructure of a technical and economic based information system develops a shift in the response horizon will take place as people and institutions have the data and understanding to anticipate problems and plan and implement longer range projects.

There are offical and centralized channels already established for information flow. These need to be supported. However, an objective of the information systems thrust of a partnership between engineers and local implementors should be to facilitate their access to information outside of traditional paths and boundaries. Professional societies such as the American Society of Civil Engineers and its international sections and umbrella organizations such as the World Federation of Engineering Organizations offer established communication paths, which can be broadened to meet the needs of local users and implementors.

ACTIVITIES

To achieve the goals and objectives defined above, a consensus must be developed as to what is needed to meet the needs and address the problems indentified during Agenda 21 process. This consensus should result from a dialogue between interest groups (stakeholders) and information engineers. Resources needed to access the information systems must be identified and sources of those resources found. A workshop or needs assessment on information requirements would be a starting point. A desired result from the workshop would be a set of task committees, which would meet again in two to three months a make a formal recommendation though the Non-Governmental Organizational (NGO) channel to the UNCED governing body.

The purpose of providing the information systems is to enhance environmental knowledge the impacts of development strategies, while helping establish linkages with others facing similar problems. The development of information systems should be coordinated with the UNDP in order to identify data and information requirements related to technical cooperation and development assistance. The resulting systems should complement and be part of the implementation of the Sustainable Development Networks initiative of Agenda 21. The resulting system should provide a framework for cooperation and assistance. It can do this by identifying sources and present technical cooperation programs. Providing a peer review mechanism of aid requests which will facilitate such requests.

The development of a global, distributed information system should be undertaken in cooperation with professional societies, non-governmental organizations, agencies of developing countries, regional organizations, organizations and institutions of the United Nations system, such as, United Nations Development Programs (UNDP) and multilateral and bilateral aid and environmental agencies and organizations. The development effort should recognize and be based on the successful informational models developed to support the UNCED planning process as well as existing electronic engineering databases and telecomputing RoundTables such as those that can be found on CompuServe and GEINE in the US. Similar systems exist in other countries.

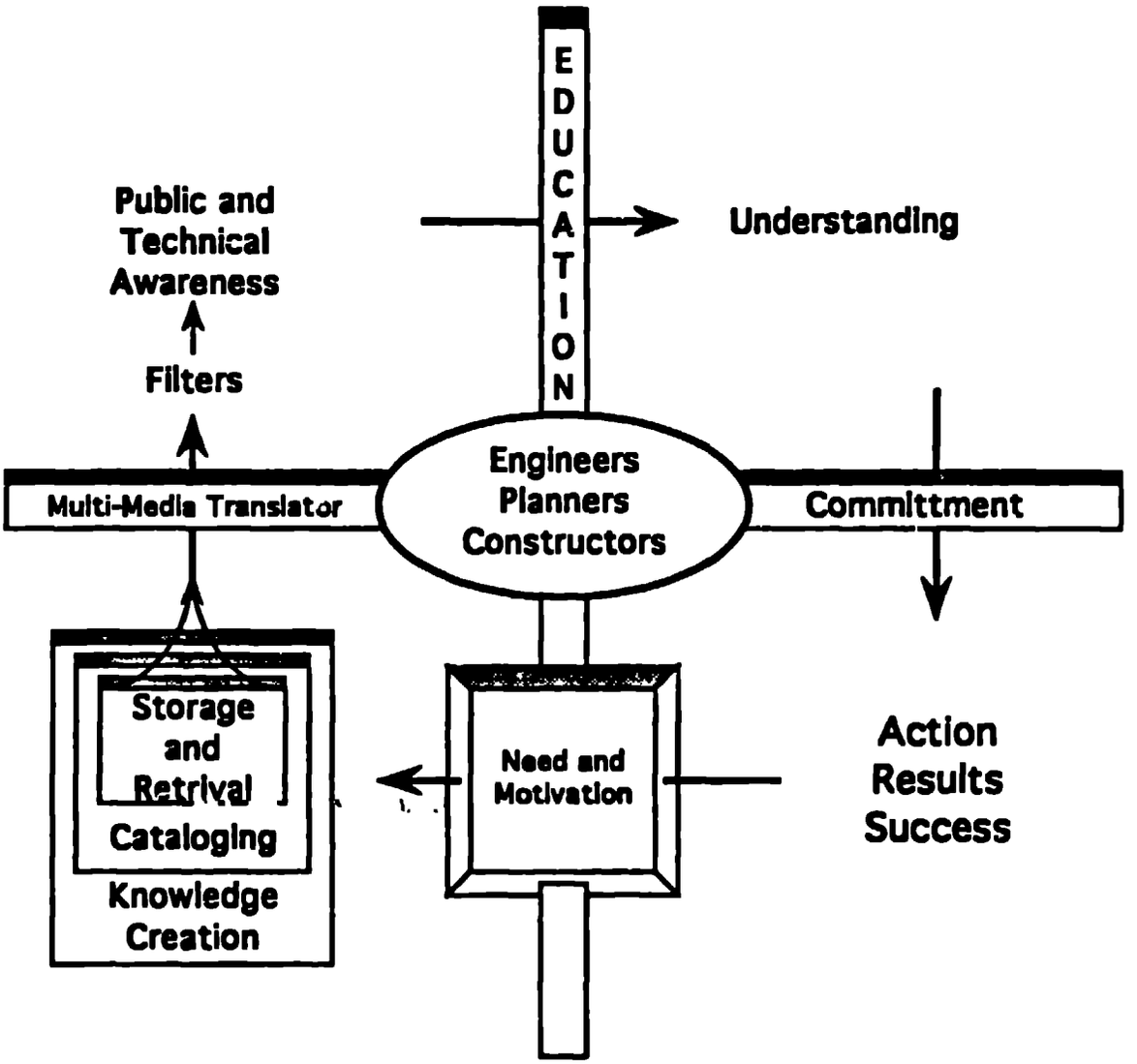

Fig. 4 - Relationship of Knowledge Related Activies

Another activity, which falls within the broad definition of information systems, would be the sponsoring of a summer session or series of short courses on engineering sustainable development. The summer session could be held simultaneously at several locations around the world. By combining lectures with design problems and possibly field work the activity would bring together both the practioner and the academic. By making the session international in scope and sponsoring or providing scholarships to engineers working in developing countries, the activity would be the beginning of a global network of human resources. This activity would build and complement similar activities such as the series of Workshops held by the FIDIC Task Committee on the Environment. It also parallels the initiative by the International Space University to create a global electronic campus.

MEANS OF IMPLEMENTATION

One *means of implementing* an engineering partnership is to utilize existing global electronic networks, which were established for developing Agenda 21. The Association for Progressive Communications (APC), a non-profit organization, is a worldwide body of member networks dedicated to providing low-cost global communications services to people and organizations working for the environment. Solutions to global problems such as ozone depletion, desertification, and sustainable development will only emerge from dialogues enabled by efficent communications systems, which provides access to needed information and promotes understanding.

Compute networking and conferencing is a powerful tool, which can be used to foster a true global partnership between engineers and people in need of engineering services. Engineering societies or sections of international engineering organizations could undertake the development of regional and local nodes. Existing nodes are showen in Fig. 5, which was taken from material provided by APC. Points of contact in various countries are listed in App. A. App. B lists the UNCED electronic conferences which are on the network. These systems are widely distributed a,nd interconnected with GeoNet, Internet, Poptel, Janet, Bitnet, UUCP, Telecom Gold, and most other academic or commercial networks. APC is collaborating with the NGONet Project to facilitate the spread of information via publications and radio to people who cannot access the Networks electronically. App. C lists over 90 gateways by which the Net can be accessed.

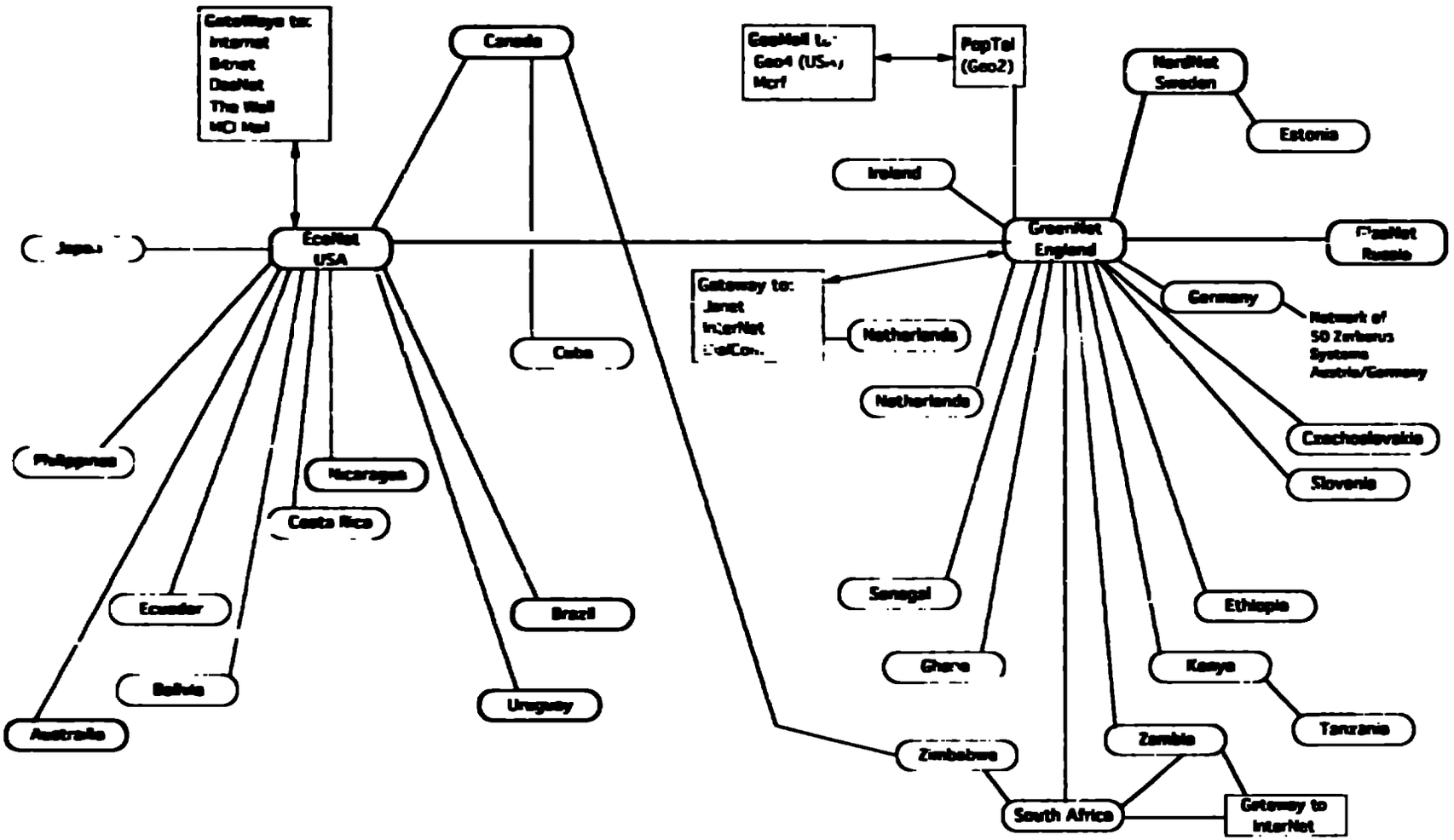

Fig. 5 - Association for Progressive Computing (APC) Global Network. An infrastructure for building Partnerships for Sustainable Development

Types of information available from databases maintained by various technical societies and organizations include:

- Engineering data and technology,
- Geographical Information (GIS), and
- Resources that may be drawn upon for help.

The data and information can be accessed though a number of international programs. NASA's regional data centers are one example. Another is the international cooperation, operation, and sharing of data from astronomical observatories located all over the world. Other examples of programs which have been implemented to share scientifc and technical data include: the International Geosphere-Biosphere Program (IGBP) and the Consortium for International Earth Science Information Network (CIESIN). In the United States, academic institutions and many other research organizations have access to the BITNET network, through which linkages can be made to counterpart networks in other countries and continents, for example, NORTHNET in Canada, JANET in the United Kingdom, and EARNET, the European Academic Research network, in Western Europe.

Achievements in other fields give credence to the idea that it should be technically feasible to develop and implement a computer-based knowledge system for engineering sustainable development projects, ograms, and initiatives. Thus, the National Library of Medicine' TOXLINE bibliographic system, with over 1.4 million records, suggests that volume of information is not likely to be a serious constraint for such a knowledge system. Also, the integration of engineering analysis and databases to aid critical decision making in regard to pressure vessels and piping systems illustrates a quite well-developed engineering application of a computer-based knowledge system.

Other examples abound in the areas of structural engineering, geotechnical and maintenance engineering. For instance, ASTM has recently established Committee E-49 on the Computerization of Materials Property Data with the purpose of establishing guidelines for database development for materials of all types. The committee will not, however, develop databases. This will be left to the National Materials Property Data Network, Inc.

To implement easy access these systems from around the world and from different cultures a informational navigator and cultural translator is needed. Figure 6 shows a block diagram of such a translator. On the simplist level it would translate between such linguistic differences as

center and centre

balloon and ballon.

A slightly more advanced system might correct spelling and suggest different keywords.

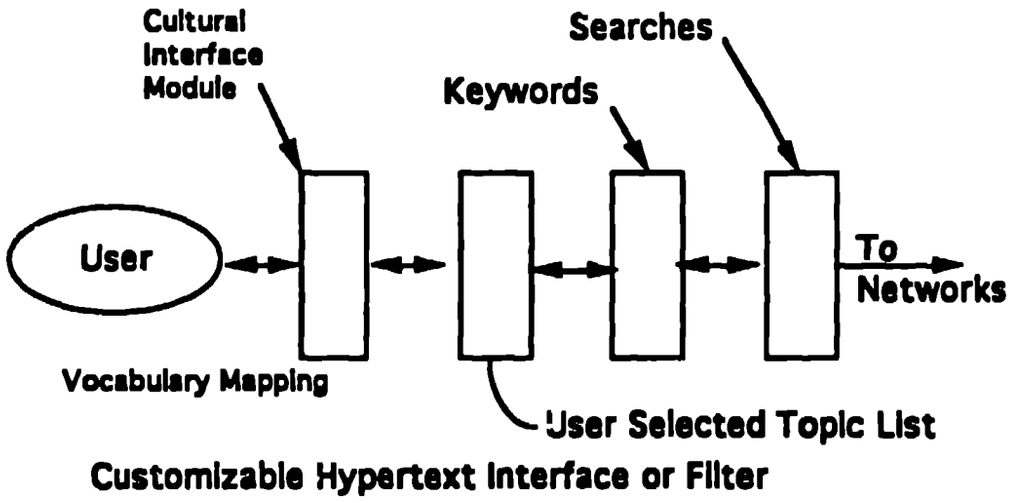

Fig. 6 - User Interface to facilitate multi-cultural information exchanges

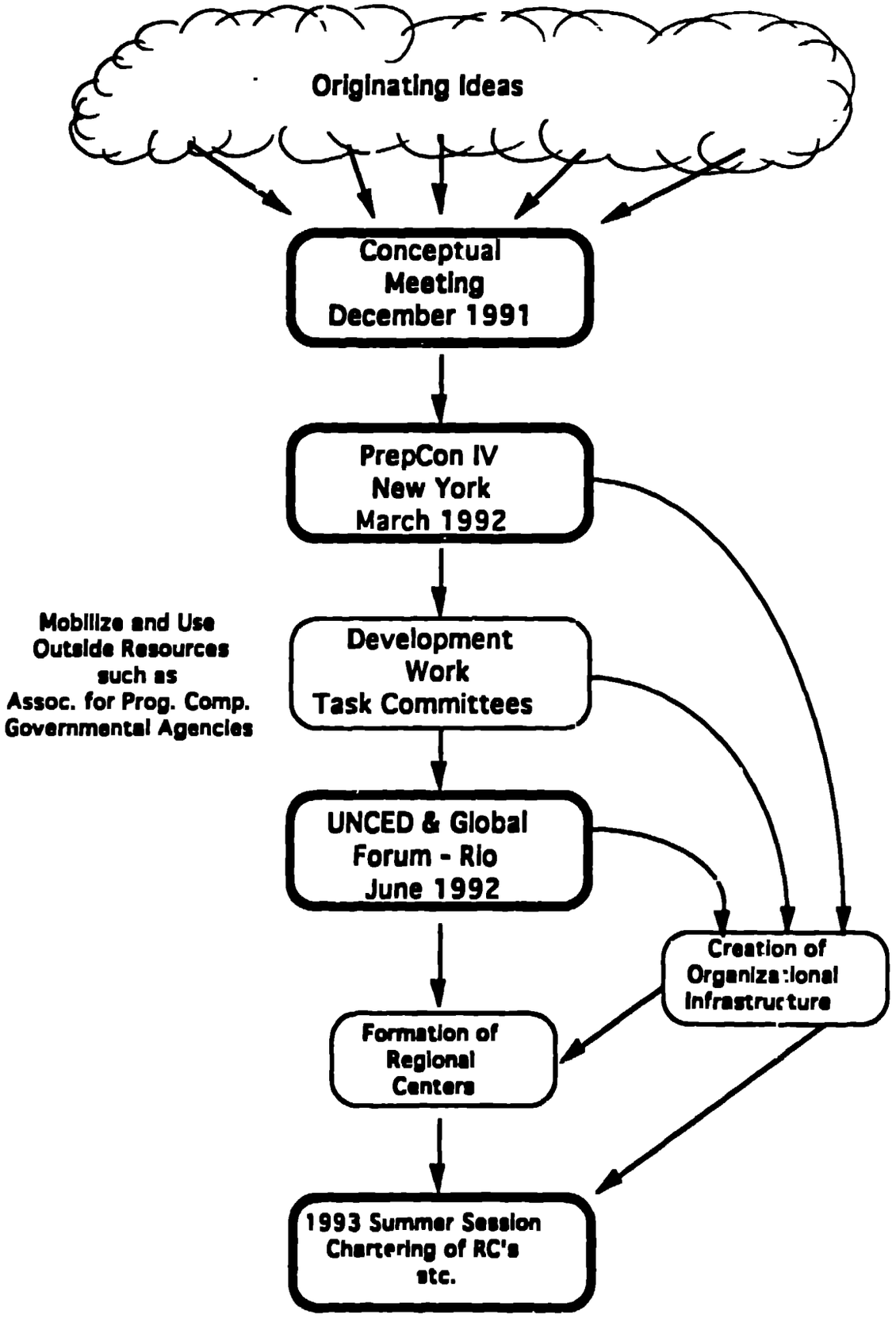

Fig 7 - One Possible Path to Creating Informations Systems for Engineering a Sustainable Future.

printed 2/27/92

ACCEPTING THE CHALLENGE

In summary the challenge is to facilitate access to decentralized information resources in such a way that both the individual and governmental agencies can participate in the development of sustainable processes and operations. The world's professional engineering societies, such as the World Federation of Engineering Organizations (WFEO) and the International Federation of Consulting Engineers (FIDIC) are well positioned to *accept the challenge* of creating a partnership between the individual, governments and businesses, and international agencies to create, catalog, and disseminate the information and data needed to make decisions related sustainable development.

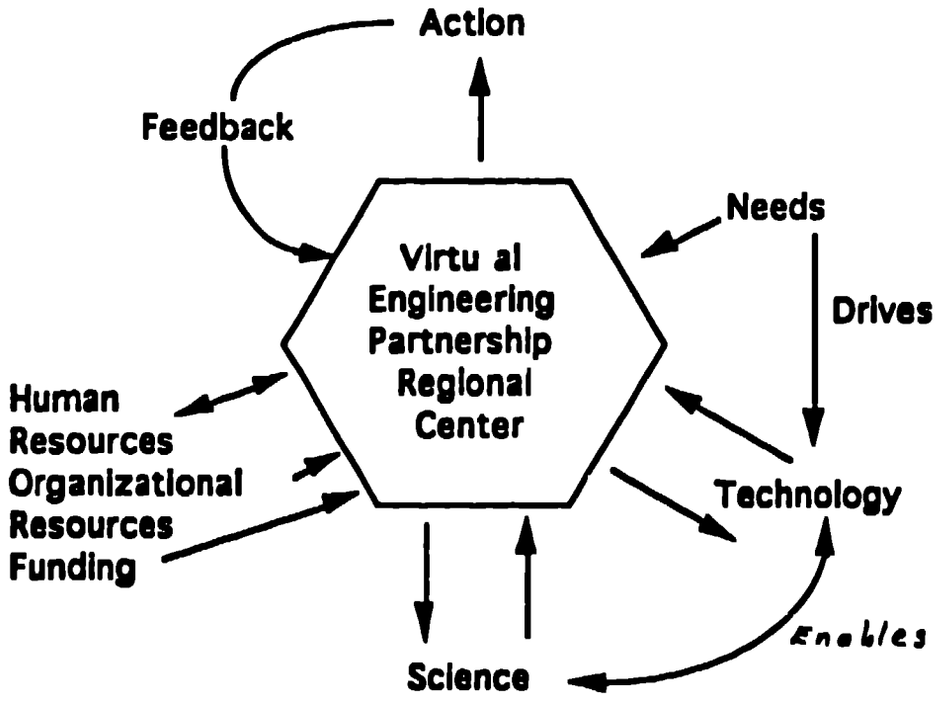

Fig. - The Partnership of Science, Technology, Engineering and Human Resources

Fig. is a graphical summary of the issues that need to be addressed in order to create the action needed to bring a sustainable future into existence.

The process of change requires the expertise of many disciplines. This expertise will only be effective if it is made available and used in a cooperative fashion by all levels (global, regional, national, locally, and individually). From an information systems standpoint the engineer must focus on not only how to transfer the needed information but also on ensuring that it is understandable in the cultural and society to which it is transferred. Through partnerships which share information, research and development sucesses and failures, results of demonstrations and projects the engineer can make a difference both locally and globally.

ACKNOWLEDGEMENTS

The author would like to acknowledge the support of Los Alamos National Laboratory. The support staff of the Nuclear Engineering and Technology Division provided invaluable support in manuscript preparation. Deborah Fields with the Office for Strategic Initiatives, Headquarters, US Army Corps of Engineers provided a number of concepts and ideas which have been incorporated in the paper. Discussions with Tom Parker, Global Environment and Technology Foundation, Don Roberts, CH2M-Hill and the International Federation of Consulting Engineers (FIDIC), and Bud Carroll, J. M. Montgomery, and the World Federation of Engineering Organizations (WFEO), provided added clarity and focus to the topics. My thanks to Edie Farwell of the Association of Progressive Communications for her prompt response to my request for information on member nodes.

BIBLIOGRAPHY

American Society of Civil Engineers, 345 East 47th, New York, NY USA, 10017-2398, Tel: (212) 705-7494, Fax: (212) 980-4681, attn: International Activities.

Independent Consulting Engineer, Autumn 1990, International Federation of Consulting Engineers, Avenue du Temple 13c, Chailly, CH-1012, Lausanne, Switzerland, Tel: (21) 633 50 03, Fax: (21) 633 54 32.

H. M. Kissman and P. Wexler, Toxicology Information Systems. A Historical Perspective, *J. Chem. Information Comp. Sci.*, 25, 212-17 (1985).

J. T. Fong, "Integration of Engineering Analysis and Databases for Critical *Dec2sion Making," CIME, 5,* 42-55 (1986).

W. I. Rasdorf, Perspectives on Knowledge in Engineering Design, pp. 249-53 in Proceedings of the International Computers in Engineering Conference, Vol. 2. American Society of Mechanical Engineers, Boston, MA, August 1985.

R. K. Belew, Evolutionary Decision Support Systems: An Architecture Based on Information Structure, pp. 147-60 in Knowledge Representation for Decision Support Systems, Proceedings of the IFIP WG 8.3 Working Conference. Edited by L. B. Methlie and R. H. Sprague. North-Holland, New York, 1985.

Global Models, World Futures, and Public Policy: A Critique, Office of Technology Assessment, Washington, DC, April 1982.

W. J. Rasdorf and G. C. Salley, "Generative Engineering Databases-Toward Expert Systems, *Comp. Struc, 2,* 11-15 (1985).

E. H. Shortliffe, Computer-Based Medical Consultations: MYCIN. Elsevier Computer Science Library, Elsevier, New York, 1976.

B. Buchanan, G. Sutherland, and E. A. Feigenbaum, "Heuristic DENDRAL: A Program for Generating Exploratory Hypotheses in Organic Chemistry"- in Machine Intelligence 4. Elsevier, New York, 1969.

D. A. Waterman, A Guide to Expert Systems. Addison-Wesley, Reading, MA, 1986, see reference to DELTA on p. 260.

FOR FURTHER INFORMATION

Bud Carroll, PE
President
World Federation of Engineering Organization
c/o James Montgomrey
P.O. Box 7009
Pasadena, CA USA 91109-7009

Tel: (818) 796-9141
Fax: (818) 568-66199

Raymond S. Leonard, PE
Consultant, N-DO, M/S E561
Los Alamos National Laboratory
P. O. Box 1663
Los Alamos, NM 87545 USA

Tel: (505) 667-5590
Fax: (505) 662-0099

E-mail:	on APC networks	adastra.igc
	Internet	rsl@beta.lanl.gov
	GEINE	r.s.leonard

App. A: List of APC Networks[1]

The Association for Progressive Communications is a non-profit organization. The APC Secretariat office is at:

18 de Boom Street
San Francisco, CA 94107

Att: Edie Farwell,
Liaison Director

Tel: 415-442-0220
Fax: 415-546-1794
E-mail: <efarwell@igc>

Member Networks

AlterNex
IBASE
Rua Vicente de Souza 29
22251 Rio de Janeiro
BRAZIL

Tel: +55(21)286-0348
Fax: +55(21)286-0541
Email: suporte@ax.apc.org

Chasque
Miguel del Corro 1461
Montevideo 11200
URUGUAY

Tel: +598(2)496192
Fax: +598(2)419222
Email: system@chasque.org.uy

ComLink
Moorkamp 46
D(w)-3000 Hannover 1
GERMANY

Tel: +49(511)350-3081
Email:
support@comlink.apc.org

GlasNet
Ulitsa Yaroslavaskaya 8
Korpus 3, Komnata 111
129164 Moscow
RUSSIA

Tel: +7(095) 217-6173
Email: support@glas.apc.org

Institute for Global Communications
EcoNet/PeaceNet/ConflictNet
18 de Boom Street
San Francisco, CA 94107
USA

Tel: +1(415)442-0220
Fax: +1(415)546-1794
Email: support@igc.apc.org

GreenNet
23 Bevenden Street
London N1 6BH
ENGLAND

Tel: +44(71)608-3040
Fax: +44(71)253-0801
Email: support@gn.apc.org

---

[1] From international access conference on the Institute for Global Communications Peacenet system.

Nicarao
CRIES
Apartado 3516, Iglesia Carmen
1 cuadra al lago, Managua
NICARAGUA

Tel: +505(2)26228
Fax: +505(2)26180
Email: support@ni.apc.org

NordNet
Huvudsk
rsv
gen 13, nb.
S-121 54 Johanneshov
SWEDEN

Tel: +46(8)600-0331
Fax: +46(8)600-0443
Email: support@pns.apc.org

Pegasus Networks
P.O. Box 424
The Epicentre, Border St.
Byron Bay 2481
New South Wales
AUSTRALIA

Tel: +61(65)856789
Fax: +61(66)856962
Email: support@peg.apc.org

Web
Nirv Centre
401 Richmond St., Suite 104
Toronto, Ontario, M5V 3A8
CANADA

Tel: +1(416)596-0212
Fax: +1(416)974-9189
Email: support@web.apc.org

EcuaNex
Intercom
Casilla 1703596, Quito
ECUADOR

Tel: +(593 2) 505 074
Email: intercom@ecuanex.ec

App. B: List of UNCED Agenda 21 Conferences on EcoNet

ngonet.documen -- Contains papers relating to UNCED from NGO's and selected by ngonet staff.

ax.unced -- Portuguese language conference discussing the 1992 UNCED.

unced.agenda21 -- Discussion of the agenda for the global environment for the 21st century coordinatied with the UN Conference on Environment and Development, Brazil, June 1992.

unced.poverty -- Poverty and affluence task group working on UNCED.

unced.usgovt -- This conference contains documents prepared by the U.S. Government for the United Nations Conference on Environment and Development to be held in Rio de Janeiro in June 1992.

cnu.ethics -- This is an open forum for the Ethics, Development & Environment Working Group of the Citizens' Network on the United Nations Conference on Environment and Development (UNCED).

cnu.informatio -- Discussion of the Earth Charter that will result from the UN Conference on Envirtwork on the 1992 United Nations Conference on Environment & Development (UNCED).

icwe.water -- Preparatory documentation for the International Conference on Water and the Environment (ICWE), to be held in Dublin, Ireland, 26-31 Januar 1992, co-sponsored by members of the United Nations ACC Inter-Secretariat Group for Water Resources (ISGWR).

unced.women -- This conference will be the main information repository for the women's issues in preparation for the UNCED meeting in Rio. The goal is to encourage women's full participation to develop an action agenda for presentation to the official delegation.

en.unced.readi -- Schedule inforamtion concerning events related to the 1992 United Nations Conference on Environment and Development.

cnued.document -- This conference contains UNCED documents in French.

cnumad.documen -- This conference contains UNCED documents for UNCED (the 1991 United Nations Conference on Environment and Development) in Spanish.

en.unced -- Information about the Conference on Environment and Development to be held by the United Nations in Brazil in 1992.

en.unced.binar -- Contains binary (formatted) files of UNCED documents.

en.unced.docum -- Contains, in full, important UNCED and related documents.

en.unced.gener -- Public forum for the sharing of ideas, plans, activities and other relvant matters that organizations are involved in before, during and after the UNCED 1992 Conference.

en.unced.infox -- This conference is for process; how to get information related to the UNCED from one corner of the planet to the other most efficiently using the APC Networks as a long-haul communications tool. Please go to "en.unced.general" to post topic-related info.

en.unced.news -- Contains newsletters that pertain to the 1992 UNCED meeting. Of particular interest to those wishing to stay up on general developments of the meeting preparation.

en.unced.sched -- Information on the schedule of the U.N. Conference on Environment and Development and related meetings as well as the detailed agenda of selected UNCED meetings.

en.unced.topic -- Structured access to information on the 1992 UN Conference on the Environment and Development according to the format of the UNCED agenda.

** United Nations Conference:

inc.climate -- This UNCED-related conferen contains information about the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change.

** United Nations Conferences:

unced.canada -- Conference for Canadian participation in the UN Conference on the Environment and Development.

unced.dialogue -- Shares ideas and drafts of a series of position papers for the UNCED prepared by a network of Southern and Northern NGOs.

unced.earthcha -- Discussion of the Earth Charter that will result from the UN Conference on Environment and Development, Brazil, June 1992.

** Alternex (Brazil) Conferences:

oca.ecosindica -- This conference aims to discuss the topics of the Conference on Nature-Man-Work, that will take place in Sao Sebastiao - State of Sao Paulo - Brazil, on October 16th.-20th., in order to prepare the workers contributions to the II UNCED - Rio - 92.

** PeaceNet Sweden Public Conferences:

sei.info -- SEI.INFO is a conference aimed to inform about the Stockholm Environment Institute.

26 conferences listed for keyword unced.

App. C: Points of Contact in Various Countries[1]

Topic 1 Guide to Reading This Informa.ion
3 responses support intlaccess 6:05 pm May 1, 1987

This is a guide to reading the documentation contained in this conference.

Find the country from which you will be calling in the conference index. If the country for which you are looking is not listed, look for the next closest country. Remember, in addition to the charges quoted in the documentation here, PeaceNet charges $3.00 /hour surcharge after the first hour for all calls from outside the US mainland. Also note that the Public Data Network usually requires a local billing address.

The topic title indicates the country from which you will be calling.

SERVICE NAME(S): This is the name of the local public data network, or PDN, that provides service in each country. You will connect through the PDN to Telenet to access PeaceNet.

ACCESS/SPEEDS SUPPORTED: This lists the access (public dial-in, leased line, and/or asynchronous leased line) and the speeds listed in bps (bits per second or baud). We use asynchronous communications at PeaceNet. Public dial-in is what most people use. A leased line is a line you rent that is dedicated solely to communication with a fixed distant site, such as PeaceNet or some other host computer. Rates are understandbly higher for leased lines.

PROTOCOLS SUPPORTED: Each country uses the appropriate protocol, so you need not be concerned about it.

RATES: These are almost always quoted in local currency.

"Subscription Charge" is the monthly service charge.
"Connection Charge" is based on the length of time your modem is connected to PeaceNet.
"Traffic Charge" is based on the amount of information that is sent and received during an online session.

---

[1] From international.access conference on the Institute for Global Communications Peacenet system.

Terms:

kilocharacter = 1000 characters of transmitted data.

kilopacket and kilosegment are quantities of transmitted date which vary in quantity due to technological variances. They may range up to 68,000 or 128,000 characters each.

"Telephone Access Charge" is a flat charge per call.

"Installation Charges" are what some countries charge for installing the needed equipmen:.

"Modem Charges": a few countries require that you rent their equipment.

GATEWAY LOCATION: These are the cities that you can call to connect to the PDN. This may be a toll call at additional cost.

ACCESS POINTS: This lists any limitations that may exist as far as where in the country you can originate your call.

CONTACT: This is the person at the country's PDN to contact to initiate setting up your account in that country.

LEAD TIME: Note that you may need to contact the PDN well in advance to give them time to set up your account. Even if this is not listed, allow the maximum amount of time available.

Topic 1 Guide to Reading This Information Response 1 of 3
gn:mitra intlaccess10:55 pm Jan 26, 1988

Firstly - apologies to all readers but the Telenet information is often inaccurate! For calls from anywhere in Europe message gn!support for up-to-date information and where possible local contacts.

Secondly - Where we have been asked for information it will be formatted to a standard format and added as a response to the Telenet information.
Please be aware that most of the local contacts are volunteers who may not be able to drop everything to help you but on the other hand may be very happy to do so.

If any user finds this information inaccurate then PLEASE POST A RESPONSE that way no one else has to make the same mistake.

If you are a user from outside the United States and Great Britain then please message "gn!support" and we will add you to our list.

Happy Travelling

- Mitra

Topic 1 Guide to Reading This Information Response 2 of 3
gn:mitra intlaccess 9:48 pm Feb 29, 1988

Note - several countries listed in this conference have multiple networks or we have conflicting information from different sources. Where this occurs we try and indicate the different sources by for example

BT: 24 TN: 30

to indicate British Telecom say the cost is 24 whereas telenet say 30, in these cases either network could be right.

Alternatively there may be different charges listed for two alternative networks available in a certain country, again we will list the alternatives eg. ITALCABL:100 ITAPAC:200 but it should be noted that the differences may be inaccurate information or change as the networks compete.

Again Please send me corrections or offers to be the local contact. Note as updates are available they will be posted here so (m)aintenance (a)dd will add this conference to your regular list so that you get all the updates.

Please could any directors of this conference on PeaceNet, EcoNet or anywhere else this information goes please delete duplicates as I post the updates.

- Mitra (gn:mitra or gn:support)

Topic 1 Guide to Reading This Information Response 3 of 3
support2 intlaccess11:57 am Aug 15, 1991

This information originally written by jillaine in the conference 'micro':

NUI vs. NUA
NUI is Network User Identification. This is like a loginID or account name that a user in a country requiring use of a public data network or packet switching network would use in order to use that network to connect to us. For example, in Costa Rica, you might have to use the data network called RACSAPAC in order to access the IGC Networks. You would have to buy or rent a login ID (NUI) from RACSAPAC in order to use RACSAPAC to access us. Once you have an NUI from them, you would need to know the Network User Address (NUA) of the system to which you wanted to connect. IGC's NUA is 311040800346. Some countries' data networks require that a '0' or '1' precede that number. The NUA is used to inform the local data network (in this example, RACSAPAC) that you wish to connect to one of the IGC Networks.

While an NUA is like the equivalent of a phone number for a computer host, it does not have any relationship to your own personal phone number.

By the way, Costa Rican networkers should refer to 'intlaccess' for more about connecting from there; you shouldn't have to go through RACSAPAC (sorry, bad example, but the quickest I could think of at the moment...)

Each APC member (GreenNet, Alternex, Web, PNS, Pegasus, Nicarao, IGC) has its own NUA. Contact the 'support' account at your own node if you need to know that node's NUA.

Conf?

5/01/87	2	*Argentina	2		support
3		*Australia	2	support	
4		*Austria	2	support	
5		Bahamas		support	
6		Bahrain		support	
7		Barbados		support	
8		*Belgium	2	support	
9		Bermuda		support	
10		*Brazil	1	support	
11		*Canada	1	support	
12		Cayman Islands			support
13		*Chile	2	support	
14		*China, People's Republic of		1	support
15		Columbia		support	
16		*Costa Rica	4	support	
17		Curacao / Netherland Antiiles			support
18		*Denmark	1		support
19		Dominican Republic			support
20		*Egypt	2	support	
21		*Finland	1	support	
22		*France	5	support	
23		French Antilles			support
24		French Guyana			support
25		French Polynesia			support
26		Gabon		support	
27		*Germany, West		5	support
28		Greece		support	
29		Guan.		support	
30		Guatemala		support	
31		Hawaii		support	
32		Honduras		support	
33		*Hong Kong	1		support
34		*Hungary (same as Austria)		2	support
35		Indonesia		support	
36		*Ireland	1	support	
37		*Israel	1	support	
38		*Italy	1	support	
39		Ivory Coast		support	
40		Jamaica		support	
41		*Japan	5	support	
42		Korea (South)		support	
43		Kuwait (same as Bahrain)			support
44		Luxembourg			support

45		Malaysia		support
46		*Mexico	2	support
47		*Netherlands	4	support
48		New Zealand		support
49		Norway		support
50		Panama		support
51		Peru		support
52		*Philippines	1	support
53		Portugal		support
54		Puerto Rico		support
55		Qatar (same as Bahrain)		support
56		Reunion Islands		support
57		Saudi Arabia, Iraq, Jordan, Sudan		support
58		Singapore		support
59		South Africa		support
60		*Spain	1	support
61		Sweden		support
62		*Switzerland	6	support
63		Taiwan		support
64		*Thailand	1	support
65		Tr nidad and Tobago		support
66		United Arab Emirates		support
67		*United Kingdom	2	support
68		Virgin Islands		support
4/16/88	69	*India	5	gn:mitra
5/12/89	70	*Senegal	2	gn:support
5/12/89	70	*Senegal	2	gn:support
71		*Papua New Guinea	1	gn:support
72		*Uruguay	gn:	support
6/04/89	73	*Mauritius		gn:mitra
6/12/89	74	*PSS ACCESS FROM NAMIBIA		gn:support
8/04/89	75	*How To Login From Alaska		gn:param
12/08/89	76	*YUGOSLAVIA	1 gn:	support
4/07/90	77	*ISRAEL (See also above)		2 support
6/01/90	78	*New Guinea		support
9/07/90	79	*Germany	2	support
10/03/90	80	*Ecuador	4	support
11/28/90	81	*El Salvador		support
2/02/91	82	*Pakistan		peacenet
2/21/91	83	*Venezuela		1 hfrederick
2/26/91	84	*Bolivia		jillaine
4/16/91	85	*Ethiopia (Northern Africa)		peg:support
5/31/91	86	*Sprint Intl. Locations		1 support2

	87	*ISRAEL Packet Networ	support2
4/07/90	77	*ISRAEL (See also above)	2 support
6/01/90	78	*New Guinea	support
9/07/90	79	*Germany	2 support
10/03/90	80	*Ecuador	4 support
11/28/90	81	*El Salvador	support
2/02/91	82	*Pakistan	peacenet
2/21/91	83	*Venezuela	1 hfrederick
2/26/91	84	*Bolivia	jillaine
4/16/91	85	*Ethiopia (Northern Africa)	peg:support
5/31/91	86	*Sprint Intl. Locations	1 support2
	87	ISRAEL Packet Networ	support2
6/05/91	88	*KENYA: PUBLIC DATA COMMUNICATION FA	peacenet
7/02/91	89	*U.S.S.R. (Soviet Union)	jillaine
8/07/91	90	*Japan, KAMOME Connection	peacenet
9/18/91	91	*How To Login From Alaska	2 econet
1/03/92	92	*help! yugoslavia access?	gn:support
	93	*Ecuador	gn:param
2/03/92	94	*Sri Lanka	jillaine

**** End of Topics ****Conf?