Evaluation

of

Environmental Assessment

United Nations Environment Programme

Project Design and Evaluation Unit (PDEU/CPAS)

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Evaluation Conducted by

C. C. Wallen
Consultant

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LIST OF ABBREVIATIONS

BAPMON	Background Air Pollution Monitoring Network
CSM	Climate Systems Monitoring (WMO)
CSD	Commission for Sustainable Development (UN)
EAP	Environmental Assessment Programme (UNEP)
ECDIN	Environmental Chemicals Data and Information Network
ED	Executive Director
EMINWA	Environmentally Sound Management of Inland Waters
ENRIN	Environmental and Natural Resource Information Network
EPA	Environmental Protection Agency (USA)
FAO	Food and Agricultural Organization
GCOS	Global Climate Observation System
GEMS	Global Environment Monitoring System
GERMON	Global Environment Radiation Monitoring
GOOS	Global Ocean Observing System
GRDC	Global Runoff Data Center
GRID	Global Resource Information Database
GTOS	Global Terrestrial Observation System
HEALS	Human Exposure Assessment Locations
HEM	Harmonization of Environment Monitoring (GEMS)
IAC	INFOTERRA Advisory Committee
IAHS	International Association of Hydrological Sciences
IETC	International Environment Technology Centre
IGBP	International Geosphere-Biosphere Programme
IHP	International Hydrology Programme
ILO	International Labour Organization
INFOTERRA	Information System for the Earth's Environment
IPCS	International Programme on Chemical Safety
IRPTC	International Register for Potentially Toxic Chemicals
IUCN	International Union for Conservation of Nature
NFP	National Focal Points
OECD	Organization for Economic Cooperation and Development
OCA	Ocean and Coastal Activities
PAC	Programme Activity Centre
PIC	Prior informal consent
SDN	Sustainable Development Network
SSS	Special Sectoral Services
START	System of Analysis, Research and Training
SWMTEP	System-Wide Medium-Term Environment Plan
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNGA	United Nations General Assembly
UNIDO	United Nations Industrial Development Organization
UNITAR	United Nations Institute for Training and Research

UNSO United Nations Sahelian Office
WHO World Health Organization
WMO World Meterological Organization
WWF World Wildlife Fund

Executive Summary

The Environmental Assessment Subprogramme which has existed since the creation of UNEP to fulfill the coordinated function of activities, required for carrying out global assessments in line with the "Earthwatch" concept, consisted in the years 1992-93 of for entities namely:

INFOTERRA, GEMS, IRPTC and GRID which all are Programme Activity Centres within the UNEP Secretariat, each one with their specific terms of reference.

Although a basic objective of the Environmental Assessment Subprogramme was to coordinate the above entities for carrying out assessments it became clear, when GEMS was created for the monitoring function, that it would be unsuitable to separate the assessment function from the unit that produces data. Therefore the responsibility for assessment rests with the GEMS/PAC. This fact is further emphasized by the fact that since 1979 the Director of GEMS has been Acting Director of Environmental Assessment so as to ensure full coordination of assessment activities within UNEP.

Consequently the present evaluation of Environmental Assessment, carried out for the period 1992-93, consists of separate chapters for the four entities. In addition some general comments are made at the end about the future developments of the subprogramme keeping in mind the reconstruction of the UNEP Secretariat that has taken place in the latter half of 1993.

Evaluation of INFOTERRA activities

INFOTERRA was created in consequence of a recommendation from the Stockholm Conference to establish a Referral Service for sources of environmental information to be used by any person or institution who wanted a specific answer to an environmental question. It is quite understandable that to establish a global referral system of this kind has required a considerable time. Nevertheless considerable progress has been made over the last 10 years in this regard demonstrated by the facts that from 1975-85 only 3400 queries were processed by INFOTERRA while in view of present demand the workplan for 1994-95 estimates the annual number of queries to be 30,000.

Although an important objective of INFOTERRA is still to operate the Referral Service the more large-scale aim is to develop a global environment information system including activities at the national, regional and sectoral level. In the light of GC17 decisions priority is at present given to strengthening the national focal points coordinating function and to give support to national information networks. Consequently activities have concentrated on training and capacity building in developing countries for the above

purposes often supported by donor institutions in developed countries while less emphasize has been given to information centres for specific environmental issues. It is proposed that for the latter purpose increased cooperation be established with units, within UNEP, responsible for dealing with specific

issues. In many cases these units are already dealing with networking of relevant information sources which could be coordinated with INFOTERRA's efforts at SSS.

An overall concern about INFOTERRA's large-scale aim of building a global environmental information system is a possible overlapping with other similar efforts within UNEP. The evaluation makes clear that INFOTERRA's terms of references should be re-defined so that they do not overlap with GRID which is partly the case at present. Hence it is suggested that the INFOTERRA global information system be limited to narrated environmental information in published or digital form. It should not deal with data or datasets, a task that should be exclusively left for GRID. However due to the close relations between GRID and INFOTERRA, particularly as regards technological means, it is important that they cooperate and coordinate activities as appropriate. As they both will provide important global information it is also important that they both are linked with the Environmental Assessment function within UNEP and part of a system-wide Earthwatch function that may emerge.

Evaluation of GEMS activities

GEMS, created in 1975 in consequence of an intergovernmental meeting on monitoring, has the basic objective to make sure that through monitoring or otherwise environmental data and information are becoming available for carrying out of assessments of various environmental issues. GEMS is also responsible for initiating but not necessarily carrying out of such assessments as well as for providing management with statements on policy guidelines based on assessments made.

In addition to collecting, in cooperation with GRID, data available for assessments at the regional and national level through the so called ENRIN programme, GEMS have with appropriate agencies initiated monitoring activities in the areas of AIR, WATER and FOOD. Global and regional centres have ensured data quality in all three cases. In the cases of AIR and WATER, GEMS have in the early 1990s concluded a Phase I of the monitoring activities and, as a main achievement, developed a Phase II to be operated until the end of the century. In Phase II for GEMS/WATER the approach of the global water quality network has been shifted from a mainly health oriented one to a multidisciplinary approach where data will be used for various kinds of environmental issues. In GEMS/AIR the urban air quality network will in Phase II be expanded to 100 cities, half of which will be in developing countries. Additional pollutants will be monitored, emission inventories will be carried out and management guidelines will be issued as an end result. The GEMS/FOOD programme as part of the UNEP/WHO HEALS programme has continued

as conceived, and the HEALs programme in general has continually provided information of human exposure to environmental pollutants. The pilot phase of the GEMS part of HEAL was concluded in 1992 and has stimulated continued activities in many countries. There is however a clear need to expand this programme to countries in parts of the world which are not participating as yet. This has so far been prevented by lack of funds.

Although it is noted with appreciation that GEMS has carried out over the years a considerable

number of useful assessments it is emphasized that more clear and detailed procedures for carrying out assessments are needed so that existing national and regional data are made available for the purpose and so that the end product produced by UNEP becomes useful for policy decisions and management purpose.

As to the future of GEMS it is pointed out that difficulties have arisen due to the present situation within the UNEP Secretariat where climate-related monitoring activities under GCOS, GTOS and GOOS are dealt with partly under management partly under assessment. This is only one example of several where monitoring activities have been separated from GEMS. Hence it is proposed that all monitoring activities as far as possible are transferred back to become the responsibility of GEMS and that clear arrangements be made for coordination with relevant management units as necessary.

Evaluation of GRID activities

It has been noted that the recently developed GRID function to collect available environmental datasets not only from monitoring activities at a global scale but also at the regional and national levels (under ENRIN) has led GRID to become more concerned with data management problems in general than with supporting analyses and assessment of environmental issues or situations. It is proposed that the data management function of GRID become more clearly defined as to which activities it should include. It should for instance be made clear to which extent quality control and harmonization of datasets are the responsibility of GRID.

During the period of evaluation GRID, with its regional centres, was involved in 44 projects concerned with compilation of datasets, development of technological means for creation of datasets, providing support for using datasets for analyses and assessments and with training for capacity building. These projects do not include the great number of service activities which the regional centres carry out for consumers within their regions. It is proposed that these service activities be grouped under clearly defined headings so that it will be easier to monitor achievements towards the objectives of GRID.

It is also pointed out that the obvious freedom given to regional centers to approach their programmes through different specialized activities is quite beneficial for the whole GRID system and should be maintained even when a desirable more detailed structure of activities is introduced.

GRID is a good example of a UNEP activity where costs are shared with regional and national authorities which contribute considerable to the running of regional centers. It is proposed that although a goal of 50 regional centres around the world by the year 1997 may be over ambitious one should aim at cooperating in regions not covered so far with institutions, which are already suitably equipped to take on a regional function within GRID. The START centres under IGBP now being established are mentioned as a useful possibility.

It is finally emphasized that GRID in its future publications try to clarify in a layman's language progress in its work. It is not sufficient to emphasize in the Bulletin the establishment of new regional centres as an achievement when the reader is not clear about what the centres are doing. An effort

must be done to clarify better to non-specialists how the sophisticated technology is being applied for purposes useful to the environment as a whole.

Evaluation of IRPTC activities

IRPTC/PAC was created by UNEP in pursuance of a recommendation from the Stockholm Conference to "ensure the use of chemicals least damaging to health and environment and to provide a global early warning system concerning undesirable environmental side effects".

The budget plan for 1992-93 envisages IRPTC to concentrate on the implementation of London Guidelines for Exchange of Information on Chemicals in Trade, support implementation of the Basel Convention on Hazardous Wastes and to assist developing countries to improve their capability for assessment and control of chemical hazards. Considerable achievements have been noted in all these areas, which are elaborated on in the evaluation paper. It is concluded that IRPTC with a reasonably small staff supported by 15 to 20 consultants per year carries out a substantial job to keep the Register and its sub-items under permanent development and updating. In doing so the PAC is in constant cooperation with national and international agencies in a very efficient manner. It plays a particularly important role in the WHO/ILO/UNEP/IPCS programme where the first objective is to carry out evaluations of the risk to human health and the environment from exposure to chemicals. It should be emphasized that cooperation with countries such as in the project with the Umweltbundesamt in Germany is of a particular benefit to IRPTC and it is recommended that more similar joint projects are considered.

As the fundamental mandate of IRPTC is very clear and specified it has been possible to transform the objectives into a quite simple and efficient structure of the PAC easy to manage and operate. It is also easy to follow the achievements and see clearly how the programme is progressing. It has been pointed out that one special approach to administration of the IRPTC/PAC has proven of particular importance to its successful

development namely the decision to keep the scientific and technical staff comparatively small but to use in addition consultants for 1 to 6 months annually for solving a number of special problems.

One particular problem related to publications from IRPTC has been emphasized namely that the quarterly Bulletin includes at the same time sections of general information about IRPTC and UNEP and a section on new scientific and technical information on toxic chemicals. As these sections have completely different readers it is suggested that the one on scientific and technical matters be separated from the Bulletin to appear in a special publication issued twice a year. At the same time the other two sections in the Bulletin should be slightly changed to clearly reflect the progress of IRPTC.

It has finally been noted that IRPTC, although recently moved to become an independent unit to serve Toxic Chemicals and Wastes, still has important relations to pursue with the entities within the Environmental Assessment Subprogramme in particular the pollution problems being dealt with in

GEMS. It is therefore important that IRPTC continues to keep close cooperation with the Environmental Assessment Subprogramme.

Evaluation of Environmental Assessment as a whole

It is pointed out at the end of the evaluation that the proposals, that have been made regarding the future operation of the PACS are not influenced by the recent restructuring of the UNEP Secretariat. They can be implemented also with the new key principles for Environmental Assessment.

It is emphasized also that if for reasons involved with the restructuring of the UNEP Secretariat it is found desirable to cluster the public information service and the library together with INFOTERRA/PAC the needs for establishing close links with Environmental Assessment and making it part of the system-wide Earthwatch should be seriously considered.

Finally the need for development of detailed procedures for issuing of early warnings of environmental threats mentioned among the key principles for the future management should be considered an urgent matter for the Environmental Assessment Subprogramme.

EVALUATION OF ENVIRONMENTAL ASSESSMENT

Introduction

1. The Environmental assessment sub-programme of UNEP has existed in some form or another since the creation of UNEP after the Stockholm Conference in l972. In the decisions of the Action Plan of the Stockholm Conference the so-called "Earthwatch" was supposed to become one of the three pillars on which the future activities of UNEP should be based. Earthwatch as a concept was defined at Stockholm as the coordinated function of the following activities considered to be required for carrying out assessments of the global environment:

(i) Evaluation and review of urgency of global environmental issues (evaluation)

(ii) Collection of available data and information as well as organization of specific observations to fill gaps (monitoring);

(iii) Research with existing and emerging data (research);

(iv) Information exchange and disseminating knowledge to decision makers (information exchange).

Although the word "Earthwatch" and the concept often have been used within the UN system since 1972 in reference to the various activities involved in the global environment assessment function the concept has not materialized as a title or a branch of UNEP. Since the start the part of the UNEP programme dealing with the activities related to the above-mentioned functions has been called "Environmental Assessment".

2. Over the years various components under Environmental Assessment have been created within the Secretariat to deal with the original as well as emerging assessment needs.

INFOTERRA with a PAC (Programme Activity Centre) was created in 1975 to take care of the international information referral system about the environment which the Stockholm Conference had requested (IV).

GEMS (The Global Environment Monitoring System) with a PAC was also created in 1975 for taking care of collection of available data and information as well as to catalyze and coordinate global monitoring to fill existing gaps (II) (I). GEMS was also given the overall responsibility for the assessment function under Environmental Assessment (see below).

IRPTC (International Register of Potentially Toxic Chemicals) with a PAC was created in 1976 to meet a requirement also expressed by the Stockholm Conference and to deal with collection of an available special type of data (IV).

GRID (The Resource Information Data Base) was created in 1985 as part of GEMS to take care of its function to collect and manage available environmental data and information. It became a PAC in 1991 (II) (III).

3. Although a basic objective of Environmental Assessment was from the beginning to coordinate the various entities for an overall assessment function it became clear to governments in the meeting in 1974, in which GEMS was created, that it would be unsuitable to separate the assessment function from the unit that produces data. Therefore the responsibility to collect material and produce assessments was given to GEMS/PAC, where it still belongs.

4. However, it is important to clarify further the development of the relation between the separate units and the branch called Environmental Assessment. As the entities, from an early stage, all were Programme Activity Centres (PAC) that had a large degree of independence from the Environmental Assessment coordinating branch and indeed reported directly to ED. Therefore the coordination between them did not function very well in the early years of UNEP. This lead ED in 1979, when the post as Director of Environmental Assessment was vacant, to decide not to fill the post but to make the

Director of GEMS Acting Director of Environmental Assessment, thereby assuring that the entity which was responsible for the assessment function became the coordinating unit of the Environmental Assessment Branch. This step explains why from 1980-1993 the GEMS/PAC to the outside world became synonymous with Environmental Assessment with the other PAC's operating basically for their special purposes.

5. Another relation which needs to be clarified in order to make the functions of the separate entities understandable is their relation with other parts of the UN system. It must be remembered that UNEP since Stockholm was considered as a centre for the environment programme of the UN system and that the Secretariat was created to coordinate and catalyze environment activities within the system as a whole. Indeed in the area of Environment Assessments the "Earthwatch" concept was assumed to comprise the system-wide assessment functions and from 1973 until 1982 an Interagency Working Group for Earthwatch existed for this purpose. Thereafter until 1991 the system-wide cooperation and coordination in the Environmental Assessment area was handled through other means such as SWMTEP and in DOEM meetings.

6. In 1989 the General Assembly passed a resolution underlining the importance of broader participation in Earthwatch in order to strengthen its capacity to make authoritative assessments. After a thorough review of the situation the ED of UNEP submitted in 1991 a report on this matter to the Governing Council and further on to the General Assembly. As a consequence of this report ED of UNEP in 1991 named the Director of GEMS and Acting Director of Environmental Assessment, Coordinator for "Earthwatch" with responsibility to look into the further development of a broader and system-wide "Earthwatch". A Deputy Coordinator was nominated to concentrate on this task with his office in Geneva. An in-depth study of "Earthwatch" is actually going on in UNEP for this purpose.

7. After reorganization of the UNEP programme in 1993 the Environmental Assessment involves the activities of the entities INFOTERRA, GEMS, GRID and the special function to develop a system-wide "Earthwatch". From 1994 IRPTC has been taken out of Environmental Assessment to serve the particular environment function dealing with Toxic Chemicals. In the context of this evaluation, however, the achievements of IRPTC in 1992-94 are considered part of Environmental Assessment.

8. In view of the fact that the in-depth study of Earthwatch as well as a proposal for the operations of a system-wide Earthwatch will not be ready in time for this evaluation of the years 1992-94, it will be limited to the internal UNEP activities under Environmental Assessment under that period.

SECTION I INFOTERRA

Background Information

9. INFOTERRA was created as a an Information Referral Service (IRS) within the UNEP Secretariat in 1975 in consequence of Recommendation 101 of the UN Conference on the Human Environment in Stockholm in June 1972. This recommendation asks "the Secretary-General of UN to take appropriate steps to organize an International Referral Service for sources of environmental information". A model for such a service to assist governments in a successful implementation of the recommendations made at the Conference was given in (A.Conf.48/9). In 1981 the IRS was given a larger objective to create a global environment information network and its name was changed to INFOTERRA. This was made a PAC within the Secretariat at the same time.

10. Since the beginning this Referral Service within the UNEP Secretariat, has been part of Environmental Assessment and in some measure responsible for the part of the "Earthwatch" concept that should deal with exchange of environmental information. The idea with this service was that any institution or person who wanted a specific answer to an environmental question could approach the Service with a query. The Service then would send the question further to specialists who would answer the question in such details as they were able. The answer would then be transmitted by the Service back to the person or institution who made the original query.

11. The idea of using such a referral system for exchange of information in the new environmental field was theoretically excellent but proved to be much more difficult to realize than foreseen. It is obvious that it took a considerable time for the IRS with limited resources, to establish a roster of experts and institutions in the environmental fields which could efficiently be used to obtain a satisfactory answer to any query. On the other hand it took also considerable time before the environmental problems became sufficiently well appreciated around the world to create a real demand for answers to queries of the sort foreseen in the theoretical model.

Nevertheless as early as in 1977 the IRS database covered 1 300 subjects and its information network consisted of 6 500 institutions in 116 countries and 40 UN agencies. In 1990 INFOTERRA had altogether processed 147 000 queries from over 114 countries; the annual number of queries were in 1991 24 500. At present government supported focal points exist in 155 countries. Key focal points in eleven countries serve as Regional Service Centres in their geographical areas. 35 centres of excellence serve as Special Sectoral Sources and provide responses to user queries.

12. It is towards this background as well as towards the medium term plan of 1992-97 that we are going to establish an evaluation of the activities of INFOTERRA over the years 1992-94.

Medium Term Plan Objectives

13. The medium term plan for 1992-97 requests the following activities to be pursued by INFOTERRA :

(a) Promote the utilization of information services globally and the use of information-handling facilities to improve storage, retrieval and transmission of environmental information;

(b) Strengthen the networks of special sectoral sources and regional service centres for the provision of substantive information in priority environmental fields;

(c) Strengthen the network of national focal points through subnetworking and technical assistance;

(d) Promote and assist the establishment of national environmental information systems, especially in developing countries.

14. The programme budget plan for 1992-93 confirms that INFOTERRA's main objective is to provide information services to users and on line access to data banks but also to support developing countries to strengthen their capabilities for storing and retrieval of environmental information as well as to establish a global network of information systems in the concentration areas.

15. The original approach to INFOTERRA to create a global environmental information system effective enough to be used successfully in the environmental information exchange is still a basic objective of the PAC. It means that to promote the development of information centres and services be it for national, regional or sectoral purposes is still the main activity of INFOTERRA. That this is so confirms what was said in paragraph 3 above, that the needs for globality of such an information system makes the establishment of it an enormous and very time consuming task. However, that considerable progress has been made over the years becomes clear by the fact that only 3 400 queries had been answered by this Service during the years 1975-1985 while in view of the situation in 1992 the goal in the work plan for 1994-95 is set to be 30 000 queries per year.

Priority of activities

16. One problem that the PAC for INFOTERRA has faced from the start is to take decision about priority among the various international activities involved with the development of a global environmental information exchange system. We have mentioned before that there are at least three basic approaches to be taken: the national, including strengthening of the national focal point's coordinating function and supporting them in developing a national network of information sources; the regional, using the regional offices of UNEP to become centres for information exchange within a region and finally the sectoral centres which will be built up around exchange of information regarding a special environmental issue. In this context the INFOTERRA advisory committee has given priority to the national capabilities, a view which should be endorsed in the light of the decisions of GC 17. The IAC recommends also that the regional approach be given emphasize through regional capacity building. Typical programme activities under this priority item are:

(i) Preparation and dissemination of updated INFOTERRA information packages for use on microcomputers (March 1992, March 1993);

(ii) Creation of information packages in selected areas of concentration;

(ii) Assistance to NFP's in developing countries in adoption of new information technologies and telecommunication capabilities;

(iv) Expanding INFOTERRA e-mail system to cover most developing countries.

17. The Special Sectoral Services (SSS) seem to have been given less priority, in the recommendations from the IAC. As sufficient resources are not available to tackle all three of these approaches it is suggested through this evaluation that increased cooperation be established with units responsible within UNEP for dealing with different sectors of concentration. In many cases these units are already dealing with networking of relevant information sources and in other cases are interested in contributing to a network in their area of interest. Nevertheless it should be added that the worldwide number of SSS's within INFOTERRA had reached 35 by the years 1991-93.

18. Recommendations from IAC regarding the Directory are considered appropriate and so are the recommendations on training and publications (see further under publications).

19. The report of the Regional meeting of Arab national focal points held in Rabat in June-July 1993 gives a very clear picture of the needs for developing a Regional Centre of INFOTERRA. The recommendations from that meeting should be implemented as resources become available.

Resources and achievements

20. Looking at the achievements in 1992-94 by the INFOTERRRA/PAC it becomes obvious that the promotion of utilization of environmental information services globally as well as of the use of information handling facilities nationally have been dealt with mainly through training and education activities at the national or regional level (60 % of the activity budget). In 1992-93 eight training courses for Africa and Caribbean countries were held as well as national seminars in 22 countries around the world. In addition one global and three regional management meetings were organized. The training courses involved 125, the management meetings 66 and the national seminars no less than 1200 participants. Judging from comments of those participating in the training courses the content and arrangement of them have been appreciated. Not surprisingly some of the participants from developing countries have asked for more courses or training in handling of computers.

21. Reviewing the availability and the use of resources of INFOTERRA/PAC it seems that on the whole the resources available during the biennium 1992-93 reasonably well balanced the availability of staff and the possibilities for activities. In other words with available staff not much more could have been achieved even if additional resources had been forthcoming.

22. It should be kept in mind and greatly appreciated that quite considerable additional funds have been given bilaterally and even in kind to certain of the activities that INFOTERRA organized in the years 1992-93. USA and Ireland contributed to joint activities to establish a Southern African Infoterra Subregional Network joining the following countries Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe. Switzerland has contributed money to equip and train NFP's in eight developing countries. The German Foundation for International Development contributed both to arrangement and cost of the Infoterra Training Workshop on Environmental Information Sources held in Nairobi, Kenya in November 1993. As these additional contributions were given mainly for English and Portuguese speaking countries in Africa it is satisfying to note that the French Centre National de Documentation Scientific and Technique in Dakar recently (1994) started negotiation with INFOTERRA to develop a joint project to strengthen the national environmental information systems in French West-Africa as well as to develop efficient networking between them. These examples are sufficient to indicate that INFOTERRA uses resource sharing and technical cooperation with donor countries whenever possible. The subprogramme, particularly concerned with training for development of information systems and services, is quite suitable for resource sharing. It may be noted, however, that most of the training has been provided for establishment of national environmental information systems while activities to strengthen sectoral information centres were in this period practically non existent.

23. In dealing with collaboration and resource sharing it seems important to mention the recent activities for collaboration between the UNDP Sustainable Development Network (SDN) and INFOTERRA national centres for information. Pilot projects in five countries include co-location of INFOTERRA national focal points and SDN coordinating centres where feasible, investigation of cost sharing to avoid duplication in provision of equipment, as well as joint programming of training activities. Agreement has also been reached on access of INFOTERRA information materials by SDN centres and the use of SDN e-mail by INFOTERRA focal points. Although it should be pointed out that this kind of collaboration should be normal within the UN system it has unfortunately been so rarely applied that the fact that in this case it has been attempted and reached this level of agreement is highly commendable.

Publications and information material

24. In 1993 the INFOTERRA Bulletin was changed from a monthly to a quarterly publication for cost-cutting reasons upon a recommendation by IAC. This seems to be quite acceptable but the Bulletin ought to more clearly indicate the development of INFOTERRA. This is the most efficient way to show progress of the PAC activities towards a better global information system. If this is demonstrated clearly in the Bulletin at least once a year there is no need for the EEE Series Book which has been cancelled. The publication by INFOTERRA of various International Directories on sources of information on UNEP's concentration areas and on environmental expertise (8 in 1992-93) are useful contributions to the Environment Programme.

Review of financial arrangements

25. For the period 1990-94 the overall cost of the INFOTERRA/PAC internal project was 12.4 million US $ of which the cost to the Environment Fund was 4.4 million, 3.8 million was contribution by Governments in kind and a similar amount was contributed in kind by other corporating institutions. This division of contributions between UNEP and cooperating institutions seems reasonable.

Suitability of technologies adopted by the subprogramme

26. The application of new technologies, as they become available, for the purpose of exchange of environmental information has always been a main objective of INFOTERRA. A Task Force on Information Systems is guiding the PAC on this subject and gives the impression of being competent and useful for the purpose. All new approaches in this area are being tackled and the only problem seems to be that the rapid development in the technological field makes it extremely difficult to take a decision about when to stop introducing new systems and to concentrate on a definite combination which can be applied worldwide and henceforth become the subject of education and training in developing countries. This problem has been tackled by the Task Force and a reasonable combination of technologies into a common system seems to have been reached. A difficult problem is of course to decide about and advise government on introduction of new technologies which can be used in a global information system as the level of development of countries varies extremely much from one case to another.

27. The availability within the PAC of modern technological means to reach out to NFT's and others partners within INFOTERRA seems also to have developed in a reasonable way during the period of consideration without having brought about any exceeding costs.

Problems connected with the future development of the subprogramme

28. It has been pointed out by the persons in charge that the original task of INFOTERRA to act as an information broker (Referral system) will gradually diminish as the computer technologies continue to improve the possibilities for individuals and institutions to keep direct contact with environmental specialists as well as regional and global centres. In that situation INFOTERRA's role in building capacity for national environmental information handling, developing regional exchange networks and for maintaining access to a global network will increase in importance. However, in the future development of a global environmental information system there are a number of clarifications regarding the future function of INFOTERRA in relation to other information systems that have to be made.

29. Before a discussion can take place on future interrelationships between INFOTERRA and other information systems, existing or being established within and outside UNEP, it must be made absolutely clear what INFOTERRA's terms of reference should be in the future. If one takes as a basis for consideration of the future tasks of INFOTERRA the conceptual paper : "Creation of an information coordination unit and cluster" one may agree with the fundamental idea that an integrated programme is needed. However as long as the word "information" or even "environmental information" is not clearly defined one gets in trouble regarding a possible duplication with other on-

going activities particularly within UNEP itself. If INFOTERRA is the activity that should provide the ultimate umbrella for a global environmental information system how should one foresee its future relations with "Earthwatch" ? Is "Earthwatch" going to be part of INFOTERRA or should INFOTERRA's information system be part of "Earthwatch" or should it only be used by "Earthwatch" ? In the twenty years which have passed since the Stockholm Conference INFOTERRA has been part of Environmental Assessment (Earthwatch) and in view of the fact, that a global environmental information system of the kind foreseen to become the result of INFOTERRA activities would be of great use to a future "Earthwatch", it is proposed that INFOTERRA stays as part of the system-wide Earthwatch function with strong linkages to the Environmental Assessment. If a UNEP Information Cluster will materialize it should operate in coordination with the Earthwatch function.

30. If one looks upon INFOTERRA's future activities it becomes also obvious that the PAC should continue to stay in close collaboration with GRID/PAC. Although it is said that INFOTERRA in its exchange of information will have to deal with "very technical data sets" it must be remembered that the entity within UNEP that deals - by means of highly sophisticated technology with "very technical data sets" is GRID and will certainly remain so. The obvious solution to this apparent duplication is to let INFOTERRA and GRID deal with different kinds of environmental information i.e. published information and data sets respectively but in very close coordination and under the umbrella of "Earthwatch". The use mutually by the two PACs of each others technological facilities becomes a corollary of this proposal. It is also suggested that IAC consider the above proposal at its next meeting about the future programme.

31. It is also obvious that, as has been hinted at earlier in this evaluation, there is a risk of duplication between INFOTERRA's Special Sector Services for information and the networking activities which are ongoing within UNEP in many of the units gathering information on special environmental issues. It is felt essential that future coordination between these in-house activities also be carefully considered by the IAC.

32. As far as monitoring and follow-up of INFOTERRA activities IAC seems to be quite adequate for an overall guidance of the PAC and the TASK FORCE for Information Systems is technically quite competent to deal with the introduction of new technology as appropriate. The questionnaires to customers of the Referral Service and to those having participated in INFOTERRA training activities seem quite appropriate. As usual the main problem with them is to get the relevant persons to respond and send them back to the PAC. The limited number of replies only give some indications and ideas.

33. Linked with the need for monitoring of the progress of INFOTERRA is the desirability of structuring the subprogramme activities under different headlines and sectors. It is proposed that an attempt be made in this direction so that it will be easier to show the progress of the PAC in various sectors. This would also facilitate the budget process (see under GEMS).

SECTION II GEMS

34. **Background Information**

GEMS which was created by Governments in 1974 has maintained its basic mandate since then and in briefing notes to the Executive Director of early 1992 GEMS is stated to be "a collective effort of the UN system to monitor and assess the global environment". GEMS is coordinated within UNEP by GEMS/PAC. The projects of GEMS/PAC are mostly implemented in coordination with other UN organizations, such as FAO, WHO, WMO and operated under these organizations by national or international institutions. In this way GEMS is operational in more than 140 countries.

Objectives

35. The objectives of GEMS as defined at its inception are:

(i) to strengthen monitoring and assessment capabilities in participating countries;

(ii) to increase the validity and comparability of environmental data and information;

(iii) to produce global/regional assessments in selected fields and compile environmental information at the global level (Environmental Data Report).

These objectives are still valid but since the UNCED Conference in 1992 the following objectives have been added in the light of Agenda 21 and the needs for sustainable development:

(iv) increase cooperation with UN specialized agencies;

(v) promote the collection of different sectoral data sets including socio-economic one's;

(vi) provide local and national authorities of tools and methodology to integrate and use sectoral data, for policy option analysis;

(vii) increase the use of indicators;

(viii) provide early warnings on emerging issues of potential international importance.

36. The medium-term plan for 1992-97 requests GEMS to:

(i) coordinate monitoring, resource data management and preparation of comprehensive assessments of selected environmental problems, to be used for environmental management, such as the status of global forests, soil loss, selected chemicals, acid deposition, etc.;

(ii) contribute to strengthening the institutional capabilities of developing countries for monitoring, assessment and data management by promoting training of personnel for these purposes;

(iii) produce state of the environment reports on topics decided upon by Governments at sessions of the Governing Council;

(iv) give advice and assistance to developing countries for the preparation of national state-of-the-environment reports with conclusions for national medium and long-term environmental management.

37. The budget plan for the years 1992-93 requires GEMS to concentrate on the development of an early warning system for environmental threats, coordination and consolidation of ongoing monitoring and assessment programmes, strengthening of monitoring and assessment capabilities in developing countries and setting up of a global monitoring network to assess the effects of global change on terrestrial ecosystems.

Achievements in relation to objectives and plans

Data and information activities

38. As planned the Environmental Data Report was published in May 1993 by UNEP/MARC. It includes data from the following environmental sectors: pollution, climate, natural resources, human settlements, human health, energy, transport/tourism, waste, natural disasters, international cooperation. No doubt this regular compilation of data sets, at present within the terms of reference of GEMS, must be considered a useful exercise and the result is of a reasonably high standard. However, it seems that with recent developments the responsibility for such a publication should rest rather with GRID than with GEMS. State of the Environment reports like the 1992 "Annual Report of the Executive Director of UNEP : 20 years after Stockholm", where data sets are used to assess the actual situation should still be the responsibility of GEMS/PAC. However as it has been suggested that the harmonization of environmental data as well as quality control of data sets should become the responsibility of GRID (as argued under that item) it seems logical to make also the publication of the Environmental Data Report a task of GRID/PAC.

39. In the area of Biodiversity GEMS has cooperated with the World Conservation Monitoring Centre in England in publishing in 1993 ten technical reports prepared by that centre, established in the 1980's jointly by IUCN, WWF and UNEP.

40. In 1989/90 GEMS and UNITAR, with technical support from GRID, initiated a project for transfer of a data management technology as partial fulfillment of item (ii) of the GEMS medium term plan for 1992-97 (GEMS para.3). Based on the experience gained and focusing on the needs expressed in Agenda 21: Chapter 40, GEMS formulated a new approach to improve the availability of information necessary for policy oriented environment assessment to decision processes at the national

and sub-regional levels. The activity, demanding very close GEMS/GRID cooperation and joint action, was designed to build agreements with national and subregional partners to develop cooperative environment assessment frameworks at regional levels, through:

- networking with, and support of, existing operational networks of regional and subregional organizations and their national focal points which could be of use to international assessments of transboundary environmental impacts; and

- where necessary and appropriate, institutional capacity building of partner institutions and agencies within the network(s) through appropriate information technology transfer and training.

The programme component has been summarised as the GEMS Environment and Natural Resource Information Networks (ENRIN) Development activity. It was targeted principally at developing countries or countries with economies in transition. During 1992-93 the activity was consolidated in Africa and initiated in the Asia and the Pacific Regions. ENRIN is cooperating closely with UNDP, UNSO and UNITAR. It is developing closer ties with the regional information exchange activities of FAO and WHO.

Global Monitoring Networks

Terrestrial Ecosystem Monitoring Network

41. After several years of studies conducted by UNEP to forward the coordinated establishment of a terrestrial ecosystem monitoring network a Planning Committee for that purpose was established in December 1993 jointly by UNEP, IGBP and relevant UN organizations. The network will be planned to meet the needs for assessment of the impact of global change and transboundary pollution on terrestrial ecosystems and is called GTOS (Global Terrestrial Operation System). The Planning Committee for GTOS will report back to the Joint Interagency Steering Committee in the first half of 1995.

42. In cooperation with FAO, UNESCO, WHO and WMO, GEMS/PAC has since the early 1970's coordinated a considerable number of networks established for monitoring environmental pollution at regional and global level. They are operated by the above-mentioned organizations as follows: FAO (GEMS/Food), UNESCO (part of GEMS/Water), WHO (part of GEMS/Air, Heals, Food, Water, GERMoN), WMO (part of GEMS/WATER, BAPMoN, CSM). The climate-related monitoring programmes BAPMoN and CSM, coordinated with WMO, have recently been taken out of GEMS and are looked after by the Atmosphere Unit. They are not considered in this evaluation.

GEMS/WATER

The GEMS/Water Programme was launched in 1978 with the following tasks:

(i) to strengthen water-quality monitoring in participating countries;

(ii) to provide a global picture on status and trends of freshwater quality in major river basins, lakes and ground water resources.

43. During its first phase (until 1991) GEMS/Water organized a network of 450 water-quality monitoring stations in 59 countries, produced a number of assessments and data reports as well as supported monitoring operations in participating countries through 14 regional training courses. In 1989-90 GEMS/Water started to review its programme, reassessed its objectives and developed a new strategic programme for the next 10 years called GEMS/Water phase II.

44. In GEMS/Water Phase II, developed gradually since 1991, attention has been moved from mainly health-related status and trends water quality monitoring in rivers to a more integrated and comprehensive assessment in support to integrated rivershed management.

45. More attention is also paid to groundwaters, lakes and reservoirs (with British Geological Survey and IETC, Shiga branch) and water quantity measurements as they relate to water quality (with GRDC) in Koblenz, Germany). Closer cooperation is established and operational with the UNEP EMINWA programme, UNESCO's IHP programme and the IAHS water quality committee.

46. With financial support of Finnida a special effort has been made recently to improve the situation with regard to monitoring fresh water quality in Africa. In 1992-93 11 training courses on water quality monitoring and assessment were held in Africa to participants from 17 countries. In all cases equipment was provided. In addition several activities under the Zambezi Action Plan Project and nine meetings on special fresh water projects in other parts of Africa were arranged by GEMS.

47. In the Caribbean a water quality workshop for 14 countries was held in 1993 and in Latin America 2 workshops for data handling brought in participants from Argentina, Brazil and Mexico. One workshop on water quality in Moscow had participants from Belarus, Kazakhstan, Ukraine and Uzbekistan.

48. Another major achievement, illustrating the shifting of the GEMS/Water Phase II approach, were the substantive contributions by GEMS/Water to the Dublin and UNCED Conferences. To achieve this overall change GEMS/Water has involved various regional organisations and formalized their participation in the programme.

GEMS/AIR

49. Since its start in 1973 the GEMS/Air Programme, operated in cooperation with WHO, achieved the establishment of 270 sites for monitoring urban air quality in 86 cities in 45 countries around the world. The programme provided training and advice for operating these sites and support for quality assurance of the data. Global trends in urban pollution were analyzed and assessed by means of the produced data in: "Air pollution in megacities of the world" and in City Air Quality Vol.

I, both published in 1993. Several preliminary assessments were made during the operation of Phase I.

50. In view of the escalating urbanization all over the world and the recommendations from Agenda 21, GEMS/PAC has embarked on a GEMS/Air programme, phase II for the years 1993-2000 and with the overall objective to provide the comprehensive information needed for national air quality management. Within this main objective GEMS/PAC will provide:

(i) the framework for monitoring urban air quality, effective data management and dissemination of relevant information;

(ii) develop methodology for monitoring and assessment;

(iii) produce comprehensive assessments of trends and levels in urban air quality;

(iv) strengthen urban air quality monitoring in developing countries.

51. The goal worked on is to gradually expand the urban air quality network to 100 cities actively participating half of which should have a population of more than 3 millions. In addition to SO_2 and particulate matter, which were monitored in phase I, pollutants like CO, NO, NO_2, O_3 and Pb will be monitored in phase II. Emission inventories will be carried out, quality of data assured and data reports issued. Global management guidelines based on assessment of urban air quality will become the end result. Technical support and training as well as capacity building in developing countries also will be main efforts. The finalization of the structure of phase II of GEMS/Air reaching agreement with major partners was a main achievement of GEMS under 1992-93.

GEMS/FOOD

52. The GEMS/Food Programme dates back to 1979 and has had the primary objective of providing reliable information to governments and the general public on levels and trends of contaminants in food, their contribution to total human exposure and their significance for public health and food trade. It has been coordinated through a FAO/UNEP/WHO Programme Management Committee which is advised by Expert Advisory Groups. Implementation takes place through National Participating Institutions where monitoring is organized and data are collected. Collaborating Centres are National Institutions which may provide training and quality assurance of data.

53. The GEMS/Food Programme, which is part of the HEAL's programme (see below) is continuing as conceived. 40 countries, of which about half are developing, participate at present. 14 of these countries have joined the programme during the last six years. The programme collects data on levels and trends of fourteen pesticides, five metals and one mycotoxin in food. A global assessment of chemical contaminants in food was published by GEMS in 1989 and an assessment statement on the dietary intake of chemical contaminants was ready in 1993. Regularly data reports and quality assurance reports were produced, a GEMS/FOOD Europrogramme established, two training courses held in Latin America and expert advise provided to a number of countries.

54. The UNEP/WHO HEAL's (Human Exposure Assessment Locations) Programme of GEMS also dates back to 1979 and is operated in cooperation with WHO since that time. It aims at studying the exposure of the human beings to various pollutants that may have an impact on human health from air, water, food and water intake, etc. The integrated exposure is monitored through analysis of data in body fluids or tissues. The objectives of HEAL/GEMS are:

(i) to provide comparable assessments of human exposures to environmental pollutants;

(ii) to improve, test, coordinate and demonstrate methods for monitoring of human exposure;

(iii) to promote human exposure assessments;

(iv) to improve national exposure monitoring capabilities.

55. In a pilot phase of the HEAL/GEMS programme heavy metals, organic chemicals and nitrogen oxide were selected for studies of exposure in seven countries Brazil, China, India, Japan, Sweden, USA and Yugoslavia. It was successfully concluded in 1992 when a final report was published.

56. The pilot study has stimulated follow up studies in a number of participating countries like Brazil, China, India, Japan, Russia, etc. The choice of pollutants for study in these countries depend on national priorities. 35 countries actively participate in the programme, several with national contributions in kind or otherwise. Although this programme obviously gives important support to those countries which participate, lack of resources (both manpower and financial) has so far prevent it from becoming real global in scope by including countries in all regions of the world. There is a clear need to expand this programme to countries within regions which do not participate at present as financial means become available.

Assessment activities

57. It was pointed out in the Introduction that the "Earthwatch" function to carry out assessments of environmental issues was given to GEMS as early as at its inception in 1974 because it has the responsibility to provide both available environmental data (now under GRID) and data emerging from catalyzed monitoring systems. To a degree GEMS has been able to live up to this responsibility by having provided over the years a considerable number of preliminary or partial assessments on environmental issues. If we summarize what was produced or published in 1992-93 in the way of assessments we get the following list:

1. The World Environment 1972-92. Two Decades of Challenge. Chapman v. Hall, London (1992).

2. 1992 Annual Report of the Executive Director: Twenty Years since Stockholm,

UNEP publication (1993).

3. Water Quality Assessment : A Guide to the Use of Biota, Sediments and Water in Environmental Monitoring (1992).

4. Assessment of Forest Cover Trends vis-a-vis changing Land-Use Patterns. Workshop in cooperation with FAO on Developing Environmental Databases for Sustainable Development, Nairobi, (1993).

5. Air Pollution in Megacities of the World (Assessment of GEMS/Air) (1992).

6. City Air Quality Trends, vol. 1 and 2 (Assessment of GEMS/Air) (1992-93).

7. Endemic Fluorosis: A Global Health Issue UNEP/Gems (1992).

8. Assessment of the diatary Intake of Chemical Contaminants (the GEMS/Heal pilot project), UNEP/GEMS (1993).

9. Assessment of Acid Deposition (UNEP/Atmosphere Unit) (1994).

10. 10 technical assessment reports of the World Conservation Monitoring Centre in cooperation with GEMS (on Biodiversity, tropical forests, natural resources in mountainous Asia, African Wetlands, crocodilian farming, etc.) (1992-93).

58. Although the above list together with GEMS's earlier assessments represent an impressive achievement it is nevertheless true, as mentioned also by the GEMS staff, that it is for various reasons necessary to develop a more clear and structured procedure for carrying out assessments. First of all it must be clarified on which basis and by whom decisions should be taken about which assessments should be made within a certain time frame, be it preliminary, regional or comprehensive and global. It has been pointed out that governments should be involved with those decisions to make sure that national data will be released so as to be used in the scientific and technical assessment procedure on a selected issue. At the moment the Governing Council in some cases has decided about issues for assessment but if a country for which data are needed is not a member of the Governing Council it can be difficult to have data released for the assessment. In other cases decision about assessment has been taken at the GEMS Directors level. Once decision about a certain topic for assessment is taken, the present procedure requires UNEP /GEMS to cooperate with the relevant specialized agency to organize a technical and scientific assessment to take place under the leadership of the appropriate agency or cooperative organization which is to prepare a final technical report. The procedures after the technical report has appeared are not all that clear but seem to require UNEP to produce in, layman's language, those reports and publications which are needed to inform decision makers and the general public about the environmental management conclusions which can be drawn from the technical report. Unfortunately, due to lack of resources this final UNEP output of comprehensive assessments have not always been forthcoming. This may also be due to lack of clear and detailed

instructions regarding what this information should include and how it should be prepared and cleared for publication. The reason why a clear procedure to be followed in producing the management conclusions from an assessment seems to be due also to lack of cooperation between the assessment and management branches of the UNEP Secretariat. It is essential that in the new structure of the Secretariat this cooperation be improved so that standard procedures for producing reports on the conclusions for management of comprehensive assessments be developed and adhered to.

Publications and their impact

59. As already indicated the list of publications from GEMS during the period of evaluation is rather impressive and indeed corresponds to the plans included in the budget document for 1992-93. The booklets published in the UNEP environmental library series, in which there are now 11 issues, can be considered as meeting the needs for making an assessment of an environmental issue understandable to the general public, a fact that is clearly shown by the popularity of this series. To a certain degree these publications also could be used to meet the requirements of decision makers in their task to transfer the results of assessments into management. Nevertheless and as was stated above there is an urgent need for a better defined and structured standard procedure to be developed for publications which will meet the requirements of management. If the preparation of the technical and scientific report in cooperation with relevant agencies will continue to rest with GEMS the responsibility for publication of more political reports for decision makers, managers and the general public could be transferred to become the responsibility of the future Earthwatch.

Financial arrangements (refers to GEMS, GRID and INFOTERRA)

60. The financial arrangements for GEMS/PAC, GRID and INFOTERRA/PAC to monitor spending under various projects are strictly in line with the budget and have since long been well organized. The procedures are as follows:

(i) A monthly "pipeline" is prepared for each project indicating allocation provided under approved budget, allocation committed, and balance remaining;

(ii) A monthly review is prepared on the rate of implementation of each project - commitments vis-a-vis expenditures. Insurance is made that expenditures do not exceed approved commitments;

(iii) Review of expenditure statements from supporting organizations and cooperating agencies;

(iv) A monthly review of outstanding obligations.

The above financial arrangements are considered adequate.

Monitoring for supervising and control

61. Half yearly project reports for both internal and external projects are strictly required. Any external project report is reviewed by the Programme Officer concerned. Before any project is closed a self-evaluation of the project is made for internal purpose. It is perhaps not surprising that it has taken long time to get the procedures for half yearly reports on external projects to function properly. For years these reports did not appear in proper time or were often not adequately prepared. It is a pleasure to state that these reports now seem to be much better prepared and appear in time.

Mission reports are prepared on special forms which guarantee that various standard aspects are taken into account and always submitted to the immediate supervisor.

Future of GEMS

62. There are two basic problems regarding the future activities of GEMS which are not solved under the new arrangements within the UNEP Secretariat:

63. The first problem has to do with the fundamental objective of GEMS: to coordinate and catalyze monitoring activities of the global environment. Although, as we have seen above, there are a number of areas where GEMS still exercises this overall function, there are other areas which have been moved away from Environmental Assessment to the Management Branch of the Secretariat and therefore are not any longer under the coordination of GEMS. Examples are climate-related monitoring projects and some monitoring projects in dealing with water and health. This problem is supposed to be solved by day to day cooperation between Environmental Assessment and Management but this could easily become a non-satisfactory arrangement in the light of earlier experience (see above). In the area of climate-related monitoring GEMS/PAC was for many years the responsible unit within UNEP and hence the GEMS staff has many years of experience of the monitoring aspects related to global climate. These have recently crystallized in activities for setting up of three global networks, called GCOS, GTOS and GOOS, in which activities UNEP is committed to participate. However, the present situation in UNEP is that GCOS is dealt with by the Atmosphere Unit under Management, GTOS by GEMS/PAC under Environmental Assessment and GOOS by OCA/PAC, again under Management. This is a difficult situation particularly as it is intended that these three systems would become supplementary. It is therefore suggested that the global monitoring activities under GCOS, GTOS and GOOS be transferred back to become coordinated under GEMS/PAC which was the situation from 1975 to 1991. It will then be necessary to develop standard cooperation arrangements between Management and GEMS (Atmosphere, OCA/PAC) to meet the needs for scientific and technical inputs but this is believed to be simpler to achieve then a cooperation the other way around.

64. The second problem regarding the future of GEMS is the question on better overall coordination between Environmental Assessment and Management. The need for development of internal procedures for such coordination is demonstrated in particular by the above-mentioned needs

to develop detailed procedures for environmental assessments and their impact on management.

65. Due to the restructuring of the UNEP Secretariat and other circumstances the mandate of GEMS is, as we have seen, somewhat unclear and needs to be redefined as to exactly which responsibilities are to be dealt with under GEMS/PAC. We have already in the above referred to the possibility of moving back the responsibility for global and regional monitoring activities to GEMS from the management areas where they are now handled. There may be other such activities that could be transferred to the GEMS/PAC. When this question is studied in detail, which is not within the terms of reference of this exercise, it is important that GEMS, in a similar way as has been considered in case of INFOTERRA and GRID, **be restructured in clear sub-sections, where various activities are grouped, each one being under the responsibility of a competent programme officer.** In this context it should be pointed out that a number of posts exist in GEMS/PAC which are not filled. It would be desirable that the above-mentioned restructuring of GEMS/PAC in sub-sections take place before it is decided to drop or transfer anyone of these frozen posts. In this context relevant posts can be filled and used.

66. However there is another issue dealt with by both management and assessment which needs to be considered. This is air pollution which at the moment is referred to be dealt with by the Atmosphere Unit under management. Indeed, it seems more logical that the monitoring aspects of both urban air pollution (GEMS/AIR) and background air pollution (BAPMoN) should be moved back to be dealt with under GEMS (Environmental Assessment) while the consequences to human health in cities and to acid deposition in ecosystems should be dealt with by management, i.e. by the Health Unit and by Terrestrial Ecosystems. Obviously the Atmosphere Unit should have a technical input both to assessment and management but this input could be ensured through cooperation.

SECTION III GRID

Background Information

67. GRID was formed in 1985 to handle, in the first place and with modern technology, the data sets which were emerging through various monitoring activities under GEMS' as well as to support and facilitate the use of them for assessment and management. Over the last few years GRID's terms of reference have been expanded to involve all kinds of environmental data sets which, as stated in the first objective, should be made available to or produced for various kinds of customers in all countries. In consequence of these expansions in its responsibilities and of its geographical scope, through the establishment of a number of regional centres, GRID became in 1991 an independent Programme Activity Centre within the UNEP Secretariat.

68. The long-term objectives of GRID are to :

- enhance availability and open exchange of global and regional environmental geo-referenced (through the GIS) data sets;
- provide UN and intergovernmental bodies with access to improved environmental data management technologies;
- enable all countries in the world to make use of GRID-compatible technology for national environmental assessment and management.

69. GRID's user community includes in the first place analysts and decision-makers from international organizations. It also includes the scientific community attempting to elucidate the state of the environment and the processes which have an impact both at national or international levels. It finally involves those who are producing the strategies needed to ensure sustainable management of the environment.

70. GRID provides the following services to its user community:

- distribution of environmental data sets upon request;
- offers collaborative support to suitable projects which require GIS or IP as tools for environmental analysis;
- GRID centres may assist data users in developing countries who have not access to the hardware required, to read tapes and diskette formats used by data suppliers, in transcribing data to a more accessible form;
- GRID META-data base can help users to find out where else in the world particular data can be found;

- GRID staff can help with technical advice for selection of hardware and software to meet environmental data analysis;

- GRID staff may offer advice on how to establish spatial environmental data basis. GRID centres maintain internal libraries of maps available for consultation;

- GRID centres in cooperation with UN agencies may upon request help in organizing workshops, seminars and training courses related to GIS, remote sensing, etc.

Medium term plan 1992-97

71. The medium term plan calls for GRID to continue to

(i) provide data archiving and cataloguing services of available environmental data sets;

(ii) strengthen its networking activities through the establishment of cooperating GRID compatible centres in governmental or non-governmental institutions. A goal for 1997 is around 50 cooperating centres, linked with high-speed telecommunications and serving for data exchange and training support;

(iii) contribute to the production of environmental assessments.

72. The Programme and Budget Document for 1992-93 confirms the above thrusts by requesting GRID to concentrate on the development of global and regional data bases, to support application project for this purpose and to support the establishment of GIS' capacity at national and international levels.

Appropriateness of the subprogramme

73. The ultimate aim of GRID when it was started was slightly different from the way it has developed. The idea to collect data sets from all over the world in order to be able ultimately to show the integrated environmental situation in any region of the world has so far proved to be overambitious. Indeed the complicity of gathering all available environmental data for around the world has lead GRID to become concerned with data management more than supporting analyses and assessment of environmental issues or situations. The above list of services gives a clear picture of how data management both at global and regional (even national) levels is at present the main concern of GRID and is also the area in which it provides most services at the subcentres to regional and national customers. Nevertheless GRID provides support also for analyses and assessments. This activity of GRID hopefully will be more used as needs increase and will be better defined under the forthcoming system-wide EARTHWATCH.

74. It might be appropriate to repeat here, what was said in the context of INFOTERRA, that in

order to avoid duplication it is essential to make clear in the terms of references of the information entities which kind of information they are concerned with. GRID should be the UNEP entity responsible for environmental data while INFOTERRA should deal only with narrated information published or kept in other forms. Duplication in these two areas is obviously non desirable.

75. It is proposed that the data management function of GRID become much more clearly defined. It is first of all necessary to make clear which functions it should include. As GRID should provide environmental data sets which may have a regional or global interest, it must be clarified to which extent GRID has the responsibility to verify the quality of the data sets as well as whether GRID should attempt to harmonize data sets within a special area of concern. It is suggested that these functions a priori are responsibilities of the producers of the data but obviously GRID must look after that the above two functions have been carried out before a data set is accepted by GRID. In case this has not been done properly GRID should take up the problems with the data producers and agree with them to which extent the above functions can be carried out by GRID staff. To have the harmonization function on environmental data sets placed outside Nairobi (HEM), as is the case today, seems difficult as long as the data sets themselves are not available for harmonization as necessary.

Achievements in relation to objectives (1992-93)

76. For the purpose of evaluation we shall divide the GRID activities in the following main areas :

(i) compile available environmental data sets for archiving and cataloguing;

(ii) development and use of technological innovations for creation of new data sets;

(iii) providing support for using available data sets for analyses and assessment of environmental situations and issues;

(iv) training in developing countries for capacity building.

77. The activities of GRID are at present carried out by the Headquarters in Nairobi together with the following 9 regional centres Geneva (Switzerland), Bangkok (Thailand), Nairobi (Kenya), Sao Jose dos Campos (Brazil), Tsukuba (Japan), Kathmandu (Nepal), Arendal (Norway), Warsaw (Poland) and Sioux Falls (USA).

78. There is no doubt that GRID/PAC together with its regional centres around the world have attained an enormous capacity for supporting all sorts of ongoing environmental activities with data sets be it national, regional or scientific. A rough survey of the activities during the period 1992-93 showed that GRID and its regional centres dealt with

5 projects in area (i)
16 projects in area (ii)
13 projects in area (iii)
10 projects in area (iv)

79. The 44 projects do not include the activities of the day to day work handled by the staff on an ad hoc basis. The only problem with a great number of such service activities, most of which seem to have great value, is that they are initiated on an ad hoc basis rather than being thought up as logical parts of a long-term plan. It is obvious that national and regional needs as well as requests have to be given a certain priority, in particular as far as support to funding governments is concerned. On the other hand it would be useful with a more co-ordinated thinking regarding how activities are grouped under different service areas so that results under the global objectives of GRID can be monitored. Some of these ideas and concerns were presented in much more detail in recommendations from an ad hoc expert group which evaluated the GRID programme in May 1991. It is not surprising that this problem remained during the period 1992-93. We shall return to it in connection with the future of GRID.

80. This overall concern having been presented it should be said that there are some obvious benefits emerging from different approaches being taken by the GRID centres. The particular developing country needs are being well looked after in Asia, Africa and Latin America. Projects which need highly sophisticated technological considerations and input are tackled in the USA centre and again the very special environmental aspects of the Arctics are dealt with by GRID-Arendal in Norway. The benefits of such specialization should certainly be maintained within whatever coordinated thinking may emerge from the directing authorities in Nairobi. An additional important function of the GRID centres is the establishment, as appropriate, of Regional Environmental Information Networks under GEMS/ENRID. (see GEMS para 7). A good example is the development of such a network in Asia and the Pacific carried out by GRID-Bangkok.

81. In order to give an idea of the activities of GRID in the area of support to analysis and assessment the following list of examples from the Nairobi and Geneva offices is given:

1. Basic layers for biodiversity assessment of Socotra island. Background vegetation maps.

2. Data layers for land use, land cover and population of Mediterranean countries, Western Samoa and Bangladesh to be used for sea level rise simulation.

3. Digital data layers for a global desertification/soil degradation atlas.

4. Digital data layers on livestock vector borne diseases in Africa.

5. Digital forest cover for identification of deforested areas in Western Africa and Amazons.

6. Land cover data sets covering various regions using satellite information and linked ground truth especially carbon budgets.

7. Digital data layers of national resources, land use and population distribution in Himalaya, Hindu Kush.

Use of resources

82. The way the GRID activities are funded there is no doubt that it is a good example of resource sharing. If one compares the resources used by the PAC for the overall management of these activities they amount only to 22 % of the total resources involved mainly due to the fact that the regional centres are funded by the host countries either by cash (11 %) or in kind (67 %). Hence GRID is an example of a unit where the overall UNEP activities are limited to coordination and catalyzing through a limited amount of environmental fund money.

However, the evaluation would have wanted to obtain a clearer picture of how much money has been spent within each of the above activity areas by the PAC and by each one of the centres. A presentation of the budget according to more specified action areas would show better the different emphasizes in various centres mentioned above. This also would be helpful in future requests for fundings of GRID.

Institutional structures

83. During a period of GRID's existence there existed a tendency to emphasize the establishment of new regional centres a bit too much. Indeed one could ask whether a goal of 50 centres by 1997 is not overambitious. It is, however, recommended that other solutions to obtain regionalization than establishment of independent centres be sought, as also suggested by the above-mentioned expert group which reviewed the present situation with GRID in 1991. In particular and for economic reasons one should seek institutions in regions not covered so far, which are already suitably equipped to take on a regional function within GRID. Special potentialities may be found in the IGBP centres, called START, which are presently being established in the developing world.

84. As far as the need for GRID in general to be closely coupled with the future "Earthwatch" there can hardly exist more than one opinion. As GRID belongs to the "Environmental Assessment" within UNEP it provides the fundamental data bases and the data management essential for UNEP's assessment function. In addition, however, it is clear that GRID belongs to the system-wide EARTHWATCH as it can provide system-wide services and not only to UNEP's contribution. It should again be emphasized that a main objective of GRID is to support the assessment function of Earthwatch.

Training and publications

85. Although training is not such a dominating activity in GRID as it is in INFOTERRA it has its important share of activities particularly in developing country continents, i.e. in South-East Asia and Africa. The recently started GRID centre in South America is located in Brazil. It is to be hoped that training activities will start in that part of the world as soon as possible. Altogether around ten training

projects were organized in South East Asia and Africa in the years 1992-93. Some special training activities in research for the purpose of learning analysis and assessments with the use of GRID data sets are worth noticing. It is recommended that such activities be further promoted.

86. As a general observation it is obvious that the number of trainees is smaller than for instance in INFOTERRA training activities a fact that is due to the considerably higher sophistication of training provided in GRID. The number of specialists in developing countries, who can make use of GRID training, is relatively small. Therefore it is possible on each seminar or training course to have participants from a comparatively large geographical area (cf. IRPTC).

87. Among the outputs of GRID activities publications play a rather limited role confined basically to a regular, quarterly Bulletin and a few publications which give a general picture of what GRID is doing. **It seems that one reason why the quite considerable activities that are going on within GRID are not well known and not well understood by those who are not specialists in modern data technology, is that little material exists which explains GRID's activities in terms readable to the layman. This problem is coupled to the problem mentioned above that many activities are of a service nature and undertaken on an ad hoc basis whenever a request arises. As mentioned above, there is a need for GRID to group their activities under well understandable headings. Progress under each of these headings should then be reported regularly in easily understood language either in the Bulletin or in other publications.** In view of the need for increasing the use of its service activities an effort to increase public relations in regions where centres are available is recommended.

Finances

88. It has already been pointed out that the cost of activities by GRID to the Environmental Fund are comparatively smaller than many other entities in UNEP due to the fact that host governments are contributing or paying most of the costs for regional centres in kind. Further ideas for cost sharing with existing institutions could increase this beneficial situation.

Technology applied

89. From the early days of GRID's existence the close relationship between GRID's technically skilled staff and the firms that over the years have provided most of the hardware being utilized, has always been characteristic for GRID. This situation still provides a guarantee that the newest technology is always being applied to the benefit of both parties involved. This close linkage also guarantees that the above statement also applies to the whole area of software.

Concluding summarizing remarks

90. There is an interesting contradiction with GRID in the sense that the GRID system undoubtedly carries out quite important work in many specialized field both by providing ad hoc services to developed and developing countries and by gradually building up a global system for

exchange and access to environmental data. **At the same time it is a well known fact that many non-specialists are not clear of what the objectives of GRID are nor what the system is actually doing. This is not an uncommon problem when activities of a new undertaking is difficult to understand by the layman.** In particular when activities are using new technology a special language tends to develop which is not easily understood by the non-specialist. Finally a situation develops where these specialists who are deeply involved in carrying out the new activities are sure that they do an excellent job while others who are monitoring their results have difficulties to see exactly how objectives and results are related in such an undertaking. **In reporting its activities to the non-specialist world GRID should therefore summarize its achievements in sectors of the PAC under clearly defined headings. Only then can it be expected that the considerable work carried out by GRID can be fully appreciated.**

SECTION IV IRPTC

Background Information

91. The following reference to Recommendation 74 (c) of the Report of the United Nations Conference on the Human Environment, Stockholm, Sweden: 5-16 June 1972 (A/CONF.48/14/Rev. 1) is most relevant:

> "The Secretary-General, drawing on the resources of the entire United Nations system and with the active support of governments and appropriate scientific and other international bodies, develop plans for an International Registry of Data on Chemicals in the Environment, based on a collection of available scientific data on the environmental behaviour of the most important man-made chemicals, and containing production figures of the potentially most harmful chemicals together with their pathways from factory via utilization to ultimate disposal or recirculation."
>
> The IRPTC/PAC was established in 1976.

92. The objectives of IRPTC, as stated by the UNEP Governing Council in 1989, are:

- to facilitate the access to existing information on production, distribution, release, disposal and adverse effects of chemicals;
- to identify important gaps in our knowledge of the effects of chemicals and call attention to the need for research to fill these gaps;
- to help identify potential hazards from chemicals and wastes and to improve awareness of dangers;
- to provide information about national, regional and global policies, controls and recommendations on potentially toxic chemicals;
- to help implement policies for the exchange of information on chemicals in international trade.

93. The medium-term plan for 1992-97 emphasized the following specific activities to be carried out by IRPTC:

(i) expand its network and intensify the flow of scientific, technical and regulatory information on an increasing number of chemicals in common use; data bases on chemicals currently being tested for toxic effects, as well as existing and planned national chemical reviews, will be expanded and continue to be operated jointly with the IPCS;

(ii) assist Governments in establishing national information systems on chemicals compatible with the central Register thereby facilitating the exchange of information on chemicals in international trade;

(iii) apply the London Guidelines for the Exchange of Information on Chemicals in International Trade (amended 1989); the Prior Informed Consent (PIC) procedure and strengthen all the technical and legal means possible for exchange of information on banned and severely restricted chemicals;

(iv) support implementation and adoption of the Basel Convention on the control of transboundary movement of hazardous wastes and their disposal;

(v) continue to review and update a report on selected environmentally harmful chemical substances.

94. For the years 1992-93 the budget plan envisages the IRPTC to concentrate on the implementation of the Amended London Guidelines, support implementation of the Basel Convention on Hazardous Wastes, assistance to developing countries to improve their capability for assessment and control of chemical hazards.

95. The IRPTC system consists of three components:

(i) A central unit in Geneva (the PAC) where all data are stored. The data bank is accessible directly through telephone lines and a Register index as well as the data profiles of the chemicals can be requested from the unit. The Legal File, recording over 8 000 substances as well as the Waste Management File may be assessed on line through various electronic communication systems.

(ii) Network Partners who receive and respond to queries. They are national and international institutions engaged in work with chemicals hazards. They include all sorts of specialized institutions, like UN bodies, international scientific organizations, academies of science, research institutions, etc.

(iii) National, regional and sectoral correspondents who operate as coordinating centres for interaction exchange with IRPTC.

In addition focal points called National Correspondents have been appointed by the Governments of 113 UN Member States to help IRPTC to gather and disseminate information.

Achievements in 1992-93 with comments

Redesign of IRPTC data bank system

1. In July 1992 Software A.G. Conseil was nominated to begin work on the redesign. By the end of 1992 the Conceptual Data Model and the Process flow model were performed and delivered.

IRPTC-PC data bank conversion

2. IRPTC has converted its mainframe data bank to a personal computer version which provides developing countries with a tool that enables them access to the IRPTC in their country. The PC version together with a users manual was distributed to 80 selected governmental institutions by the end of 1992.

Quality control of chemical names

3. Examination of names was initiated in 1992 with the EEC/ECDIN data bank and with Chemical Abstract Services, USA; continues.

PIC data bank

4. Programmes for operation of the London Guidelines database of notifications and responses on banned and severely restricted chemicals have been developed as part of the IRPTC data bank.

Technical usage of IRPTC electronic data processing equipment and services

5. Various improvements have taken place over the period of evaluation in a continuous process of maintenance.

Legal File

96. The Legal File was recommended in 1991 to be updated and for this purpose a workshop was held with all 13 contributing states. Procedures for updating were agreed and since then 11 of the 13 states have provided their updated legal files. In 1993 these updated files were integrated and published with information on chemical controls issued by EU and UN specialized agencies.

Waste Management File

97. A new methodology for decision-making on selection of treatment and disposal options of hazardous waste chemicals has been developed. Work to finalize the new technical manual for

publication continued during 1992-93.

Data profiles

98. The development of new data profiles for priority chemicals was progressing. Twelve chemicals were reviewed for this purpose by IRPTC staff during 1992 and work continued in 1993 with another thirteen chemicals.

Comments

99. The above list of activities in 1992 gives a good picture of the internal activities of the IRPTC/PAC. It is obvious that a reasonably small staff, together with 15 to 20 consultants per year employed for special periods and purposes, carries out a substantial job to keep the Register and its various sub-items under permanent development and updating. There is no doubt that this statement applies to the whole period of evaluation.

Cooperation with other organizations

100. In 1992-93 the IRPTC had the following projects in cooperation with organizations outside UNEP:

(i) UNEP/IRPTC-Umweltbundesamt - the data profile development project is progressing as foreseen in cooperation with the German Environment Agency;

(ii) US Environmental Protection Agency (EPA) co-financed the project on the validation of all IRPTC identity data which was carried out partly by the Chemical Abstract Service in Columbus/Ohio;

(iii) The OECD/IRPTC collaboration on High Production Volume Chemicals has been developing successfully; a first set of 13 such chemicals have been integrated in the IRPTC data bank;

(iv) WHO/IRPTC-project on Chemicals being Tested for Toxic Effects. The list of such chemicals was published in 1992 for the sixth time including toxicological studies of 399 chemicals and critical reviews of 637 chemicals;

(v) Cooperation of IRPTC with Environmental Chemicals Data and Information Network (ECDIN). A large number of new chemicals have been introduced from ECDIN files into the IRPTC data bank.

(vi) IRPTC/IPCS cooperation. IRPTC poisoning file was redesigned during the first half of 1993 using information under the IPCS Poisoning Control Project. The overall cooperation between IRPTC and WHO/ILO/UNEP/IPCS which has been going on a

daily basis for many years, is a very important part of the general activities of IRPTC/PAC. As WHO/ILO/UNEP/IPCS's first objective it to carry out evaluations of the risk to human health and the environment from exposure to chemicals it is obvious that IRPTC has a fundamental role to play in contributing to this first objective. Recently IPCS has been expanded to include cooperation also with FAO, OECD and UNIDO.

101. The above list of achievements in collaboration with organizations outside UNEP, although not complete, gives an overview of to which extent IRPTC cooperates with other institutions specializing in toxic chemicals. There seems to be no doubt that this collaboration is both efficient and beneficial for the Register. As this collaboration is mostly in kind, co-sponsoring by other institutions is not normal but certainly exists whenever a project is carried out entirely by IRPTC staff or by jointly employed consultants (EPA cooperation).

102. In this context it should be emphasized that cooperation with countries and their experts is as important to IRPTC and its development as cooperation with UN and other international organizations. It is recommended that more projects of the type that exists between IRPTC and Umweltbundesamt (Germany) be launched in cooperation with other countries on issues where they have special expertise.

Activities under the London Guidelines and the PIC data bank

103. Most of the activities to implement the PIC procedure have been carried out as before in co-operation with FAO under the FAO/UNEP Joint Programme on Implementation of PIC. By the end of 1993, 12 pesticides and 5 industrial chemicals have been included in the PIC procedure by the distribution of Decision Guidance Documents and the circulation of Importing Country Responses from participating countries for each chemical.

By the end of the evaluation period, 119 countries had nominated 164 Designated National Authorities (DNAs) responsible for implemententation at national level.

The Governing Council of UNEP when amending the London Guidelines in 1989, established an Ad Hoc Working Group to follow the implementation of the Guidelines and consider the need to develop a legally binding instrument for the PIC procedure. During the evaluation period a Task Force met to discuss the issue of a legally binding instrument, and developed a set of elements that might be included in such an instrument. These meetings are organized jointly with ELI/PAC.

Training

104. Workshops for training of national users have been held at various places around the world at altogether nine occasions during the years 1992-93 as follows:

(i) UNEP/UNITAR Training Workshop on National Registers in Thailand assembled

seven industrialized countries from Asia and the Pacific;

(ii) IRPTC workshop on the implementation of the London Guidelines in Moscow to discuss with representatives from former USSR Republics, future collaboration with IRPTC;

(iii) IRPTC workshop on Use of the IRPTC Database in Ukraine to train experts from Ukraine, Belarus, Moldova, and the Russian Federation;

(iv) INDIA-UNEP/UNITAR regional training workshop on the London Guidelines and National Registers, in India ;

(v) IRPTC sub-regional training workshop on the IRPTC data bank in Lithuania for training of experts in Estonia, Latvia, Lithuania, Belarus and Russia;

(vi) IRPTC training workshop on the IRPTC data bank, in Moscow for experts from the Russian Federation;

(vii) FAO/UNEP/UNITAR workshop on Progress in implementation of the FAO Code of Conduct on Distribution and use of Pesticides and the FAO/UNEP Joint Programme on PIC in Chile for Latin America and the Caribbean;

(viii) IRPTC sub-regional workshop on use of the IRPTC data bank, in Kazakhstan for 31 participants from Kazakhstan, Kyrgystan, Tajikistan, Turkmenistan and Uzbekistan;

(ix) FAO-UNEP/UNITAR regional workshop on implementation of PIC procedures in Thailand for experts from 12 countries in the region.

(x) IRPTC Sub-Regional Meeting of Government Officials on the Implementation of the London Guidelines, in Ukraine for Belarus, Moldova, Russian Federation and Ukraine.

105. Two workshops for National Registers were organized in Geneva in 1984 and 1986 under the project funded by the Government of the Netherlands. Government experts from 10 developing countries selected from various regions were trained by IRPTC staff members. Since 1990 training for National Registers were provided through workshops organized in regions. In addition to IRPTC staff members a team of trainers selected by IRPTC supports such activities. It also includes on-the-job technical trainng for staff members of National Registers in particular countries.

Query Response Service

106. During 1992-93 973 queries from 317 countries were received and responded to. Clearly, questions from developing countries are increasing and at this stage the number of queries are about as many from developing countries as from developed. The normal number is at present more than 400 a

year, having increased from about 10 queries a year, when IRPTC started in 1976.

Evaluation of structure and achievements

107. As the fundamental mandate of IRPTC is very clear and well specified, it has been possible to transform a basic approach into a quite simple and efficient structure easy to manage and operate. It is therefore not difficult to follow the achievements and to see clearly how the most important issues under the programme are progressing. Contrary to the situation with both INFOTERRA and GRID which have rather vague and general mandates to establish environmental information systems around the globe, the IRPTC has to develop an information system to manage and exchange one very specific kind of data. That the structure and efficiency of IRPTC stands out as particularly efficient is not surprising because of this difference in specification of the mandates.

108. Through the structure of the IRPTC/PAC it has been possible in a relatively limited time to reach substantial results with a comparatively small staff. Within the present structure the political and scientific questions are handled within the Scientific Programme Section with one P-5 and three P-3 officers. In the Information Section the technological issues which are very demanding indeed, are handled by two P-4 and two P-3 officers. It should be emphasized that the above structure was approved from 1 October 1993 so that most achievements in this report have been obtained with an even smaller staff situation.

109. It should be emphasized however that, within the budget, a considerable number of consultants have been hired for limited periods of one to six months for solution of special problems. There is no doubt that the structural approach to use a limited staff complemented with consultants has been very beneficial for the development of IRPTC. Within the two years under evaluation IRPTC used 40 consultants from 20 countries altogether for 132 m/m who pursued various kind of expert work to a considerably lower cost than if carried out by permanent staff.

110. In this context it should also be kept in mind that IRPTC frequently used MARC for various specialized functions where experts have been required. The use of this service has relieved the permanent staff of many time consuming tasks (example the IRPTC/MARC sub-project on assessments of priority chemicals) without any extra costs to the UNEP budget. Sub-projects have also been operated with ICC and UNITAR during the period of evaluation.

111. In summary IRPTC makes an important specialized contribution to the Environment Programme, including the keeping of the Waste Management File also useful for the Basel Convention. Although its activities are of such a specialized nature that they may not be well known to the general public, its contribution is highly appreciated by specialized institutions around the world dealing with toxic chemicals. This evaluation has shown finally that IRPTC, although recently moved to become an independent PAC to serve the issue of toxic chemicals, still has responsibilities to serve Environmental Assessment. The overall problem of Environmental Pollution is part of Environmental Assessment and in particular linked with GEMS. As IRPTC still is concerned with the pollution aspects of toxic chemicals it is important that IRPTC continues to have a link with Environmental Assessment so that

the IRPTC activities, in the area of toxic chemicals pollution, can be appropriately integrated with other aspects of pollution dealt with under Environmental Assessment.

Impact of capacity building and training

112. Looking at the list of workshops that have been organized over the years 1992-93 it becomes obvious that they have been geographically well spread around the world. However there are so many subjects to be dealt with that it may not be easy to make a decision about priorities among them, when a workshop is being planned in a special area. Most of the events dealing with the use of the central data bank have taken place in the developing world or in the area of the former Soviet Union which seems logical. Training in the London Guidelines and its procedures are clearly needed both in developed and developing countries and workshops have been held accordingly. With more emphasize given by the Governing Council to capacity building in the developing countries it is to be expected that the number of training activities in these parts of the world will be further enhanced. As was mentioned in connection with GRID there exist only a limited number of persons in each country who have the background to benefit from any training in this field. This implies as in connection with GRID that any workshop for training in the toxic chemical field could be arranged so as to draw participants from a comparatively larger geographical region than in those cases when the subject of the workshop is less specialized. This should be considered for cost efficient reasons. The arrangement adopted for supporting countries to build up National Registers mentioned under para. 13 to invite country experts for special training at the PAC in Geneva seems to be an efficient way of solving a training problem.

Publications and information

113. The basic regular source of information, published by IRPTC is the IRPTC Bulletin. It is devoted to providing information on toxic chemicals and hazardous waste and issued in four languages (E, F, R and S).

The Bulletin contains information on IRPTC activities and other activities of UNEP, international and national organizations related to chemical management and safety. It also emphasizes on the results of risk assessment of chemicals, which are causing concern and which have been the subject of evaluations, controls and regulations. It also carries information on new legislations and regulations for control of chemicals in various environmental media.

The Bulletin is distributed through the usual IRPTC channels to all National Correspondents, UNEP Programmes and Regional Offices, other network partners and interested institutions and individuals to over 9,000 addresses worldwide.

The following important publications were issued in 1992-1993:

- IRPTC Legal File containing records on regulations for chemicals in various environmental media, food, drinking water, etc. from 13 countries and 6 international organizations was published in 3 volumes together with the User's Guide.

- Decision Guidance Documents on PIC Chemicals, UNEP/FAO (3 issues).

- IRPTC/INFOTERRA Chemical Safety Information Sources - a reference book designed to facilitate contacts with internally recognized experts and access to most important sources of data and information on chemical safety.

114. Although the first two sections are relatively understandable to the decision-makers within governments the third section is only for specialists. One might ask whether the inclusion of the third section, being published in conjunction with information of a more general nature, does not have a harmful effect on readers who are interested in the general development of IRPTC. As it becomes more and more desirable that UNEP and its various specialized entities try to show to governments and the general public their gradual progress and achievements **it is proposed that the specialized section on chemicals be taken out of the Bulletin and published separately, perhaps once or twice a year.** It is also proposed that in the international section of the Bulletin there appear regularly a subsection showing in language of a non-specialist the gradual progress of IRPTC and its overall contribution to the Environment Programme of the United Nations.

115. It should be noted with appreciation that for the purpose mentioned above IRPTC has regularly over the years published a number of well-written and easily understood brochures for the general public (example IRPTC 1990). Such brochures how excellent they may be, do not show the gradual development obtained and the progress achieved in contributing to the UN environment programme as a whole.

Financial arrangements

116. As earlier indicated the simple structure of the PAC has lead to remarkable achievements with a limited budget. However, if it is intended to live up to the requirements and future plans of IRPTC presented in the very useful report to the CSD meeting in May 1994, which all are called for by Agenda 21 from Rio, the budget has to be considerably increased making it possible for instance to recruit additional permanent staff but maintaining the use of consultants as required.

Monitoring of progress of IRPTC

117. Referring to the proposal in paragraph 114 above it is suggested that the proposal to produce regularly and in easy language an evaluation of the progress of IRPTC for the Bulletin become part of a continuous monitoring function of the progress of the PAC. No doubt the half-yearly progress reports that are produced by the PAC already fill this function for the internal purpose in an excellent way. A summary of the achievements given in them prepared for governments and the general public to go into the Bulletin would however add greatly to the usefulness of these reports for the outside world.

SECTION V ENVIRONMENTAL ASSESSMENT

COMMENTS REGARDING ENVIRONMENTAL ASSESSMENT AS A WHOLE

118.It is noted that the key principles that underlie the Environmental Assessment Subprogramme have been somewhat reoriented after the restructuring of the UNEP Secretariat in 1993-94 in consequence of the Governing Council 1993. However, it may be stated that those proposals that have been made in this evaluation regarding the operations of the four PAC's which form parts of the overall subprogramme are not influenced by this reorientation of the subprogramme. They are valid and could be implemented also with the new key principles.

119.As to the new key principles and the future development of the Environmental Assessment Subprogramme the following comments are presented:

(i)It has been stated in this evaluation that if INFOTERRA is going to develop a system for global exchange of environmental information in narrated form this system should form part of "Earthwatch" (the system-wide) in parallel with GRID which has a similar task as regards environmental data sets. To which extent a common technology can be used for these two purposes should be studied by the experts in modern communication technology. Moreover, if for other reasons involved with the restructuring of the UNEP Secretariat it is found desirable to cluster the public information service and the library together with INFOTERRA/PAC it should be seriously considered whether this whole information cluster could be closely linked with Environmental Assessment and become part of the system-wide Earthwatch. This is the only way to ensure that the various information systems being developed within UNEP do not duplicate activities as well as use of technology. Similar concerns regarding duplication with systems outside UNEP can be met by all of the internal systems becoming part of the system-wide Earthwatch;

(ii)in one of the key principles, that have emerged from the restructuring of the UNEP Secretariat, it is stated that the Environmental Assessment Subprogramme should enhance focus on emerging issues and early warnings in addition to the assessments of current situations that GEMS and other UNEP units provide.

It seems obvious that the key principle mentioned under (ii) over the years to come will be a very important principle to adhere to. If we disregard the presently ongoing and very promising activities to develop indicators which can be used i.e. to estimate the seriousness of environmental issues it is not possible to find in the present operations of the PAC's any activities which directly aim to meet this key principle. It seems important that special procedure be developed which should be applied to any environmental issue before an early warnings is issued. It is obvious that if such procedures could be developed both at national, regional and global levels it would be greatly appreciated by the governments. Indeed the UN GA in various Resolutions has repeatedly asked for such procedures to be developed.

As to the integration of activities under Environment Assessment as a whole the manager has in a

recent overview pointed out a number of highlights of progress during the year 1994. Of these highlights the most important are mentioned below in order to show that serious efforts are made to achieve an integrated approach to Environmental Assessments (CEAP) and consequently also to the operations of the entities involved:

(i)New EAP structure is tailored to balance activities regarding information products, regional delivery, capacity building, information technology and international cooperation.

Comment: Although it is not easy to see how this overall balance is expected to be achieved when you evaluate the activities of the single entities, it is appreciated that such an integrated balance is aimed at within EAP as a whole;

(ii) Discussions held with a number of international organizations on production and content of a regular future publication called World Environment Outlook.

Comment: It is important that the persons responsible for the development of a system-wide Earthwatch take part in the above discussions as such a publication could become a useful part of the output of a system-wide Earthwatch;

(iii) The above-mentioned interagency effort to develop indicators of environmentally sustainable development is a very important activity in the direction of integration and is operated in close cooperation with UNDP, the World Bank and the CSD;

(iv) Agreement in GEMS was reached on how to proceed with a scientific and comprehensive global assessment of the world's freshwaters for CSD and GA;

(v) Agreement in GEMS has been reached on assessments of urban air quality in 150 major cities as contribution to Habitat 2;

(vi) Fifteen UN agencies were in broad agreement with the EAP approach at the first system-wide Earthwatch Working Party meeting in June indicating a considerable support for the idea of establishment and operation of a joint system-wide Earthwatch.

Annex I

Comments by Mr. B. Sibanda

1. The assessment of achievements in relation to plans and objectives of all the PACs is well done. However, there is no similar assessment of relating outputs and results to the resources used. If this were done in a page for each PAC this would complete the picture. I am wondering whether this information was not available. Please give me either an input or an explanation.

2. INFOTERRA's Referral Service - work plan estimates that for 1994/95 the annual number of queries to be 30,000. One just wonders how much more of such queries INFOTERRA can handle in a year. What if the queries grow to 100,000 a year; can INFOTERRA handle all these queries and what will be the resources implications for doing it.

I think the evaluation should address this issue a little more and make a recommendation of how INFOTERRA should plan on handling the Referral Services in the future. The basic question I am raising is what happens if the volume of queries increases rapidly before these regional and national centres are able to handle these queries. Further what are the cost implications of responding to all these queries.

3. On GRID in the concluding remarks it is said that "... it is a well known fact that many non-specialists are not clear of what the objectives of GRID are nor what the system is actually doing." Obviously this means that the technical data is only used by a few technical people. While at the end of that paragraph a form of recommendation is given, it does not fully address this burning issue. A recommendation is needed on how GRID will deal with this in the future. A summary of achievements in sectors is not enough to address this big issue. I suggest you give us a paragraph or so on this. If there is no recommendation, then may you explain how GRID/PAC plan to tackle this issue in the future.

4. I raise the same point on IRPTC as in INFOTERRA in relation to IRPTC's Query Response Services. How will IRPTC handle a large volume of queries in the future. Will IRPTC have the capacity to handle all the queries and what are the cost implications of providing such a service. I think a forward looking strategy is needed for query response services. Indications are that the numbers of queries are growing rapidly.

Mr. H. Bendahmane's Comments (INFOTERRA)

1) The INFOTERRA/PAC here in Nairobi is a facilitator and a coordinator of the network. In that respect, we provide the required tools (documents, software, database on environmental expertise worldwide, training, promotion materials, etc.) to enable sources (there are 6,800 at present) and national focal points (there are 170 at present, only 14 left to cover every UN member country) to engage in environmental information exchange. More than 90% of the environmental information exchanged through the network takes place between users and providers of information. The PAC receives use statistics from the national focal points on an annual basis.

You are absolutely right in predicting an increase of queries to 100,000. It may happen sooner than we expect, judging by the exponential growth of queries we have witnessed in the past few years; but we at the PAC are not too worried about it. For us it means the network has matured and is being used by an increasing number of researchers and decision-makers worldwide. The burden (and benefits) of this increased use of the network will fall on the national focal points and on the 6,800 sources of environmental expertise who are registered in the INFOTERRA International Directory.

We at the PAC have to continue our work of promoting the network and its services and of providing or refining when required the tools which facilitate environmental information exchange within and between nations. The PAC plays a catalytic role to encourage the information exchange and it discourages users to resort to the PAC for query processing.

2) The PAC hopes to be able to encourage the momentum of international cooperation through the network. The cost implications for the increased use rate are manageable. We only distribute the "tools" and promotion materials to national focal points (170 which will reach 184 eventually).

3) The 5 to 8% of the information requests (out of 30,000) which reach the PAC do require staff time and we cannot foresee an increase of requests processed by the PAC without an increase in staffing. This is one of the major reasons why we are planning to integrate the UNEP Library in our workplan for 1996-1997.