

**PROCEEDINGS OF THE WORLD CONFERENCE  
ON  
ENVIRONMENTAL INFORMATION EXCHANGE IN THE 1990s**

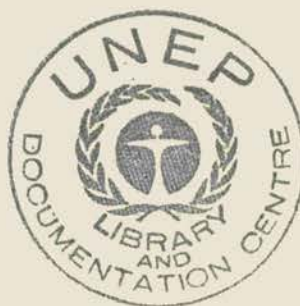
*(Third Infoterra Network Management Meeting held at  
Moscow, U.S.S.R. 13-18 March, 1989)*



*Organised by :*  
**UNITED NATIONS ENVIRONMENT PROGRAMME**

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### INFOTERRA III - AN OVERVIEW

Organised by UNEP and hosted by the State Committee for Environment Protection (SCEP) of the USSR, INFOTERRA III brought together representatives from 102 partner countries around the world. They included INFOTERRA National Focal Point (NFP) managers who actually operate environmental information systems within their respective countries, representatives from regional bodies, the UN and non-governmental organisations, information specialists, and officials from UNEP including staff from the INFOTERRA Programme Activity Centre, and specially invited observers from the International Oceanographic Commission (IOC), Food and Agriculture Organisation (FAO) and the International Register of Potentially Toxic Chemicals, Geneva. The meeting was held in the Foreign Trade Congress Centre overlooking the Moscow River.

The meeting was officially opened by Mr. P.J.Poletayev, First Deputy Chairman of SCEP and Mr. W.Mansfield III, Deputy Executive Director of UNEP. Mr. Poletayev stressed the important role played by environmental information on the decision making process and congratulated the INFOTERRA in successfully establishing a viable information system. He hoped that INFOTERRA would take advantage of the new communication technologies to make information an even more powerful tool for the environmental community. Mr. Mansfield, Deputy Executive Director of UNEP highlighted a number of global activities carried out by the UNEP in recent years. Later Mr. Florentsev, Deputy Director of VINITI also addressed the participants of the Conference.

After this, the Chairman, Vice-Chairmen and the Rapporteur were elected. The conference participants then listened to Dr. Wo Yen Lee, Director of INFOTERRA, PAC on the 'State of INFOTERRA' report. He gave a comprehensive account of the achievements and failures of INFOTERRA during the last 12 years of operation. He emphasised that INFOTERRA was a system with a vision and a specific mission.

After Dr. Lee's report, the conference heard reports from RSCs and some selected NFPs on the INFOTERRA activities in their respective regions or countries. In all, 9 RSC reports and 19 country reports were presented.



Most of the RSCs and NFPs reported actual successful use of INFOTERRA services which had led to better decision making in the field of environmental protection. Several NFPs had been instrumental in successfully establishing and operating national networks of environmental information in their countries.

Some of the most common problems encountered by RSCs and NFPs related to lack of trained and skilled manpower, lack of training opportunities, lack of coordination among NFPs, RSCs, the INFOTERRA PAC and other information systems, and the low priority assigned by several governments to environmental information, etc. Most of the reports gave suggestions for improving the system.

These included financial support to those countries without even basic equipment, training courses for NFPs, closer interaction with NFPs and other international information systems, more vigorous marketing of INFOTERRA services and the establishment of distributed international data bank in the environmental sciences.

In the next two days, i.e. 14th and 15th March, 1989, the participants discussed all aspects of INFOTERRA network development, operations, adoption of new technologies and promotion. Mr. Tom Munetic of INFOTERRA PAC presented a discussion paper on 'Network Development in the 1990s'. The paper gave an overview of the achievements made and the problems encountered by member countries and make concrete suggestions for activities to be undertaken by the network partners during the next decade. About 25 participants took part in the lively discussion which ensued. Most of the participants felt that the network that had been developed by INFOTERRA was an efficient channel for environmental information exchange and that no major change or transformation of the network was called for. Some of the suggestions given by the participants included more even development of the network components, increased technical assistance and training for strengthening the NFPs widespread use of modern information technology, etc.

Lack of Government support, shortage of staff and low priority assigned to this area were felt to be other major problems. Among the suggestions that emerged were better communication among network member, INFOTERRA PAC to study problems of NFPs in individual countries and establishment of more SSSs, more RSCs etc. Overall, a framework for further consolidation and development of the INFOTERRA network was worked out at the conference.

Bendahmane

The discussion paper on 'Operations' by Mr. Hassanne of the INFOTERRA PAC attempted to provide an exhaustive description of the information operations by describing the system design, the institutional machinery, the tools of operation, the tools for services and information delivery. In the ensuing discussion, nearly 30 participants took part and the suggestion that the hard copy version of the Directory of INFOTERRA need not be produced resulted in much discussion. It was finally agreed that the hard copy version of the Directory of INFOTERRA would definitely continue to be published, Source Registration Forms should be modified to make it more user-friendly; publication of national bibliographies should be encouraged as the task of publishing on international bibliography was a huge task.

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The paper on 'New Technologies' presented by Mr. ~~Andrian Rodger~~ Johnson of the INFOTERRA PAC, discussed advances in the information and communication fields and their possible adoption to further the development of INFOTERRA services in 1990s. It also dealt with National and International Operations and pointed out the drawbacks and gave specific suggestions for future activities.

In the discussions that followed the presentation of the paper, more than 15 participants put forth their views and suggestions. Provision of modern equipment such as micro-computers, electronic mail, telefax etc. on an even distribution basis among partners, need for development of new technologies for which developed countries could help and need for urgent distribution of the Directory of all NFPs prepared by the INFOTERRA PAC were the major points that emerged out of the discussions.

One point on which participants agreed unanimously was that stronger commitment to support environmental information systems by Governments was crucial for the development of INFOTERRA.

Mr. Munetic, while introducing the PAC prepared discussion paper on 'Promotion' defined promotion of the INFOTERRA system as a part of the educational process aimed at raising the awareness on environmental issues of the public and of decision makers, and an understanding of the role of information in solving environmental problems. The paper gave a review of achievements in promoting INFOTERRA network-wide. It discussed the main constraints faced and proposed a promotion strategy for the next decade. The discussions in which



some 15 participants took part evoked the general feeling that though promotional efforts network wide had been positive, much more was needed. The constraints in promotion engendered much discussion. Insufficient funds, lack of professional expertise of NFPs, difficulties in adapting the PAC produced models to local conditions etc. were some of the constraints faced by some of the NFPs. All participants agreed that INFOTERRA should be publicised more vigorously. The strategy suggested a two-pronged approach with the NFPs carrying the major responsibility for promotional activities in the countries and the PAC and RSCs closely cooperating with the NFPs for promoting INFOTERRA, laying emphasis on systematic, comprehensive and sustained effort.

On the fourth day of the meeting i.e. 16th March, 1989, the Conference split into regional group meetings when the representatives of INFOTERRA RSC's met with the NFPs in their respective regions and discussed ways and means to strengthen regional cooperation.

A total of nine meetings of various sub-regional groups were held in which several aspects relating to coordination between NFPs, RSCs and SSSs, supply of substantive information, tools of INFOTERRA, equipment, training, networking, promotion and funding were discussed exhaustively. Various general and special recommendations surfaced during the discussions which were subsequently reported at the plenary meeting.

On the same day i.e. 16th March, two Technical Panels, one on Electronic Mail Systems and the other on the INFOTERRA thesaurus met separately to map out strategies for developments in these fields. The panel on electronic mail was unanimous in recommending that PAC should continue with this facility. The panel recommended simplification and user-friendliness of this facility and felt that as many NFPs as possible should have access to this system.

The technical panel on the INFOTERRA thesaurus, discussed the main principles regarding the revision of the thesaurus and contributed valuable suggestions for the same. During the panel discussion, it emerged that at least 4-5 NFPs were already engaged in developing their own thesauri on the environment. The main recommendation was that in the INFOTERRA thesaurus, changes should

be kept to a minimum and it should be made compatible with indexing thesauri and with UNBIS as far as possible and coding of attributes should reflect their hierarchical structure.

On the next day i.e. 17th March, the INFOTERRA Advisory Committee also met briefly to discuss and review the draft recommendations being considered by the conference. Later the drafting group also met on the same day and drafted recommendations based on the discussions, debates and suggestions of the previous four days of the conference.

The final session of the conference held on 18th March saw heated debates and thorough discussions on the set of recommendations formulated by the drafting committee for the improvement and further development of INFOTERRA in the 1990s. A total of 32 recommendations were adopted out of which five were on general concerns, five were devoted to network development, 9 to operations, 4 to new technologies and 9 to promotion.

While thanking the participants, the supporting staff of INFOTERRA, and the hosts, USSR, Dr. Lee in his concluding statement, emphasised that timely availability of relevant information on technology can greatly help check deterioration of the environment. He enjoined the NFPs to gather momentum and determination so that INFOTERRA could fulfil its promises and expectations of providing advice and timely information for our common future. Most of the participants were extremely optimistic that the positive outcome of this very successful meeting would benefit the future functioning of the network. Participants expressed their sincere gratitude to Dr. Lee, the staff of INFOTERRA, UNEP and the hosts USSR for making their stay during the conference comfortable and professionally productive.

## ITEM No. 1 - OPENING OF THE MEETING

Dr. Wo Yen Lee, Director, INFOTERRA, PAC welcomed the participants to the INFOTERRA-3 Conference and thanked the USSR Government for hosting the Conference. The meeting was officially opened by Mr. P.I. Poletayev, First Deputy Chairman of SCEP and Mr. W. Mansfield III, Deputy Executive Director of UNEP. Mr. Poletayev stressed the important role played by environmental information in the decision making process. Mr. Mansfield highlighted a number of global activities carried out by UNEP in recent years and mentioned that "the earth's environmental problems are increasing rapidly in number and magnitude, and the need for sound, topical and timely information to solve them has never been greater". Later, Mr. S.N. Florentsev, Deputy Director, All Union Institute for Scientific and Technical Information (VINITI) also addressed the participants of the Conference.

Mr. Florentsev stated about the environmental problems being faced by the Soviet Union and some of the measures the Communist Party and the Soviet Government had taken to overcome these problems. Mr. Florentsev concluded his address stressing the importance of information exchange and hoped that the deliberations of the Conference will not only help in the development of information field but will also in strengthening international collaboration in solving the most important global problem - the problem of protection of nature on the Earth.

## STATEMENT BY MR. P.I. POLETAYEV, FIRST DEPUTY CHAIRMAN OF USSR STATE COMMITTEE FOR ENVIRONMENTAL PROTECTION AND CHAIRMAN OF THE USSR COMMISSION FOR UNEP

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Respected Mr. Mansfield,  
Respected Ladies and Gentlemen,  
Dear Comrades,

It is a great pleasure to me to welcome you on behalf of the Government of USSR and USSR Commission on UNEP on the occasion of the beginning of the World Conference on Environmental Information Exchange (INFOTERRA-III).



Once again, as ten years ago, such a representative forum has assembled in our country. This confirms the ever readiness of our state to consistently and tirelessly implement the policy of development of extensive international collaboration in the area of the environmental protection and to solve the global problems arising before the mankind, as it is said in Russian, "together or in consultation" in the spirit of new political thinking, constructive collaboration, and not confrontation, complete equality and respect for sovereignty of each, of conscientious execution of the accepted obligations and norms of international law.

The modern ecological problems are complex and contradictory, but the mechanism of emergence of each of these problems is, in the final analysis, in the relationship between man and nature. Mankind as a whole, who has obtained, thanks to achievements in science and technology, powerful instruments of affecting the environment has become a new "geological force" comparable in scale with the natural forces of nature, as predicted by Academician B.I. Bernadskii, a distinguished Soviet scientist.

In the twentieth century under the pressure of anthropogenic factors the ecological problems have acquired, in principle, a new character, and during the last decades have assumed the form of ecological crisis and even tragedy, really global in nature. The once blooming corners of our planet are now undergoing the process of becoming deserts, many rivers and lakes have become dangerous for man, and the large cities of the world are being suffocated under the cloud of smog. The scientists and the public in USSR are also expressing their anxiety while appealing for protection of the cleanliness of Baikal and rescue of Aral sea. The experts all over the world are expressing their serious concern about the problems of global warming up of the climate, partial destruction of the ozone layer, "acid rains", destruction of soil, destruction of forests, loss of gene fund and biological diversity of planet, and accumulation of dangerous chemical waste products. Demographic situation, food and many other problems also contribute significantly to the deterioration of the ecological conditions, particularly in the developing countries.

Ecological cataclysms are, however, not the inevitable consequence of contemporary progress of science and technology. Moreover, the scientific and technological progress itself, which is deliberately directed towards resolving ecological problems, will enable us to overcome the difficulties faced by mankind and to preserve for posterity all the splendour and attraction of our natural environment.

Even at present the experience of many countries indicates that the degree of utilization of renewable resources can be increased through their cultivation, non-renewable resources can be preserved by their rational utilization, technological processes creating little or no waste products can be developed and introduced without reducing the volume of production of essential products, and even economy can be adapted to the changes in climatic conditions.

The effectiveness of these measures will significantly increase if these become the object of agreed actions of the entire community of mankind all over the planet.

Under the present conditions, the international situation promotes success of such collective efforts, as never before. Improvement in the Soviet-American relations, the results of the Vienna Conference, the concept of international ecological safety advanced by the socialist countries and the proposals of Com. M.S. Gorbachev, Head of our State, on development of international collaboration in solving the global ecological problems as presented by him at the 43rd General Assembly of the UNO - these are striking examples of such kind of positive changes, which are the results, to a great extent, of the process of perestroika taking place in our country.

In this context, it is difficult to exaggerate the role of UNEP and the possibilities of this unique organization in the matter of coordination of international activities in various spheres of environmental protection including the problems concerning the information about the state of environment.



The international information system of the sources of environmental information (INFOTERRA), set up for these purposes, is expected to promote establishment and development of not only national systems of ecological information but also of a single global information system accessible to any user at any point of the world on the basis of the national systems and in cooperation with them.

Being a component of programme activities of UNEP, INFOTERRA, in its turn, is expanding through information dissemination, the possibilities and the horizons of collaboration in other spheres of activities for protection of nature, is promoting the development of information contacts among the countries and peoples of our planet, their governmental and non-governmental institutions, organizations and individuals. All these are promoting in the best possible way the strengthening of trust among the peoples, assertion of the idea of international ecological safety, and adoption of optimum and mutually acceptable decisions on the acute ecological problems of the present time.

A lot of work has been carried out in a comparatively short historical period from the time of establishment of INFOTERRA. The orbit of its information service has at present 132 countries and the number of countries and participants of INFOTERRA network continues to increase. This indicates that what has been achieved so far is not the limit in the quantitative as well as in the qualitative sense of the activities of this important organization.

Thus, the present potential possibilities of INFOTERRA are far from being utilized fully and by all the countries; serious difficulties are arising in the course of establishment of national information centres in the developing countries and the capacities of offered information services are expanding in an inadequate pace. There are also a number of other problems.

At the same time, the representative character of our Conference allows us to hope that we shall be successful in correctly appraising the performance during the past period, in discussing in constructive spirit the existing and probable future problems, and in chalking out a realistic programme of activities of INFOTERRA during 1990s.

In conclusion, allow me to wish the participants of the INFOTERRA-III Conference fruitful work and further achievements in your noble mission to promote protection of nature and protection of life in our common house on the planet Earth.



**STATEMENT BY MR. S.N. FLORENTSEV, DEPUTY DIRECTOR,  
ALL UNION INSTITUTE FOR SCIENTIFIC AND TECHNICAL  
INFORMATION (VINITI)**

Respected participants and guests of the Conference,

Allow me to welcome you on behalf of the National Designated Centre of USSR in INFOTERRA - All Union Institute of Scientific and Technical Information (VINITI). I have been entrusted also to convey to you the wishes for success in the work from the State Committee on Science and Technology and the Presidium of the Academy of Sciences of USSR, which guide the work of our Institute. We express deep satisfaction at the decision to hold this particularly representative conference in Moscow and sincerely thank the governing body of the UN Programme on Environment and the Centre of Programme Activities of INFOTERRA for this decision; we thank all the participants of the Conference for their coming to Moscow.

Ten years ago the Conference INFOTERRA-II was held in Moscow. Representatives from 82 countries and international organisations participated in that Conference, which adopted such important decisions as necessity of carrying out comprehensive and all round appraisal of INFOTERRA, transformation of INFOTERRA from an information to information and documentation system, introduction of modern devices of automation into information work. Looking back at the path traversed during these ten years, one may say that the decisions taken in Moscow have been basically implemented. An independent appraisal confirmed the vitality and efficacy of INFOTERRA; an active exchange of documental information on paper as well as in machine-readable form is being carried out within this system. INFOTERRA now covers 134 countries and has become one of the most developed information systems of the world.

We are confident that this Conference INFOTERRA-III will discuss the topical problems and will adopt important decisions, which will not only determine the courses of further development of INFOTERRA but also will help in each country in solving the pressing ecological problems confronting each country.

The global ecological problems connected with the effect of human society on the natural environment -- pollution of soils, water and atmospheric air; preservation of genotypes of plants and animals; climatic changes and many others -- are evoking great concern in our country too. Though the vast size of the Soviet Union and the diversity of its natural resources reduce the sharpness of these problems to some extent, the ecological situation in many cities and regions in our country is quite tense and immediate measures are necessary for improvement of this situation. Hence, the earnest attention of the Communist Party and of the Soviet Government has been attracted towards solving the ecological problems; under the conditions of 'Glasnost' (freedom of expression) and 'Perestroika' (reformation), these problems are being discussed by wider sections of the public with fervent and interested concern. Such proposals include, for example, determination of the suitability of implementing large melioration projects; restoration of cleanliness of large lakes Ladoga, Onega and Baikal; protection of Russian national river Volga and numerous small rivers; improvement in the ecological condition in the Aral sea region; reduction in the pollution level of atmosphere in many cities; extensive introduction of ecologically clean technology in industry; provision of safety of technical devices and technological processes.

Several laws and enactments have been made during the recent period for improvement of the ecological condition in the country; among them, the decree of the Central Committee of the CPSU and of the Council of Ministers of USSR "On Radical Reformation of the Affair of Protection of Nature in the Country", adopted in January 1988, has special significance. This Decree spelt out the main tasks in the field of protection of nature and rational use of natural resources, envisaged the measures for improvement in the economic mechanism and extensive introduction of achievements of scientific and technological progress into the activities for protection of nature, improvement in ecological education of the people and solicitous concern for nature. The attention of the scientists and specialists have been directed to the necessity of further strengthening of international collaboration in solving the ecological problems.



The approach to solution of ecological problem in our country is based on the fact that the global problem cannot be solved within one or even several countries. Accordingly, the Soviet Union maintains extensive international collaboration in the area of environmental protection, participates in the activities of a large number of inter-governmental and non-governmental organisations involved in solving the environmental problems, implements the programmes of joint work with many states. Particularly great significance is attached to collaboration with UN Programme on Environment (UNEP), which is assigned to be the active instrument of coordination and stimulation of activities of international organisations involved in solving the ecological problems. The USSR Commission on UNEP matters, a special body, has been set up for ensuring this collaboration; this body comprises representatives of interested organisations and also distinguished scientists, educationists and cultural representatives.

Ecological danger is a threat to many countries, a threat to entire mankind. That is why the concept of international ecological security, advanced by the Soviet Union, which is expected to ensure the necessity of constant and universal concern for conservation and careful use of the natural resources of the planet, is getting more and more recognition. This concept, clearly delineated in the speech of M.S.Gorbachev at UNO in 1988, must be regarded as one of the elements of the new political thinking responding to the realities of the present-day world. The increased concern for ecological problems is an inseparable element of this new thinking. The fate of the future generations depends on the success in solving these problems.

One of the important conditions of successful elaboration of plans for solving the scientific and technological problems is effective dissemination of information for such elaboration i.e., timely and comprehensive use of advanced experience from within the country and abroad by the scientists and specialists. Such dissemination is of particular importance in complex, inter-disciplinary problems, which include primarily the problem of environmental protection and rational use of natural resources. The information on these problems scattered in thousands of published and unpublished sources urgently requires the use of services of information systems and centres, which collect, process information and supply them to the users in a form convenient for them.

The State Automated System of Scientific and Technical Information (GASNTI) has been set up in our country. It includes all-union, industry-wise territorial, republican and regional institutes and centres of scientific and technical information, and also thousands of information departments and bureaux in industrial associations, scientific institutes and industries. All these bodies provide their customers with information to a certain extent; however, for improvement of the quality of service they badly need extensive international exchange of information, access to achievements made in other parts of the world, experience of work and services of international information systems. Exactly for this reason the Soviet scientists and specialists turn to INFOTERRA with profound attention and actively participated in all the stages of its development. The ideas of INFOTERRA have found extensive recognition in our country. We take this system as an active and effective international mechanism that ensures active exchange of information and documentation among the countries through use of modern automatic devices, and plays a catalytic role while stimulating the growth of information activities at the national level. Our country has set up the INFOTERRA network which includes the centres of the system in all the Union Republics and in a number of large cities of Russian Federation. The possibilities of the system in USSR as well as in other countries, we assume, have far from been exploited. We are convinced that the Conference INFOTERRA-III will examine the possibilities of exploiting the reserve capacities of the system, sum up the work carried out and chalk out the courses for its development, activization of information exchange on environment during the 1990s, and the means of ensuring access of the information users of all countries to world information resources. We are confident that this will not only be the courses for development of information but also the courses for strengthening international collaboration in solving the most important global problems -- the problem of protection of nature on the Earth.

We wish you success in this important work .



STATEMENT BY MR. WILLIAM H. MANSFIELD III,  
DEPUTY EXECUTIVE DIRECTOR OF UNEP

It is a pleasure and a privilege for me to address the INFOTERRA III meeting. INFOTERRA and you who make up the INFOTERRA network play a very significant role in UNEP's work, and I am proud to have the opportunity to thank you and to tell you how much we appreciate and, indeed, need your work as part of our broad effort to help the world community address our environmental needs. I also would like to express our deep appreciation to our hosts, the Government of the Soviet Union, for inviting us to their capital city and making these excellent facilities available to us. The Soviet hospitality is always very generous and considerate, and we are very grateful to you for it.

In the time available to me I would like to outline UNEP's views on some of the current trends in international environmental affairs, update you on the status of some of UNEP's activities and point to some prominent opportunities for your work and our cooperation in the future.

We believe that the international community has today a historical opportunity to move forward in our quest to address international environmental issues. We must, however, face these challenges for sustaining the earth and its people urgently and together - East and West, North and South. To realise this opportunity we will have to provide leadership and demonstrate cooperation to change many current policies, strengthen and increase a number of successful programs and launch bold initiatives in many areas.

Environmental anxieties : Last year a surge of environmental emergencies around the world produced great public anxiety about the earth's environment. Summer heat waves and droughts in North America

and in China, disastrous flooding in Bangladesh, mud slides in Thailand, an ozone hole over Antarctica, the outrage from hazardous wastes dumping in the developing world, beaches littered with medical wastes, excessive ground level ozone in cities, and continuing forest loss from acid rain - brought a cascading wave of concern about the danger of environmental degradation.

Out of the aftermath of this wave of concern emerged a strong and widespread feeling that our actions are triggering environmental destruction and that we were pressing beyond limits we should not have exceeded. A wider constituency of people began to understand intuitively Sir Francis Bacon's 17th Century dictum: "Nature, to be commanded, must be obeyed."

A Political Response : The political response to this growing concern was quick and strong. Swedish and United States political elections trumpeted environmental themes; the Toronto Changing Atmosphere Conference called for bold action to combat climate change; African Ministers at the Organisation of African Unity in Addis Ababa decried toxic waste dumping as a crime against their continent; governments tabled five major environmental items at the UN General Assembly last autumn even though environment was not scheduled to be on the agenda. At the General Assembly, General Secretary Gorbachev proclaimed environment and debt relief as important to peace as arms reduction. Britain's Prime Minister Thatcher called for a World Ozone Conference. On Saturday a number of Heads of State met in The Hague to address global environmental matters and called for more aggressive action to address environmental issues. There were other initiatives.

But the depth and breadth of the public concern and the widespread intensity of the political reply establish a new, positive and receptive climate for addressing domestic and international environmental needs. Unlike the anxiety over industrial pollution in the late 1960s and early 1970s, which produced strong national action to address pollution, and incidentally led to the creation of UNEP and other international



environmental organisations, the current concern has broadened to encompass wider international and global issues.

It has, as well given us great insights into the far-reaching implications of environmental issues. Where in 1987 the comprehensive discussion of sustainable development reinforced the knowledge that preserving the environment is central to long term economic development, now we are recognising in the case of uncontrolled hazardous wastes dumping that environmental and health matters can also become serious sources of conflict among states. In the case of protecting the stratospheric ozone shield, we see environmental protection as a planetary problem in which all countries must share responsibilities. And while confronting the green house effect has even greater planetary implications, it also spotlights the security aspects of ecological change.

William Shakespears wrote : "There is a tide in the affairs of men which taken at the flood leads on to fortune." There seems little doubt that environmental action is on such a rising tide. The challenge for us is to take this tide and join together to help mobilise the world community to build a world that is ecologically and humanly sound.

Within UNEP we are now carrying out a number of action programmes in cooperation with your governments to address some of these pressing issues. Let me briefly discuss some of the most important of them.

Progress Toward a Hazardous Waste Convention : None of our activities has been more politically charged than the quest for a Global Convention on the Control of Hazardous Wastes. Each year several million tonnes of hazardous wastes move across international boundaries - a million tonnes or so cross from West to East Europe alone. The North-South flow is of unknown dimensions and a South-South flow is developing. It is a billion dollar business, a dangerous business, involving sometimes deception by exporters and ignorance or greed by receivers. It's mismanagement has outraged governments and public opinion.

The effort to address the hazardous wastes threat started in UNEP, with many of the governments represented here in 1982, with the preparation of the Cairo Guidelines for the environmentally sound management of hazardous wastes. With the guidelines endorsed and since 1987 under our Governing Council's instructions we have been leading a negotiating process to achieve an international control convention that will :

- lead to practical and workable control;
- encourage reduction of wastes and disposal near the source of waste generation;
- Allow movement across boundaries only under environmentally sound conditions; and
- assist developing countries to build the needed capacity for effective management of such wastes.

The UNEP Working Group's meetings in Budapest, Geneva, Caracas and most recently last month in Luxembourg gives us strong hope that we will soon reach agreement. All the parties are striving to achieve the accord. But some legitimate and tough issues remain to be resolved. And I might mention at this point that at the organisation of African Unity Council of Ministers meeting on February 22, the Ministers acknowledged that there were still a few unresolved issues. But they called upon all member states to participate fully in the Basel diplomatic conference. Pressing toward a plenipotentiary signing in Basel on March 20-22, our Executive Director, Dr. Mostafa K. Tolba, scheduled informal negotiating sessions in Geneva last week and another formal working group meeting March 13-17 in Basel, before the plenipotentiary meeting there. It is a fast track but we have every expectation that we will succeed on schedule. We are gratified to seek the work that all governments are undertaking in the hazardous wastes field, and we hope all of them will participate in the work of the global convention, when it is achieved.

Threats to the atmosphere : Of the multitude of threats facing the global environment, none is greater than the changes taking place in our atmosphere. Man made chemicals are destroying the ozone

layer which shields all life from the sun's lethal ultra violet rays. Many scientists are now convinced that pollution is warming the world's climate threatening to bring about changes unparalleled in the history of human civilization, raising sea levels and devastating food production world wide.

Fortunately, the international community has already taken important steps to control atmospheric pollution. The UN Economic Commission for Europe (ECE) Convention on Long-range Transboundary Air pollution and protocols on EMAP, monitoring reduction of sulphur emissions or their transboundary fluxes and last year's new protocol on the control of nitrogen oxide emissions are major constructive measures.

Stratospheric Ozone : UNEP's Vienna Convention for the Protection of the Ozone Layer went into effect in September 1988 and pressed by mounting concern about ozone depletion, the 1987 Montreal Protocol to reduce the main chemicals destroying the ozone layer came into force as scheduled on January 1, 1989. It is the first truly global agreement on protection of the atmosphere. Genuinely an anticipate-and-prevent action, it takes pre-emptive steps to stop an emerging problem by agreeing upon a series of far reaching and costly controls in advance of the absolute proof of cause and effect that might come too late to avoid irreparable damage.

The contracting parties to the Convention and Protocol will meet for the first time with UNEP to begin implementation in Helsinki on April 26-28 and May 2-5 respectively. We are optimistic that implementation will proceed rapidly.

UNEP/WMO meetings with governments, scientist and industry in November revealed continuing scientific concern about the danger of ozone depletion. And they also provided reassurance from industry that chemical substitutes for chlorofluorocarbon (CFC's) substitutes that were also 'greenhouse friendly' and better management practices



would be available to every one in reasonable quantities and at affordable prices. Market mechanism will help see to that.

One point deserve emphasis. The ozone agreement vividly demonstrates that in global environmental considerations all countries must join in, and this may mean that developed countries will often have to make a special effort - even pay a little more - to help the developing countries appreciate and realise the benefits of participating in planetary environmental management.

While special provisions have been made for helping developing countries during the first 10 years of the Montreal Protocol, only five developing countries have to date signed the accord. If we are not able to encourage others, such as Brazil, China, India and Indonesia to join, the continued and expanding production of ozone destroying chemicals by non-signatory developing countries for such essential services as refrigerators could in a decade undermine the gains we hope to achieve in ozone protection.

This concern underlaid the call for the World Ozone Conference in London by British Prime Minister Margaret Thatcher on March 5-7. There, a large number of the highest level governmental officials drew world political attention to the issue and fostered a creative dialogue with participating industry to point out that alternative chemicals will be made available to developing countries. The conference was by all measures a great success, even though there are still hurdles that must be crossed before we have fully solved this problem. At the conference a number of developing countries expressed their intention to accede to the accord. But some of the major developing countries still expressed their reservations.

Climate change : The necessity of involving all governments - developed and developing in planetary management programmes is no more evident than in addressing the greatest environment challenge

now facing us today climate change. Red flags are flying. The green house problems are man made and global. We are all in the green house together. No effective solution is possible without broad international cooperation, and this will require sacrifice on the part of every one.

Fortunately, again the environmental community is addressing the issue. Within the UN system, WHO, UNEP and International Council of Scientific Unions (ICSU) have been conducting the umbrella of the World Climate Programme. UNEP has conducted or is carrying out national, regional and sea level rise impact studies on all major continents. We have brought scientists, experts and policy makers together in Bellagio and Villach in 1987 to outline policy response strategies. We joined Canada in the 1988 Toronto Conference on the Changing Atmosphere, co-sponsored the Dutch study on European climate impacts and will join Japan and the Netherlands in related conference later this year. The Executive Director, Dr. Tolba, collaborated with UNESCO to have principle<sup>al</sup> UN agency heads discuss the issue in Paris last July and has arranged for climate change to be on the agenda of the UN Administrative Committee on Coordination of all UN agency leaders in April in Geneva. It is clearly our highest priority programme. ✓

We are collaborating closely with WMO and governments within the Intergovernmental Panel on Climate Change (IPCC) which is now the principal intergovernmental mechanism to carry out the internationally coordinated scientific and potential impact assessments and response strategies. One hundred thirty representatives from 30 governments and 16 international organisations took part in the Panel's first meeting last November in Geneva. Its working groups and its Bureau have met already and its full report is expected in mid 1990. We are hopeful that this report can be considered by the Second World Climate Conference if it is delayed from June to later in 1990. In addition, UNEP has proposed that UN agencies establish a central coordinating secretariat in Geneva to work closely with the Panel's IPCC secretariat.

A point worthy of recalling as we address climate change is that many of the actions required to deal with the green house effect are sound for other reasons. Energy conservation and efficiency saves money and resources. Air emission reduction cuts air pollution and prevents acid rain. Protecting and expanding forests provides ground cover, aids agriculture, prevents soil erosion and protects watersheds, rivers and dams. Climate change only elevates the priority to take actions that we should be taking anyway to provide environmentally sound development.

Sustainable Development : The World Commission on Environment and Development noted that "many forms of development erode the natural resources upon which they must be based, and environmental degradation can undermine economic development. Poverty is a major cause and effect of global environmental problems."

Because developing countries are many times more dependent than industrialised countries on their natural resources, attacking poverty requires an active effort to lessen the underlying pressures on the world's resource base. This in turn means protecting the environment. A major portion of UNEP's effort is directed to helping developing countries incorporate environmental considerations into their development plans. We believe that to be economically sustainable, development must be environmentally sustainable.

UNEP conducts a wide range of sustainable development activities. Two such in Africa are illustrative : The Cairo Plan of Action and the Zambazi Action Plan. The Cairo Plan was adopted by African Environment Ministers in 1985. It is a self help effort in which African governments are mobilising their own resources to achieve sustainable development by halting environmental degradation, enhancing food producing capacity and achieving self-sufficiency in energy. UNEP serves as the secretariat. Designed around small scale pilot projects expected to cover 150 villages and 30 pastoral areas relies heavily



on traditional skills, African technical committees and networks of their own national scientific and technical committees and networks of their own national scientific and technical institutions. It is partly funded by donor countries and UNDP. The African Governments are mounting their own effort to build sustainability into their development.

The Zambezi Action Plan was launched in 1987 by the seven governments of the Zambezi River Basin with UNEP's help. A sub-project of the Cairo Plan, it provides a common treaty framework for the governments to cooperate in environmentally sound management of one of the African continents largest river basins with the basic plan in place we now have. Indications that outside donors will provide needed financial resources to enable the action plan to be implemented.

Because some 120 major international water ways exist in the world and because water shortages could become as critical as energy shortages for countries in the years ahead, we are putting high priority on water management as we have in the marine area in UNEP's Regional Seas Programme. We are moving toward management plans for Lake Chad, Lake Victoria and we hope the Nile River in Africa and are planning similar approaches on other continents.

Other activities we are conducting in response to the World Commission and UNEP Governing Council Report include a series of measures to help developing countries incorporate environment into their sectoral development decision making. We are strengthening our capability to provide environmental decision making tools to developing countries - development of environmental legislation and institutions, environmental impact assessment, environmental accounting techniques and a UN systemwide project in three selected countries. The project will assist them in developing collaborative techniques in and methodologies for incorporating environmental considerations into development planning.

We are bringing the results of these measures to achieve environmentally sound development into the Committee of International Development Institutions on the Environment (CIDIE), the group of major lending institutions for which we provide the secretariat. And we are now working with OECD's Development Assistance Committee (DAC) new environmental group to help bilateral development assistance agencies strengthen their environment-development capabilities.

Looking to 1992 : I mentioned earlier that we believe the new interest in environment provides as well the opportunity to consider new, even bolder initiatives for the future. Indeed, the last United Nations General Assembly passed Resolution 43/196 calling for a Conference on Environment and Development in 1992 which would mark the 20th anniversary of the Stockholm Conference. In accordance with the resolution, UNEP is now consulting governments and international organisations on the scope, content and administrative aspects of such a conference which will be considered by our Governing Council, ECOSOC and the UN General Assembly at their next sessions.

The conference will give us the opportunity to provide a future international environmental action programme. It could include a series of practical follow up actions in which your governments and UN and other organisations can play important roles, possibly in climate change, fresh water management, oceans and coastal areas, in biological resources, hazardous wastes, and in sharing the knowledge and best available technologies to address some of the more serious pollution and resource management problems. The conference would offer the opportunity to provide greater coordination within the UN system on environmental matters. It will most certainly have to address a number of the environmental institutional changes proposed for the UN. It will no doubt have to consider the need for additional resources for environmental protection. So possibilities are clearly before us to enhance the international community's work to grapple with the world's interlinked ecological and economic challenges. It is a major opportunity for us to carry out the new international environmental agenda.

In the meantime, there is clearly a much greater need for UNEP and other organisations and bodies of the UN system and member governments to work together on these issues.

Our meeting : Our meeting this week is an important part of a major effort that we must make to mobilise the international community to address the far-reaching environmental concerns before us.

INFOTERRA has made major gains in the past 11 years. You have established a viable information system. You have created a substantial, decentralised data base covering almost every aspect of environmental concern. You have created active networks of information exchange covering the entire globe. They reach out to some 136 focal points, 6200 institutes, nine regional service centres, and other special services in centres of excellence. You have handled some 86,000 queries and the number is increasing. That is a major achievement. But more must be done.

This week you will be asked to look ahead and map out a strategy for an even more vigorous future, to address the mounting number of issues which I have just touched upon in addition to the more traditional environmental concerns you address from day to day. We look ahead to a dynamic active INFOTERRA system on the future.

We do not foresee a passive system but one that takes the initiative to create greater public awareness and greater assistance to key decision makers.

In this respect we hope you will make every effort to take advantage of the new communications technologies - the micro computer, the facsimile, satellites, package switching and the like, making information an even more powerful tool for the environmental community in the future.



We will also urge you to do everything you can to exercise the spirit of sharing with one another as much as you can. The environmental community is still a small one - although we are growing - and we must work very hard together, North and South, East and West. So sharing and cooperation are important and especially so in INFOTERRA. Information is power.

It is perhaps prophetic that the Chinese word for 'crisis' is composed of two characters - one represents danger and the other opportunity.

This may well symbolise the situation that the international community faces in the global environment today.

We believe that the threats to the globe's life support system which are increasingly being recognised today, provide us with an historic opportunity to advance the cause of environmental protection and enhancement in the coming decade. Indeed we, who work directly on the environment have an obligation to do so.

In light of this challenge, will our successors - indeed future generations - praise our foresight in confronting these issues, or will they look back in sadness and dismay at what we had, and lost ?

The international environmental community has contributed to past progress. If we work together, with other members of the UN system, governments and non-governmental communities, we are confident that we can meet the new agenda of environmental issues.

As Victor Hugo said: "The challenge is urgent; the task is difficult; the time is now."

Let us work together to meet the challenge.

**ITEM NO. 2 ORGANISATION OF THE WORK AND ADOPTION OF AGENDA AND ELECTION OF CHAIRMAN, VICE CHAIRMAN, RAPPOREUR AND DRAFTING GROUP FOLLOWED BY FORMAL ADOPTION OF THE AGENDA AND TIME TABLE.**

**Election of the Chairman**

Mr. Harjit Singh from India proposed Mr. Noel Hughes of Ireland for the Chairmanship of the Conference. It was seconded by the delegate from Poland. As there was no other candidate proposed for the Chairmanship, Mr. Hughes was declared elected.

**Election of Vice-Chairman**

It was decided to have three Vice-Chairmen for the Conference. For the first Vice-Chairman, the delegate from Jordan proposed the name of the delegate from North Yemen. The proposal was seconded by the delegates from Oman and Morocco.

For the second Vice-Chairman, the delegate from Sudan proposed the name of the delegate from USA. The proposal was seconded by delegates from several other countries.

For the third Vice-Chairman, the delegate from Canada proposed the name of the delegate of the USSR. The proposal was seconded by delegates from several other countries.

Delegates of North Yemen, USA and USSR were declared elected as Vice-Chairmen.

**Election of Rapporteur**

The delegate from Morocco proposed Shri Harjit Singh of India as Rapporteur for the Conference. The proposal was seconded by delegates from several countries. Shri Singh was declared elected as Rapporteur for the Conference unopposed.

### **Election of the Drafting Group**

Besides the Chairman, 3 Vice-Chairmen and the Rapporteur already elected, delegates from Sweden, Bolivia, Lebanon, Sri Lanka and Uganda were elected as Members of the Drafting Committee.

### **Proposal for formal adoption of Agenda and Time Table**

The delegate from the USA proposed for the formal adoption of the Agenda. The proposal was seconded by the delegate from Mauritius. The Agenda and the Time Table were formally adopted.

### **ITEM NO. 3**

### **HEEDING THE CALL OF <sup>THE</sup> FUTURE - STATE OF INFOTERRA**

Dr. Wo Yen Lee, Director, INFOTERRA PAC presented a paper which highlighted the achievements and failures of INFOTERRA during its 12 years of operation. He also emphasised the need to explore new possibilities and measures to heed the call of the 1990s. A summary of Dr. Wo Lee's paper giving salient features is given below.

### **Summary of the Paper presented by Dr. Wo Yen Lee, Director, INFOTERRA PAC**

The paper dealt with the genesis of the INFOTERRA system, the five major components of INFOTERRA, the tools and the impact that INFOTERRA has had. INFOTERRA, the International Environmental Information System which grew out of the recommendations of the U.N. Conference on the Human Environment (Stockholm, 1972) had been operational since January 1977. The system aimed at facilitating the exchange of environmental information within and among nations. The INFOTERRA information system consisted of five components viz. the NFP, Sources of Information, Special Sectoral Sources (SSS), Regional Service Centres (RSC) and the INFOTERRA, PAC. At present 134 countries are partners of the INFOTERRA network representing over 98% of the world population. Over 84,000 queries had been processed for users in 114 countries in the last 11 years.



The paper gave a graphic presentation of the growth of the INFOTERRA network of NFPs indicating the increase in the number of NFPs since 1974. At present, the total number of NFPs was 134.

NFPs vary in their levels of activities as factors such as the population, level of economic activity and degree of development of information infrastructure in the respective countries influenced their activities. The paper points out that a focal point cannot be effective without a strong support system within the country and that ineffective NFPs are a major limiting factor to INFOTERRA activity. <sup>Contributed to the registration of sources</sup> Ninety six NFPs had so far ~~been registered~~ in the International Directory of Sources of Environmental Information. The steady increase in the number of countries registering sources was also projected.

Dr. Lee reported that through a network of 6200 institutions registered in the International Directory from 96 countries, representing some 260,000 experts covering over 1100 priority subject areas, about 2.6 million publications under various environmental subjects were made available to users. Ensuring that the information provided was accurate, carefully researched, and evaluated was a matter of concern, especially since INFOTERRA provides no incentives to the sources of information.

The paper described the Special Sectoral Sources (SSS) as Centres of Excellence in selected environmental priority sectors. The existing 25 Special Sectoral Sources form a decentralised INFOTERRA data base which provided repackaged information to users anywhere in the world at a nominal charge. For providing services more economically and efficiently, 9 RSCs have been established to serve nine sub-regions with similar environmental problems. These sub-regions were the Eastern, Northern and Western African, Southern, South-Eastern and Western Asian, Latin, American, the Caribbean and the CMEA countries.

In regard to the Programme Activity Centre (PAC), the paper discussed the major tasks of the PAC and how these were accomplished. The paper then described the main tools used by the INFOTERRA system such as the NFPs, the International Directory of Sources, the terminology

and the electronic mail system linking many of the INFOTERRA network partners. These tools, together with other means of modern communication had helped to reduce the turnover time for query responses to days instead of weeks. INFOTERRA also provided "delayed on-line search" to selected users directly, depending on costs and urgency. The paper analysed the impact of INFOTERRA and divided it under two groups viz. direct effect and catalytic effect.

The query response services of INFOTERRA have had direct impacts under which solutions to environmental problems and substantive information have been provided for over 84,000 queries from 114 countries in the past 11 years which had led to improvement in the quality of environment and better management decisions. Pollution control, waste treatment, chemical and biological agents, technology and industry, management and planning were the main subject areas on which queries are received. The paper also gave a list of success stories from INFOTERRA experiences in different countries.

Under the catalytic role, INFOTERRA had promoted the establishment of national environmental information systems, assisted in the setting up of international information systems related to the environmental sciences, raised environmental awareness and advanced the participation of developing countries, ~~especially Colombia, Brazil, China and India,~~ in the international exchange of environment experience. X

In countries with well established environmental information infrastructures, INFOTERRA NFPs were playing a coordinating role, linking existing sub-systems with a regional, national or global network, thus resulting in a multiplier effect. The paper thus pointed out that the regional and global cooperation in the exchange of environmental information had been notably strengthened due to the contacts generated through INFOTERRA.

The paper pointed out that even while the INFOTERRA system was a success, a number of measures have to be taken to further develop the system and to 'heed the call of the 1990s'. These include consolidation of the system and further development of the network, improvement of the operational procedures, adoption of information technologies, promotion of the system and further improvement of information services to users.

Out of 134 NFPs, 38 had not registered any sources of information and 20 had not made use of the INFOTERRA services due to lack of support by their governments, lack of trained staff, lack of access to modern information technology, etc. While some of the hurdles could be overcome by appropriate measures, the paper emphasised that governmental commitment was the fundamental requirement.

Dr. Lee stressed that the quality and quantity of sources including SSSs registered with INFOTERRA should be maintained and improved and active working links between NFPs and the RSC in a sub-region should be established and improved. The ultimate target of a more effective INFOTERRA global network could be achieved by the creation of sub-networks by associating a group of NFPs from developing countries in need of assistance with NFPs in developed countries who are able and willing to provide such assistance. The paper pointed out that the effectiveness of the INFOTERRA system should be measured not only by its ability to deliver information but also by the quality, relevance and speed with which the information was received by the users. Operational procedures, therefore, have to be enhanced continuously to bring about increased efficiency and user satisfaction. In the coming decade, a majority of INFOTERRA partners were expected to acquire access to computers and modern telecommunication facilities which would certainly facilitate the international exchange of environmental experiences and information.

The paper pointed out that the existence of INFOTERRA and its services still needed additional exposure and that increased promotional efforts by all the INFOTERRA partners would certainly contribute in increasing worldwide environmental improvement.



### **Discussion on Dr. Lee's Paper**

The Chairman appreciated the contribution of the INFOTERRA in information exchange among different nations of the world and acknowledged INFOTERRA's success.

Mr. Singh from India mentioned that most of the queries from different nations received by the Indian NFP were forwarded to it by the INFOTERRA PAC. He suggested that all NFP partners should directly contact each other for their respective queries and not load INFOTERRA PAC unnecessarily for the same.

Dr. Wo Yen Lee welcomed the above suggestion and remarked that whenever necessary, INFOTERRA PAC could be contacted directly. It would ensure supply of information against any query from a NFP.

The delegate from Kuwait raised the issue of building up an effective and first rate system of exchange of information among NFPs. However, this required better communications infrastructure. The delegate also suggested that NFPs should ensure that telexes were answered promptly when received.

### **ITEM NO. 4**

#### **PROGRESS REPORTS FROM THE REGIONS**

The representatives of the Regional Groups and of selected NFPs presented reports on INFOTERRA activities in their respective regions or countries. A brief account of each of these reports is given below.

#### **Latin America & The Carribbean Region (RSC-Chile)**

The Regional Service Centre (RSC) for the Latin America and the Carribbean region is located at the National Commission of Scientific and Technological Research (CONICYT), Santiago, Chile. In the region, served by the Regional Service Centre, the libraries or documentation centres of National Institutions related to the environmental services are designated as INFOTERRA National Computer Centres (CNCs). Some of these CNCs were well equipped and had specialised libraries and trained

personnel who were capable of providing substantive information against queries. Some of these CNCs had small libraries with limited resources. These small libraries provided referral services making use of the INFOTERRA directory. The Regional Service Centre is approached in case the information is not found in the archives/national libraries/documentation centres. The RSC searches the existing data bases for providing relevant information. It was reported that in several cases the replies against queries were generally found in the data bases which had been produced with mutual cooperation of various regional information networks. However, due to lack of knowledge about the existence of these data bases, some of the information units were not making use of them.

In respect of training, it was reported that efforts had been made to train the personnel of the National Computer Centres of the region. The last regional course was organised by the RSC in 1987. These courses proved to be rather expensive. For further courses it would not be possible for the RSC to meet all expenses. It was suggested that since such courses helped the staff of the National Centres get acquainted with the staff of the RSC, UNEP should bear some of the expenses related to the training. The report suggested that training of potential users to make them aware of the existing information services and facilities. The RSC had made promotional attempts by organising talks on the use of INFOTERRA in some of the postgraduate courses being held in the country. This had resulted in an increase in the number of queries.

To further improve upon the services of the National Centres, it was suggested that they should at least collect information on research in progress, specialised periodical publications, existing technical standards, development programmes, legislation in force etc. It was also suggested that people incharge of the information units should be trained in the use of INFOTERRA directories. Besides, the National Centres should develop support material for the INFOTERRA promotion and training of users. The Centres should also build up atleast minimum physical infrastructure with micro-computers and efficient communication systems.

### **Socialist Countries and the CMEA Region (RSC-ICSTI, Moscow, USSR)**

The international Centre for Scientific and Technical Information (ICSTI), Moscow, was founded in 1969 in accordance with the Inter-governmental agreement between the Peoples Republic of Bulgaria, Yugoslavia (SFRY), Hungarian Peoples Republic (HPR), German Democratic Republic, Socialist Republic of Romania, Polish Peoples Republic (PPR), Union of the Soviet Socialist Republic (USSR), and the Czechoslovak Socialist Republic, joined later by the Republic of Cuba, Socialist Republic of Vietnam (SRV) and the Democratic Peoples Republic of Korea. The ICSTI served as the INFOTERRA Regional Centre for these countries. Reports of activities of ICSTI and other NFPs of the member countries were presented in the RSC's report. Besides making INFOTERRA popular and supporting its activities nationwide, ICSTI provided software packages to its member countries, created 11 data bases, brought out over 40 publications and trained specialists from its member countries. It had set up a complex information base and brought out six abstract publications. The member countries promoted the activities of INFOTERRA in their own countries and responded to the users' queries through INFOTERRA network. Some major activities of NFPs included publication of an abstract journal "Environmental Management Abstract" in English by USSR, and preparation of an INFOTERRA thesaurus in Polish and Hungarian by PPR and HPR respectively. A bimonthly bulletin "Information on Environment" was published by SRV and preparation of documents of strategy for environment protection in Yugoslavia and an Integrated Information System on Environment by the SFRY.

### **Southern Asia Sub-Region (RSC - India)**

The Regional Service Centre for the Southern Asia sub-region is located at the Environmental Information System (ENVIS), Ministry of Environment and Forests, Government of India, New Delhi, India. The RSC catered to the information needs of Sri Lanka, Pakistan, Nepal and Bangladesh besides India. There was some servicing of other countries within the region. On request, the RSC also provided substantive information on the environment to any part of the world.



So far, ENVIS had set up 10 Centres on diverse areas of environment to meet information needs relating to these areas. More such Centres were likely to be set up in the near future in areas not covered so far under the ENVIS scheme. Among major activities of the RSC were the development of computerised bibliographic data bases, computerisation of information relating to non-governmental organisations engaged in environment related work, computerisation of data pertaining to subject specialists on the environment, publication of a quarterly abstracts journal 'Paryavaran Abstracts' (Environment Abstracts) reporting Indian research on the environment and related areas, a query-answer service, updating of INFOTERRA directory, popularisation of INFOTERRA activities and maintaining close liaison and coordination with other NFPs, RSCs and the INFOTERRA PAC. Describing the query-answer service as one of the major services provided by the RSC, the report stated that during 1988 alone, a total of 2642 queries were processed, of which 2474 were from within India and 168 from international users. This was in addition to over 500 verbal/telephonic queries. In about 90% of the cases, substantive information was provided and average time for processing a query ranged from 6 to 10 weeks. The queries received during 1988 from Bangladesh, Sri Lanka, Nepal and Pakistan were 13, 8, 10 and 2 respectively. The report also mentioned that the RSC registered more than 530 Indian sources which had been incorporated into the INFOTERRA Directory.

The report described some of the major activities of the NFPs in Sri Lanka, Nepal, Pakistan and Bangladesh. The major activities of Sri Lanka NFP includes registration of potential sources (250 sources registered so far) and query-answer service. The NFP of Sri Lanka plans to bring out a directory on environmental sources and an inventory of environmental institutions in Sri Lanka. The NFP Nepal, besides query-answer services and registration of sources of environmental information (22 sources registered so far) is also actively engaged in the publicity of INFOTERRA activities through posters, leaflets, seminars, exhibitions etc. The NFPs of Pakistan and Bangladesh had registered 6 and 7 potential environmental information sources respectively. They were also providing a query-answer service and maintained close liaison with the INFOTERRA PAC and with the RSC.

Detailing the plans for future development of the RSC for the South-Asia sub-region as well as the the NFP at India, the report identified the major areas to be kept in mind for strengthening the RSC. These included computerisation activities, strengthening the document back-up support, feed back from users, updating of sources, training courses for NFPs of the countries of the region, liaison with other NFPs and strengthening of the national environmental information network.

The report concluded with suggestions for all the NFPs of the South Asia sub-region for further improving the network. The areas in which improvements are suggested are interaction among NFPs; identification of sources; strengthening of information base; exchange of staff among NFPs; training to staff members of NFPs and development of mechanism for receiving feed-back from the users.

#### **Western Europe and others**

The delegate from Ireland presented the report for the Western European and others. The report gave a brief account of activities that have taken place in the NFPs of UK, Bulgaria, Portugal, Sweden, Poland, Australia, USSR, Cyprus, Finland, Iceland, Hungary and Spain, since the first NFP Management Meeting for European and other countries was held in Athens in December 1987.

All the NFPs of the above mentioned countries successfully used the INFOTERRA for query-answer services. The UK NFP was setting up a new special technical library. The Bulgaria NFP made use of micro-computers to improve the efficiency of information products and services. The Portugal NFP has undertaken to provide a Portugese translation of the INFOTERRA thesaurus of environmental terms. A common command language and thesaurus for all information data bases was the long term aim of the Polish NFP. Notable activity from the USSR was the registration of the All Union Institute for Agricultural Microbiology as a SSS.

**English-speaking Eastern, Central and Southern African Sub-regions  
( RSC - Kenya )**

The report was presented by the delegate from Kenya. It gave a combined account of the activities of the NFPs at Sudan, Ethiopia, Uganda, Kenya, Somalia, Zambia, Zimbabwe, Botswana, Malawi and Lesotho. After describing the progress made so far, the report identified the operational problems faced by most of these NFPs. The NFP at Kenya was also functioning as the RSC and was located at the National Environment Secretariat, Ministry of Environment and Natural Resources. This Centre, besides operating INFOTERRA activities, also has access to a library, computer facilities, films, telex etc. and produces and distributes material on the environment to all the NFPs of the region.

Some of the major development in this region in the last ten years, as identified in the report are - registering of more sources by most of the NFPs providing substantive information to users rather than referral services; organisation of seminars at user level by some NFPs; increased consultation of the NFPs by the public, industrialists and decision-makers; and increased public awareness on environmental issues through education and improved communication which had resulted in better utilisation of NFPs.

The report acknowledges the fact that the presence of organisations such as UNEP and HABITAT at Nairobi. They had made available valuable assistance in terms of information, skilled manpower, proven technologies etc. which was responsible for the increased involvement of the public and NGOs in environmental and developmental issues.

The main operational problems of the NFPs as identified in the report were: lack of travelling funds of NFPs thereby affecting their promotional activities and the registration of sources; lack of opportunities for training NFP managers in Information Sciences, low rate of use of the INFOTERRA system as a result of inadequate financial resources; communication problems; staff shortage etc. and shortage/lack of storage space for information.



Ending on an optimistic note, the report states that in spite of these problems, the participation of the NFPs of the region in INFOTERRA activities has been considerable and the results have been impressive. The report suggests that application of modern technologies, training of NFP managers and closer interaction with other international information systems will result in further improving the functioning of the NFPs of the region.

#### **North and Western Africa (RSC: Morocco)**

The Moroccan NFP is located at the National Documentational Centre, Rabat. The NFP was also designated the Regional Service Centre for North and West Africa in 1985.

During 1987-88, the National Documentation Centre collected data on 162 new sources of information of which 18 were found to be useful for incorporation into the National Directory of Sources, thereby raising the number of national sources to 83. The NFP/RSC provided a wide range of information services to its users. It gave them access to both national as well as international bibliographic data bases. It also provided them access to primary documents relating to economic and social development in Morocco. The National data bases are multi-disciplinary and have more than 200,000 references accessible on-line on economic and social development of Morocco. The documents on these are provided to users on micro-films. The contents of the data bases were disseminated through specialised and multi-disciplinary bibliographical indexes. The NFP/RSC had links with European Space Agency (ESA/IRS) and with the Questel Telesystem. This provided users access to over 60 million references in various areas of environment. Documents listed in the foreign data bases and required by the users were acquired through the British Library Supply Centre, CAB, CNRS/INIST etc. For this purpose, the National Documentation Centre had opened accounts in certain foreign institutions.

During 1987 and in the first three quarters of 1988, the National Documentation Centre could process 3685 queries out of 3809 queries received. Twenty queries out of these were received from 8 countries of the region. The queries related to the subjects of atmosphere and

climate, marine environment, chemistry, biology, physics, natural resources, food and agriculture, land utilisation, pollution, human settlement etc. The National Documentation Centre has recently acquired a new mini-computer HP 3000 (Series 58). This new equipment permits more than 200 connections. At present, 22 institutions situated in the different regions of the Kingdom were connected to the computer of the National Documentation Centre for accessing national and international bases.

The NFP/RSC had also been promoting INFOTERRA by organising training programmes, study visits, exhibitions of INFOTERRA products, displays of INFOTERRA material in symposiums, fairs etc. For improving promotional efforts further, the Morocco NFP/RSC proposed the organisation of periodic meetings for examining problems being faced in regional cooperation for preparation of publicity brochures for the RSC, and for organisation of training programmes for the officers of the NFP's of the region to standardise working methods to equip them with latest developments in information technology.

#### Arab League Countries (RSC - <sup>ALDOC</sup>~~Tunisia~~)

The report was presented by the delegate from <sup>ALDOC</sup>~~Tunisia~~. The report gave an account of activities of the RSC located at the Arab League Documentation and Information Centre (ALDOC) relating to environmental issues, its relations with Arab environmental institutions, activities of the League of Arab States related to environment and the contribution of ALDOC to INFOTERRA. ALDOC which became RSC for INFOTERRA at the end of 1987 and was providing substantial information to a variety of Arab and International researchers and answering queries from various countries. The RSC had a computerised bibliographic data base and it was using its own thesaurus for subject analysis and retrieval of documents.

It was reported that the ALDOC holdings of reports, monographs etc. relating to environment had increased significantly through regular contacts with Arab NFPs and other relevant institutions. The ALDOC thesaurus, a trilingual tool in Arabic, English and French covered several subject areas relating to the environment and helped in subject analysis and in retrieval of documents. As RSC, the ALDOC answered several

queries for Arab and International users. ALDOC also organised regional and national seminars and workshops on specific topics on documentation/information activities, besides providing on-the-job training on information handling. The report also mentioned some of the planned activities of ALDOC, important among which were the proposed workshop in Tunis in 1989 on documentation and information techniques for INFOTERRA NFPs using MINISIS, CDS/ISIS softwares which have been arabised by ALDOC.

Cooperation between ALDOC and other information and documentation centres had also resulted in the launching of the Arab Regional Information System Network (ARISNET). The main objective of this network was the sharing of information resources and coordination of information gathering and processing and dissemination of information activities on national and regional levels.

The network proposed to function on the basis of three sub-systems to provide information (i) at the national level, (ii) on priority sectors at national and regional levels, and (iii) on selected areas of major concern to the Arab region as a whole.

Describing the role of the Government on environmental issues, the paper reported that the convening of the first "Arab Ministerial Conference on Environment and its Impact on Development" in Tunis in 1996, was the most important activity which was responsible for the establishment of a specialised Arab Council to deal with environment affairs. The General Secretariat of the League of Arab States also gave due importance to environmental issues and had been convening a number of seminars on environmental topics.

The report also referred to the creation of the Council of Arab Ministers in 1987 which was responsible for Environmental Affairs. This reflected the concern of the governments of the region for environmental issues.

Concluding with ALDOC's contribution to INFOTERRA, the report reiterated that ALDOC was promoting INFOTERRA by developing close relations with Arab institutions working in the field of environment. ALDOC was also willing to undertake providing training and technical advice to information specialists in the region for establishing computerised information processing and retrieval services, production of directories and specialised bibliographies etc.



### **Central and Western Africa (RSC: Senegal)**

The paper gave a brief account of the objectives set for the Senegal NFP, and its activities/progress during 1988. Since November 1987, the Senegal NFP and the Regional Service Centre (RSC), had been playing an important role in the development of techniques for information processing, supply of specialised information and in the promotion of INFOTERRA in its tasks and objectives. The major objectives of the RSC were to contact the sources of information and look into accessible data bases, to answer queries, to reinforce the links between the countries of the sub-region and to organise meetings and periodical visits in the sub-region.

The National Centre of Scientific Documentation (CNDST) being the NFP as well as the RSC during 1988 processed 240 queries on various environmental topics, out of which 29 were from foreign countries.

A project Telecom Africa with a network composed of a Satellite master station of control and mini-stations, has enabled the CNDST to access 54 French data bases. During the experimental phase, the CNDST is equipped with an antenna and basic tools.

Describing the activities related to communication and exchange of information, the paper stated that the RSC was equipped with a terminal TTE A820. The RSC planned to establish contact with the Programme Officer, INFOTERRA at Geneva, Switzerland. With the start of the network SENPAC (Senegal's data transmission network through packets), the NFP hoped to operate the communication system shortly. The major difficulties encountered were - communication between RSC and the PAC, and assigning of low priority to information activities by most of the African countries South of the Sahara.

The RSC in Senegal was perfectly integrated with the national policy of Senegal with reference to scientific and technical information and that the RSC could be handled competently by the national personnel. To make the network more operational for the 1990s, the paper recommended reinforcement of the means of communication and provision of equipment such as text processors and photocopiers, besides financial and technical assistance.

### **South-East Asia and South Pacific Sub-region (RSC: Australia)**

As the delegate from Australia was not present, the delegate from New Zealand presented the RSC report of Australia.

The Regional Service Centre for South-East Asia and the Pacific Region was located in the Department of the ARTs, Sports, the Environment, Tourism and Territories, Government of Australia. It covered the countries of Indonesia, the Philippines, New Zealand, Vanuatu, Thailand, Malaysia, Fiji, Papua New Guinea and Samoa.

The report described the activities of the RSC. As feedback from all member countries had not been received by the RSC at the time of submission of therepaort to the PAC, progress/activities for only a few of the member countries had been reported. However, during the meeting, some of the countries submitted their country reports giving an account of the work of their respective NFPs.

Among the major activities of the RSC was the setting up of a Special Sectoral Source on the Marine Environment, demonstration of the use of electronic mail for tele conferencing, maintenance of close contact with NFPs through correspondence and material assistance with reference queries. Several NFPs effectively handled queries and also registered information sources. The Australian NFP responded to their users through the INFOTERRA network in the field of pollution, conservation and mining. The Indonesia NFP had created a computer-based network for scientific and technological information service (IPTEKNET) to increase awareness, develop a national data base and to disseminate information speedily. Most of the countries were developing their NFPs for an effective information base.

### **Reports from Individual Countries**

Several other countries presented their reports highlighting their respective NFP's activities. Briefs on each of these NFP's is given below.

#### **Canada**

The NFP of Canada, located in the Department of Environment of Canada, had 800 registered sources, handled over 250 enquiries per

year. It had access to 200 data bases for searches on environmental engineering, biomedical and legal subjects. It also had access to a wide network of libraries and demonstration centres. For increasing awareness of the INFOTERRA system in Canada, it had published 'Canadian Sources of Environmental Information'. The NFP also contributed articles in government publications and demonstrated special exhibits.

## CHINA

China NFP was located at the Research Centre for Eco-Environmental Sciences, Academia Sinica, China.

China became an INFOTERRA network partner in 1977. Since then it had been putting in a great deal of effort in registering INFOTERRA information sources, establishing a national network for environmental information, upgrading information databases and publicising INFOTERRA activities.

Several hundred institutions dealing with research or development on environmental science or technology are usually the producers and/or collectors of environmental information. Nearly 4000-5000 papers relevant to the environment are published every year. Most of these papers are in Chinese which makes it difficult for these papers to be selected as International Information Sources. Only 100 sources at present can provide information to users in one of four official languages of INFOTERRA.

The Chinese NFP had helped to establish and operate the China National Network of Environmental Information which covers the whole country and has several specialised sub-networks. The NFP had brought together the international sources of INFOTERRA in China as its own network of environmental information. It had taken various measures to publicise INFOTERRA activities to user groups. On World Environment Day every year, INFOTERRA materials are displayed in busy streets for creating public awareness on the INFOTERRA network.



The NFP used the hard copy of the INFOTERRA Directory to provide a list of information sources to its users.

Several data bases had been developed including the INFOTERRA Bibliographic databases. Two data bases namely Structures and Nomenclature Searching System (SANSS) and Geographical Information System of the Haihe River Basin were being developed. Some common information materials were being translated from English into Chinese to allow users to have access to them.

NFP China had also compiled some specialised publications. The NFP suggested that a Far East Regional Services Centre covering China, Korea, Japan and Hong Kong be established as there were some common environmental concerns in these regions.

#### **GAMBIA**

The Gambian NFP was located in the Environment Unit, Ministry of Health, Environment, Labour and Social Welfare, Government of Gambia. To operate the INFOTERRA system more effectively and more efficiently, the Gambian NFP had successfully conducted a series of Radio Panel discussions, meetings, seminars and workshops with both governmental and non-governmental agencies engaged in environmental activities. An inventory on manpower development in relation to environmental work had just been completed by the NFP. The NFP was busy in preparing a project document to implement its activities more effectively thereby strengthening the INFOTERRA system. The NFP acknowledged the valuable assistance of INFOTERRA/PAC which provided information on hippo-barriers for large scale rice plantation projects.

## **Republic of Guinea**

Guinea's NFP had been established at the Département of Scientific Research, nearly about seven years ago. The NFP in 1986 was put under the Division of Information, Environmental Education and Environmental Right in the newly created National Directorate of Environment which had been entrusted with the task of formulating government policy on the environment. During the last two years, the activities of the NFP were reoriented towards the identification and registering of national sources (11 sources registered so far); processing of information; exchange of information at national as well as international level; promotion of INFOTERRA through media such as radio, TV and distribution of INFO-TERRA folders. The paper pointed out that the NFP still faced problems with regard to non-availability of financial resources, communication equipment, trained and skilled manpower required for processing of information etc. The paper acknowledged the services rendered by the INFO-TERRA network to the Guinean Administration with regard to its problems of toxic wastes unscrupulously deposited at Kassa (Islands of Loss Conakry), on consumption of aluminium and on the impact of the petroleum refinery planned to be installed in the suburb of Conakry.

## **Japan**

The National Focal Point (NFP) of Japan is located in the Division of Environmental Information of the National Institute for Environmental Studies (NIES) Japan. It had registered nearly 463 sources and was updating sources on a regular basis. In 1988, the NFP put 100 queries to INFOTERRA and directly received 69 queries. With the NFP's cooperation, the Japan Information Centre for Science & Technology (JICST) has developed an on-line retrieval system for the INFOTERRA database and provided this service to users. The JICST had been requested by the NFP to extend the on-line services to other countries such as the USA, UK, France, FRG, Korea, Canada and Finland where access to JOIS was available. A database management system called HITAC was used for developing and searching a disk-based INFOTERRA source file.

It had published leaflets explaining the outline of INFOTERRA Source Guides describing duties of an information source, an INFOTERRA thesaurus of environmental terms in English with partial translation into Japanese and a Japanese Directory of Environmental Sources. The Japan NFP planned to develop a personal computer data communication network to hook up major Prefectural Government Environment Research Centres with the NFP as host within the network.

## **Kuwait**

Kuwait's NFP is located at the Environment Protection Council, Kuwait. In December 1987, meeting of INFOTERRA National Focal Points in the Gulf region was organised by the NFP where the representatives were introduced to the use of INFOTERRA for searching of information and processing of queries. The EPC has a good library with 5580 sources. The users are provided information by using library resources and also taking the help of INFOTERRA PAC by telex or FAX.

## **The Netherlands**

The Netherland NFP is located in the Centre for Information and Documentation of the Netherlands Organisation for Applied Scientific Research. The NFP had access to a database on the completed and ongoing environmental research in the Netherlands and the bibliographic database of environmental literature of Dutch origin. It also had access to several other international databases. The NFP had been responding to an average of 100 queries per year during the last three years. Against the queries, substantive information was being supplied. The USSR, Poland Sudan and Malaysia were the significant users of information.

## **Nigeria**

The Federal Environmental Protection Agency (FEPA) in Nigeria is the National Focal Point (NFP). The FEPA had already established a national inventory of environmental information sources in all the States of the Federation. The Agency had not only identified but also registered a number of sources and users throughout the Federation and it was proposed to publish a National Inventory of Sources of Environmental Information. To ensure adequate publicity on IRS and its services, the Agency has been taking active part in organising training programmes, and printing posters and hand bills. The NFP also provided environmental information on areas such as industrial waste management, solid waste management, petroleum industry and the environment, etc. It was also engaged in creating environmental awareness for media practitioners and policy makers and publishes a quarterly newsletter. To maintain clean and healthy environment, the Federal Military Government had promulgated the Harmful Wastes Decree No.42 of 1938. To establish the mechanism for regulating, monitoring and managing the nation's environmental



resources on a sustainable basis, the FEPA Decree No.58 of 1988 had also been promulgated. Finally, the Federal Government of Nigeria had stressed the need of United Nations Environment Programme's technical assistance in the development of an effective computer based environmental data bank and information system.

## Nepal

The National Committee for Man and the Biosphere in the Ministry of Education and Culture, Kaiser Mahal, Kathmandu, Nepal, is the National Focal Point of INFOTERRA in Nepal. NFP in Nepal had been carrying out several environmental activities as follows :

- Registration of sources of environmental information. So far, 22 sources had been registered and the updated information had been provided to the PAC for inclusion in the Directory of INFOTERRA sources.
- A close liaison was maintained with the other NFP's of the INFOTERRA network and an exchange of publications among them.
- Information on environmental issue was provided to PAC, INFOTERRA and others on request.
- Distribution of INFOTERRA posters, leaflets and other publicity material among all concerned.
- Query-answer service.
- Organisation of seminars promoting use of INFOTERRA sources; and
- Organisation of exhibitions, distribution of publications on INFOTERRA.

In addition to the above, the delegate from Nepal stated that the Documentation Centre, at the NFP had a good collection of books and journals amounting to over 10,000. The Nepal NFP maintained close relations with the International Centre for Integrated Mountain Development (ICIMOD). They had also translated 12 out of 26 UNESCO-MAB posters into Nepali language for distribution among various people/organisations in Nepal.

## **Oman**

The Oman National Focal Point is located in the Ministry of Environment and Water Resources, Sultanate of Oman. The NFP had acquired the CDS/ISIS software and the database from INFOTERRA PAC.

The NFP also received assistance from INFOTERRA PAC for organising a National INFOTERRA seminar in Muscat in 1989 in which several environmental issues pertaining to the Sultanate of Oman emerged. The Ministry of Environment and Water Resources also plans to include environmental education subjects as a part of the curriculum both in schools and in the recently established Sultan Qaboos University and is also planning to increase public awareness regarding environmental conservation.

## **Sri Lanka**

The Central Environment Authority (CEA) of Sri Lanka as NFP of INFOTERRA has registered more than 300 sources. The NFP of Sri Lanka had initiated activities to promote INFOTERRA network within the country, among which were programmes for public and school children. It had compiled a series of both qualitative and quantitative inventories of environmental information and was planning to establish an environmental database/reference centre. It maintained close contacts with national sources, user communities and the PAC. It gave significant importance to the creation of public awareness on the environmental information exchange system.

## **Sudan**

The NFP Sudan is located in the National Documentation Centre. It had registered 41 sources and had responded to 134 queries. The parent organisation of NFP Sudan brought out two publications namely Sudan Science Abstracts and the National Register of Current Research. The NFP had started creating database for the above mentioned publications and planned to create databases for national environment information sources and for specialists in environmental fields. It had promoted INFOTERRA activities through seminars, conferences and exhibitions.

## **Sweden**

The Swedish NFP is located in the Library and Documentation Centre of the National Environmental Protection Board of Sweden. Sweden had nearly 170 registered INFOTERRA sources and more sources were being added. During 1988, the NFP had received 48 queries. Most of the queries from other countries were responded to by the NFP with the help of the INFOTERRA sources, experts, library sources and data bases. It had participated in the electronic mail service and preferred to encourage this further to speed up operations. The NFP felt that there was an urgent need for more vigorous marketing of the INFOTERRA service within Sweden as the service was not well known.

## **United Kingdom**

The NFP UK is situated in the Department of Environment's Library in London. The NFP was also the UK contact point for IRPTC, OECD, information exchange systems on chemicals and other international services. Besides answering queries, the NFP had updated the UK sources for the INFOTERRA International Directory. It examined the design of the present source registration form and the contents of the World Directory of Environmental Expertise and gave useful comments. It had also suggested candidates to INFOTERRA PAC for designation as Special Sectoral Sources. It had issued leaflets, participated in the seminars and symposia to promote awareness on INFOTERRA activities.

## **United States of America**

Responsibility for the U.S. National Focal Point has been assigned to the Environmental Protection Agency (EPA) in Washington, D.C. The U.S. National Focal Point worked directly with EPA policy makers, scientists, and program managers to ensure that INFOTERRA requestors received the latest and accurate information available to EPA. In 1988, the NFP responded to nearly 1400 INFOTERRA inquiries, over half of which concerned toxic chemicals. In responding to these inquiries, the National Focal Point used the resources of EPA's nation-wide network of libraries, which included 28 scientific and technical libraries across the U.S., with a combined collection of over 3 million documents, 5000 journals, and 2,000 maps. Through this library network, the NFP had access to the scientific and technical information in most public and university libraries



across the U.S. In recent years, the NFP had improved and expanded its access to information by making use of online data bases, including over 300 commercial and internal EPA technical and scientific data bases and by employing an electronic mail system which provided instantaneous access to nearly 10000 EPA users and most State environmental and agricultural agencies. The NFP had also developed a computerized directory for speedy access to their national sources. More recently, the U.S. National Focal Point had launched an extensive outreach program both to increase awareness of INFOTERRA in the U.S and to establish closer working relations with other NFPs. The NFP had made INFOTERRA an integral part of the library program at all EPA sites and had publicised INFOTERRA among other government agencies and private environmental institutions. The report concluded with some thoughts on the future of international environmental information sharing.

#### **U. S. S. R.**

The National Focal Point (NFP) of USSR is located at VINITI, Moscow, USSR. The delegate from USSR acknowledged the positive effect that the INFOTERRA has had on the information network in his country and stated that the ideas of free exchange of ecological information among the countries of the world and user access to the world information resources fully correspond to the process of Perestroika (rearrangement) and Glasnost (freedom of expression) of the USSR. The delegate said that even though there were several agencies providing scientific and technical information to users in the USSR, the INFOTERRA network had also developed well because of the need for international cooperation and exchange of accumulated experience and information felt by these agencies. Identifying the maintenance of the bond between the NFPs and the sources of information as an important activity, the delegate felt that such a bond is essential not only for exchange of queries and answers but also for keeping the sources informed of the work of the INFOTERRA system. He pointed out that the INFOTERRA bulletin was not very effective in their region as the information contained in it was not always of interest to their sources. This, in fact, has necessitated the preparation of a national fact sheet containing information of direct interest to the sources, which along with the Russian version of the bulletin is sent to the sources.

The delegate agreed with the PAC report which had identified that the link between NFPs and RSCs is of significance. He explained that in the CMEA region, this link was permanent as the National Centres extensively used the complex data base of the regional centres of the ICSTI for replying to queries and also since the ICSTI representatives participate in the INFOTERRA seminars conducted in the region.

The delegate further mentioned that most of the queries sent by users to INFOTERRA were serviced from sources of local agencies of the NFP of USSR which had a large data bank. The VINITI published the abstract journal 'Environment Management Abstract'. Copies of the EMA had been distributed among the NFPs of INFOTERRA. From 1989, this journal was also available in the form of a data base. He identified the extensive distribution and exchange of these national publications through INFOTERRA channels as the promising trend of further development of the system.

In view of the greatly increased flow of scientific and technical information, the delegate said that the exchange of 'review information' should be encouraged; this is already taking place among the CMEA countries. VINITI publishes 'review information' and individual review publications.

Touching upon the drawbacks of the system, the delegate was of the opinion that the number of users seeking the INFOTERRA services was probably small due to replies not coming fast enough and also due to the uncertainty as to whether the replies would be satisfactory. To overcome these, he suggested switching over to new forms of selection and dissemination of documented information, extensive use of access to distant data bases and transmission of data through electronic mail.

#### **Lithuanian Soviet Socialist Republic**

The delegate from the Lithuanian Soviet Socialist Republic began with a brief report of the activities of an organisation "Greens" of Lithuania to protect the environment, after which he briefly described the objectives and activities of the Lithuanian, Latvian and Estonian Institutes of Scientific and Technical Information. He concluded with an appeal to adopt emergency measures to protect the Baltic Sea from pollution.



Describing the objectives of the Lithuanian Institute of Scientific and Technical Information, which was to provide scientific, technical and economic information to all users in the republic, the paper stated that the Institute had access to the entire world flow of information on ecology. A thorough stock taking of the work being undertaken in Lithuania, Latvia and Estonia in tackling ecological problems had led to the identification of organisations working on various scientific problems, and the information requirements of these organisations. Based on the findings of the stock taking, a data base was being created which would be accessible to all users.

Another data base covering materials brought out by INFOTERRA, VINITI, ICSTI etc. also existed and informative publications in the Lithuanian language were also published.

Talking about the future plans, the delegate of Lithuanian SSR stated that the establishment of a factographic data bank on ecology, to monitor the environment was the next step and that the Academy of Sciences of the Lithuanian SSR and the Committee on Preservation of Nature and others were participating in that. He suggested that the conference INFOTERRA-3 must adopt a special resolution on the protection of the Baltic Sea. He also stated that reliable information about the sea was essential to adopt corrective measures and assured that the Lithuanian, Latvian and Estonian Institutes of Scientific and Technical Information were ready to take active part in the INFOTERRA action programme on the Baltic Sea.

### **The Ukraine Republic, USSR**

The report highlighted the Ukrainian NFP activities within INFOTERRA since the time of its joining the system. During this period, the NFP had compiled and replenished the National Directory of Sources/users. Forty primary sources were identified. The NFP responded to 47 queries, including three foreign ones. The NFP promoted the INFOTERRA services by way of publishing express-information (in 1984 and 1988). The NFP organised the sources/users meetings with participation of IAC, the USSR State Committee for Sciences and Technology, VINITI, and representatives of other institutions. The Ukrainian NFP delegate thanked PAC as well as the NFPs of Great Britain, the FRG and India for providing timely information on minimising the adverse consequences of the Chernobyl disaster..



## **Zambia**

The Zambian National Focal Point is situated at the National Council for Scientific Researches (NCSR) in Lusaka. It was managed through the Library and Documentation Section of the NCSR. The NFP was strongly supported by the Zambian Government financially.

The NFP had access to a telex machine and photocopier, but it did not have a computer system. The NFP had collected data on sources of information which were yet to be published. The NCSR/NFP also published 'Science Abstracts'. The NFP in its report had identified the main causes of environmental destruction in Zambia. It had also identified major generators of environmental information and organisations which were involved in dissemination of environmental information. The users of environmental information in Zambia included academicians, researchers, decision makers, agricultural extension workers etc. It was pointed out that the system for making available environmental information to the grass root workers such as peasants, farmers, wildlife poachers, local fishermen etc. was not adequate. However, the cooperation among Libraries in Zambia was very good. Due to financial constraints, adequate publicity to INFOTERRA activities had not been possible.

## **Congo**

The NFP in Congo is located at Ministère Du Tourisme, Loisirs Et De L'Environnement, Brazzaville, Congo. It was set up in 1982.

It had responded to 20 queries on an average every year. The NFP had registered 28 potential sources on environment for the International Directory of Sources. It was also engaged in the compilation of national directory of sources for which thirty five

sources had been registered. NFP activity in the country during 1985 to 1987 was at very low ebb, since the NFP did not have any permanent staff nor adequate financial resources for information activities. However, in the year 1988, the NFP started preparing a document on 'Education and Training relating to environment and their integration in the school programmes'. It was felt that this would help not only in creating environmental awareness but would also help in the promotion of INFOTERRA. The Congo NFP was a member of the Network of Agricultural Information and Documentation (REDICA) operating within the framework of AGRIS. A training seminar for administrative personnel of the NFP had been scheduled to be held in 1989.

#### STATEMENT BY THE INVITED OBSERVERS

After the presentation of country reports, the representatives from the Food and Agriculture Organisation (FAO), International Oceanographic Commission (IOC), International Register of Potential Toxic Chemicals System (IRPTC, Geneva) who were invited as observers spoke and expressed their views which are briefly summarized below:

#### STATEMENT BY THE REPRESENTATIVE OF THE FAO

The FAO placed particular emphasis on environmental issues as related to agriculture, forestry, fisheries, food, nutrition and rural development. Close cooperation existed with UNEP in these areas and several projects were being executed jointly. The FAO representative described FAO's major systems in the field of scientific and technical information which were of direct relevance to INFOTERRA. These were International Information System for the Agricultural Sciences and Technology (AGRIS), the Current Agricultural Research Information System (CARIS) and Aquatic Services and Fisheries Information System (ASFIS). Several of the special areas covered by these three systems were environment related. The first two systems, viz. AGRIS and CARIS were worldwide networks coordinated by the FAO's libraries and Documentation Systems Division. AGRIS was a bibliographic system under which 159 national,

regional and international centres were participating. Its database had accumulated since 1975 to more than a million and a half citations with 120,000 records added annually. This database was accessible online at IAEA, DIMDI and DIA-LOG. A monthly bibliography AGRINDEX was published in English, French and Spanish - later two versions were added in 1987.

CARIS dealt with information on current agricultural research projects in/or related to developing countries. 112 national, regional and international centres participate in the network. The database contained information on nearly 20,000 projects regularly updated. Both systems were trilingual (English, French and Spanish) using a multilingual thesaurus called Agrovoc developed jointly with the Commission of the European Communities.

AGRIS and CARIS like INFOTERRA were based on the national participation. Some of INFOTERRA's NFPs were also AGRIS or CARIS centres. Although FAO did not have any formal cooperation with INFOTERRA, it had informal contacts, exchange of visits and of information. For example, FAO had supplied INFOTERRA with a list of AGRIS/CARIS centres to be added to the information sources.

The FAO representative commended the efforts of INFOTERRA in the development of the network. He hoped for increased cooperation between NFPs and national AGRIS/CARIS centres in order to make use of existing resources more effectively. He pointed out that environmental information being multi-disciplinary and encompassing a wide spectrum of subject areas could not be easily retrieved from AGRIS/CARIS/ASFIS and other systems unless queries were formulated in precise terms.

The FAO representative stated that FAO placed high priority on strengthening of national/regional centres with emphasis on training which was continuing and becoming an increasingly demanding task. He laid stress on the use of modern technologies but felt that the application of these technologies in worldwide networks like FAO was slower than in the commercial sector since FAO had to look for ways and means to enable all the Members of the network to benefit from the new technologies.



### **Statement of the Representative of the International Oceanographic Commission(IOC)**

Representative of the International Oceanographic Commission (IOC) informed the participants about the involvement of the IOC in conducting research on oceans, exchange of marine data etc. 100 countries are the members of the IOC having 60 data centres and 300 databases. The IOC made extensive use of these databases using electronic mails. Representative of IOC informed that close cooperation existed between IOC and INFOTERRA. They published several regional information bulletins and information material.

### **Statement of the IRPTC (Geneva) Representative**

The representative of IRPTC(Geneva) informed that IRPTC had close cooperation with INFOTERRA. It was also a special sectoral source (established in 1976), for INFOTERRA. IRPTC had a Central Data Bank at Geneva, which was limited to certain chemicals. The data bank had 600 chemicals on the priority list. More than half were pesticides in which the developing countries were specifically interested. The data bank had information on the regulations as well as legal aspects of the use of chemicals in different countries. IRPTC also collaborated with international programmes on environmental safety and maintained good contacts with regional organisations. IRPTC had published a directory on information sources about five years ago.

## ITEM 5 : INFOTERRA IN THE 1990s : NETWORK DEVELOPMENT

Mr. Tom Munetic of UNEP's INFOTERRA PAC presented a paper on 'INFOTERRA in the 1990s : Network Development'. The paper gave an overview of the achievements made and the problems encountered network-wide in carrying out basic INFOTERRA activities needed to be focused upon by the network partners during the next decade. A brief summary of the paper is given below.

The paper stated that networking had become a catchword in international exchange of information during the last decade and that this trend was likely to continue and increase in future. INFOTERRA was one of the largest international environmental information networks in the world comprising 40 sub-networks of 134 NFPs, 6200 sources, 25 SSSs and 9 RSCs.

The report described the activities of the INFOTERRA network under six heads : National referral services, national environmental information services, international information exchange, promotion of INFOTERRA services, INFOTERRA Special Sectoral Sources and INFOTERRA Regional Service Centres.

On the 'National Referral Service', the report listed basic INFOTERRA activities and stated that the major achievement had been the establishment of 134 NFPs and provision of national referral services in more than 100 countries. The report lists the following as problems encountered :

- <sup>38</sup>~~43~~ NFPs had not registered any sources; ✓
- Among the <sup>8</sup>~~91~~ NFPs with sources registered, less than a dozen had been published their national INFOTERRA directories of sources; ✓
- Some NFPs passed on the users to INFOTERRA PAC regularly;
- Lack of promotion of INFOTERRA services;
- Lack of monitoring and evaluation of INFOTERRA effectiveness; and
- Insufficient government support to the NFPs.

The report suggested that NFPs should improve their performance on all the above points and should also ensure adequate promotion of

INFOTERRA in future. With regard to the 'National Environmental Information Services', the report stated that the most basic INFOTERRA activity was the strengthening of national information infrastructures in the environment area. INFOTERRA had created National Environmental Information Systems or established links with existing systems in 40 countries. In order to improve this further, the report suggested the following activities for the NFPs for the 1990s :

- All NFPs should create a National Environmental Information System or establish links with existing systems;
- NFPs should build their environment library collections; and
- create and strengthen source/user communities through systematic interaction with sources and through user training etc.

Under the head 'International Information Exchange', the report listed the following basic INFOTERRA activities :

- To select appropriate national sources for international referral and transmit to INFOTERRA.
- To possess and to provide free access to the INFOTERRA International Directory to national users.
- To provide substantive environmental information to its national users;
- To assist in updating national sources entered in the International Directory.
- To maintain links with INFOTERRA PAC, RSC and other NFPs; and
- To assist in evaluation and improvement of INFOTERRA.

Even though a network of over 6100 sources of information had been set up and over 84,000 queries responded to so far, there were several problems such as lack of selectivity, reluctance of NFPs to search, lack of regular communication within the INFOTERRA network, lack of user satisfaction, lack of monitoring by the NFP etc. The report suggested the following activities for NFPs to improve and develop the system :

- Review sources in International Directory and eliminate unsuitable ones for international information exchange;



- NFPs should be able to search the international Directory themselves and contact sources, where possible SSSs should be contacted directly, rather than through the PAC;
- All sources must be constantly updated and revalidated;
- All partners in the INFOTERRA network should communicate with each other frequently through rapid communication links; and
- All NFPs must undertake user satisfaction surveys and communicate the feed back to PAC.

Under the head 'Promotion of INFOTERRA Services', the report listed user training, publicizing INFOTERRA, promotion of the directories and experience sharing as the basic activities under the INFOTERRA network. The problems, according to the report were :

- Development of systematic INFOTERRA promotion strategies by very few NFPs;
- Many NFPs had neglected the promotion of sales resulting in the International Directory being used less; and
- Few NFPs had initiated activities to turn INFOTERRA sources into users.

After enumerating these problems, the report gives following suggestions for the 1990s :

- Promotion of awareness of INFOTERRA services among users should be given priority;
- NFPs should promote the sale of INFOTERRA publications within their country; and
- Better communication between sources, NFPs and SSSs should be established.

The report then discussed the basic activities of the SSSs which was to provide substantive information on particular environmental subject areas to users either directly or through PAC. A network of 25 SSSs had been established. The report pointed out that a number of subjects were not covered by SSS and that most of the SSSs are under-utilised. To further improve the system, the report recommended that all NFPs should participate actively in developing the SSS network as well as to utilise better the services provided by the SSS.

Coming to the head 'Regional Service Centres (RSC), the report listed the following basic activities :

- RSCs were service centres for INFOTERRA NFPs and allowed economic use of services such as computer searches of the International Directory, on-line searches of data bases, provision of substantive information, document delivery, and training of NFP staff etc.

The report described a RSC as a Resource Sharing Centre which capitalised on the resources already existing in a region. RSCs provided their services directly to the NFPs. There were 9 RSCs as at present. Describing the desired activities for the RSCs for 1990s, the paper recommended that -

- All NFPs should establish active working links with the RSC;
- NFPs should assist INFOTERRA PAC in identifying suitable potential RSCs; and
- RSCs should implement their functions speedily and fully besides their normal activities as NFPs.

The report concluded with the expectation of INFOTERRA network development in the 1990s proceeding in the following main directions :

- Increased mobilisation and utilisation of information resources and services globally;
- Widespread use of modern information technology for improved access to and transmission of environment information;
- Improved provision of substantive environmental information through strengthened networks of INFOTERRA national sources; special sectoral sources and regional service centres;
- Establishment of national environmental information systems, especially in developing countries, with INFOTERRA operations as a core activity;
- Strengthened network of INFOTERRA national focal points through sub-networks and technical assistance; and
- Increased awareness and use of INFOTERRA services.

## **Discussions on Mr. Tom Munstic's Paper on 'INFOTERRA in the 1990s- Network Development'**

Several delegates discussed the paper and offered comments/suggestions etc. A brief account of the discussion is given below.

### **USSR - Special Sectoral Source for Hydrometeorology**

The delegate from the USSR SSS on Hydrometeorology gave an account of its activities. The SSS covered the subjects of meteorology, oceanography and hydrology. The SSS's abstracts data base was being regularly updated. Telecommunication access to the system had been introduced. On-line links with ICSTI and other international systems and close contacts with other NFPs had been established. The delegate suggested that the thematic areas for the Special Sectoral Sources should be clearly outlined. The other suggestions put forward by him related to assessment of the user feed back and organisation of seminars of the SSSs.

### **Kuwait**

The delegate from Kuwait felt that there was considerable duplication of efforts in seeking environmental information. The information seekers sometimes approached the NFPs as well as INFOTERRA PAC simultaneously. In case information was not available with PAC, the PAC requested other countries to provide information to the enquirer. This resulted in receipt of information directly from the NFPs as well as from PAC or other countries. Avoidance of such duplication was most desirable.

### **Indonesia**

The delegate from Indonesia stated that they were not using the INFOTERRA thesaurus - since they did not find it useful for networks dealing with all subjects in science and technology. Indonesian NFP was one of those dealing with several subjects of science and technology together.

### **Rwanda**

The delegate from Rwanda suggested that the decision makers responsible for allocating funds must be convinced of the information needs of the user community.



### **Madagascar**

The delegate from Madagascar felt that there was overlapping in the network structures in the Indian Ocean Region and suggested that sub-networks consisting of countries such as Mauritius and Madagascar be formed. He also supported the suggestion given above by the delegate from Rwanda.

### **Mauritius**

The delegate from Mauritius suggested that in order to see the system operating successfully in the next decade, it was essential to study the weakness in the system. He felt that availability of telex machines, telefax and other equipment should be ensured. The delegate stated that some of the islands did not form part of the region. He also suggested that sub-regional groups of 4 to 5 islands in the region may be formed to effectively communicate with each other on environmental issues.

### **Mali**

The delegate from Mali felt that the aspect of personnel training within the framework of INFOTERRA was inadequate. He suggested that INFOTERRA should make a global assessment of the situation in this regard and identify the countries facing problems and difficulties in these aspects. INFOTERRA should not only provide adequate training but also the financial resources as far as possible.

### **Pakistan**

The delegate from Pakistan said that some NFPs did not have the adequate manpower and material, the lack of which resulted in inadequate information handling. He therefore felt that it was obligatory for the NFPs to provide for minimum infrastructure.

### **U S A**

The delegate from USA stated that USA encouraged regular exchange of information to strengthen the NFPs and the SSSs to promote resources and the available data.

### **Congo**

The delegate from Congo felt that availability of skilled personnel was essential for effective functioning of the NFPs. Therefore, the personnel training aspect was very essential. The delegate suggested that training of managers of the respective NFPs may be undertaken.

### **Kuwait**

The delegate from Kuwait felt that NFPs were not equal in terms of resources. He suggested that the query formats should be simplified. He also felt that information was usually being asked from the INFOTERRA PAC.

### **Kenya**

The delegate from Kenya suggested that NFP managers should convince their respective governments about the importance of training in information management. She suggested identification of donor agencies who could support training programmes.

### **Egypt**

The delegate from Egypt felt that bilateral or multilateral cooperation between NFPs should be developed. It was noticed that the response to queries from the region was poor. The delegate emphasised the need to provide substantive information instead of referral services.

### **Gabon**

The delegate from Gabon emphasised the need to reorient information managers to keep them up to date with new developments in information management.

### **Ethiopia**

The delegate from Ethiopia suggested that each NFPs should be aware as to how other NFPs were organised and suggested that an assessment format in this regard may be developed.

### **Netherlands**

The delegate from the Netherlands stated that an understanding of activities of other NFPs was essential for furthering the objectives of the network.

### **Ghana**

The delegate from Ghana stated that availability of financial resources was a must for the NFPs and suggested that the respective governments should help their NFPs. He urged the UNEP authorities also to help NFPs in this regard. The delegate stated that information systems had a rather low priority with Governments and it was difficult to convince the Governments to allocate funds for this area. He noted that although donor agencies did exist, one had to approach these agencies through their respective Governments, this being a precondition of the donor agencies. This procedure, however, does not work satisfactorily. He hoped other NFPs perhaps could help in this regard.

### **Argentina**

The delegate from Argentina suggested that UNEP could become an intermediary to get finances for those countries who needed funds from the donor agencies so that these countries could have adequate access to new technology. These countries also needed funds to meet travel expenses for attending meetings etc.

### **U. K.**

The delegate from the United Kingdom felt that a directory of information of NFPs and their sources was essential and recommended that such a Directory be compiled.

### **Guinea**

The delegate from Guinea said that there were financial constraints for several NFPs and urged the developing countries to highlight the problems of financial as well as material constraints. He informed that financial aid was also required by poor nations to meet expenses in sponsoring the regional seminars etc.



### **Gambia**

The delegate from Gambia suggested that enhancement of funds for NFPs be made. He proposed that INFOTERRA PAC should send guidelines for seeking financial help from the relevant governments or from other countries.

### **Zambia**

The delegate from Zambia suggested that NFPs should be aware of the existing national bibliographies for resource sharing.

### **Rwanda**

The delegate from Rwanda suggested sending of questionnaires for assessing the work being done in various NFPs.

### **Summing up of the Discussion by Dr. Wo Yen Lee Director, INFOTERRA PAC**

Summing up the discussion, Dr. Wo Yen Lee stated that concern about collection of information with regard to various NFPs, their information handling capabilities, the equipment they have, their mode of communication etc. had been raised earlier. As a result of this, INFOTERRA PAC had designed questionnaires and sent them to all NFPs. Even after reminders there was limited response and only 80 NFPs had responded. The response received was fed into the computer and the output was expected to be distributed in the conference. However, since the input received was in four different languages, INFOTERRA PAC faced problems in processing the information. Hence this Directory of NFPs could not be made ready before the meeting. Dr. Lee informed participants that the English version of the Directory of NFPs was almost ready and it was being translated into other languages.

With regard to personnel training, Dr. Lee stated that several NFPs had raised this issue and had asked UNEP to organise training for management and other subject areas. Dr. Lee said that there was a specific unit in the UNEP Secretariat which handled training on environment. He stated that a training project on management was already on-going in which seven months training in GDR was arranged. He said that opportunities for training in water management, soil management, pollution control

etc. were also there. Therefore, the NFPs were required to send specific requests to the training unit of UNEP. The training in these aspects was not the function of INFOTERRA but in fact formed part of a separate Division of UNEP. He said that INFOTERRA had an intensive training course only for information services. It was a five day training course for the newly assigned NFPs or newly appointed staff in the NFPs and was organised in October-November every year. ~~(Those who would like to avail of the opportunities for this training could approach the Environment Education Training Unit of UNEP.)~~ ✓

With regard to financial assistance, Dr. Lee stated that UNEP was fully aware of the need for finances for the developing countries. He said that UNEP had tried to approach several multilateral donor agencies in this regard. The requests were under consideration. Some agencies had not acceded to the request as it did not fall into their priority areas. Dr. Lee suggested that NFPs should try to obtain funds themselves. He stated that a draft project proposal for seeking financial assistance had been prepared as a model for use by the NFPs. The same could be modified by the NFPs according to the situations existing in their respective countries. He suggested that using this model, the NFP should approach UNDP, World Bank and other U.N. agencies directly for funds since it was not desirable for INFOTERRA, being one of the U.N. agencies, to seek financial assistance from another U.N. agency. Dr. Lee said that the Athens meeting and the IAC meeting in Australia also made recommendations to form subgroups of information networks - with one NFP from the developed countries willing to assist NFPs in other developing countries with regard to equipment etc. thereby removing the gaps in the development of NFPs. ~~(Dr. Lee hoped that the UNEP Governing Council would consider changing its mandate to provide for the suggested financial assistance. However, the NFPs/Governments may have to approach the Governing Council in this regard.)~~ ✓

With regard to the sub-regional groupings, Dr. Wo Yen Lee said that no political thinking was ever implied. In fact, these groupings were based on the consideration of language as well as the willingness of a Centre to provide assistance to other members of the groups. For the Indian Ocean countries, UNEP had no objection to such groupings. However, UNEP had to identify the institutions willing to provide such services.

## ITEM NO. 6 - INFOTERRA IN THE 1990s: OPERATIONS

Mr. Hassane Bendahmane, Programme Officer of INFOTERRA PAC presented a paper 'Infoterra in the 1990s: Operations'. The paper stated that the need to share our experiences, successes and failures, research and its applications at a global level necessitated the establishment of the International Referral System (IRS) in 1972 which later became INFOTERRA. This paper described INFOTERRA operations in terms of its system design, the institutional machinery, the tools of operations, the tools for services and the mode of information delivery.

INFOTERRA system design was characterised by decentralisation and standardization. This design takes care of three important requirements. First, it ensures noninterference in the normal operations of individual sources, focal points. Secondly, it includes a uniform description of sources; and thirdly it enables all NFPs to function fully.

The paper states that the most important consequence of decentralization is the self-reliance it promoted among partner countries, encouraging them to develop a strong national information system within the country itself. The report also identified this as the primary goal of INFOTERRA. Standardization facilitated the communication process among the network partners. To achieve this, INFOTERRA had developed tools which could and should be refined by the network partners. As a result of cheaper computer technology and software coupled with new telecommunication facilities, INFOTERRA would become more decentralised and have better coordination in the 1990s. The electronic mail experiment, the use of the INFOTERRA micro CDS/ISIS system by over 40% of the member countries coupled with the expected use of satellite telecommunications was going to result in a truly global network in the 1990s.



The paper identified the five major components of institutional machinery of INFOTERRA - NFPs, RSCs, the sources, SSSs and the PAC. The paper did not elaborate on them as they had been covered under another paper on 'Network Development'.

The 'tools for operations' dealt within the report are - The INFOTERRA Thesaurus of Environment Terms, Source Registration Forms, Source Registration Coding Sheet, Source Updating, Search Formulation Strategies and the INFOTERRA Operations Manual. The INFOTERRA thesaurus, first published in 1974, consisted of organisational attributes, a list of subjects, an alphabetical listing of subjects and a listing of subject attributes in code sequence. The paper emphasised that the thesaurus was conceived to describe institutions rather than documents and concluded that it had served the purpose. It was also mentioned that updating of sources was now in progress. Stressing the importance of the Source Registration Forms (SRF), the report advocated the completion of the SRF with utmost accuracy because only on the basis of the description available in the directory could a source be identified and selected to answer a query. Referring to the computerized description of individual source, the report mentioned that it was the responsibility of the NFPs to read the data from the SRF and transcribe it on to the coding sheet, with the use of the thesaurus. The responsibility for maintaining the source records upto date was that of NFPs. Registering and publishing environmental information sources in the International Directory necessitated the development of a search strategy. The report referred to the telex forms, the computer software, guidelines for users for manual searches, guidelines on formulation of queries etc., that had been developed by INFOTERRA for this purpose. The INFOTERRA Operations Manual, an essential tool for operations, and the form contained therein were regularly reviewed by the PAC.

Coming to the role of these tools for the 1990s, the paper stated that the INFOTERRA Standing Committee on the Thesaurus was attempting to make the thesaurus not only conform to the UNISIST guidelines, and compatible with UNBIS, but also to enable it to meet the challenges of computerized, information handling for the next decade. Some practical suggestions to achieve this, had also been provided.

Describing the State of the Art of the INFOTERRA tools for services, the paper described the INFOTERRA International Directory, the World Directory and the INFOTERRA specialised directories. While the INFOTERRA International Directory was a Compendium of 6200 sources of environmental information from 91 countries, the World Directory was an abridged version of the International Directory, fitting all the sources along with the index in one volume. Besides this, the INFOTERRA data base had been converted to run on micro-computer and more than 45 NFPs had already received the data base on diskettes. INFOTERRA specialised directories on important environmental issues had been published.

Discussing the status of these tools for the 1990s, the report stated that printing of the hard copy version of the International Directory may be stopped in the 1990's as more and more NFP's received it on the diskettes. Users could be referred to the abridged World Directory. INFOTERRA would continue to publish one specialised directory every year to cover all major environmental areas.

The effectiveness of INFOTERRA was measured by its ability to deliver information and the speed with which queries were responded to. NFPs were the main conduits for users to reach INFOTERRA. Therefore, NFPs needed to offer high quality services to users and also to undertake promotional campaigns to raise awareness on the availability of INFOTERRA services among users. Delay in processing user queries and slow communication processes in NFPs had to be avoided.

The report stated that the 6200 sources of information registered with INFOTERRA and the 25 SSSs could provide solutions to most environmental queries, but the potential of these bodies had not been fully tapped yet. A sustained user satisfaction survey was emphasised upon to gauge the status of the system services closely.

*Bendahmane's*

**DISCUSSION ON MR. HASSANE'S PAPER ON  
'INFOTERRA IN 1990s : OPERATIONS'**

After Mr. Hassane Bendahmane of the INFOTERRA PAC had presented his paper on 'Network Operations', delegates from several countries discussed the paper. A brief account of these discussions was given below:

**EDWIN Special Sectoral Source**

The representative of the EDWIN Special Sectoral Source informed that they were receiving inadequate funds for their activities relating to answering queries from INFOTERRA users. It was stated that the SSS had developed their own thesaurus. The representative also said that updating of international bibliographies was rather difficult and hence they would like to continue with the present status. It was suggested that seminars could be organised to identify gaps in the subject areas of various SSS. INFOTERRA, PAC could acquire all the thesauri developed by different Special Sectoral Sources. INFOTERRA, PAC was urged to help the NFPs in directing the enquirer to the specific sources where they can get the relevant information.

**Egypt**

The delegate from Egypt suggested that since sources of information were also users, NFPs should also attach a list of the Special Sectoral Sources along with other sources of information. He suggested that the INFOTERRA, PAC publish a directory of experts on environment related subject areas. Besides, INFOTERRA could prepare a thesaurus for indexing and cataloguing various documents in this field. The delegate also suggested that bibliographic references must be standardised.



### **Japan**

The delegate from Japan suggested that description of sources be restricted to only 60 words. She cited an example of the word 'coralreef' which was not included in the INFOTERRA thesaurus.

### **Netherlands**

The delegate from the Netherlands pointed out that the source description format had been developed a long time ago. Since technology such as free text searching packages etc. was developing very fast, INFOTERRA, PAC should look into the question of revising the formats. Referring to point 24(a) at page 7 of the paper, he pointed out that a suggestion was given that the fax number should be added in the place of cable address. He felt that it was not desirable to mix different kinds of information in one field. The delegate also felt that since additional information was required to be added for the source description, it was necessary to revise the source registration forms.

### **Bolivia**

The delegate from Bolivia felt that these changes in the registration form may not be necessary. What actually was needed was a directory covering different sectors and regions. The sources should be asked to fill up the questionnaires in a precise manner and should take into account the national directories.

### **Malaysia**

The delegate from Malaysia supported the idea of including the FAX number so as to respond quickly to all the queries.

### **U.K.**

The delegate from the U.K. felt that the hard copy version of the thesaurus is needed. For the free text area, it would be preferable to use additional supplements to the INFOTERRA thesaurus. She felt that in computer readable form the description of sources was rather expensive.

## **U.S.A.**

The delegate from the USA supported the above mentioned view. She said that they would also like to explore the possibility of using the thesaurus as an aid for indexing in automated systems. She suggested that the computer readable thesaurus should be compatible with the hard copy and felt that although there was a need for sophisticated thesauri for indexing purposes, it was premature at this stage to abandon the hard copy.

## **Japan**

The delegate from Japan supported the view of the delegate from USA and informed that even though Japan used the computer versions, it finds the hard copy extremely useful.

## **Netherlands**

The delegate from Netherlands stated that it had received the micro-CDS/ISIS version and was in the process of updating the same.

## **EDWIN Special Sectoral Source**

The representative of EDWIN SSS felt that there was underutilisation of the network, and enquired as to what role PAC saw for itself in urging NFPs to discuss directly with each other.

## **Pakistan**

The delegate from Pakistan suggested that better facilities at the INFOTERRA, PAC would help NFPs. NFPs should thus bank upon INFOTERRA, PAC as much as possible. He felt that the INFOTERRA thesaurus could only be helpful for source registration. For the vocabulary control, he suggested the use of other available thesauri.

## **F.A.O.**

The FAO representative felt that the issue of the national bibliography on the environmental sciences was not necessarily linked with the question of referral centres.

### **Senegal**

The delegate from Senegal said that considering the multi-disciplinary nature of the environment field, it was rather difficult to start building a new thesaurus. He said that the Soviet thesauri are already available and suggested the development of sectoral thesauri which would help the INFOTERRA thesaurus. The delegate mentioned that several bibliographies had been prepared by them using the existing questionnaire to a limited extent. However, he felt that the questionnaires needed further simplification.

### **Indonesia**

The delegate from Indonesia said that a science and technology data base existed in his country. For the environmental sciences, Indonesia was using different thesauri. She mentioned that the country was faced with acute financial problems and that the funds for books and journals had been heavily reduced. She suggested that national bibliographies should be made on specific projects while avoiding duplication. She sought UNEP's help in this regard.

### **Sri Lanka**

The delegate from Sri Lanka felt that preparation of national bibliographies needed a proper questionnaire. She suggested that INFOTERRA, PAC may develop guidelines for preparation of such questionnaires.

### **Chile**

The delegate from Chile said that it was difficult and even dangerous to make the INFOTERRA network a bibliographic system. He suggested the development of a sound system for collection of publications available in the region for making a regional level bibliography to help in the preparation of an international bibliography.

### **EDWIN Special Sectoral Source**

The representative of the SSS wondered as to how the bibliographic function would be more useful than the actual INFOTERRA system as it was today.



### **Pakistan**

The delegate from Pakistan felt that one should not be dogmatic on the question of national bibliographies or the international bibliography since several NFPs may have secondary sources such as biological abstracts, chemical abstracts, environmental abstracts as well as some national bibliographies on science and technology produced by several countries which covered the area of environment.

### **Nepal**

The delegate from Nepal differed with the delegate from Pakistan and said that many developing countries may not have access to the journals as well as secondary sources referred to by the Pakistani delegate. Therefore, he felt that the aspect of the national bibliography was very important.

### **Netherlands**

The delegate from the Netherlands pointed out that some NFPs did need help and guidelines on the preparation of national bibliographies. The preparation of an international bibliography was too vast a task for the INFOTERRA, PAC. However, he felt that INFOTERRA, PAC might guide these countries by giving out some common format or a software package for preparation of bibliographies.

### **Mali**

The delegate from Mali felt that the problems in preparation of bibliographies varied from region to region and one should sensitise others to realise these problems.

### **Sudan**

The delegate from Sudan said that several of the NFPs were located in the Departments of Environment and a few in the documentation centres. Since the preparation of national bibliography was the concern of libraries and documentation centres, she urged the NFPs to collaborate with the concerned libraries and documentation centres in producing the national bibliography.

### **Sweden**

The delegate from Sweden felt that INFOTERRA, PAC should not go in for a bibliographic system. She suggested that the available bibliographic system or data bases should be identified and information passed on by the INFOTERRA, PAC to all concerned.

### **Senegal**

The delegate from Senegal suggested that every country should have a national bibliography of its own. These bibliographies should be sent by the NFPs to the INFOTERRA, PAC. He pointed out that it would be a mistake to go in for making global bibliographies, which was an enormous task.

### **Poland**

The delegate from Poland said that for storing information on specific topics, one had to use various bibliographies including those prepared by some Special Sectoral Sources. He pointed out that there were no such sources in Arabic and the Slavic languages. The country considered exchange of bibliographies among NFPs as important. Poland was dependent on the technology transfer from developed countries. He suggested that a data base on technology should be developed with the help of NFPs.

### **Morocco**

The delegate from Morocco also did not favour the idea of preparation of an international bibliography. He felt that such a bibliography could never be exhaustive.

### **Japan**

The delegate from Japan suggested inclusion of grey literature in the bibliographic data bases. She suggested that since considerable information was available on the systems like DIALOGUE, there was no need for creating new data bases.

#### **U.K.**

The delegate from the U.K. pointed out that some of the sources registered in the INFOTERRA directory brought out highly specialised bibliographies. She said that INFOTERRA, PAC should not be burdened with the task of acquiring all of them. Perhaps international library associations or UNESCO could solve the basic problem of acquisition of material listed in these bibliographies.

#### **USSR**

The delegate from USSR said that it was necessary to update the national bibliographies and publish them on a regular basis.

#### **Finland**

The delegate from Finland did not support the idea of publishing a worldwide bibliography. She suggested that instead of a worldwide bibliography, one should integrate the national bibliographies for which a thesaurus could be a better tool. She said that the existing thesauri were however not adequate for the purpose. She mentioned that Finland had developed a thesaurus of its own which was used for the national bibliography, and suggested the inclusion of an enlarged list of words in the INFOTERRA thesaurus. She urged INFOTERRA, PAC to identify such words which NFPs would like to incorporate in the INFOTERRA thesaurus.

#### **Botswana**

The delegate from Botswana suggested that the possibility of bibliographies at regional level should be explored. She suggested that NFPs acquire the sectoral bibliographies and suggested that INFOTERRA, PAC should take one region as an example and make a feasibility study for developing a standardised format for the national bibliography.

#### **Gambia**

The delegate from Gambia said that it was necessary for all NFPs to know each other for better cooperation and building up of friendly relations among themselves.



## **Pakistan**

The delegate from Pakistan felt that the quality of research in most countries was more or less the same and pointed out that in terms of data, the needs of Pakistani scientists were in no way different from the needs of the scientists from developed countries.

## **Egypt**

The delegate from Egypt felt that the lists of publications available with NFPs was important and could be obtained by other NFPs for use.

## **SUMMING UP OF THE DISCUSSIONS BY DR. WO YEN LEE, DIRECTOR, INFOTERRA, PAC**

Following is the brief account of the summing up by Dr. Wo Yen Lee, Director, INFOTERRA, PAC.

## **Need for the Printed Version/Hard Copy of INFOTERRA Directory of Sources**

Dr. Wo Yen Lee clarified that INFOTERRA, PAC had no intention of stopping production of the printed version of the 'Directory of INFOTERRA sources', even if the hard copy (printed) was expensive. Such an issue would only arise when all the NFPs were fully computerized.

## **Users' queries**

Dr. Wo Yen Lee pointed out that often the words used in a query were not easily understood. He said that INFOTERRA, PAC had brought out a leaflet giving guidelines for getting clear queries from the users. The INFOTERRA, PAC had sent these guidelines to the NFPs to enable them to mail the same to their respective users for getting more precise and accurate queries. However, INFOTERRA, PAC felt that despite these guidelines, queries received were still not clear in their meaning. This aspect, INFOTERRA, PAC felt, should be handled directly by the NFPs to seek exact meaning of the queries received by them. Dr. Lee said that the INFOTERRA, PAC also encouraged users to send queries directly to NFPs who were in a better position to handle the query as compared to the INFOTERRA, PAC which has limited staff.

### Source Registration Form

Dr. Wo Yen Lee suggested that the source registration forms should be more user friendly. He said that the redundant fields would be removed and necessary changes would be incorporated in the Source Registration Form.

### Micro-version of the CDS/ISIS Data Base

Dr. Wo Yen Lee informed that INFOTERRA, PAC was presently working with the Spanish and French versions of the micro-ISIS versions of the data base. Therefore, the updated micro-computer version along with supplement was expected to be issued by July-August, 1989.

### Objectives of the INFOTERRA, PAC

Dr. Wo Yen Lee said that INFOTERRA, PAC encouraged user contact directly with both the NFPs and Special Sectoral Sources. This, however, does not mean that INFOTERRA, PAC was not willing to help those seeking environmental information. He reiterated that the INFOTERRA network was a decentralised network and NFPs being partners of the network, could contact each other for information. In such a case, in fact there was no need to go to INFOTERRA, PAC at all. He pointed out that in some cases, the NFPs did not respond to their colleagues in other NFPs. However, when the same query was floated through INFOTERRA, PAC, a better response was noticed. This could perhaps be due to the fact that INFOTERRA, PAC was more familiar with the NFPs who responded to the queries than the NFPs which had actually floated the query. Dr. Wo Yen Lee emphasised that INFOTERRA, PAC would never object to being approached by the NFPs directly for information. He stressed the need for contacting the Special Sectoral Sources who were repositories of specialised information. Dr. Lee informed that the INFOTERRA, PAC covered the cost of query response in the case of users from developing countries from Government circles requiring information from the Special Sectoral Sources through INFOTERRA, PAC. Dr. Lee clarified that queries meant for the Special Sectoral Sources were to be routed through the INFOTERRA, PAC only, <sup>if cost of the services is</sup> ~~since NFPs approaching these sources directly could not be monitored by the INFOTERRA, PAC.~~  
involved - ✓

### Bibliography System

Dr. Wo Yen Lee pointed out that the preparation of an international bibliography was a tremendous task, as the field was multi-disciplinary. It also involved duplication problems. Besides, updating of the same on regular intervals was also difficult. Dr. Lee said that there was a great difference between a national system and an international system. He said that several developed countries already had the data bases available. Besides, some developing countries also had their own bibliographies. In the case of developing countries, the inputs such as books, reports, articles, etc. were limited. In such cases, the preparation of the national bibliography would be easily possible and useful since much of this literature would fall under the category of 'grey literature'. The exchange/sharing of such national bibliographies was very useful. The preparation of a national bibliography for every country is not mandatory for all countries. However, Dr. Lee agreed that the national bibliography was needed and INFOTERRA, PAC would provide guidelines for NFPs to produce the same. Dr. Lee stated that ~~there was no necessity~~ <sup>the chances were rather dim</sup> for reviving the idea of a global <sup>Scientific and Technological</sup> information network. He said that discussions were held in the UN on including the science and technology area in the INFOTERRA sphere. Since it involved heavy financial investments, the proposal was not carried further.



**ITEM NO. 7: INFOTERRA IN THE 1990's : NEW TECHNOLOGIES**

*Roger*  
Mr. ~~Andrian Rodger~~ Johnson of INFOTERRA, PAC presented the paper 'INFOTERRA in the 1990's: New Technologies'. The paper discusses new technologies in the information and communication fields and their possible adoption to further the development of INFOTERRA services in the 1990's. A summary of the paper is given below:

Great advances had been made in information technology in the last decade that had revolutionised information storage, processing and retrieval systems world wide. Such advances include those in the fields of office automation, computer technology and telecommunication. The paper identified the arrival of the high capacity micro-computers with large storage and telecommunications facilities as the major factor responsible for the significantly increased efficiency of operation of the INFOTERRA system as well as for user satisfaction. Micro-computers, advanced telecommunication technology, faster digital data transfer, increase in the number and capacities of satellites combined with the widespread installation of national and international packet switching networks have made the on-line, world-wide access of information affordable to all, INFOTERRA has been keeping track of these advanced technologies to constantly improve its operations. In 1979, 10 NFPs had the computer search systems while micro-computer system had been distributed to 45 NFPs by 1988. Besides, while packet switching was affordable to few in 1979, there were now over 100 public data networks operating in over 50 countries and while 500 data bases were accessible in 1979, today it is possible to access over 2500.

Talking about how to make use of and profit by these new technologies, the paper raises specific points for two level operation - National and International. To take advantage of the new technology at the national level, the NFPs would require a micro-computer, communications capability, a high capacity storage device such as CD-ROM, Laser Printer, and a telefax machine.

The paper pointed out that, 108 NFPs in developing countries had to face several constraints including lack of finances, non-availability of hardware, lack of trained staff, problems of dust, heat, unreliable electric supply, non-existence of a National Information System etc. However, NFPs should strive to equip themselves fully by subscribing to available data bases as well as by updating the sources.

For the international operation, the requirements included the use of satellite and telecommunications equipment to access international data bases and systems, inter-connection of NFPs by an electronic mail system and integration of all NFPs in a full telecommunication network.

The constraints in achieving these were the inability of NFPs to connect to international telecommunications systems and lack of finances.

Ability of NFPs to access and search international information systems and data bases, adoption of the INFOTERRA electronic mail system and access to approved UN data bases were the desired activities emphasised.

#### **Discussion on Mr. ~~Andrian Rodger~~ Johnson's Paper 'INFOTERRA in the 1990s : New Technologies'**

After Mr. ~~Andrian Rodger~~ Johnson of INFOTERRA PAC had presented his paper on 'New Technologies', delegates from several countries discussed the paper. A brief account of these discussions is given below:

#### **U.S.A.**

The delegate from the U.S.A. said that all countries faced difficulties in obtaining new technologies. She assured the participants that USA would work with UNEP to identify technologies appropriate for INFOTERRA network functioning and find ways to transfer them to the countries where these were needed.

#### **Senegal**

The delegate from Senegal said that some countries had the necessary expertise and high level of technologies available for information retrieval.

Some countries faced problems in acquiring such resources. She said that Senegal neither had adequate resources nor the necessary expertise in information technology, tele-communication etc.

#### **Rwanda**

The delegate from Rwanda suggested that developing countries should have access to the new technologies and PAC should help them in this regard.

#### **Ethopia**

The delegate from Ethiopia said that out of 154 countries, 104 were classified as developing countries. The developing countries must adopt new technologies. For this purpose, hardware compatibility should first be resolved between the developed and the developing countries. He suggested that all developing countries should take steps to evolve information systems of their own and that developed countries should help them in this endeavour. He also pointed out that there was in general a manpower shortage relating to expertise in the developing countries.

#### **Czechoslovakia**

The delegate from Czechoslovakia expressed the desire to participate in the electronic mail system but regretted the absence of facilities in his country for the same. Czechoslovakia also faced problems of financial resources to support participation in electronic mail system.

#### **Republic of Ukraine, USSR**

The delegate from the Ukraine Republic said that his country wished to establish a data bank on the ecological disasters all over the world and methodologies to deal with the consequences of such disasters. He cited the example of the recent Chernobyl tragedy. For developing such a data base, one had to use the world's available intellectual potential besides using telecommunication means for transfer of information from countries where such disasters had happened. He suggested that such events be covered on TV, Radio, etc. The delegate expressed regret that telecommunication facilities were not available for all the developing countries.



## **USSR**

The delegate from the USSR agreed with the delegate from the Ukraine Republic and said that media, like TV or Radio, may not cover all that had happened. In support of this argument, he cited an example of research on asteroids falling on earth which nobody had reported.

## **Morocco**

The delegate from Morocco said that because of the financial problems of the developing countries, it was not possible for them to introduce these new technologies requiring heavy financial investments.

## **Indonesia**

The delegate from Indonesia said that their own data base on science and technology information had been computerised since 1974. The problem now faced by them was of loading it on the micro CDS/ISIS for use on PCs.

With regard to access to the foreign data bases, she said that there were a number of problems associated with it. For this purpose, CD-ROM would be useful. Indonesia had not installed the electronic mail system but wanted to know how UNEP could help them in this regard.

## **Egypt**

The delegate from Egypt said that their NFP had been established in 1977 and since then they had been engaged in all information activities manually. They now wanted to acquire mini-computers, CD-ROM etc. and wanted INFOTERRA, PAC to help them in this regard.

## **Ethopia**

The delegate from Ethiopia felt that NFPs should know about other NFPs and the details of their respective information collections, activities, capabilities, etc. He suggested that INFOTERRA PAC help them in this regard.

### **Rwanda**

The delegate from Rwanda suggested that countries should identify their special requirements. Rwanda also wanted to share its experiences pertaining to financial problems and their solutions with other NFPs.

### **FAO**

The FAO representative said that the FAO was also facing serious problems in introducing new information technologies in the developing countries.

### **Congo**

The delegate from Congo said that financial problems were being faced by the developing countries. Therefore, environmental issues were considered differently in the developed and the developing countries. He urged UNEP to provide financial aid to the developing countries to deal with environmental issues. He felt that environmental awareness had increased significantly in recent years.

### **Madagascar**

The delegate from Madagascar said that there was a considerable technology gap amongst the INFOTERRA member countries. Therefore, one must take into account whether all NFPs could participate in the INFOTERRA activities. Since the technology levels of various NFPs were so different, he suggested establishing priorities in respect of new technologies and working on more consistent programmes for the future.

### **Gabon**

The delegate from Gabon agreed with the views expressed by the delegate from Madagascar.

### **The Philippines**

The delegate from the Philippines suggested that differences in Information Systems existing among various NFPs be studied.

**Summing up of the discussions by**

**Dr. Wo Yen Lee, Director, INFOTERRA, PAC**

Dr. Lee said that it was rather difficult to define a country as a developing country. INFOTERRA, PAC was using the UNDP definition, i.e. "a country which receives UNDP assistance is categorised as a developing country". He said that Greece had been removed from the list of developing countries, but Yugoslavia remained on it. Dr. Lee said that 111 countries and not 104 countries were considered as developing countries and the level of development varied in these countries. Dr. Lee said that requirements with regard to technologies were different in each of the developing countries. The new technologies could even mean a micro-computer which could be complicated to operate and maintain. So far as electronic mail was concerned, it was rather sophisticated in hardware as well as software. He said that the telefax equipment would not be difficult to acquire but would be difficult to maintain. It required software in terms of personnel and maintenance. He acknowledged the need for providing such equipment on an even distribution basis among network partners. However, he considered this a difficult task since all problems related to it could not be solved at once but only step by step. He agreed that there was definitely a need for <sup>the adoption</sup> ~~development~~ of new technology and for this the assistance of the developed countries should be obtained. He said that CD-ROM was a compact disk and had read only modes for millions of records. One needed a specific reader i.e. another hardware component, which meant additional expense in terms of equipment and manpower required to read it. ~~Dr. Lee said that CD-ROM with the reader was available from INFOTERRA PAC. It could provide information against queries from NFPs.~~

Dr. Lee stated that the INFOTERRA PAC directory of NFPs was almost complete. It contained a one-page profile for each NFP. He said that the directories would soon be sent to all the NFPs.

Dr. Lee concluded the session by re-emphasising that the commitment of individual governments was crucial for the development of INFOTERRA.



#### ITEM NO. 8 - INFOTERRA IN THE 1990's, PROMOTION

Mr. Tom Munetic from INFOTERRA PAC presented the paper on INFOTERRA in the 1990s - Promotion. The paper reviewed the achievements in promoting INFOTERRA network-wide. It discussed some of the main constraints and proposed a promotions strategy for the next decade. A summary of the paper giving the salient features is given below.

Although the INFOTERRA system had played a positive role in enhancing environmental awareness and better decision making, the existence of the system and its services required additional exposure. A promotion campaign for INFOTERRA highlighting how the system could contribute to better decision-making in achieving sustainable development and environment enhancement was necessary. The paper suggested that motivation and enthusiasm among the staff were important factors in promoting the system besides professional expertise.

The paper went on to review the achievements of the INFOTERRA system, especially of the PAC and NFP components in the past decade. Describing PAC activities, the paper explained that initially the efforts of the PAC were centered on the need to demonstrate the usefulness of INFOTERRA to Governments rather than reaching out to the target audiences. However, PAC had recently undertaken several promotional activities. The paper detailed these activities which were the result of the INFOTERRA Promotion Manual (geared to the general needs of the NFPs to assist them in developing basic promotional campaign, regular supply of audio-visuals, videos, posters, brochures, leaflets, flyers, etc.). NFPs were encouraged to produce similar publications to suit their needs including required resource material for annual training courses on INFOTERRA, radio talks and feature articles linking INFOTERRA activities to local situations, and for organising National level seminars to promote the use of INFOTERRA.

Certain notable promotional campaigns adopted by NFPs of Guyana, Ireland, Korea, Canada, UK, Kuwait, Saudi Arabia, USSR, New Zealand, Cyprus, Bolivia, etc., had been reported in INFOTERRA publications. The paper suggested that such successful examples should be duplicated by other NFPs.

The exchange of experience should not be limited only to environmental information, but should include experience exchange of NFP promotional activities also.

The paper also listed several constraints from both the NFP and PAC aspect viewpoints. The most important were: insufficient funding for the production of large quantities of promotional material and lack of professional expertise on the part of NFPs for this kind of work. There was also the limitations of language in countries with two or more languages and therefore insufficient use of resource material.

Close interaction between the PAC and NFPs should be part of the network promotion strategy. During the 1990's PAC plans to give more assistance to NFPs in identifying promotional needs and by continuing to produce model promotional materials. It was also suggested that NFPs make maximum use of the resource materials and maintain close contacts with PAC and the respective RSCs in the region.

#### **Discussion on Mr. Tom Munetic's paper on 'INFOTERRA in the 1990s - Promotion'**

##### **Uganda**

The Ugandan delegate stated that their national mass media had been making a considerable effort to make people aware of INFOTERRA activities. He said that radio and TV had been used to publicise INFOTERRA. This had resulted in an increase in the number of people utilising their services. The delegate from Uganda suggested that other NFPs should make a similar effort. He also felt that NFPs should share their experiences relating to promotional efforts for improvement of the INFOTERRA network.

##### **Guinea**

The delegate from Guinea suggested that INFOTERRA PAC should participate in various international forums by holding exhibitions to market and advertise INFOTERRA activities. He also suggested that films be dubbed in French so that all concerned NFPs could use them. He said that they had shown a film on INFOTERRA activities and suggested that other NFPs also publicise INFOTERRA.

### **Pakistan**

The delegate from Pakistan said that environmental awareness had recently started gaining importance in Pakistan. Several subjects relating to environmental planning, environmental management, etc, were now being taught in Pakistan. Considerable research was also being undertaken.

He suggested that environmental awareness should also be imparted to the decision makers and policy makers as this would result in more inputs for environmental research.

### **Rwanda**

The delegate from Rwanda suggested that one should publicise INFOTERRA activities on the World Environment Day. INFOTERRA, PAC should make resource material available to the NFPs on this occasion every year. He also suggested that the INFOTERRA, PAC staff visit NFPs and attend national/ international seminars rather than confine themselves to headquarters.

### **Senegal**

The delegate from Senegal said that a Seminar was being held in Dakar to promote environmental activities. He suggested that UNEP officials attend the Seminar. Last year, a TV film, preceded by an interview with the Senegal representative, was shown in Senegal which was telecast nation-wide. A number of write-ups on INFOTERRA activities were distributed to all concerned. He suggested that INFOTERRA, PAC should also prepare some mobile exhibits which could be exhibited by the NFPs at various seminars, etc.

### **Madagascar**

The delegate from Madagascar stated that it also participated in the World Environment Day celebrations. He said that his country also made efforts to make the rural population aware of environmental concerns. Large sums of money were also set aside for the environmental information system in the country. He felt that since some of these promotional activities did not cover the whole of the country, these were rather unsuccessful. The organised media should be used.



### **Columbia**

The Colombian delegate suggested the participation of UNEP in various seminars etc, organised in the country to promote INFOTERRA and environmental awareness.

### **India**

The Indian delegate said that India organised several environmental awareness activities on World Environment Day every year. The Ministry of Environment and Forests, Government of India, provided financial assistance to various non-governmental organisations, institutions, and universities for organising seminars, workshops, training programmes, lecture series, and other functions among different target groups to create environmental awareness. Since mid-1986, India had also launched a National Environmental Awareness Campaign for raising environmental awareness at national level among different target groups. The Government of India provides financial assistance for the campaign to over 200 NGOs, institutions, universities, etc, every year for organising various activities such as rallies, street theatres, puppet shows, quiz competitions, seminars, workshops, etc., for different target groups such as school going children, college students, teachers, journalists, parliamentarians, government officials, decision makers etc. The campaign was assisted by radio and TV media. Special programmes on environment were telecast from time to time on the national hook-up to create environment awareness in the entire country. The report on the World Environment Day activities was also reported in the UNEPs newsletter published from Bangkok.

### **Coted'Ivoire**

The delegate from Coted'Ivoire sought the help of UNEP in distributing various audio-visuals in the field of environment and forestry.

### **Ghana**

The delegate from Ghana said that it also gave importance to the subject of environmental awareness. The Ghana NFP had also given radio interviews on INFOTERRA activities etc.

### **Ethopia**

The Ethiopian delegate stated that his country was involved in promoting environmental awareness relating to the subjects of drought, soil conservation, etc.

### **India**

The delegate from India suggested that an international environmental information award be established for those contributing significantly towards promotion and development of INFOTERRA objectives.

### **Zimbabwe**

The delegate from Zimbabwe suggested that NFPs should consider dissemination of environmental information to all concerned through bulletins, etc.

### **Togo**

The delegate from Togo said that Togo NFP celebrated World Environment Day and organised several activities relating to environmental awareness.

### **Chad**

The delegate from Chad said that the NFP Chad was also involved in creating environmental awareness to some extent and considered the press and other media very important for this purpose. He suggested that INFOTERRA prepare posters for distribution by the NFPs.

### **Summing up of the discussions by**

#### **Dr. Wo Yen Lee, Director, INFOTERRA, PAC**

Dr. Lee said that he was happy to learn that several NFPs were engaged in environment awareness activities. He admitted that INFOTERRA, PAC was actually not aware of many of these activities. He suggested that maintenance of constant communication with each other as well as with INFOTERRA PAC would be of great value.

He agreed to the suggestion of several NFPs for the preparation of a model radio talk on INFOTERRA activities by the PAC in four languages which could be broadcast by the NFPs in their respective countries. Dr. Lee agreed with the participants that several other promotional materials were also required for creating environmental awareness. He suggested that NFPs should use the 'World Environment Day' for creating general environmental awareness and promoting INFOTERRA objectives in particular.

With regard to the visit of PAC staff to NFPs to assist them in promotional activities, Dr. Lee said that it was a two-way traffic. He suggested that INFOTERRA, PAC be notified well in advance by the concerned NFP so that PAC officials could organise visits to speak on INFOTERRA activities or give demonstrations on the use of computers. He said that it would be useful and easier if NFPs organised national level seminars on user training. INFOTERRA, PAC had put in similar efforts in 38 countries which proved to be highly successful, resulting in an increased rate of INFO-  
✓ TERRA, ~~PAC~~ use. With regard to creation of environmental awareness and ~~the environmental~~ information system, Dr. Lee <sup>cited the example of</sup> ~~said that~~ India was providing substantive environmental information and appreciated India's efforts for creating environmental <sup>information system</sup> ~~awareness~~ at the national level. <sup>WHO</sup>

Dr. Lee said that INFOTERRA, PAC would explore the possibility of constituting an environmental information award.

Referring back to the history behind the establishment of the INFOTERRA network, he informed the participants that during the Stockholm Conference in 1972, Mrs. Judith Dechamps (UK) had mooted the idea of establishing INFOTERRA which was supported by several other countries.



ITEM NO. 9 - INFOTERRA NETWORK SUB-REGIONAL <sup>GROUP</sup> MEETING

Meetings of the sub-regional groups to discuss ways and means to strengthen the links between RSC and the NFPs were held.

ITEM NO. 10 - SPECIAL TECHNICAL PANEL MEETINGS

Meetings of special technical panels of INFOTERRA thesaurus and electronic mail system were held.

ITEM NO. 11 - REPORT OF THE GROUPS AND PANEL MEETINGS

Before the report of the group and panel meetings could be taken in the plenary. Dr. F. Burhenne, Director, Environmental Legislation Information System (ELIS), Bonn, Federal Republic of Germany presented a paper on the ELIS system. ELIS is a Special Sectoral Source of INFOTERRA.

Dr. Burhenne explained the need for Environmental Legislation Information System and said that ELIS maintained 75,000 records in its data base containing information on environmental legislation. He said that ELIS was answering queries from the NFPs and providing substantive information.

REPORT OF THE SUB-REGIONAL GROUPS

**SOUTH-EAST ASIA AND THE PACIFIC :**

**Substantive Information**

1. We recommend that NFP's within a region agree to exchange information, publications etc, produced with the other NFP's and to all members of INFOTERRA where possible.
2. We recommend that the PAC seek to clarify the functions of other UN agencies who are involved in the same region in particular SPREF (South Pacific Regional Environmental Programme).
3. We recommend that the RSC investigate the environmental resources available from within SPREF to NFP's.
4. We recommend that the RSC collate information on the cost of

telecommunication charges from within each regional area & distribute this to the other NFP's within the region.

#### **A. Substantive Information**

- Discussions were focussed on cost of postage for bulky documents which placed strain on resources.
- Some documents are produced in native language and user may not want this material, or require a translation.
- Xeroxing of material time consuming.
- Problem of decentralised storage of materials.
- Environmental collection may not be very strong.

#### **Recommendation - 1**

- Need to clarify the role of other UN Intergovernmental agencies who are involved in the region and their environmental information resources.

#### **Recommendation 2 & 3**

- Need to have information on the various telecommunication charges so that NFP's can assess what is the most cost effective mechanism for information transfer.

#### **Recommendation - 4**

#### **B. Database Searches**

- Discussion focussed on the need to know what environmental data bases were available from within the region.

#### **Recommendation - 5**

- We recommend that the RSC investigate data bases available within our area including details such as :
  - Procedures
  - Cost
  - Description / format of database
  - Hardware needed

We were also interested in knowing about what other sources of environmental information there might be, in particular CD Rom.

5 (a) The INFOTERRA bulletin was seen as a good mechanism for information, exchange and promotion, but it was felt that the bulletin format could be revised & contain information on environmental databases etc.

#### **Recommendation - 6**

- We recommend to the PAC that they investigate what environmental information is available on CD Rom format including information on charges etc.

#### **C. INFOTERRA Directory Searches**

- Searching the INFOTERRA Directory manually or online or by submitting coded queries to the RSC was not seen as having any problems.

#### **D. Training**

- It was strongly felt that more training was needed on INFOTERRA and that the RSC and other NFP's within the region could be doing more to assist in this area.

#### **Recommendation - 7**

- That the RSC visit NFP's in the area and give training and assistance in the setting-up and ongoing work of INFOTERRA.

#### **E. Networking**

The value of having a regional meeting at the Conference was felt to be high as it helped to develop a strong network. There tended to be regional issues which could be most.

#### **Recommendation - 8**

- That the RSC hold regular meeting of NFP's in the region at no less than 2 yearly intervals for the purposes of training and keeping abreast



of developments and evaluation of new technology and its applicability to INFOTERRA.

#### **Recommendation - 9**

- That the RSC facilities staff exchanges between NFP's and also the RSC for the purposes of training. It was felt that the production of a quarterly news-letter with contributions from the NFP's in a region could assist greatly in the networking process.

9 (a) That the RSC produce a quarterly news-letter with contributions from NFP's.

The need for all NFP's to be aware of the possibility of promoting the use of INFOTERRA to those countries that are not yet members.

#### **F. Promotion**

Some NFP's were not aware of the promotional resources available from the PAC eg. video.

Also felt that the RSC could assist the NFP in the production of material.

#### **Recommendation - 10**

- That the RSC develop promotional models that can be used by NFP's in the region.

#### **Recommendation - 11**

- That the RSC provide assistance with setting up and running of INFOTERRA promotional seminars.

11(a) That all NFP's promote & encourage INFOTERRA.

#### **Recommendation - 12**

- That the PAC review the format of the INFOTERRA bulletin so that it contains more information. Discussions on various methods of promotion. The use of stamps, stickers with an INFOTERRA theme was thought

to be of possible promotional value.

#### **Recommendation - 13**

- That the RSC and the PAC assist with the provision of promotional materials.

#### **G. Funding of INFOTERRA regional activities**

Various methods of sources of funding were discussed. It was felt that the PAC could assist providing a list of bodies and organisations that could be contacted / approached as sources of information.

#### **Recommendation - 14**

That the PAC prepare a list of international and the RSC a listing of regional sources of funding and the RSC assist with the preparation of proposals and the RSC, PAC support proposals as appropriate.

#### **SOUTH ASIA SUB-REGION**

Following countries were present during the meeting of the Working Group for the South Asia Region.

- India
- Sri Lanka
- Nepal
- Bangladesh

Following are the recommendations :

- The Group recommends that the countries of the South Asia Region which don't have the National Focal Points of INFOTERRA should also create their respective National Focal Points. The following countries could be approached by the Regional Service Centre (RSC)/INFOTERRA PAC for establishing the National Focal Points, thereby making them the partners of the INFOTERRA Network.

- Butan
- Burma
- Afghanistan
- Maldives Islands

- The Group felt that some of the NFPs in the Region had not registered enough sources of information. Therefore, all countries within the region should try to identify more sources and pass on the information to the RSC as well as to the INFOTERRA PAC.

- Each NFP should maintain a register of statistics relating to quarries handled by them and pass on the yearly statistics to the RSC for records.

- All NFPs in the region should send their respective publications, periodicals, reports etc to the RSC on regular basis so that all their publications are available with the RSC which could in turn make available copies of these publications to NFP's requesting for the same.

- RSC should provide adequate training to the staff of NFPs in the Region with regard to information handling and in case required INFOTERRA PAC should provide financial assistance for such training programmes.

- The RSC should also provide guidance to the NFPs of the Region for collection of information on sources, preparation of publicity material for INFOTERRA promotion, preparation of Directory of Sources and distribution of INFOTERRA materials.

- RSC should assist the NFPs of the Region by providing basic equipment such as personal computers, xerox machines etc for information handling and speedy dissemination of information.

- The information exchange among the NFPs should be done through standardised formats prepared by the RSC / INFOTERRA PAC.

- Officials of RSC should visit the NFPs in the Region from time to time to give talks, lectures & guidance on the use of INFOTERRA thesaurus, compilation of Directory of sources and effective handling of queries etc.



## EUROPE AND OTHERS

### 1. INFOTERRA and access to other environmental databases

The group discussed ways of facilitating access to a range of data bases eg. CCL and gateways. It decided that any developments were likely to be industry-led and that such wide issues were not the direct concern of INFOTERRA. However :

**Recommendation :** INFOTERRA PAC should keep itself aware of current developments in this area and possibly produce a guide to environmental data bases.

### 2. Relationship between NFPs RSCs and SSSs

**Recommendation :** To avoid duplication and confusion, any network partner sending a query to another should always state who else has been asked to help with the same enquiry.

### 3. Supplying substantive information

A wide-ranging discussion covered such points as means of communication, duplication if several NFPs searched the same international data bases delays if a response was awaited from one network partner eg. an RSC, before an approach was made to other partners, limitations on the supply of documents by NFPs.

The Group was particularly concerned at the danger that if a small number of NFPs were approached for help, the development of other NFPs would be delayed. It was felt that some insight into how enquiries were answered by the PAC might help NFPs to improve their operations.

**Recommendation :** The group request PAC to prepare a directory of NFPs, to include a summary of PAC's activities in this publication, and to ensure that this document is up-dated regularly.

#### **4. Special sectoral sources**

**Recommendation :** PAC should produce a directory of SSSs, including details of charges for services etc in a standard format. This directory should be up-dated regularly.

#### **5. Fax**

A number of problems were discussed including the need for those in the WEO group who had fax capabilities to know who was able to receive material. There are still systems difficulties and financial implications, especially for developing countries. FAX is most appropriate for urgent material. Therefore, it would be helpful when information is needed urgently.

**Recommendation :** The PAC should investigate all capabilities for up-grading information supply.

#### **6. Electronic mail**

The group discussed the position in a number of countries including software problems. At present software was most appropriate for short messages.

**Recommendation :** PAC should refine its electronic mail system and produce a user-friendly guide to its operation.

#### **7. INFOTERRA Databases**

There had been problems with the first edition of the Micro CDS/ISIS version of the INFOTERRA data base. One important use of this version was for promotional purposes. It would be helpful if : (1) information could be added by NFPs and (2) the record could be converted to D Base III.

**Recommendation :** The micro computer version of the INFOTERRA directory should be produced to allow of flexibility to amend it. It should be up-dated each time the hard copy directory supplement appears.

## **8. CD-Roms**

The Group discussed the current position. As with item 1, it decided that industry would dictate the rate of progress, and that this wider issue was also outside INFOTERRA's direct remit. Recommendation 1 will also include this area.

## **9. Networking**

**Recommendation :** Individual countries should be encouraged to coordinate their national data bases. INFOTERRA NFPs should play a part in this where appropriate.

## **10. Training**

The Group felt very strongly that there was a need for basic library and information training of staff in developing countries to enable them to operate INFOTERRA effectively.

**Recommendation :** NFPs in developed countries should investigate sponsorships of general library and information science training for staff from developing countries.

## **11. Equipment**

The Group was concerned at the danger of exporting old equipment.

**Recommendation :** NFPs in developed countries should investigate the possibility of sponsoring the supply of equipment to NFPs in developing countries in order to encourage self-sufficiency.

Developing countries should be asked to identify their needs for equipment, together with any follow-up action required, such as maintenance and training.

## **12. Promotion**

The Group made no specific recommendation as it considered that



each country should use appropriate means within its national context.

### 13. Funding

One member of the group already planned to approach its Development Agency to ask for the general area of information to be added to the projects it support (Rec. 10 covers this area).

**Recommendation :** All NFP representatives should prepare briefs for their country's delegates to the forthcoming Governing Council Meeting of UNEP suggesting that some funds might be earmarked for INFOTERRA purposes.

### LATIN AMERICAN COUNTRIES(ENGLISH SPEAKING GROUP)

#### Recommendations :

- In order to facilitate the exchange of documents and data base, the Latin American countries can use other systems and information networks of the region, such as BIREME, REPIDISCA etc.
- Make one big project such as preparation of a regional bibliography & submit it to the 15th PANAMA Governing Council Meeting in May, 1989 to be considered for financial assistance.
- Use the facilities of other environmental organisations for INFO-TERRA promotion.
- For promotion purposes, it was recommended that seminars be organised in Uruguay, Peru, Brazil or Colombia in July/September, 1989. It was suggested that INFOTERRA PAC officials should also participate in the seminar.
- Brazil offered some financial assistance from the Computer industry by way of "Propaganda" (in computer equipment).
- The Regional Centre in Chile should provide a list of institutions

working on environmental projects to facilitate exchange of documents and data in environmental planning and related areas.

- The Regional Centre should also apprise all concerned about the equipment available with it and services it provides.
- Each National Focal Point should send a list of basic needs to the Regional Centre to enable it to provide financial assistance to needy NFP's.

#### **LATIN AMERICAN AND CARIBBEAN COUNTRIES (SPANISH SPEAKING GROUP)**

We suggest to the participants of this conclave that from this 3rd World Conference on Exchange of Information of Environment, INFOTERRA III, should emerge a Resolution to be submitted to the 15th Session of the UNEP Governing Council which will be held in May this year, in which the bloc of undeveloped countries should, by consensus, solicit the UNEP to provide a minimum economic support atleast in very exceptional cases for the operation of the INFOTERRA system in the said countries.

( It is agreed to recommend that each participant should work in his country, widely informing the local representatives to the 15th Sessions of UNEP Governing Council motivating.)

The participants of the Regional Meeting of the Latin America and of the Caribbean have agreed in that the INFOTERRA System should continue with its present structure and objectives and should maintain itself as a referential system. It should strengthen its activities in this direction. The two Regional Service Centres should continue with their activities and, especially, the Regional Centre of Venezuela should take particular care to send substantive information in the different languages of the countries of the region.

In order to facilitate the exchange of persons for the training and promotion within the Region, it is recommended to utilize the environmental training facilities of UNEP.

networks, such as distribution of specialized data bases on public health, environmental protection, seismography, etc and projects like INFOLA.

d) It is recommended to the countries which are developing data bases to make use of exchange of formats developed in the Region, such as among others, the Colombian format of exchange, or the Format of Exchange of Referential Information (FIIR). For these purposes the Regional Service Centre will provide the National Centres the corresponding information.

e) It is also recommended to start right from now training programmes, utilizing to the extent possible the facilities of the Environmental Training Network, either by sending persons, from National Centres to the Regional Service Centre (CRS) on tours of one or two weeks or by sending a person from the Regional Service Centre to the National Centre which requests for it and agrees to pay for the expenses of his stay there.

f) It is recommended likewise to the CAP to send on a convenient date between July and September a person for participating in national level promotion seminars in Colombia, Peru, Uruguay and other countries which may request for it in advance.

g) The Brazilian delegate will initiate measures tending to obtain from Brazilian computer industries donations of some equipment for the most needy National Centres of the Region.

h) Likewise, at the request of Guyana, a programme is to be initiated by means of which it may be possible to furnish some centres with the basic documentation in areas of its special interest. In this case, the National Centre will send to the Regional Service Centre, data on its areas of interest, which will be distributed to the rest of the centres. It is necessary to look for a way of meeting the expenses of sending the material and, in many cases, of the translation of the same.

i) Lastly the Regional Service Centre distributed a document regarding the facilities and costs of the telecommunication and electronic postal services available in the Region, in order to initiate feasibility studies of the use of the said technology.



It is agreed to emphatically recommend that the participants of this meeting should inform and motivate the representatives of each country to the 15th Meeting of the Council of Administration of UNEP on the work of INFOTERRA and the need to support its activities at regional level.

It was also agreed to prepare a regional project which permits negotiations with different sources of financing for the purpose of :

- a) preparing the system of consultation;
- b) creating or strengthening the national information systems;
- c) maintaining and strengthening the national data bases, general or special, which are being formed or which are considered necessary to be formed;
- d) training;
- e) promotion.

In the short term it is hoped to carry out the following activities:

- a) Collect in the Regional Service Centre (CRS) the resources profile of the National Computer Centres so as to make known to all National Centres the facilities existing in each centre, the resources at their disposal and the type of resources of information they have, in order to facilitate both the communication between them and the management and distribution of the said resources.
- b) It is recommended to coordinate the activities of the National Centres with other regional networks. The Regional Service Centre will prepare and send to the National Centres information regarding the existing Regional Networks of information, in areas connected with topics of INFOTERRA, the description of its Data Bases and Services, as well as information about the National Centres of each of the countries of the Region, in order to facilitate the coordination of the National Centres with other regional networks.
- c) It is recommended to investigate the possibility of participating, as INFOTERRA Regional Network, in programmes of coordination between

**WESTERN, EASTERN, CENTRAL AND SOUTHERN AFRICA (ENGLISH SPEAKING GROUP)**

( Botswana, Gambia, Ghana, Kenya, Lesotho, Nigeria, Zambia, Zimbabwe, Ethiopia)

**Recommendations**

- The Group recommended that the West African English-speaking countries (Gambia, Nigeria and Ghana) should be included under this region.
- The Group recommended that the PAC should provide more promotional materials to the NFPs in the region so that INFOTERRA is utilised more effectively.
- Exchange of substantive information on subjects of interest in the region was recommended. This will strengthen regional cooperation.
- The Group recommended that the individual Governments in the region should be concerned about the importance of INFOTERRA as a means of solving environmental problems and thus accord it a higher priority than it has had in the past. Governments who are members of the UNEP Governing Council and African Ministers Conference on Environment should recommend that INFOTERRA be given a broader mandate which would enable the PAC to assist developing countries in developing the INFOTERRA programme in terms of increased technical training.
- The PAC should provide guidelines and literature on appropriate technology in the facilitation of INFOTERRA operation
- The PAC should provide information to the NFPs related to the following environmental problems : desertification, soil erosion, wildlife, bush fires, overstocking, overgrazing etc.
- The group recommended bilateral exchange between NFPs where finances permitted.

## **WEST AND CENTRAL AFRICA AND THE ISLANDS OF INDIAN OCEAN (FRENCH AND PORTUGUESE SPEAKING)**

**President and representative of Senegal, Omar Diof**

The reorganisation of the activities of INFOTERRA with the creation of a sub-region, the network covering the French speaking countries of Western and Central Africa including Portuguese speaking countries and the islands of the Indian Ocean, is recognised as a sectioning to promote autonomy of a linguistic area within INFOTERRA but not necessarily to desirable efficiency.

### **I. A Survey of the Discussions**

The discussions were mainly centered on the following problems:

#### **1. Communication and Exchange of Information**

On this point the majority of the participants felt the necessity of organising periodical meetings.

They also raised the problems created by the means of communications, on the one hand, between the National Focal Points and, on the other hand, between the National Focal Points and the Regional Service Centre.

#### **2. Training**

As regards this essential aspect, the representatives of the concerned countries were unanimous in recognising the problem faced in :

- adopting the latest technologies
- acquiring the present methodologies of INFOTERRA.

#### **3. Means**

This point brought out several approaches seen from different angles which inspite of limited means of financial assistance from PUNE call upon INFOTERRA and the governments.



#### 4. Bibliography

The analysis and the location of the documents covering the categorisation INFOTERRA were well received by the sub-group.

The questions were mainly directed on the nature of supports :

- National bibliographies
- Current bibliographies
- Specialised bibliographies
- Or information letters with bibliographical column.

#### II. Recommendations

1. The reinforcing of the means of communication between the National Focal Points on the one hand, and the Regional Service Centre on the other hand (by organising periodical meetings and visits and by publication of reports).
2. Regular training of the personnel of the National Focal Points in the methods of INFOTERRA and continuous training in latest technologies within an approved framework.
3. The promotion of INFOTERRA among the users, the decision makers and the public at large by organising exhibition, conferences, the use of media and the information campaigns.
4. Financial, technical and material assistance in favour of the Regional Service Centre and the National Focal Points and a greater involvement of the donors of funds through the support of PUNE and of the States.
5. The creation of a Regional Information Letter with a column of analytical bibliography covering the categories of INFOTERRA for French and Portuguese speaking Black African Sub-group as well as for the islands of the Indian Ocean.

## WEST ASIA (ARAB COUNTRIES)

The representatives from the following countries / organisations were present :

Kuwait  
Egypt  
Morocco  
Jordan  
Oman  
Sudan  
Lebanon  
(Aldoc)  
Arab, Yemen Republic  
Peoples' Democratic Republic of Yemen

Explanations and background information were given concerning the terms of reference of the Regional Centre in Morocco, and Aldoc. Expertise and services of both Regional Centres were presented. The resources and capabilities of NFPs and means of cooperation were discussed. The following issues were dealt with :

### **Supply of Substantive Information**

The role of RSCs in supplying substantive information from both in-house and on-line data bases should be enhanced. However, the formulation of queries by the NFPs using the INFOTERRA thesaurus was recommended to ensure that the queries were as specific as possible.

Searching of INFOTERRA data bases on CDS/ISIS available with the RSCs on behalf of these NFPs that do not have micro-computers was thought to be necessary due to the availability of hard copies of the INFOTERRA directory and the time lag that could result from following this procedure.

## **Training**

It was suggested that each training programme at INFOTERRA headquarters should cater to staff from the same region, as far as possible, in order to allow better acquaintance of NFPs from the region.

With regard to training in new technologies related to information handling, it was recommended that RSCs should get financial assistance from the regional and international funding agencies to cover cost of travel and per diem.

## **Networking**

It was recommended that information specialists should participate in conferences and visits relating to environmental issues held in the region, to become better acquainted with the specialists working in this field.

It was also recommended that RSCs and NFPs should, during their participation in international conferences etc., make it a point to visit INFOTERRA NFPs and RSCs to acquaint themselves with their activities and explore possibilities for exchange of information.

It was noted that some countries had the possibility for the use of electronic mail services in the region. Other NFPs should also attempt to use the new technologies as far as possible.

## **Promotion**

It was agreed that the Arisnet Newsletter published by Aldoc would be used to disseminate information about INFOTERRA activities. Also, Aldoc would translate some of the promotional material.

It was also recommended that Aldoc should prepare directories on environmental legislation and of Arab environmental experts.



## Funding

Several funding agencies existed in the Arab region and possibilities for formulation of specific projects by the RSCs for consideration by these funding agencies were discussed. The Arab League was asked to support such efforts.

## EAST EUROPEAN COUNTRIES & MONGOLIAN PEOPLE'S REPUBLIC

In the meeting, in all thirty five persons participated representing People's Republic of Bulgaria (PRB), Hungarian Peoples' Republic (HPR), German Democratic Republic (GDR), Mongolian Peoples' Republic (MPR), Polish Peoples' Republic (PPR), USSR, Czechoslovakian SSR, Ukrainian SSR, Byelorussian SSR, INFOTERRA of United Nations Environment Programme (UNEP), IRPTC of UNEP, CMEA (i.e. COMECON), INIS of International Atomic Energy Agency (IAEA) and the International Centre for Scientific and Technical Information (ICSTI).

Dr. J. Bobrek, Acting Director of ICSTI chaired the meeting :

Four communications were heard within the framework of the meeting : from ICSTI on the particular aspects of the activities of the Regional Centre and from the representatives of the Programme Activity Centre of INFOTERRA, CMEA (Council for Mutual Economic Assistance i.e. COMECON) and Programme Activity Centre (PAC) of IRPTC (International Register of Potentially Toxic Chemicals and INIS.

Having considered the course of development of the regional system in force and the activities of the Regional Centres, the Conference noted with satisfaction the realisation of the (following) decisions of the International Conference INFOTERRA II viz :

- switch over from reference system to document reference system;
- realisation of evaluation of sources of information;
- publication of special registers;
- realisation of evaluation of information system.

At the same time, the participants of the Conference considered it to be of advantage to note and propose the following for formulation within the framework of the final document of the Conference, and also for taking into account the current work of the region.

1. To continue the work on the development of a mechanism for abstracting services, and of integrated information bases on the themes of environmental protection being used in the region.

2. To expand the use of the potential of information systems of UNEP and other international organisations of the UNO on environmental protection.

The importance of publishing jointly by UNEP and ACCIS an inventory of the information resources of international organisations and institutions of UNO.

3. To use the structure and mechanism of INFOTERRA for significantly increasing the applied aspects in information collaboration in the field of environmental protection, in particular on the advisability of setting up specialized data bases on technologies of conserving nature.

4. It is of advantage to organise a closer collaboration between regional groups on concrete problems of protection of environment (for eg. collaboration between East Europe and West Europe on information support for Protection of Baltic Sea within the frameworks of particular special projects under the aegis of INFOTERRA) as well as to organise collaboration at Sub-Regional level (for eg. setting apart a sub-region comprising Mongolian Peoples' Republic, Socialist Republic of Vietnam, Peoples' Republic of China, and Democratic Peoples' Republic of Korea with enlistment of the following republics of USSR - Kazakhstan and Central Asia.

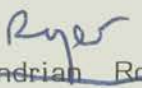
5. Regular collaboration should be continued between Information Centre of UNO and INFOTERRA for the purposes of expanding the use of the INFOTERRA system in the region.

6. To consider it necessary to continue the efforts on the introduction of modern information technologies into the work of information network, in particular electronic mail, satellite communication, (CD-ROM), telefacsimile communication and microcomputers.

7. To consider it as of advantage to reflect the recommendations of the regional group in the general recommendations of the Conference INFOTERRA-III.

## REPORT OF THE TECHNICAL PANEL MEETINGS

### THE REPORT OF THE TECHNICAL PANEL MEETING ON ELECTRONIC MAIL

Mr.  Andrian Rodger Johnson from INFOTERRA PAC presented the report of the technical panel meeting on electronic mail. The text of the report is as follows :

The technical panel was unanimous in recommending that INFOTERRA/PAC continue with the electronic mail facility.

However, the panel also recommended that the following considerations be borne in mind by the PAC and be included in the implementation of the project.

Firstly, access to the system be simplified and also use of the system be made easier and as user friendly as possible.

Secondly, that the system conform to international standards of data transfer and exchange.

Thirdly, concurrent with the development of an electronic mail system, efforts be made to assist as many NFPs as possible to have access to the system to benefit from it.



## REPORT OF THE TECHNICAL PANEL MEETING ON INFOTERRA THESAURUS

*Ben Johnson*  
Mr. Hassane ~~X~~ of INFOTERRA PAC presented the report on the technical panel on INFOTERRA thesaurus text which is as follows :

### Members present :

FRG, Netherlands, USSR, Guyana, Sudan, USA, Spain, UK, Canada, FAO Observer.

There was a general discussion on the main principles presented by the INFOTERRA PAC in the working paper regarding the revision of the thesaurus.

It was agreed that :

- Keep changes to the minimum.
- Try to make the INFOTERRA thesaurus as compatible with the UNBIS thesaurus as possible; although it was realised that a tool to describe institutions may differ from a tool to index environmental literature.
- It was also agreed that the INFOTERRA thesaurus should be as compatible with indexing thesaurus as possible.
- To reflect the structuring of terms it was noted that panel members needed some time to review the categorization by subject submitted by the PAC.

It was noted that several NFPs (given below) were engaged in producing an environmental thesaurus to meet their own national or regional needs:

Netherlands (For EEC as well)

U.S.

U.K.

Spain.

It was felt that thesaurus building was a very involved process and required longer and more direct working sessions. It was therefore recommended that :

- The panel members will send their comments on the categorization by the third week of April, 1989.
- Once the comments are received and reviewed by the PAC, the amalgamated product will have to be studied in a meeting of the panel members if resources permit.

One NFP is using what seems to be a strong micro computer software for thesaurus building; TINTERM.

It was agreed that the PAC should seek to obtain the attribute frequency use gathered by the Japanese NFP. These statistics should serve to shed light on terms to be broken down into more specific terms or to merge them.

## ITEM NO. 12 - MEETING OF THE INFOTERRA ADVISORY COMMITTEE

1. The INFOTERRA Advisory Committee (IAC) met briefly before the final plenary session of the Conference. Ms. J.A. Deschamps (United Kingdom) and Ms. A.M. Pratt Trabal (Chile) were elected as Chairperson and Rapporteur respectively.
2. There was no formal agenda, but topics for consideration were:
  - a. The implementation of the recommendations of the third IAC meeting which was held in Canberra in April 1987.
  - b. The recommendations which had been produced by the Drafting Committee for consideration by the plenary session to be held immediately after the IAC meeting.
  - c. Which recommendations should be given priority for further action.

## IMPLEMENTATION OF IAC 3 RECOMMENDATIONS

3. The Committee considered the report which described follow-up action by the PAC (UNEP/INFOTERRA - 3/11). Members were satisfied with the progress which had been made. The areas where they felt that further priority action was needed are discussed below.

## INFOTERRA 3 DRAFT RECOMMENDATIONS

4. The IAC was only able to discuss the Draft recommendations briefly, as they had not seen them in advance, due to time constraints of the conference schedule.
5. Nevertheless, the Committee was in general agreement with them, subject to certain minor modifications. They also considered that some recommendations needed strengthening, and their views are given as under:

## PRIORITY AREAS FOR FURTHER ACTION

6. The Committee felt that, despite the importance of all the recommendations, special attention should be paid to:



- a. **Working tools:** IAC Members considered that the highest priority should be given to this area. In particular, the improvements to the Thesaurus should be implemented. They recommended that, after feedback was received on the suggested revised categories, the Technical Panel should meet to forward any proposals. The IAC also considered that the possibility of improving the Source Registration Form should be explored, initially by the PAC.
- b. **Staff training:** The IAC expressed a strong view that both general library and information science training, and systematic instruction in the use of INFOTERRA procedures, were essential to the effective operation of National Focal Points.
- c. **Information technology:** The Committee urged that means be sought to equip NFP's, particularly those in developing countries, with the equipment needed to make full use of INFOTERRA's resources. In this connection, it strongly supported the Drafting Committee's second recommendation.

## IAC RECOMMENDATIONS

7. The IAC wished to record 2 recommendations of its own:
  - a. NFPs should endeavour, where possible, to raise their respective governments' awareness of the role played by environmental information.
  - b. The IAC should be kept informed of progress in the implementation of the recommendations of INFOTERRA 3. It should endeavour to meet each year.

## ITEM NO. 13 - MEETING OF THE DRAFTING GROUP

The drafting group met. Based on the discussions held in the conference the Group drafted the following recommendations for finalisation by the Plenary:

### DRAFT RECOMMENDATIONS

#### I. GENERAL

Recommends that:

1. The INFOTERRA network maintain its current institutional structure and continue to rely on decentralised databases for the provision of environmental information rather than attempting to have a centralised international bibliographic database.
2. Where appropriate, developed countries should include general information assistance as part of their foreign aid programme with a view to enabling developing countries to develop international information programmes, including INFOTERRA.
3. NFP's in developed countries should explore the possibility of sponsoring the supply of equipment to NFP's in developing countries, enabling them to reach self-sufficiency. Developing countries should indicate their equipment needs to the PAC including its maintenance and training requirements.
4. NFP's in developed countries should investigate sponsorship of general library and information science training for the staff of NFP's in developing countries, on a regional basis if feasible.

#### II. Network Development

5. The PAC should provide more INFOTERRA training courses for developing countries on a Regional basis whenever possible.

6. The RSC staff improve contact within their regions with NFP's and non members through various means including Regional meetings, the publication of a newsletter with a bibliographic section covering INFO-TERRA subjects and a co-ordinated approach to the acquisition and use of new technologies.
7. PAC should prepare a directory of INFOTERRA's Special Sectoral Sources (SSS) describing the scope of services, standard of charges, thesauri, etc. and that the PAC identify the gaps in subject coverage of the SSS network and establish new ones where appropriate.
8. The closer cooperation of Regional Groups in the field of environmental information pertaining to topical issues as illustrated by the Baltic Sea project be enhanced.
9. NFP's should co-ordinate with libraries and national document centers in preparing national environmental bibliographies whenever feasible. PAC should provide guidelines in this endeavour.

### III. Operations

10. The source registration form be simplified as appropriate and a query formulation form be produced.
11. PAC to arrange the acquisition of relevant UNEP publications for NFP's.
12. Any enquiry from NFP's to other NFP's, SSS's or PAC should indicate other sources contacted.
13. NFP's that have registered no or few sources should endeavour to register suitable ones.
14. Where possible an abstract in one of the four official languages should be provided when a document is not in one of them.
15. NFP's should exchange publications with other NFP's, especially within their region.
16. In revising the INFOTERRA thesaurus, changes should be kept to a minimum; it should be made compatible with indexing thesauri and with UNBIS as far as possible and coding of attributes to reflect their hierarchical structure.



17. The RSC's survey the environmental information resources available within their regions, including the regional organizations, to facilitate information exchange.

#### IV. NEW TECHNOLOGY

18. NFP's make more use of the information resources available from the United Nations system by using in particular, the ACCIS/INFOTERRA guide to the U.N. Environmental databases and other bibliographic tools.
19. PAC should refine its electronic mail system and produce a user friendly guide for its operation.
20. PAC monitor the development of environmental databases and advise the NFP's of new developments. The PAC should guide NFP's in developing countries on the latest information technology developments and their suitability for INFOTERRA work.

#### V. PROMOTION

21. NFP's and PAC should formulate a strategy for promotion of INFOTERRA activities in the 1990's including using international events such as World Environment Day, World Wildlife Week, etc.
22. The NFP's promote the use of INFOTERRA by participating in courses, conferences, exhibitions, etc. and using the media and other events to raise the awareness of decision makers and the general public to the role of INFOTERRA in solving environmental problems.
23. PAC provide more promotional material on current environmental issues including information packs.
24. The NFP's translate INFOTERRA publications into languages not used by INFOTERRA, where feasible.
25. RSC's produce promotional material for use within the region.
26. The PAC review the format of the INFOTERRA Bulletin and widen its coverage. The NFP's to send more material to PAC for inclusion in the Bulletin.

27. PAC explore the possibility of establishing an international environmental award.
28. A regional information newsletter be created with a bibliographic section covering INFOTERRA subjects.
29. PAC correspond with NFP governments to heighten awareness and support for INFOTERRA activities.

#### **ITEM NO. 14 - ADOPTION OF REPORT AND RECOMMENDATIONS**

The draft recommendations were placed before the plenary meeting for finalisation. A brief account of the discussions on the draft recommendations and modifications suggested is given below:

##### **Rwanda**

Since the draft recommendations presented in the plenary session were in English, the delegate from Rwanda wanted the French version of the draft recommendations specifically since Rwanda belongs to the French-speaking Group.

##### **Congo**

The delegate from Congo suggested that every regional group should have had a separate representative for reporting at the conference.

##### **Gabon and Chad**

The delegates from these countries also wanted a French version of the draft recommendations.

##### **The Chairman**

The Chairman stated that there had been very little time available for drafting the recommendations. It was not possible to translate the draft recommendations into other languages. However, he assured the delegates that translations were being arranged and would be given to them.

**Draft Recommendation No.1**

Draft Recommendation: The INFOTERRA network maintain its current institutional structure and continue to rely on decentralised data bases for the provision of environmental information rather than attempting to have a decentralised international bibliographic data base.

**FINAL RECOMMENDATION NO. 1**

The draft recommendation was adopted as final recommendation No.1.

**Draft Recommendation No. 2**

Draft Recommendation: Where appropriate, developed countries should include general information assistance as part of their foreign aid programme with a view to enabling developing countries to develop international information programmes, including INFOTERRA.

**Egypt**

The delegate from Egypt asked as to whom the draft recommendation No.2 was addressed.

**Chad**

The delegate from Chad suggested that the words 'National Focal Points' be added after 'where appropriate' of the draft recommendations.

**Mauritius**

The delegate from Mauritius said that in case the recommendation was addressed to the Governing Council of the UNEP, participants to the Conference could move a resolution for considering of the Governing Council.



### **Panama**

The delegate from Panama felt that the recommendation looked as if it was addressed to the developed countries.

### **The Chairman**

The Chairman said that the recommendation implied that NFPs in the developed countries should approach their respective aid agencies for inclusion of general information assistance as part of their foreign aid programme with a view to enabling developing countries to develop international information programme including INFOTERRA. He suggested that the words 'where appropriate' may be deleted from the draft recommendation.

### **U.S.A.**

The American delegate suggested that the recommendation be adopted with the replacement of the words 'Environmental Information' in place of 'information' in the draft recommendation.

### **USSR**

The delegate from the USSR suggested preserving the original text of the draft recommendation.

### **ALDOC**

The representative of ALDOC agreed with the above suggestion.

### **Samoa**

The delegate from Samoa had reservations about the suggestion of the American delegate from replacement of the word 'information' with 'environmental information' in the draft recommendation. He suggested that the draft recommendation be kept as it is.

### **FINAL RECOMMENDATION NO. 2**

The draft recommendation was modified by the plenary and adopted as final recommendation No. 2, which reads as:-

"NFPs in developed countries should explore the possibility of sponsoring the supply of equipment to NFPs in developing countries, enabling them to reach self sufficiency. Developing countries should indicate their equipment needs to the PAC including maintenance and training requirements."

### **Draft Recommendation No. 3**

Draft Recommendation: NFPs in developed countries should explore the possibility of sponsoring the supply of equipment to NFPs in developing countries, enabling them to reach self sufficiency. Developing countries should indicate their equipment needs to the PAC, including maintenance and training requirements.

### **Canada**

The delegate from Canada asked for clarification on what the words 'sponsoring supply of equipment' meant in the draft recommendation.

### **The Chairman**

The Chairman explained that sponsoring meant giving of financial assistance for purchase of the equipment or the equipment itself.

### **Egypt**

The delegate from Egypt enquired about how to approach the developed countries for aid.

### **The Chairman**

The Chairman said that NFPs may apply to INFOTERRA PAC who will sort out the priorities.

### **Pakistan**

The delegate from Pakistan suggested deletion of the words 'NFPs' in the first line of the draft recommendation.

## **Gabon**

The delegate from Gabon suggested deletion of the word 'self-sufficiency' in the draft recommendation since in French it meant 'independence'.

## **ALDOC**

The representative of ALDOC wondered why there were no comments from the developed countries. He suggested retaining the words 'NFPs' as it is in the draft recommendation.

## **FINAL RECOMMENDATION NO. 3**

The draft recommendation was adopted as the final recommendation No.3.

## **Draft Recommendation No.4**

Draft recommendation: NFPs in developed countries should investigate sponsorship of general library and information science training for the staff of NFPs in developing countries, on a regional basis, if feasible.

## **Egypt**

The delegate from Egypt suggested that the words 'on a regional basis, if feasible' be dropped from the draft recommendations.

## **Rwanda**

The delegate from Rwanda suggested that the words 'if feasible' be dropped from the draft recommendation.

## **Zambia**

The Zambian delegate suggested that developing countries should also investigate sponsorship of training programmes.

## **Ethopia**

The Ethiopian delegate also supported Egypt in modifying the draft recommendation.



#### **Pakistan**

The Pakistani delegate suggested that responsibility of sponsorship should be with the INFOTERRA PAC.

#### **Morocco**

The delegate from Morocco suggested striking out the words 'in developing countries' from the draft recommendation. He also suggested that the words 'developed NFP' be used instead of 'NFPs in developed countries' in the draft recommendation.

#### **Mauritius**

The delegate from Mauritius suggested that NFPs in developed countries should sponsor general library and information science courses for the staff of NFPs in developing countries.

#### **ALDOC**

The representative of ALDOC felt that the suggestions given so far were only change of words used in the draft recommendation.

#### **Morocco**

The delegate from Morocco supported ALDOC's view. He further said that NFPs needed money and, therefore, suggested addition of the words 'INFOTERRA, PAC alongwith' before 'NFPs' in the draft recommendation.

#### **Congo**

The delegate from Congo suggested the use of the words 'developed NFPs' instead of 'NFPs in developed countries' in the draft recommendation. This was suggested because he felt that some developing countries can also provide training. This view point was supported by the delegates from Mauritius and Morocco.

#### **Rwanda**

The delegate from Rwanda suggested putting in the words 'INFOTERRA, PAC and developed NFPs' in the beginning of the draft recommendation instead of the words 'NFPs in developed countries'.

### **Gabon**

The delegate from Gabon felt that addition of the word 'PAC' in the draft recommendation was alright in view of PAC being the sponsor for training programme. He suggested that relation between developed and not so developed countries should also be highlighted in the draft recommendation.

### **Cameroon and Nepal**

The delegates from Cameroon and Nepal suggested the use of the words 'developed NFPs' instead of 'developed countries'.

### **FINAL RECOMMENDATION NO. 4**

Draft recommendation No.4 was finally adopted to as final recommendation No.4 to read as under:-

"The INFOTERRA Programme Activity Centre (PAC) and developed national focal points should, when required, investigate sponsorship of general library and information science training for the staff of NFPs in developing countries, on a regional basis if feasible."

### **Draft Recommendation No.5**

Draft recommendation:      The PAC should provide more INFOTERRA training courses for developing countries on a Regional basis whenever possible.

### **FINAL RECOMMENDATION NO. 5**

A final recommendation No. 5 was added to read as under:

"The global INFOTERRA network management meeting should be held more frequently, when resources permit."

### **FINAL RECOMMENDATION NO. 6**

Draft recommendation No.5 was adopted as final recommendation No. 6 in the area of 'network development'.

#### **Draft Recommendation No. 6**

**Draft Recommendation:** The RSC staff improve contact within their regions with NFPs and non-members through various means including Regional meetings, the publication of a newsletter with a Bibliographic section covering INFOTERRA subjects and a coordinated approach to the acquisition and use of new technologies.

#### **ALDOC**

The representative from ALDOC felt that the words 'coordinated approach' to the acquisition and use of new technologies' constituted a recommendation by itself. Therefore, it should be separated from the draft recommendation and made as a new recommendation.

#### **Samoa**

The delegate from Samoa enquired as to what the words 'non-members' meant in the draft recommendation.

#### **The Chairman**

The Chairman explained that non-member referred to the non-INFOTERRA partners.

#### **Sudan**

The delegate from Sudan enquired as to what is meant by the words 'coordinated approach'.

#### **The Chairman**

The Chairman explained the meaning of the words 'coordinated approach'.

#### **FINAL RECOMMENDATION NO. 7**

The draft recommendation No.6 was adopted as final recommendation No.7 to read as follows:



"The Regional Service Centre (RSC) staff improve contacts within their regions with NFP's and non-partner countries through various means including regional meetings, the publication of a newsletter with a bibliographic section covering INFOTERRA subjects."

(The words 'coordinated approach to the acquisition of new technologies in the draft recommendation above was suggested by the USSR to be taken to the Section dealing with new technologies. This was agreed to by the Chairman)

#### **Draft Recommendation No. 7**

Draft Recommendation: PAC should prepare a directory of INFOTERRA's special Sectoral Sources (SSS) describing the scope of services, standard of charges, thesauri, etc. and that the PAC identify the gaps in subject coverage of the RSS network and establish new ones where appropriate.

#### **United Kingdom**

The delegate from UK suggested the inclusion of the 'Regional Service Centre' also in the draft recommendation which was supported by the Egyptian delegate.

#### **FINAL RECOMMENDATION NO. 8**

Draft recommendation No.7 was finally recommended as recommendation No.8 as follows:

"PAC should prepare a directory of INFOTERRA's Special Sectoral Sources (SSS) and Regional Service Centres (RSC) describing the scope of services, standard of charges, thesauri, etc. and that the PAC identify the gaps in subject coverage of the SSS network and establish new ones, where appropriate.

#### **Draft Recommendation No. 8**

Draft Recommendation: The closer cooperation of Regional Groups in the field of environmental information pertaining to topical issues as illustrated by the Baltic Sea project be enhanced.

#### **FINAL RECOMMENDATION NO. 9**

The above draft recommendation No. 8 was finally adopted as final recommendation No. 9 to read as follows:

"The closer cooperation of regional groups in the field of environmental information pertaining to topical issues as illustrated by the Baltic Sea Project or the establishment of database on nature conservation technology be enhanced."

#### **Draft Recommendation No.9**

Draft Recommendation: NFP's should coordinate with libraries and national document centres in preparing national environmental bibliographies whenever feasible. PAC should provide guidelines in this endeavour.

#### **India**

The delegate from India suggested that the word 'wherever' may be used instead of 'whenever' in the draft recommendation.

#### **ALDOC**

The representative of ALDOC suggested the use of the words 'national documentation centres' instead of national document centres.

#### **FINAL RECOMMENDATION NO. 10**

The above draft recommendation No. 9 was modified, adopted and finally made as final recommendation No.10 to read as follows:

"NFP's should coordinate with libraries and national documentation centres in preparing national environmental bibliographies wherever feasible. PAC should provide guidelines in this endeavour."

#### **Draft Recommendation No. 10**

Draft recommendation: The source registration form be simplified as appropriate and a query formulation form be produced.

**U.K.**

The delegate from UK suggested replacing the word 'simplified' by the words 'revised and updated'.

**India**

The Indian delegate suggested the use of the word 'prepared' instead of 'produced'.

**Pakistan**

The delegate from Pakistan felt that the use of words 'revised and updated' as suggested by UK would change the meaning of the recommendation and suggested adding the words 'by the PAC' at the end of the recommendation.

**Mauritius**

The delegate from Mauritius felt that the words 'revised and updated' implied the same meaning as 'simplified'.

**Pakistan**

The delegate from Pakistan said that INFOTERRA in its paper itself had stated that the source registration form had to be simplified and had to be made more user-friendly.

**FINAL RECOMMENDATION NO. 11**

The above draft recommendation No. 10 was modified and finally adopted as final recommendation No.11 to read as follows:

"The source registration form be revised, updated and made user friendly as appropriate and a query formulation form be produced by the PAC".

**Draft Recommendation No. 11**

Draft Recommendation: PAC to arrange the acquisition of relevant UNEP publications for NFP's.



### **Pakistan**

The delegate from Pakistan felt that this recommendation would mean a lot of work to be undertaken by the PAC. He suggested that PAC could supply only a list of documents to the NFPs, who then could choose and select and then request PAC for hard copies.

### **Congo**

The delegate from Congo suggested the addition of RSCs in the recommendation.

### **FINAL RECOMMENDATION NO. 12**

The above draft recommendation No. 11 was modified and adopted as final recommendation No.12 to read as follows:

"PAC to arrange the acquisition of relevant UNEP publications for NFP's and RSC's."

### **Draft Recommendation No. 12**

Draft Recommendation: Any enquiry from NFP's to other NFPs, SSS's or PAC should indicate other sources contacted.

### **Sudan**

The delegate from Sudan asked for reasons for putting in this recommendation.

### **The Chairman**

The Chairman explained that this recommendation was included to avoid duplication of efforts among NFPs, SSSs and PAC.

### **U.K.**

The delegate from U.K. suggested the use of the words 'partners in the network' instead of NFPs, SSSs or PAC.

#### **FINAL RECOMMENDATION NO. 13**

The above draft recommendation No. 12 was modified and adopted as final recommendation No.13 , to read as follows:

"Any enquiry from NFPs to other partners in the network should indicate other sources contacted".

#### **Draft Recommendation No.13**

Draft Recommendation: NFPs that have registered no or few sources should endeavour to register suitable ones.

#### **FINAL RECOMMENDATION NO. 14**

The above draft recommendation No. 13 was adopted as final recommendation No.14.

#### **Draft Recommendation No.14**

Draft Recommendation: Where possible an abstract in one of the four official languages should be provided when a document is not in one of them.

#### **Pakistan**

The delegate from Pakistan enquired as to who should provide the document.

#### **The Chairman**

The Chairman clarified the aspect and said that whomsoever has been asked for the documents has to do the needful.

#### **FINAL RECOMMENDATION NO. 15**

The draft recommendation No.14 was adopted as final recommendation No.15.

#### **Draft Recommendation No.15**

Draft Recommendation: NFPs should exchange publications with other NFPs, especially within their region.

#### **Pakistan**

The delegate from Pakistan said that there was no mention of the words 'if possible' or 'if feasible' in the recommendation.

#### **FINAL RECOMMENDATION NO. 16**

The draft recommendation No.15 was adopted as final recommendation No.16.

#### **Draft Recommendation No. 16**

Draft Recommendation: In revising the INFOTERRA thesaurus, changes should be kept to a minimum; it should be made compatible with indexing thesauri and with UNBIS as far as possible and coding of attributes to reflect their hierarchical structure.

#### **Pakistan**

The delegate from Pakistan suggested the use of the words 'changes be made if necessary' instead of 'changes should be kept to a minimum'.

#### **Congo**

The delegate from Congo said that there should be maximum changes in the thesaurus since it is incomplete and said that making the necessary changes requires an integrated approach.

#### **India**

The delegate from India wondered as to how the changes in the thesaurus could be kept to the minimum if it was to be made compatible with other indexing thesauri; this view point was shared by the delegate from Congo.

#### **FINAL RECOMMENDATION NO. 17**

The draft recommendation No. 16 was adopted as final recommendation No.17 as follows:



**Draft Recommendation No. 17**

Draft Recommendation: The RSCs survey the environmental information resources available within their regions, including the regional organisations, to facilitate information exchange.

**FINAL RECOMMENDATION NO. 18**

The draft recommendation No. 17 was adopted as final recommendation No.18.

**Draft Recommendation No.18**

Draft Recommendation: NFPs make more use of the information resources available from the United Nations system by using in particular, the ACCIS/INFOTERRA guide to the UN Environmental databases and other bibliographic tools.

**U.K.**

The delegate from U.K. suggested that this recommendation could be included in the set of general recommendations and also suggested that the draft recommendation No. 3 could also come under the section dealing with 'new technologies'.

**FINAL RECOMMENDATION NO. 19**

The above draft recommendation No. 18 was adopted as final recommendation No.19.

**FINAL RECOMMENDATION NO. 20**

The part of the draft recommendation No.6 i.e. 'The coordinated approach to the acquisition and use of new technology' was adopted as final recommendation No. 20.

**Draft Recommendation No. 19**

Draft Recommendation: PAC should refine its electronic mail system and produce a user friendly guide for its operation.

#### **FINAL RECOMMENDATION NO. 21**

The above draft recommendation No. 19 was adopted as final recommendation No.21.

#### **Draft Recommendation No. 20**

Draft Recommendation: PAC monitor the development of environmental databases and advise the NFPs of new developments. The PAC should guide NFPs in developing countries on the latest information technology developments and their suitability for INFOTERRA work.

#### **FINAL RECOMMENDATION NO. 22**

The above draft recommendation No. 20 was divided into two recommendations. The recommendation "PAC monitor the development of environmental databases and advising NFPs of new developments" was adopted as final recommendation No. 22.

#### **FINAL RECOMMENDATION NO. 23**

There were discussions on the second part of the draft recommendation No. 20. It was modified and adopted as final recommendation No. 23 to read as:

"The PAC should guide and ensure that all NFPs have access to latest information on the advancements of information technologies which are suitable to their needs and their capacity."

#### **Draft Recommendation No. 21**

Draft Recommendation: NFPs and PAC should formulate a strategy for promotion of INFOTERRA activities in the 1990s including using international events such as World Environment Day, World Wildlife Week, etc.

#### **FINAL RECOMMENDATION NO. 24**

The above draft recommendation No. 21 was adopted as final recommendation No. 24.

#### **Draft Recommendation No. 22**

**Draft Recommendation:** The NFPs promote the use of INFOTERRA by participating in courses, conferences, exhibitions, etc. and using the media and other events to raise the awareness of decision makers and the general public to the role of INFOTERRA in solving environmental problems.

#### **FINAL RECOMMENDATION NO.25**

The above draft recommendation No. 22 was adopted as final recommendation No. 25.

#### **Draft Recommendation No. 23**

**Draft Recommendation:** PAC provide more promotional material on current environmental issues including information packs.

#### **FINAL RECOMMENDATION NO. 26**

The above draft recommendation No. 23 was adopted as final recommendation No. 26.

#### **Draft Recommendation No. 24**

**Draft Recommendation:** The NFPs translate INFOTERRA publications into languages not used by INFOTERRA, where feasible.

#### **FINAL RECOMMENDATION NO. 27**

The above draft recommendation No. 24 was adopted as final recommendation No. 27.



**Draft Recommendation No. 25**

Draft Recommendation: RSCs produce promotional material for use within the region.

**FINAL RECOMMENDATION NO. 28**

The above draft recommendation No. 25 was modified and adopted as final recommendation No. 28 to read as follows:

"RSCs in cooperation with the PAC produce promotional material for use as models within the region".

**Draft Recommendation No. 26**

Draft Recommendation: The PAC review the format of the INFOTERRA Bulletin and widen its coverage. The NFPs to send more material to PAC for inclusion in the Bulletin.

**FINAL RECOMMENDATION NO. 29**

The above draft recommendation No. 26 was adopted as final recommendation No. 29.

**Draft Recommendation No. 27**

Draft Recommendation: PAC explore the possibility of establishing an international environmental information award.

**FINAL RECOMMENDATION NO. 30**

The above draft recommendation No. 27 was adopted as final recommendation No. 30.

**Draft Recommendation No.28**

Draft Recommendation: A regional information newsletter be created with a bibliographic section covering INFOTERRA subjects.

It was felt that the above recommendation has already been covered in an another section and, therefore, could be deleted.

#### **Draft Recommendation No. 29**

Draft Recommendation: PAC correspond with NFP Governments to heighten awareness and support for INFOTERRA activities.

#### **FINAL RECOMMENDATION NO. 31**

Above draft recommendation was adopted as final recommendation No. 31.

#### **ITEM NO. 15 - CLOSURE OF THE MEETING**

In his closing remarks, Dr. Wo Yen Lee referred to the prevailing problems of soil erosion, desertification, ozone layer depletion, improper use of energy in industries, carbon dioxide emission, etc. He said that modern technology was now available for solving several of these problems. He said that use of modern technologies could increase the efficiency in the energy and transportation sectors besides reducing carbon dioxide emissions. However, Dr. Lee felt that what was lacking today was the non-availability of adequate information on these technologies to the people who need it. Timely availability of related information on technology could greatly contribute to the environmental cause thereby avoiding deterioration in the environment. He re-emphasised the need for all NFPs to provide environmental information to all those needing them to safeguard the environment.

Dr. Lee thanked all the NFPs who had accepted the invitation to participate in the conference. He also thanked the supporting staff of INFOTERRA as well as the hosts USSR, for having made all arrangements for the participants of the Conference.

#### **Chile**

The delegate from Chile expressed deep gratitude to the organisers of the Conference, and the hosts USSR, who made the stay in the country pleasant for all the participants. She thanked INFOTERRA for having given them the opportunity to come in close contact with the other INFOTERRA partners. The Chilean delegate said that she was leaving the country with a firm determination to work for the cause of environment.

### **Gabon**

The delegate from Gabon, on behalf of French speaking African and Indian Ocean States thanked UNEP for having successfully organised the Conference. He congratulated UNEP for getting all the NFPs together and hoped for future meetings to be held more frequently to share each others experiences. He was happy to notice the helpful atmosphere which prevailed during the entire period of the Conference. The delegate thanked the USSR Government for having hosted the Conference.

### **Gambia**

Gambia (on behalf of East and South African including West African countries) expressed gratitude to the Organising Committee of the USSR and gave heartfelt thanks to the INFOTERRA, PAC for putting in their best efforts for the success of the conference. He felt that there had been tremendous promotion of INFOTERRA activities and that the Conference had brought together all NFPs to further their cooperative efforts on which, ultimately INFOTERRA's success depended. He appealed to all the participants to promote INFOTERRA further in the 1990s and desired that all participants should push the idea of promoting INFOTERRA further in the forthcoming Governing Council meeting of UNEP in May, 1990.

### **Morocco**

On behalf of the North and West African and North-West African countries, the delegate from Morocco expressed gratitude to the organisers. He felt that several participating NFPs had shown concern for the cause of environmental protection. He said that all discussions during the Conference were held in an extremely friendly atmosphere. He thanked the UNEP leadership and its secretarial staff who were quite helpful during the Conference.

### **U.S.A**

The delegate from the USA expressed appreciation to the host Government and other agencies of USSR for organising the Conference on such a large scale. The delegate from USA said that her first visit to the USSR was a very pleasant one and thanked Dr. Wo Yen Lee, Director, INFOTERRA, PAC and his staff in making excellent preparations for the meeting. She pointed out that the entire job was well done by the INFOTERRA, PAC. She thanked the Chairman of the Conference for successfully conducting the proceedings and also thanked the Rapporteur for putting in hard work all through the Conference.



## **USSR**

The delegate from the USSR felt happy about holding the Conference in Moscow and said that because of this Conference his country had earned the friendship and goodwill of so many countries who attended the Conference. He stated that the Conference had been well covered by the mass media in the USSR. He also stated that the Conference had attracted seven new organisations who had become important INFOTERRA sources of information. He thanked all the participants as well as UNEP officials for successfully conducting the Conference.

## **Sri Lanka**

On behalf of the Asian region, the delegate from Sri Lanka said that valuable discussions had taken place on the INFOTERRA network. She felt that because of this Conference, Sri Lanka had come closer to several countries. It had helped Sri Lanka in knowing the activities of various NFPs as well as the problems being faced by them. She hoped for renewed assistance from the INFOTERRA, PAC with regard to their activities. She thanked India as the RSC for providing environmental information whenever required. She also thanked the Chairman of the Conference for successfully conducting the proceedings. She thanked the hosts, the INFOTERRA officials for having arranged this global meeting resulting in close ties with each other. She extended an invitation to INFOTERRA, PAC for hosting the next conference in Sri Lanka.

## **Yemen Arab Republic**

On behalf of the North and South Yemen and other Arab countries, the delegate from the Yemen Arab Republic said that the Conference was highly successful. He hoped for further improvements in contacts between NFPs. The delegate from YAR said that he greatly valued the assistance of Dr. Wo Yen Lee, the good management of Mr. Noel Hughes and others. He thanked the USSR Government for hosting the Conference and making excellent arrangements through-out.

### **The Chairman**

The Chairman, Mr. Hughes, in his final remarks said that only the co-operation of all participants, had made the INFOTERRA Conference successful. He referred to the excellent friendship and contact developed with the Rapporteur from India and the delegate from Nepal. He felt that the organisation of the Conference was good for which the USSR Government and several people behind the scenes had worked hard. He thanked the host Government for providing the opportunity for delegates to participate in several social events, such as ballets, opera, etc. He also thanked the people of Moscow for their co-operation in making their stay comfortable and enjoyable. Finally, the Chairman thanked Dr. Wo Yen Lee and his team for having worked hard for the success of the Conference and wished everybody a safe journey home.

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## ANNEXURE-I

### FINAL RECOMMENDATIONS

The Conference reviewed all aspects of INFOTERRA activities and highly assessed the achievements made by the INFOTERRA system. In order to maintain INFOTERRA as a dynamic system in the 1990s to facilitate the exchange of environmental information among and within nations, the Conference recommends that:

#### I. GENERAL

1. The INFOTERRA network maintain its current institutional structure and continue to rely on decentralized databases for the provision of environmental information rather than attempting to have a centralized international bibliographic database.
2. Where appropriate, national focal points (NFP's) in developed countries should approach their aid agencies to include general environmental information assistance as part of their foreign aid programme with a view to enabling developing countries to develop international environmental information programmes, including INFOTERRA.
3. NFP's in developed countries should explore the possibility of sponsoring the supply of equipment to NFP's in developing countries, enabling them to reach self-sufficiency. Developing countries should indicate their equipment needs to the PAC including its maintenance and training requirements.
4. The INFOTERRA Programme Activity Centre (PAC) and developed national focal points should, when required, investigate sponsorship of general library and information science training for the staff of NFP's in developing countries, on a regional basis if feasible.
5. The global INFOTERRA network management meeting should be held more frequently, when resources permit.



## II. NETWORK DEVELOPMENT

6. The PAC should provide more INFOTERRA training courses for developing countries on a regional basis whenever possible.
7. The Regional Service Centre (RSC) staff improve contact within their regions with NFP's and non-partner countries through various means including regional meetings, the publication of a newsletter with a bibliographic section covering INFOTERRA subjects.
8. PAC should prepare a directory of INFOTERRA's Special Sectoral Sources (SSS) and Regional Service Centres (RSC) describing the scope of services, standard of charges, thesauri, etc., and that the PAC identify the gaps in subject coverage of the SSS network and establish new ones, where appropriate.
9. The closer cooperation of regional groups in the field of environmental information pertaining to topical issues as illustrated by the Baltic Sea Project or the establishment of database on nature conservation technology be enhanced.
10. NFP's should co-ordinate with libraries and national documentation centers in preparing national environmental bibliographies wherever feasible. PAC should provide guidelines in this endeavour.

## III. OPERATIONS

11. The source registration form be revised, updated and made user-friendly, as appropriate and a query formulation form be produced by the PAC.
12. PAC to arrange the acquisition of relevant UNEP publications for NFP's and RSC's.
13. Any enquiry from NFP's to other partners in the network should indicate other sources contacted.
14. NFP's that have registered no or few sources should endeavour to register suitable ones.
15. Where possible, an abstract in one of the four official languages should be provided by sources, if possible, when a document is not in one of them.

16. NFP's should exchange publications with other NFP's, especially within their region.

17. In revising the INFOTERRA thesaurus, changes should be kept to a minimum, it should be made compatible with indexing thesauri and with UNBIS as far as possible, and coding of attributes should reflect their hierarchical structure.

18. The RSC's survey the environmental information resources available within their regions, including the regional organization, to facilitate information exchange.

19. NFP's make more use of the information resources available from the United Nations system by using in particular, the ACCIS/INFOTERRA guide to the U.N. Environmental Databases and other bibliographic tools.

#### **IV. NEW TECHNOLOGY**

20. A co-ordinated approach to the acquisition and use of new technologies is urged.

21. PAC should refine its electronic mail system and produce a user friendly guide for its operation.

22. PAC monitor the development of environmental databases and advise the NFP's of new developments.

23. The PAC should guide and ensure that all NFP's have access to latest information on the advancements of information technologies which are suitable to their needs and their capacity.

#### **V. PROMOTION**

24. NFP's and PAC should formulate a strategy for promotion of INFOTERRA activities in the 1990's including using international events such as World Environment Day, World Wildlife Week, etc.

25. The NFP's promote the use of INFOTERRA by participating in courses, conferences, exhibitions, etc. and using the media and other events to raise the awareness of decision makers and the general public to the role of INFOTERRA in solving environmental problems.

26. PAC provide more promotional material on current environmental issues including information packs.
27. The NFP's translate INFOTERRA publications into languages not used by INFOTERRA, where feasible.
28. RSC's in cooperation with the PAC produce promotional material for use as models within the region.
29. The PAC review the format of the INFOTERRA Bulletin and widen its coverage. The NFP's to send more material to PAC for inclusion in the Bulletin.
30. PAC explore the possibility of establishing an international environmental information award.
31. PAC correspond with NFP governments to heighten awareness and support for INFOTERRA activities.
32. NFP's are encouraged, whenever possible, to explore ways of raising the awareness of decision-makers in according environmental information its proper role in sound environmental management.



ANNEXURE II

FINAL LIST OF PARTICIPANTS OF THE WORLD CONFERENCE  
ON ENVIRONMENTAL INFORMATION EXCHANGE IN THE 1990s  
INFOTERRA III

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5. Bolivia  
Ms. Isabel Munos Reyes  
Directora Del Syfnid - INFOTERRA  
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18. Comoros  
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