INSTITUTE FOR THEOLOGICAL ENCOUNTER WITH SCIENCE AND TECHNOLOGY

BULLETIN

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New beginnings!

I hope that that's not simply a redundant way to begin this issue. In one sense all beginnings are new. There's another sense in which beginnings may not be new, may be innovative developments of the past. Does that sound too complicated to begin a New Year?

This year is an ending and a beginning for ITEST. We are ending our first 25 years of service. As we begin another year of service to the Lord, we look forward to another quarter century of effort in the challenges and opportunities of faith/science work. For many of us, attending the 50th anniversary of ITEST is not a very likely prospect. I, personally, intend to enjoy the present year to the full.

We have done quite good work over the years, good enough that we feel we can look forward to greater things in the future. We have gained a certain level of maturity in this work. More than once over the years I have stated that five of us started ITEST's legal life with $35.00 and a lot of hope. We have a bit more than that in the treasury now, but the greatest asset we still have is hope. We have hope in the future and a modest pride in the past.

While the future must dominate our corporate effort, we should not forget the past. For that reason ITEST will, over the next few years, publish several volumes of *summaries* of past meetings. These will be grouped over broad topic areas. The one the Staff hopes to have ready by the August Convention in Holyoke will consider biology, law and policy. Wish us luck on this major effort. Also, in the interest of remembering our roots and what we are about, we are reprinting in this issue of the *Bulletin* the statement of the American Catholic Bishops (Rome, 1977) on the faith/science apostolate. While it has been 15 years since this statement was made, its implementation is still in the future. Maybe we can begin to do something about this.

Have a peace-filled New Year! Help us celebrate our Silver Jubilee! Robert Brungs, S.J.

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1. Plans for our 25th anniversary celebration/convention in Holyoke, Massachusetts are progressing well. We have been fortunate in recruiting three excellent speakers for this convention: Dr. John Staudenmaier, S.J. (History of Technology, Detroit-Mercy University) on beauty in technology; Mr. Leonard Buckley (foreman of designers, Bureau of Engraving and Printing) on beauty in art; Bishop John Sheets, S.J., (Auxiliary Bishop of Fort Wayne/South Bend) on Christian beauty. We are still searching for a speaker on beauty in science. The presently known details follow on page 3 of this issue of the Bulletin. We shall keep you informed as the rest of the program is developed. We want to thank Maxyne Schneider, SSJ for the great help she has been and will be in planning for this Convention. A nearly completed list of panelists will be found in this issue of the *Bulletin*.

2. The topic for the October 23-25, 1992 workshop was *The Human Genome Project.* We had two scientists to press the case *for* the human genome project, two scientists who urge caution, a theologian, and a computer scientist who discussed how the data can be handled. This workshop was held at Fordyce House in St. Louis, Missouri. We hope to have the Proceedings in the mail for our dues-paid members by late March or April, 1993. We are currently editing the proceedings.

3. As noted in the Summer issue of the *Bulletin*, several ITEST members are writing chapters for a book on Faith and Science Issues (title open to suggestions) that we intend to complete in time for the Holyoke Convention. It will include chapters on the methods employed in the various sciences, philosophy and theology. It will also contain some historical material on the growth of science and on the theology-science conflict and three chapters (representing a "single view" of Protestant, Orthodox and Roman Catholic) on the elements of the Christian faith. We wish to thank the authors both for their willingness to write these chapters and for sharing their wisdom with us.

4. We mentioned in the last issue that the Board of Directors had commissioned the staff to explore the possibility of producing an hour long film (in two independent segments) on the beauty of creation. With the help of Mr. Richard Cusack of Chicago, we have prepared a concept paper and have begun the process of raising the money ($100,000 +) for this project. We have been able to raise about a third of the money thus far. We're asking again that you alert us to any foundation or group we might approach for funds.

5. One of the "other initiatives" that the Board has decided on is an updated re-publication of the *ITEST Summary* done by Peggy Keilholz in 1983. This will be a major task. We hope to have it finished in time for the 25th anniversary celebration, but please be patient with us.

6. We have found over our almost-quarter-of-a-century experience that most of our long-term members have been recruited by other members. Please help us spread the Good News of Christ to our scientific-technological and theological colleagues. Let them know about us and let us know about them. In this way we will be better able to serve the Lord in this very crucial area of the church's life and growth.

7. Please note that we are in the process of making preparations for the March, 1994 workshop/conference. The topic will be Faith/Science and current ideologies. We will have a title and date confirmed for the next issue of the bulletin.

Faith/science is many things, but perhaps it's best to start with what it is not. It is not the development of a "super-discipline" which will integrate intellectually both science and theology. It is not the development of a science-based religion, nor is it the formation of a religion-based science. The database for science is and must remain physical nature and the methodology must remain what it is or a development of what it is now. For example, the dielectric constant of potassium will remain the same and the human genome will not be differently patterned. The database of the faith must remain revelation. Our faith cannot rest, say, on a paleontological theory of human origins. The Christian belief concerning original sin, for example, cannot be explained by anthropology or psychology. One of the great problems we face now with Catholic scientists, especially the younger ones, is their lack of understanding of the Catholic Tradition. This is less their fault than it is the result of an abysmal catechetics over the last generation or so.

ITEST
SILVER JUBILEE

MONT MARIE

Holyoke, Massachusetts
August 1-6, 1993

REGISTRATION and DEPOSIT: There will be a $25.00 registration and a $25.00 deposit fee, refundable before June 15, 1993. The deposit will be applied to the cost of the meeting.

SINGLE ROOM: **$27.00/day/person.** Spouses and children over 12; **$15.00/day/person.** Children under 12 are free. A few suites with double beds & bath are available on a first-come-first serve basis. These prices are final — they will not change.

MEALS:	Breakfast	(full)	$5.90
	Lunch		6.90
	Dinner		8.00
	Banquet (to be determined later)		

These prices are fixed.

CULTURAL/RECREATIONAL OPPORTUNITIES

Berkshire Mountains (1-2 hrs by car); Basketball Hall of Fame and cultural centers; a large amusement park in Holyoke area; children's museum, etc.; Old Sturbridge Village, a re-creation of mid-1800s New England village (>1 hr by car). There is a large swimming and ample grounds; picnics by the pool; large barbecue grill. Child care may be available, depending on interest. We suggest that the Convention be tied to a New England vacation.

A FORMAL INVITATION WILL BE SENT EARLY IN 1993.

SUNDAY August 1, 1993	MONDAY August 2	TUESDAY August 3	WEDNESDAY August 4	THURSDAY August 5	FRIDAY August 6
	9:00 - 10:15 am IV* 10:15 - 10:45 am COFFEE BREAK 10:45 - 12:00 noon V LUNCH	9:00 - 10:15 am II 10:15 - 10:45 am COFFEE BREAK 10:45 - 12:00 noon VI LUNCH	FREE LUNCH	9:00 - 10:15 am III 10:15 - 10:45 am COFFEE BREAK 10:45 - 12:00 noon I-A LUNCH	9:00 - 10:45 I-B 10:45-11:30 VII DEPART
ARRIVE 5:30 pm DINNER	FREE 5:30 pm DINNER	FREE 5:30 pm DINNER	FREE 5:15 WORSHIP	FREE 5:30 pm DINNER	
SOCIAL	7:30 LECTURE John Staudenmaier, SJ *Technology and Beauty* SOCIALIZING	7:30 pm LECTURE Mr. Leonard Buckley *The Artist and Beauty* SOCIALIZING	6:00 pm BANQUET	7:30 pm LECTURE M.R. John Sheets, SJ *The Christian Idea of Beauty* SOCIALIZING	

* See next page for topic key and list of panelists.

KEY FOR MORNING SESSIONS

I-A Perspectives on Faith/Science from: 1) academia, 2) industry, 3) government.
Dr. Charles Ford, Dr. Peter Capella, to be announced.

I-B Perspectives on Faith/Science from: 4) professions, 5) campus ministry, 6) church organization.
Dr. Robert J. White, MD, Fr. Vincent Krische, Dr. David Byers.

II Literature, sci/tech, communications and beauty (is there such literature, or is beauty always perceived as "natural"?)
To be announced, Dr. Anneta Duveen, Fr. Bert Akers, S.J.

III Beauty in: 1) medicine, 2) law, 3) language, 4) social science.
Neyle Sollee, MD, Judge Thad Niemira, Dr. Helen Mandeville, Dr. John Cross

IV Smaller groups: how do I find beauty in my work and life and how do I integrate it into my faith life?
Facilitators: S. Maxyne Schneider, SSJ, Prof. Wayne Kraft, Ms Peggy Keilholz, Dr. Robert Collier, Dr. Thomas Sheahen, plus others.

V Spirituality (faith in action) and the beauty of work.
Dr. Valerie Miké, Br. Lawrence Bradford, OSB

VI Environment/science/faith and beauty (a reprise).
To be announced, Dr. Robert Bertram, Mr. Richard Cusack.

VII Suggestions for ITEST's next 25 years.
Any and all.

A 45-minute ecumenical worship service, using various forms of beauty (art, literature and music) will be held at 5:45 p.m. on Wednesday, August 4, 1993. This service is one of thanksgiving for God's beauty and his gifts to us of beauty in each other and in the world around us.

ABOUT THE LECTURERS

Fr. John Staudenmaier, S.J. is Professor of the History of Technology at the University of Detroit - Mercy in Detroit. A prolific author, Fr. Staudenmaier is a well-recognized expert in a field of growing importance.

Mr. Leonard Buckley is Foreman of Designers at the Bureau of Engraving and Printing in Washington, D.C. Among his works are two covers for ITEST Publications (Perspectives on Creation and the Vineyard). You have seen his skill in the United States' Apollo 8 stamp as well as the currently used mineral stamps.

Most Reverend John Sheets, S.J. is Auxiliary Bishop of Fort-Wayne - South Bend. Bishop Sheets has served as Professor and Chairman of the Theology Department at both Creighton and Marquette Universities.

THE CHURCH & SCIENTISTS — SYNOD '77

Reprinted from *Origins* November, 1977, Vol. 7, No. 21

The relationship between the church and the scientific community was explored in a message submitted to the Synod of Bishops by the U.S. delegation. There is at present a real "opportunity for the church to offer to these scientists the guidance of the wisdom entrusted to it concerning the dignity and vocation of the human person and to collaborate with them in evaluating the impact which these discoveries have on human life," the paper states. The church ought to demonstrate to scientists its willingness to work with them in a partnership for the benefit of humanity, it adds. The paper takes up questions concerning the catechesis of scientists, the relationship between Christian and non-Christian scientists, dialogue concerning the goals and limits of science, recognition of the rightful independence of science and the role Catholic colleges might play in promoting dialogue of the church with the scientific community. The text of the message follows.

Contemporary culture in many parts of the world is characterized, among other things, by a scientific and technological revolution which evangelization and catechesis must take into account (cf. *Gaudium et Spes,* 54). Part of the church's response to the opportunities and challenges posed by this cultural situation should be directed at those men and women responsible for scientific research and the application of its discoveries. If the gospel is indeed to penetrate "into all the strata of humanity" and bring about a transformation of humanity's "criteria of judgment, determining values, points of interest, lines of thought, sources of inspiration and models of life" *Evangelii Nuntiandi,* 18, 19), the world of science and technology cannot be ignored.

Of particular urgency today are the questions posed by advances in the so-called life sciences. These appear to make possible the identification, dismantling, rearrangement and reassembly of the basic components of living organisms, including deliberately modifying the human organism. Humanity stands at the threshold of being able to direct its own biological future consciously and deliberately. Nor is it only a question of biological technology; it is also a matter of a kind of biological industrialization, that is, the integration of such fields as solid-state physics, genetics and neurophysiology. For example, scientists are talking about joining electronic circuitry to human brain function. These and other developments and possibilities raise serious questions about personal human integrity which are of enormous import to humanity and therefore to the church, which shares "the joys and hopes, the griefs and the anxieties of the people of this age" (*Gaudium et Spes*, 1).

Moreover, the scientific community is very far from monolithic in its opinions concerning the significance of these discoveries. There is at present a real -- and, we would say, providential -- opportunity for the church to offer to these scientists the guidance of the wisdom entrusted to it concerning the dignity, and vocation of the human person and to collaborate with them in evaluating the impact which these discoveries have on human life. The Catholic Church has now a providential opportunity to demonstrate to scientists its willingness to work with them in a partnership for the benefit of humanity. It is opportune to recall the closing message addressed by the Second Vatican Council to the men and women of thought and science: "Our paths could not fail to cross. Your road is ours. Your paths are never foreign to ours. We are friends of your vocation as searchers, companions in your fatigue, admirers of your successes, and, if necessary, consolers in your discouragement and your failures . . . . Without troubling your efforts, without dazzling brilliance, we come to offer you the light of our mysterious lamp which is faith . . . . Never perhaps, thank God, has there been so clear a possibility as today of a deep understanding between real science and real faith, mutual servants of one another in the one truth. Do not stand in the way of this important meeting."

Admittedly this effort involves a very precise and specialized form of catechesis, but it is one which cannot be ignored. Some of the fundamental components of such a catechesis are the following:

1. The recognition of the rightful independence of science. The faith of the church is not threatened by scientific discoveries. "If methodical investigation within every branch of learning is carried out in a genuinely, scientific manner and in accord with moral norms, it never truly conflicts with faith. For earthly matters and the concerns of faith derive from the same God. Indeed, whoever labors to penetrate the secrets of reality with a humble and steady mind is, if even unawares, being led by the hand of God, who holds all things in existence and gives them their identity" (*Gaudium et Spes*, 36).

2. The most important area of dialogue between the church and the scientific community does not concern the discoveries of science as such, but the uses to which these discoveries are put. It is precisely in this area that the most important concerns and questions raised by recent discoveries in the life sciences lie. The fundamental conviction which the Catholic Church offers to the scientific community is this: all problems regarding human life are "to be considered -- beyond partial perspectives -- whether of the biological or psychological, demographic or sociological order -- in the light of an integral vision of man and of his vocation, not only his natural and earthly, but also his supernatural and eternal vocation" (*Humanae Vitae*, 7).

The new biological technology, for example, requires the direct, immediate and systematic intervention into the human composite. This means that for biomedical procedures to be used successfully, in order to create new norms of physical, intellectual and psychological health, they must produce results which are both predictable and repeatable. Such considerations, however are proper only to a controlled or closed system. Therefore they cannot provide the ultimate criteria for the construction of a society that is truly human. They represent a threat to human spontaneity. They can only result in a society which is essentially static. Creativity is thus threatened. The human spirit, which is always open to a transcendent dimension which cannot be controlled, is stilled. Unless the values of human integrity and a respect for human freedom motivate scientific research and technological practice, we will arrive at a world in which nothing is independent, nothing is moved by its own vitality, a society in which even our children are not our progeny, but our creation. Partisans of large-scale eugenics planning are often motivated by noble humanitarian sentiments. Yet it cannot be the values of science which alone determine what human life ought to be like.

The Catholic Church believes that salvation cannot be obtained without the grace of God which is a gift. Human self-fulfillment, therefore, will not be brought about entirely by human planning. The ultimate resolution of the drama of human life lies in a divine intervention which transcends the limitations of space and time: the lordship of Jesus Christ. Hence the teaching of the Second Vatican Council: "the independence of human affairs . . . . (cannot) be taken to mean that created things do not depend on God and that man can use them without any reference to their creator" (*Gaudium et Spes*, 36).

3. Admittedly, it is not easy to speak of God the creator and of the lordship of Jesus Christ to those scientists who are agnostics or atheists. Nevertheless, the Catholic Church has never despaired of the capacity of the human mind and the human heart to respond to the secret impulses of divine providence, even if their origin is not explicitly recognized. Moreover, many scientists today recognize the precise limitations of their methodology. They have become aware that dogmatism and ideology have not been absent from the history of scientific research itself. The use of the secret of the atom in weapons capable of massive destruction has been a humbling experience for them. In this connection, evangelization and catechesis by scientists who are men and women of faith are extremely important. They should be encouraged by the church. They constitute one of those small groups which will be responsible for so much of the mission of the church in the years to come. Scientists who acknowledge the reign of God should be encouraged to form communities where they may grow in their own understanding, experience and response to their Catholic faith, and where they show their insights into how the mysteries of redemption can be presented to their brothers and sisters who are seeking answers to the dilemmas posed by their scientific research.

4. Catholic institutions of higher learning should be encouraged to promote programs of this kind, especially since they are equipped to offer the opportunity for an interdisciplinary dialogue in which theology and philosophy can make an

invaluable contribution (cf. *Gravissimum Educationis,* 10).

5. Finally, all the faithful should be made aware of the implications to the faith of what is taking place in these scientific investigations. They should be helped to become more familiar with the teaching of the church concerning the proper role of scientific research; the limitations of scientific discoveries; the positive and negative aspects of technological progress; the sanctity of life; the respect due the human person regardless of physical, intellectual or psychological characteristics; the supremacy of grace and the need to respond to unwarranted use of scientific discoveries with a resistance which may sometimes have to be heroic.

"Were you there when I laid the earth's foundations? Tell me, since you are so well-informed!" (Job 38:4)

Excerpts from *The Rio Summit: Rhetoric and Wisdom*[*]

With outstretched arms El Christo watched over Rio de Janeiro as the city, during the first two weeks of July 1992, welcomed the thousands who would attend the historic United Nations Conference on Environment and Development (UNCED) and the parallel '92 Global Forum. One hundred and seventy-eight government delegations, 117 heads of state for the concluding "summit", and over 1400 accredited non-governmental organizations (NGOS) gathered at the modern and spacious RioCentro on the outskirts of Rio for a most intense and drawn-out official debate on the needed response to the inextricable social, economic and ecological crisis presently facing humanity. At the other end of town an unprecedented gathering of over 7000 NGOs and related organizations was attempting to articulate their own alternative visions of a just and habitable world. And to provide the world with the largest media event in human history there was a cast of over 9200 journalists.

Rio de Janeiro would prove to be an appropriate place for this forum on environment and development. The city itself typifies the critical environmental, social and economic challenges to a sustainable future. A bird's eye, ocean-front view of a stunningly beautiful and gracious Rio conceals the heavy air and water pollution, crumbling infrastructure, sprawling hill-side favellas, urban violence and a growing population of street children. The "soiled gem" of Rio would epitomize the two worlds that would meet in the conference halls and lobbies over the next few weeks. Expectations were high, cynicism abounded and many were ready for the verbal battles that would ensue.

STOCKHOLM TO RIO

The Rio Conference marked the 20th anniversary of the 1972 United Nations Conference on the Human Environment held in Stockholm, Sweden from June 6 to 16, 1972[1] Though much less grandiose and expectant than the meetings in Rio, the Stockholm Conference of 113 nations, 19 intergovernmental and about 400 nongovernmental organizations proved to be a landmark in global environmental politics, and would define the parameters for the ensuing international debate that would find full expression in Rio de Janeiro.

The Stockholm Conference produced an inspiring Declaration which acted as preamble to twenty-six Principles, outlining broad goals and objectives, and an Action Plan consisting of 109 separate recommendations that explicitly put environment on the planetary agenda.

It would be left to the United Nations Environment Program (UNEP), a creation of the Stockholm Conference, to implement in concrete fashion the recommendations and spirit of Stockholm.

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[*] *This article was written by José Alejandro Aguilar, S.J. (Colombia) , K.M. Matthew, ES.J. (India), John McCarthy, S.J. (Canada), Mr. Heitor Pannuti (Brazil), and Atilio Machado Peppe, S.J. (Brazil), and edited by John McCarthy, S.J.*

Despite some notable successes such as the Regional Seas Program and negotiation of some significant international environmental accords, UNEP from its inception was plagued by persistent problems, the most serious of which were its very limited financial resources, its lack of executive power (it never was a full-fledged agency of the UN), and misunderstandings as to its role.

Cognizant of continued global ecological decline and the serious economic and social deterioration of the South, the UN General Assembly called in September 1983 for the creation of a special, independent commission to provide a "global agenda for change" by seriously addressing the relation between environment and development, and by proposing environmental strategies for achieving long-term sustainable development. The report of this world commission on Environment and Development, published in 1987 as *Our Common Future* (Bruntland Report), sparked a spreading debate around the meaning of sustainable development.[2]

Based on the recommendations of the Bruntland Report, the UN General Assembly, on December 22, 1989, called for a global conference that "should elaborate strategies and measures to halt and reverse the effects of environmental degradation in the context of increased national and international efforts to promote sustainable and environmentally sound development in all countries." A daunting mandate for the Rio Conference given the pervasive indications of accelerating economic and environmental decline throughout so much of the world.

PREPARATORY MEETINGS

The Rio Conference was prepared by four meetings of the Preparatory Committee (PrepCom) over a period of two and a half years. PrepCom 1, held in Nairobi of August 1989, set the terms of reference for UNCED. Geneva hosted the March 1991 PrepCom II which reviewed and prioritized the voluminous background documentation on key issues to be considered by the Conference. It was during this meeting that the final products of the Earth Summit began to take their initial form. Preliminary negotiations on Agenda 21, which began at the Geneva PrepCom III meeting of August, 1991, revealed the North/South divisions that would continue throughout the UNCED process. Two months before the official opening of UNCED the fourth, final, and most difficult of the negotiating meetings was held in New York. After five weeks of divisive negotiations about 85% of Agenda 21 had been agreed upon. Important disagreement remained, however, over financing, technology transfer and the means of implementation. The Rio Conference would find itself as a fifth and most crucial negotiating session.

EARTH SUMMIT DOCUMENTS

Rio Declaration on Environment and Development

Building on the Stockholm Declaration, the 27 principles of the Rio Declaration outline the rights and responsibilities of States toward the environment and towards each other in the building of an environmentally sound and sustainable future. The product of protracted, frank, and difficult discussions, a "fragile consensus based on several carefully worked-out compromises,"[3] the Rio Declaration was the only bracket-free document to come out of PrepCom IV. Initial suggestions were for an Earth Charter, a short inspirational set of universal principles stressing the reality of "one world" and the relationship of humanity with the planet. However, under pressure from the Group of 77, the idea of an Earth Charter was dropped and a document much more cognizant of the economic and social disparity between the North and the South was forged.

A delicate balance was achieved between considerations of environment and those of development as well as between the key concerns of both industrialized and developing nations. Despite consensus agreement regarding the final text, the United States chose to submit formal reservations to several principles, particularly principle 3 (right to development) and principle 7 (recognition of the greater responsibility of developed nations in the pursuit of sustainable development viz-a-viz their pressures on the global environment and the financial resources and technologies that they command). Developing nations were able to enshrine key development concerns including the eradication of poverty as an indispensable requirement for sustainable development, recognition of the special needs of developing nations, elimination of unsustainable patterns of production and consumption, and the promotion of a supportive and open international economic system. Maurice Strong has urged that the Rio Declaration serve as a basis for future negotiation of an "Earth Charter"

for approval on the occasion of the 50th anniversary of the UN in 1995.

Agenda 21

This 800-page, non-binding document, the heart of the Earth Summit negotiations, is a detailed blueprint of action to be taken by governments, development agencies, UN organizations and independent sectors in all major areas affecting the relationship between the environment and the economy. Prepared by the UNCED Preparatory Committee in response to the General Assembly decision that the Rio Conference should elaborate specific "strategies and measures" for a sustainable future, Agenda 21 with it 115 program areas is based on the premise that sustainable development is an imperative and that the transition toward sustainable development, while fraught with many difficulties, is entirely feasible.

The four major themes of Agenda 21 include social and economic dimensions, conservation and management of resources, people participation and responsibility, and finally means of implementation. Each of these themes will be developed in greater detail.

a. Social and economic dimensions: The revitalization of economic growth that is environmentally sustainable, the development of sustainable living patterns and the maintenance of habitable human settlements comprise this first very important - section of Agenda 21. In response to these challenges Agenda 21 calls for trade liberalization, an international trade cognizant of environmental and social costs, adequate financial assistance of developing countries, a serious assessment of international debt and the encouragement of macroeconomic policies conducive to both environment and development.

b. Conservation and management of resources: Agenda 21 recognizes the significant pressure and stress being placed on the earth's carrying capacity by human economic activities and demographic growth. Rapid depletion and degradation of renewable resources and the sustainable use of land, fresh water, biological and genetic resources, biotechnology and energy are considered in detail. The managing of fragile ecosystems (arid and semi-arid lands, mountain systems, coastal areas and islands) are also examined. The theme of global and regional resources deals with responsible and fair use of resources which occur outside national boundaries in the global commons (atmosphere, oceans and seas). A final point concerns the environmentally sound management of toxic chemicals and hazardous and radioactive wastes.

c. People participation and responsibility: The successful and effective implementation of Agenda 21 depends on the genuine and committed participation of various groups in future decision-making. Specific relevant groups mentioned in the document include women, youth, indigenous peoples, NGOS, farmers, local authorities, trade unions, business and industry as well as the scientific and technology community.

d. Means of implementation: The implementation of the many action programs of Agenda 21 require the proper allocation of essential means which the document describes as availability of relevant information and data for decision-making, national capacity building, science for sustainable development, transfer of environmentally-sound technology, international legal instruments, international institutional arrangements as well as financial resources and mechanisms.

At PrepCom IV in New York about 85 percent of Agenda 21 was in some state of agreement. The remaining 15 percent, deeply contentious, was left for further negotiation at the Earth Summit. The most contentious issues included those related to forests, climate change, implementation, technological transfer to developing nations, and the most contentious concern of all, the crucial question of finance.

Of the estimated annual requirement of $625 billion needed for the effective implementation of Agenda 21, developed countries would provide 20 percent or $125 billion which is more than double the current $55 billion provided annually in official development assistance (ODA). Following a Nordic states proposal, the needed funds could be mustered if all industrialized nations committed 0.7% of their GNP for ODA by the year 2000. Final hour discussions in Rio failed to establish strict timetables, only saying that the UN target of 0.7% of GNP would be reached "as soon as possible."

Fundamental disagreement existed between the North and the South regarding the administration of funds. The North supported the World Bank-controlled Global Environment Facility (GEF) as

the favorite or indeed sole funding mechanism for Agenda 21 programs and for implementation of the climate and biodiversity conventions. The GEF was established in 1990 to help developing nations contribute to the solution of global environmental problems in the four main areas of global warming, biodiversity, international waters and ozone layer depletion. A proposal by the South at PrepCom IV for what they considered a more democratic and accountable "Green Fund" to implement Agenda 21 was soundly rejected by the North. Many developing nations distrusted a concentration of power and administration in a funding mechanism controlled by the World Bank, especially since the South has often experienced the World Bank as heavily influenced by Northern interests. Furthermore, the South contends that the GEF should also fund national programs which have international ramifications. Just before the start of UNCED at an April 1992 meeting, agreement was reached on a restructuring of the GEF which included increased transparency in its operations, full participation of Southern governments and inclusion of land degradation and desertification among the GEF's purposes. Questions regarding the extent of real substantive changes which would meet southern concerns remain open.

Framework Convention on Climate Change

In 1988 the UNEP and the World Meteorological Organization (WMO) set up the Intergovernmental Panel on Climate Change (IPCC) to investigate the potential severity and impact of global climate change and to suggest possible policy responses. According to the panel the increasing concentrations of carbon dioxide in the earth's atmosphere are responsible for global warming trends. It has been estimated that if no action is initiated to regulate greenhouse gas emissions, the planet could experience a warming of 2-5° Celsius over the next century, the greatest rate of change in the last 10,000 years. To reduce greenhouse gas emissions the UN General Assembly set up the Intergovernmental Negotiating Committee to produce a Framework Convention on Climate Change. Negotiations ran parallel with the UNCED preparatory meetings and the completed, legally-binding treaty was opened for signature in Rio on June 4.

Despite strong insistence by Japan, the European Community and nearly all developing nations to include in the treaty legally binding stabilization of carbon dioxide emissions at 1990 levels by the year 2000, pressure by the United States and some oil-producing nations produced a treaty without specific emissions targets and timetables. Despite criticism that the absence of binding commitments renders the treaty almost useless, it should be noted that the Convention does commit countries to communicating within six months of entry into the Convention, and thereafter subject to periodic review, a full accounting of actions it has taken to curb the emission of greenhouse gases. Both government and NGO representatives are of the opinion that signing in itself will not be sufficient and that immediate follow up by the UN on effective binding protocols and finances needed by developing countries to implement the treaty are imperative.

Convention on Biological Diversity

Of the estimated 34 million species that inhabit the Earth, only about 4 percent have been identified. Loss of natural habitat, the primary cause of species loss, is accelerating the extinction rate (presently estimated at 50 species per day), the long-term ecological, economic, agricultural, medical and moral effects of which are little understood.

Following the 1987 call by UNEP for governments to consider an international legal instrument for the conservation and rational use of biological diversity, the Intergovernmental Negotiating Committee for a Convention on Biological Diversity (INC) was struck. Following five negotiating sessions from June 1991 to May 1992, a final convention text was open for signing at Rio on June 5.

As with all other documents considered by delegates at Rio, the biodiversity convention experienced the divisive issues of money and sovereignty. More specifically the Convention was an agreement on access, access of Northern countries to genetic resources and other biological resources found principally in Southern tropical forests; and access of the South to new technologies based on or developed from materials and resources found in their natural ecosystems. Furthermore, the convention requires signers to share "on a fair and equitable basis ... the results and benefits arising from biotechnologies based upon genetic resources" found in the host country. It was this latter provision that forced the United States not to sign the Convention, citing that the text did not sufficiently protect the intellectual property rights of its biotechnology industry.

Statement on Forest Principles

The escalating loss and impoverishment of the world's forests (particularly the tropical forests which have disappeared at an annual rate of 40 million acres in the period 1976-1990) is an increasingly serious global crisis. The hope for a legally binding forest convention that would be ready for signing at Rio never materialized. The initial call by the industrial nations for an international agreement that would ban the cutting of the remaining tropical forests was opposed by developing nations, led by Malaysia and Brazil (the world's two leading exporters of tropical wood) who sought to extend any agreement to include consideration of temperate and boreal forests. Pre-Conference efforts to bridge this broad disagreement were unsuccessful and any thought of a forest convention for the Earth Summit were shelved. Instead, the Conference was presented with a heavily bracketed, contentious broad set of principles (officially, the "Non-legally binding authoritative statement of principles for a global consensus on the management, conservation, and sustainable development of all types of forests"). It was only after ministerial-level negotiations that a statement was finally hammered out. These principles are expected to form the basis for post-Summit negotiations on an international forest convention. . . .

ASSESSMENT

In many ways the entire UNCED process proved to be a significant success. For the first time in human history the largest international meeting, representing all sectors of society, was held in an attempt to forge ecologically and economically sustainable pathways for the future. Despite the fact that the boldest hopes for quick, concrete action were dashed before the reality of political and diplomatic compromise, much was achieved and a groundwork was laid for positive future action. Extensive media coverage of Rio provided for a global conscientization of the ecological limits to human activity and the inherent fragility of the planet before the onslaught of human "progress." Humanity became more aware of the reality of a global environmental crisis that has serious implications far beyond local or even regional concerns of clean-up or pollution abatement. Of primary importance has been the important linkages made between environment, development, poverty and social justice. The Earth Summit has falsified any notion that economic justice and ecological justice are mutually exclusive. A final point should underline the importance of the UNCED process as an important first step in broad-based societal participation in international decision-making.

Concretely the Conference did establish a Commission on Sustainable Development, an important tool in the post-Rio world. Mandated to implement, monitor and coordinate the implementation of Agenda 21, this "high-level body" would report to the UN's Economic and Social Council (ECOSOC). While the details have not as yet been worked out, active participation by the NGO community in the Commission's mandate should prove essential for an effective execution of Agenda 21.

Will humanity assess the Earth Summit as a pivotal turning point in human and planetary development? Or will the Conference be deemed a masquerade of rhetoric and intransigence that prevented the world from acting boldly and with foresight when it was most needed? As stated above the entire UNCED process has met with a certain success. Despite such an acknowledgement nagging questions and a need for clarification remain. . . .

1. See John McCormick, *Reclaiming Paradise: The Global Environmental Movement* (Bloomington and Indianapolis: Indiana University Press, 1989; First Midland Book Edition, 1991) for a detailed analysis of the Stockholm Conference and its historical context.

2. *Our Common Future: The World Commission on Environment and Development* (New York: Oxford, 1987; reprint, 1990).

3. Statement by Norway's Minister of Environment, Thorbjorn Berntsen, at a Plenary Session of UNCED, June 4, 1992.

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