



Introduction to Information Ecology

A Journey from Rio to Johannesburg



Premise of the Earth Summit - 1992.06

- Need for a fundamental shift in development path
 - Reconciliation of economic development and environment
 - Recognition of interdependence of human activities
 - Development / transfer of environmentally sound technology
 - Broad-based participation in decision-making & governance



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Key global changes since Earth Summit

- Exponential growth in ICT and Internet
 - ICT as engine for economic development
 - Rapid emergence of online markets
 - Transition to hand-held wireless devices
 - Convergence of information & communication technologies
- Broad-based “anti-globalization” coalitions
 - E-mail lists & web as primary organizing tools
 - Trade & investment vs. environmental agreements



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Information Ecology: An Introduction

- Embryonic holistic life science
 - Appreciation of properties of information
 - Recognition of information as life form
 - Framework for transition to knowledge-based era
 - Information - common medium for transactions
 - Living in an information environment



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Information Ecology

- Information systems as critical ecosystems
 - Interrelated, interdependent structures & processes
 - Interactive, evolving ecosystems
 - Vital relationships with other ecosystems
 - social
 - institutional
 - economic
 - legal
 - cultural
 - natural



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Information Ecology: Properties of Information

- Zero mass
- Zero physical size
- Light speed - almost zero time
- Common access to properties of the whole



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Principles of Information Systems

- Value is enhanced by intelligent organization
- Flow is enhanced by intelligent networks
- Management is enhanced by intelligent protocols
- Understanding is enhanced by intelligent practice
- Digestion is enhanced by intelligent format



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Gaia Mind Hypothesis

- Gaia hypothesis - Lovelock & Margulis - 1976
 - The Earth - Gaia - as conscious, living organism
 - Ability to respond to dis-equilibrium - chemical, biological, thermal
- Gaia Mind hypothesis
 - Emergence of Internet as framework for “Gaia Mind”
 - Evolution of new form of collective intelligence
 - Ability to respond to dis-equilibrium - environmental, social



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Governance: material vs. digital economy

– Material economy

- Governed by laws & properties of material world
- Free market price of goods = marginal cost of production

– Digital economy

- Governed by laws and properties of information, information systems & networks
- Marginal cost of production virtually zero
- Zero price for most digital goods



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Information Ecology: An Introduction

- Integration of theory and practice
 - Needs-based development and application of methodology
 - Identification of information elements & sources
 - Identification of information flows & participants
 - Parallel development of conceptual framework
 - Looking at the world as information system
 - Information as a dimension of real world



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Information Ecology: Key Dimensions

- Economic
 - Properties of knowledge-based economies
 - Viability of full-cost accounting procedures
- Social
 - Broad-based access to information
 - Public participation in decision-making
- Environmental
 - Monitoring & mapping of environmental conditions



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Physical Information Habitats

- Address book, phone book, appointment book
- Dictionary, encyclopedia
- Bookshelf, book, magazine, newspaper
- Atlas, map
- File cabinet, file drawer, file folder, file card
- Bank statement and check book
- Business card



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Digital Information Habitats

- Web page, Web site, Internet, Search engine
- Spreadsheet, database, electronic documents
- Email archives
- Geographic information system
- Microcomputer, Local area network
- CD-Rom, diskette
- Hand-held computer



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Information Architecture

- Design of information habitats / ecosystems to:
 - Reflect natural structure of information
 - Provide ease of access to information
 - Ease of review and analysis of information
 - Ease of sharing and exchange of information
 - Maintenance of integrity and accuracy
 - Reflect / reveal relationships among information elements
 - Simple data entry & automatic updating of information
 - Versatile format for generating output



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Ecological design principles

- Permaculture principles
 - Each element serves multiple functions
 - Each function served by multiple elements



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Information Habitat - contact database screen

habitat3 - DP

9 x 15

HABITAT3.02-8802

Title First Robert Last Pollard BROWSE

Role Founder & Information Ecologist IHWIL

Org Information Habitat: Where Information Lives |Special

Dept

Division

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1990.05.29|2002.04.15| ISFCCDZ

E-m Phone Lists URL Affiliation o Event

ecology2001@mindspring.com Global Brain Study Group Participan

www.igc.apc.org/habitat Johannesburg 2002 Participan

Member

Light Memorial for WTC Participan

UNCED 1992.06

CSD-6 1998.04

Comments

1P-01845



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Information Habitat: Committee membership

habitat3 - DP

9 x 15

HABITAT3.042-9676 BROWSE

ID P-01845 Robert Pollard <ecology2001@mindspring.com> POLLR S
e w ECE

Special Information Habitat: Where Information Lives
 JB2002 Johannesburg 2002 1
 Role 65 0 Participant
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 w:www.igc.apc.org/habitat

E-lists
 biodivers
 citnet
 csdgen
 csdsteer
 database
 design
 domestic
 dpu-pip
 education
 energy
 fdi
 gkd97
 h2oplan
 habifem

2001.05.11|2001.05.11|2001.05.11

GBSG		Global Brain Study Gro	Participant
JB2002		Johannesburg 2002	Participant
SVE		Spirit, Values, Earth	Member
WTC-LIGHT	911	Light Memorial for WTC	Participant
CCCUN-LT	CCC	CCC/UN Leadership Trai	Member
CCCUN	CCCUN	Communications Coordin	Board Member
CCCUN-ICT	CCCUN TF	Information & Communic	Co-Coordinator
NGOCHS	CONGO SC	NGO Committee on Human	Member-At-Large
NGOCS	CONGO SC	NGO Committee on Susta	Member
SOCD	CONGO SC	NGO Committee on Socia	Member-At-Large
NGOTFC	CONGO TF	CONGO Task Force on Co	Member
C-EDU	CSD IC	Education Caucus	Member



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Information Habitat: Eudora mail boxes





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Information as vital life support resource

- Access to resources
 - Markets - as buyer and seller
 - People and organizations - address and contact information
 - Health resources
 - Research and technical information, etc.
- Consultation, decision-making and planning
 - Timely, clear communications and shared information
- Economic value - e.g. as intellectual property



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Antecedents of the journey

– Interdisciplinary foundations

- Mathematics, economics, sociology, library science
- Holistic approaches, organic gardening, permaculture
- Community organizing, participatory group processes
- Spiritual - Tao, Quaker, Buddhism, Pythagoras ...



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Antecedents of the journey

- Holistic, interfaith perspective - Taoist/Quaker
 - Friends Committee on Unity with Nature
 - Queries on Unity with Nature
 - Earthcare Interfaith Network
- Community grassroots organizing
 - Participatory, interactive decision-making processes
 - Baltimore Information Cooperative - 1981
 - Microcomputers for community-based organizations



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Globescope Pacific Assembly - 1989.11

- U.S. Public Hearings on Our Common Future
 - Foundations for a Sustainable Common Future
 - Balance with Nature
 - Queries on Environment & Development
- U.S. Citizens Response to Sustainable Development
 - Compilation & publication of Conference Report



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UNCED - Organizing PrepCom, New York - 1990.03

- Information, Public Participation & Communication System proposal
- Database of NGO participants
- Launch of UNCED Global Electronic Network



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U.S. Citizens Network for UNCED

- Founding Member of Steering Committee
 - Structure / by-laws of Citizens Network
 - Funding Proposal
- Chair, Information & Communication Committee
 - Management of participant database
 - Publication of directories
 - Technical support for email and electronic conferences



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Caring for Creation Conference - 1990.05

- Design & maintenance of registration database
- Information Habitat: Where Information Lives
 - Exhibit booth
 - Initial conceptual development of information habitat



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UNCED - 1st PrepCom, Nairobi - 1990.08

- Computer Communications & the 1992 United Nations Conference
 - with Langston “Kimo” Goree
- Daily electronic distribution of reports from Nairobi



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UNCED - PrepCom 2, Geneva - 1991.04

- Member, NGO Strategy Group
- Chair, Information & Communications Committee
 - Diskette-based distribution of official documents
- NGO computer communications room
 - support for email access, word processing
- Issues in Technology Transfer



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UNCED - PrepCom 3, Geneva - 1991.08

- On The Line: Interactive Preparations for the First Earth Summit
- Member, NGO Strategy Group
 - Chair, Information & Communications Committee
 - Diskette-based distribution of official documents
 - Support for electronic distribution of NGO documents / information
- NGO computer communications room
 - support for email access, word processing, virus protection



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On The Line

Issue #1, August 12 1991

Interactive Preparations for the First Earth Summit

On The Line: Interactive Preparations for the First Earth Summit is the first newsletter ever designed for global electronic distribution in a "camera ready" format to be printed from a personal computer. It seeks to integrate the power of electronic communications with the power of desktop publishing, and to place that power in service of the evolving networks of individuals and non-government organizations (NGOs) committed to a humane, sustainable common future.

The principal goals of **On The Line** are: to serve as a guide to the use of on-line resources in preparations for the Earth Summit; and to support strategies that enable the effective, interactive contribution of on-line and microcomputer resources to the Earth Summit.

There are other newsletters that are available on-line; most of those only reach people who are already familiar with the use of electronic communications. **On The Line** is addressed as much to people who have no previous experience with on-line communications, or who have just been introduced to electronic networks.

On The Line will seek a balance between an overview of what on-line communications are about, a summary of what is available on-line, and recommendations on how to make effective use of electronic networks -- to

Strong: Focus on Food, Emergencies, War, Refugees

In the Secretary-General's Report (PC/41) Maurice Strong has called on the Preparatory Committee to go beyond the current agenda, and address four critical issues that are "very much within the mandate of the 1992 mandate", as defined in General Assembly Resolution 44/228.

Food: "The current emergency in Sudan and Ethiopia provides dramatic evidence and reminds us that the problem is far from solved. Certain dimensions of this problem are dealt with in the deliberations of the Preparatory Committee on the issue of poverty as also in the issue of agriculture. However, it is perhaps desirable if the issue of food security ... is taken up as a specific item for programmatic action by the Preparatory Committee. It is a matter of great concern to a large number of countries particularly in Africa. The roots of food security at the household or at the local or country level lie both in environmental and developmental factors."

Emergencies: "Many other environmental emergencies ... require concerted international action. Some of these may be in the nature of natural disasters like the recent tidal wave which caused havoc in Bangladesh, or the volcanic eruption in the Philippines. Some of these environmental emergencies, however, are the result of human activities like chemical accidents, radiation leaks or oil spills. A certain amount of capacity has been built up for international action in response to such emergencies. There are also several proposals for strengthening the response capacity at the national and international level. It would be worthwhile for the Preparatory Committee to consider this issue of environmental emergencies not just in relation to specific items but as a generic problem which requires an integrated response.

War: "Environmental security ... has two dimensions. The first is the possibility that security conflicts could lead to environmental threats and environmental degradation. The impact of the recent war in the Gulf on the local and regional environment has clearly shown that this is an issue of major concern. The other



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Roots of the Future - Paris - 1991.12

- Da Zi Bao - An Interactive Exchange Process
 - Database-driven participant interactive message system
- Design & management of participant database
 - Publication of directory of participants



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Da Zi Bao

Vol 1 #1

An Interactive Exchange Process

Paris, 17 December 1991

UN & Global Environment

An Environmental Council should be established by the U.N. parallel to the Security Council. UNEP replaced by UN agency along lines of FAO, UNESCO, Habitat, etc. A world ecological ombudsman should be appointed by the Environmental Council. #1

Josef Tamir, Haim and Eviva, ISRAEL

World Solidarity

All people on earth will immobilize cars one day a week as global solidarity. The 5th of June will be declared a day of prayer for salvation of Earth and mankind. #2

Josef Tamir, Haim and Eviva, ISRAEL

Just a message ...

In the end
we will conserve
only what we love,
we will love
only what we understand,
we will understand
only what we are taught ...
(From a 19th century hand embroidery) #3
*Lily Venizelos, MEDASSET/Hellenic Society
for Protection of Nature, GREECE*

Gandhi said

"It is a fundamental law of nature", Gandhi wrote that "nature produces enough for our wants from day to day and if everybody took enough for their own needs and nothing more there would be no poverty in this world." #4

*Krishna Murli Gupta, Himalaya Seva Sangh,
INDIA*

International Ecology Rebuilding Program

Urban Ecology, Inc. is developing an

Global Ecology Network

The Global Ecocity Network of pioneers is working to build a sustainable civilisation. The network is planning a presentation at the '92 Global Forum and Earth Summit in Rio de Janeiro, Brazil, June 1-12, 1992. The Cerro Gordo ecovillage maintains databases for networking, referrals, resources and education. Contact Cerro Gordo Town Forum, Dorena Lake, Box 569, Cottage Grove, Or 97424 USA. Phone (503) 942-7720, EcoNet: cerrogordo #8

Stuart Chaitkin, Urban Ecology, USA

Conservation and man

Sea turtles are in the way of modern man... some people think: if we get rid of turtles they won't be endangered any more, they will be extinct! Curious that man is only one animal who befouls his environment ... what is for sure is that this planet could survive very nicely without him ... #9

*Lily Venizelos, MEDASSET/Hellenic Society
for Protection of Nature, GREECE*

International Conference on Cities: Australia

The 2nd International Ecological Cities Conference will be held April 16-19, 1992 in Adelaide, Australia. It will focus on ecocity programs and projects around the world which can be achieved this decade.

Additional representation is especially sought from developing countries and Eastern Europe. Contact Urban Ecology Australia, P.O. Box 3040, Genfell Street Adelaide SA 5000, Australia. Phone 61-8-3791984, Fax 61-8-4100142, E-mail Pegasus/Earthnet peg: pdownton #10

Stuart Chaitkin, Urban Ecology, USA

International Conference on

If there are no fruits

If there are no fruits
It was good for the beauty of flowers
If there are no flowers
It was good for the shadow of the leaves
If there are no leaves
It was good for the intention of the seed
Let's make our intentions fruitful #13
*Muriel Saragoussi, Brazilian Forum of
NGOs, BRASIL*

Post-War Reconstruction Charter

We are here today because we believe that it is the right time and event to table the post-war reconstruction Charter on a global level. We welcome your constructive comments on ways to improve the Charter. We also need your interest and support for the work that is being carried out by the post war Reconstruction and Development Unit at New York University, on rebuilding human settlements in Iran, Iraq, Lebanon, Afghanistan, Northern Ireland, Liberia and Yugoslavia. #14

*Sulian Barakat, Institute of Advanced
Architectural Studies, UK*

Networking: Community-based Reconstruction

I have come to this conference as an observer in order to establish links with NGOs in an effort to seek out existing or to create new organisational and technical support structures for community-based construction programmes in areas devastated by war and natural disaster. I would like to meet anyone engaged in this problems of building and listen to the international experience. #15

Mary Roslin, UK

Bringing us together



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UNCED - PrepCom 4, New York - 1992.04

- Da Zi Bao - An Interactive Exchange Process
 - Seventeen issues
- Support for NGO computer communications room
 - Coping with major outbreak of computer viruses
 - Support for conversion and formatting documents
- Preparations for NGO Alternative Treaty process



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UNCED - Rio de Janeiro - 1992.06

- Da Zi Bao - An Interactive Exchange Process

- Fifty-word messages - in four languages
- Fifty-eight issues published, more than 2,000 messages
- Local area network with 20 workstations
- Team of 10 staff & 110 volunteers



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UNCED - Rio de Janeiro - 1992.06

- NGO Alternative Treaties
 - Environmental Education for Sustainable Societies
 - Communication, Information, Media and Networking
 - Sustainable Agriculture
 - Compilation of NGO Alternative Treaties & Signatories



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Earth Summit Follow-up

- Agenda 21 & Rio Agreements
 - Diskette distribution
 - First HTML version of Agenda 21
 - Full-text searchable database of Rio Agreements
 - Database of NGOs accredited to Earth Summit
- NGO Alternative Treaties
 - Editing & publication in print, on diskette and in HTML
 - Database of signatories of Alternative Treaties



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Parliament of World Religions - 1993.09

- Your Voice - Interactive Bulletin

- Da Zi Bao style format - 12 issues
- Parliament of the People
 - Hopes, Dreams & Visions
 - Proposals
 - Commitments
- Summary Report: Assembly of Religious & Spiritual Leaders



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Commission on Sustainable Development - 1993.06

- Compilation & scanning of CSD documents
 - Diskette-based distribution
- Intervention: Applying Information and Communication Technology for Sustainability
- Database of NGO participants in CSD



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Online dissemination of UN Documents

- Internet gopher for CSD & Social Summit documents
 - Development of procedures and formatting protocols
 - Directory of documents & guide for use of gopher
- Sustainable Energy & Environment Division, UNDP
 - HTML publication of:
 - Energy After Rio: Prospects & Challenges
 - UNDP Initiative on Sustainable Energy



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ECOSOC Review of Arrangements for NGOs

- Recommendations to strengthen NGO participation
 - Use of information & communications technology
 - Systematic & timely access to documents
 - Electronic mailing lists for Conferences & ECOSOC Commissions
 - Maintenance of comprehensive database of NGOs at the UN
 - Partnership-based approaches in use of ICT
 - Inclusive procedures for participation
 - Consideration of innovative procedures for participation



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Habitat II - Preparations

- Member, International NGO Facilitating Group (IFG)
 - Coordinator, Information & Communications
 - Management of electronic mailing lists
 - Compilation of official documents in electronic format
 - Diskette-based distribution of documents
 - Database of IFG
- UN Centre for Human Settlements
 - Establishment & management of Habitat II web site
 - Design & management of database for NGO accreditation



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Habitat II Online: Invitation to a Journey - 1996.03

- Earth Day on the Equinox

- Recommitment to principles and values of Earth Day
- A journey of discovery and exploration
- Incorporating ecological design principles
- New forms of partnership
- Using the most powerful tools available
 - Mind and vision
 - Emerging global mind



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Habitat II PrepComs

- Computer-based NGO registration procedures
 - Regular reports with lists of NGO participants
- Establishment & management of “Internet Café”
 - Email and web access
- Diskette-based distribution of official documents
- Technical support
 - Document conversion and formatting for NGOs



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Habitat II Conference - Istanbul - 1996.06

– NGO Forum '96 / International Facilitating Group

- Design & planning Internet access for NGOs
- Database for schedule of Forum events
 - Methodology for
 - Integration with database of NGO participants



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Habitat II follow-up: Journey to Istanbul +5

- Habitat Online Partnership Plan of Action
 - Framework for role of partners in follow-up
 - Systematic use of electronic communication
 - Participatory online framework
 - Integrative framework for global agreements
 - Agendas 21 & Rio Agreements



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Light and Colour Cubes: Icons for a Journey

- Light & Colour Cubes - Icons of One Light in All
 - Gateway to new dimensions of light and colour
 - Demonstrate nature of primary colours - light & pigment
 - Framework for three-dimensional mathematics of colour
 - Icons for wholeness - sustainability, justice & peace
 - Correspondence of primary colours
 - Red, blue, green
 - Economy, society, environment
 - Body, mind, spirit

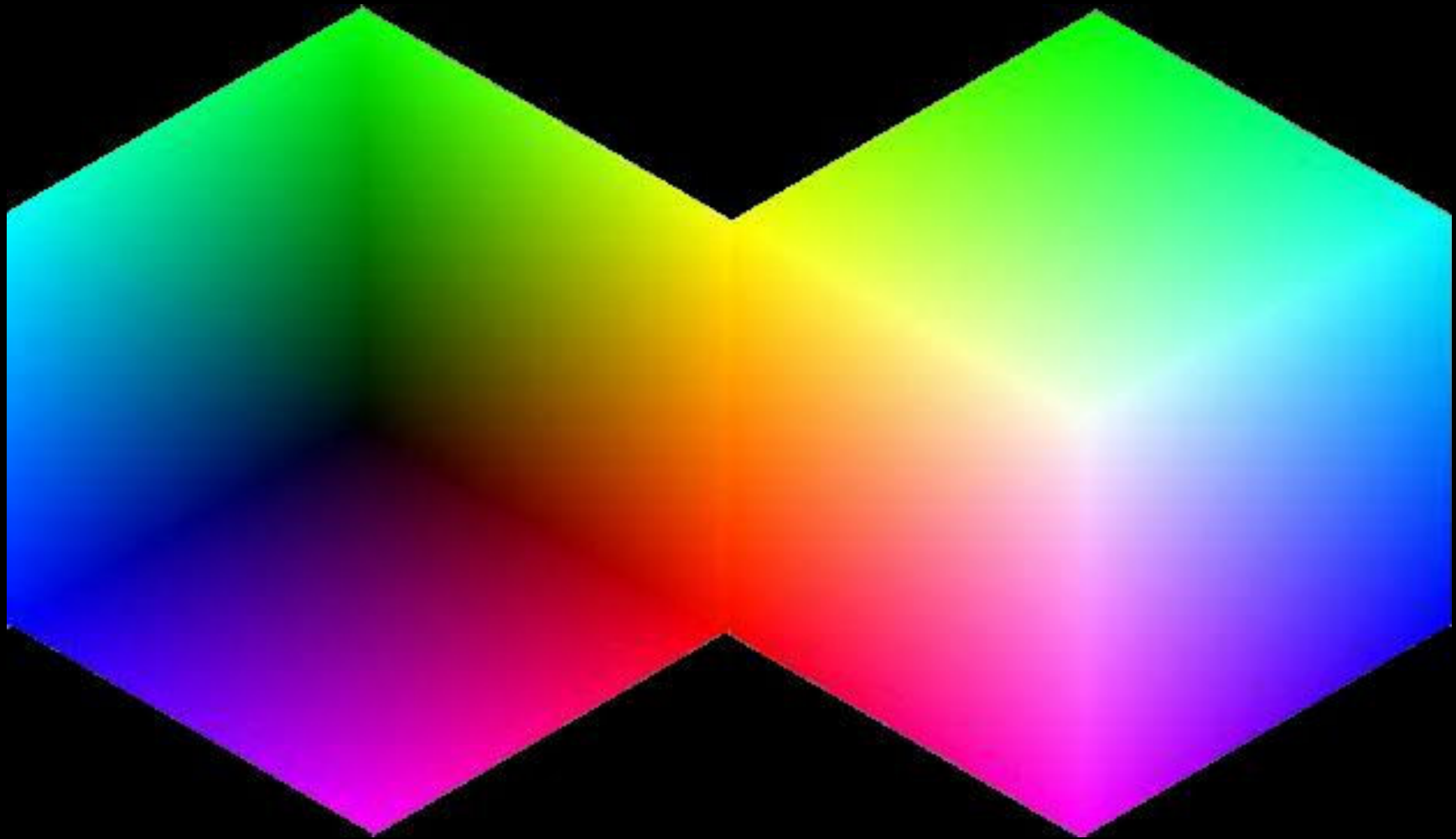


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New Dimensions of Light and Colour





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New Partnerships for Action: Istanbul +2.5

- Whole Earth Partnership Informatics & Participation
 - Case study in information ecology & human settlements
 - Review of information technology in global conferences
 - Vital role of electronic mailing lists
- Information & Communications Working Group
 - Key component of partnership
 - Need for holistic approach
 - Context of information revolution



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Global Village Symposium - 1998.11

- Village meetings on the Internet
 - Internet Relay Chat - IRC
 - Meeting inside the Global Brain



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Multilateral Agreement on Investment

- Watershed in international economic negotiations
 - Unveiling secret negotiation process
 - Integrating social & environment with economy
 - Key electronic mailing list for MAI updates & analysis
 - Information technology, public participation & global agreements



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Y2K - The Millennium Bug

- Community preparedness for potential impact
 - Y2K briefings for UN community
 - Identification of critical threats
 - Mapping primary locations of chlor-alkali plants
 - Relational database of water bodies
- Digital date clock - universal date format
 - yyyy.mm.dd - 2002.04.16
 - Date as an ordinal number, enabling realignment with time
 - Removal of ambiguities from regional date formats



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UN Special Session on HIV/AIDS

- Information ecology and health
 - Mapping an epidemic
 - Vital need for accessible information
 - Treatment options, access and cost
 - Dispelling myths and disinformation
 - Planning delivery of health
 - For people living with HIV/AIDS & vulnerable groups
 - For health professionals
 - For government planners - national & local

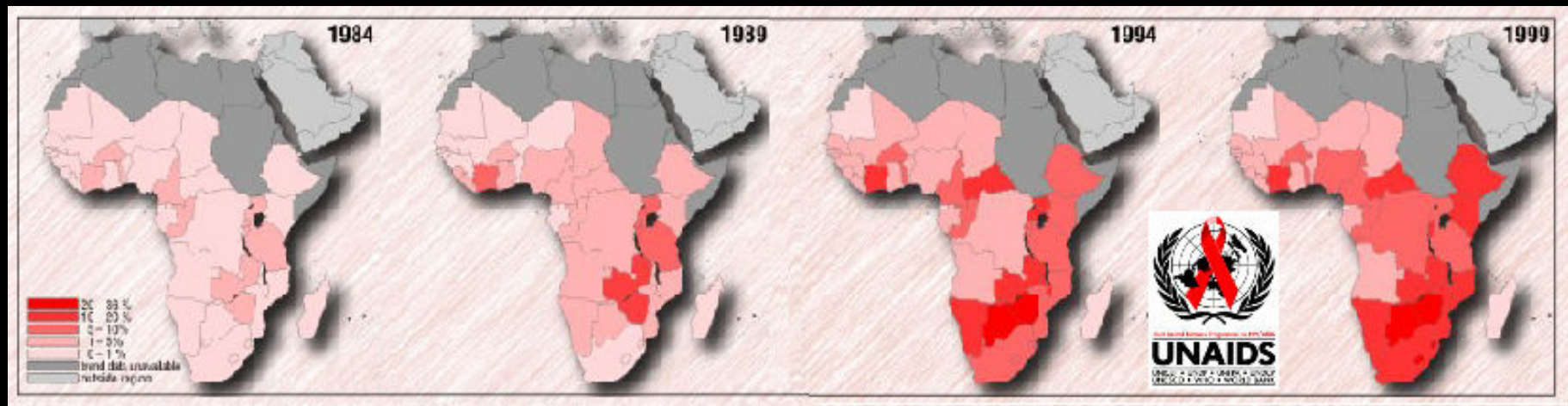


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HIV/AIDS - A picture worth a thousand words





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Financing for Development Conference (FfD)

- FfD and knowledge-based economies
 - Transition to knowledge-based economies
 - Economics of information
 - The changing face of banking
 - Internet domains - marketplace and seat of property
 - Public administration



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FfD and knowledge-based economies

– Transition to knowledge-based economies

- Critical opportunity for the FfD process
- Magnitude of the transition
- Framework for a knowledge-based economy
- Nature and role of the Internet and World Wide Web
- ECOSOC priorities and the knowledge-based economy
- UNDP, development and information technologies



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FfD and knowledge-based economies

– Economics of Information

- Properties of information
- Wealth creation and the new economy
- Marginal costs
- Market enhancements
- Full cost accounting and sustainable development
- Wireless connectivity



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FfD and knowledge-based economies

- The changing face of banking
 - Enhanced opportunities for micro-financing
 - Local Exchange Trading Systems
 - Banks of knowledge
 - Debt-for-knowledge exchange



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FfD and knowledge-based economies

– Internet Domains

- Seat of property in knowledge-based economy
- Domain registration policies
- Domain-hosting capacity
- Tuvalu, .tv domains and national sovereignty
- Tools for business administration



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FfD and knowledge-based economies

– Public administration

- Geographic information systems
- Public health and education
- Access to information and public participation



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World Summit on Sustainable Development

- Information ecology: critical path to sustainability
 - Transformation in nature of development
 - ICT as engine for development
 - Integrating environment & development in decision-making
 - Feasibility of full cost accounting
 - Role of Major Groups
 - Access to information & public participation of stakeholders
 - Governance for sustainable development
 - Integrating “three pillars” of sustainable development




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Database-generated web sites

[Agenda 21](#) | [Alternative Treaties](#) | [Information Ecology](#) | [Information Habitat](#)



Information, Data and Communication in Agenda 21

By Chapter

Chapter	Title	# of hits
2	International Cooperation To Accelerate Sustainable Development In Developing Countries And Related Domestic Policies	7
3	Combating Poverty	4
4	Changing Consumption Patterns	4
5	Demographic Dynamics And Sustainability	12
6	Protecting And Promoting Human Health	16
7	Promoting Sustainable Human Settlement Development	27
8	Integrating Environment And Development In Decision-Making	22
9	Protection Of The Atmosphere	11
10	Integrated Approach To The Planning And Management Of Land Resources	11
11	Combating Deforestation	33
12	Managing Fragile Ecosystems: Combating Desertification And Drought	27
13	Managing Fragile Ecosystems: Sustainable Mountain Development	14



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Database-generated web sites

