Department of Public Information

CARTOGRAPHY AND

GEOGRAPHIC INFORMATION SCIENCE

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Report on the Second Plenary Meeting of the
United Nations Geographic Information Working Group

Food and Agriculture Organization of the United Nations, Rome, 5-7 March 2001

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Notes

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Preface

Following the successful establishment of the United Nations Geographic Information Working Group (UNGIWG) and its first plenary meeting in New York in March 2000, the Second UNGIWG plenary meeting was held in Rome, Italy on 5-7 March 2001, hosted by the Food and Agriculture Organization of the United Nations (FAO). Over 100 experts from the UN system organizations, national mapping agencies of Member States, international/regional NGOs and industry participated in this meeting. Topics covered included the Terms of Reference of the Working Group, the establishment of task groups, the definition of short- and long-term goals of each task group, and the strategic vision of the Working Group.

This report summarizes the discussions and outcomes of the three-day meeting, and is based on notes and tape recordings produced during the meeting. All efforts were made to reproduce as closely as possible the discussions and arguments raised, and the conclusions reached during the meeting.

The UNGIWG Secretariat wishes to express its gratitude to the staff of FAO for their professional arrangements and hospitality extended to the participants during this very fruitful meeting.

UNGIWG was initially endorsed by the Consultative Committee on Programme and Operational Questions (CCPOQ) of the Administrative Committee on Coordination (ACC). Due to recent restructuring of the ACC into the United Nations Chief Executives Board (CEB) for Coordination, UNGIWG now operates under the framework of the High Level Committee on Programmes (HLCP) of the CEB.

Opening Plenary Session (UN representatives only)

Chair: Mr. Hiroshi Murakami, Chief of Cartographic Section, LIRD/DPI

The meeting started with an introduction by Mr. Murakami, who had replaced Mr. Miklos Pinther as the Chief of the Cartographic Section of the Library and Information Resources Division (LIRD) of the Department of Public Information (DPI). Mr. Murakami became the new Chair of the UNGIWG.

As the host of the meeting, Mr. Changchui He, Chief of the Environment and Natural Resources Service of FAO, welcomed the meeting participants.

The meeting agenda was adopted.

Updates from Member Agencies

Ms. Alice Chow, Deputy Chair of the UNGIWG, reported on the GIS implementation plan produced by the GIS subgroup established in response to Recommendation 20(C) of the Brahimi Report. The plan had been submitted to the office of the Deputy Secretary-General.

Mr. Pablo Recalde of OCHA reported on a meeting with the Deputy Secretary-General, arranged by the U.S. Department of State, on the provision of humanitarian planning maps by the Department of State to support the UN in its field operations. One of the outcomes of the meeting was a request by the Deputy Secretary-General to develop a Geographic Information (GI) Strategic Paper for the UN with the purpose of clearly defining the use of GI in the future. The Cartographic Section was given the responsibility to develop this paper jointly with member agencies of the UNGIWG.

Ms. Alice Chow reported on the progress of the proposal on "Creating a UN Geographic Database", which was jointly submitted by DPI, DPA, DPKO and OCHA to the UN Foundation for funding.

Mr. Hiroshi Murakami reported on the keynote address by the Secretary-General to the Association of American Geographers on 1st March 2001. The Secretary-General drew attention to the fact that the UN had established the Geographic Information Working Group "to improve the way in which many UN entities use geographic information".

Mr. Shawn Messick, a consultant representing UNMAS, informed the participants that the fourth international meeting of de-mining programme managers took place earlier in Geneva and launched the draft of an information policy which dealt, in part, with GI standards as well as metadata and other factors related to information management in mine action programs.

Mr. Orlando Nino-Fluck of ECA noted that ECA used to assist its Member States in their social-economic development with geographic information primarily through its Natural Resources Division. One of its main activities had been the convening of the UN Regional Cartographic Conference for Africa, which was transformed into the new Committee On Development Information (CODI). In the future, attention would be concentrated on encouraging African governments to promote the development of integrated data sets and data standards in order for them, as well as for the public, to have access to relevant information. In this context, assistance would be provided to Member States to develop national geographic information infrastructures that responded to their various needs.

Mr. Jean-Yves Bouchardy of UNHCR reported on a presentation UNHCR and OCHA jointly made to OOSA in February on the use of remote sensing in the field of humanitarian activities.

Mr. Giorgio Sartori of UNDP reported that in February 2001, a workshop was held in Nairobi to discuss the possible establishment of a humanitarian assistance information centre (HAIC). Proceedings of the workshop could be found at www.unsomalia.org.

Mr. Pablo Recalde of OCHA informed the participants that within the humanitarian community, there were several on-going activities in relation to field information coordination such as the setting up of the Sierra Leone Information Centre. According to Mr. Recalde, several guidelines for the use of GIS in field operations were being developed, which included field coordination and remote sensing. Coordination included the addition of position codes (Pcodes) in data collected by field operations to facilitate the sharing and dissemination of information.

Mr. Kyoung-Soo Eom of DPKO reported that since the first plenary meeting, DPKO had developed a GIS implementation plan for peacekeeping operations. A GIS pilot project was initiated, which would take place at the HQ in New York and three field missions in Africa, namely the Democratic Republic of Congo, Sierra Leone and Eritrea/Ethiopia. The pilot project would be closely coordinated with other departments and agencies such as OCHA, UNHCR, UNICEF and WFP.

Ms. Carrie Howard of OCHA informed the participants of a symposium, which was being organised by OCHA together with other information partners, on best practices in humanitarian information exchange. The symposium would be held in September 2001.

Mr. David Stevens of UNDCP noted that UNDCP would like to coordinate with other agencies such as DPKO in the area of conflicts from the drug perspective.

Ms. Rita Bakr of DPA reported on a geographic information application that was being developed by a NGO for analysis within the Department.

Ms. Brinda Wachs of ECE reported that ECE organised a workshop on spatial data infrastructure (SDI) in Geneva on 27-29 September 2000. ECE had also undertaken a

number of GIS projects in the areas of population, energy, environment, transport and agriculture. One of the most interesting ones was using the European road network as a base and digitised traffic data for 40 European countries.

Mr. Steeve Ebeners of WHO reported that a working group on GIS and mapping was being created within WHO.

Terms of Reference of UNGIWG

Before discussing the draft Terms of Reference, Mr. Hiroshi Murakami asked the members to consider if there was a need to change the name and acronym of the group. Suggestions were made but no new name or acronym was adopted.

Ms. Alice Chow presented the draft Terms of Reference. The objective of the UNGIWG was to bring together UN professionals who were either working or interested in the fields of cartography and geographic information science. The group was established under the Administrative Committee on Coordination (ACC) and it was reported that ACC was being restructured.

Issues like membership, goals of the group, annual meetings and reporting, as well as digital data and information updates were mentioned. Mr. Hiroshi Murakami also specified the need for flexibility and for establishing a number of task groups to deal with specific areas of interest for the group.

Ms. Wendy Mann of FAO noted that in view of the reform of the ACC system, the group was obliged to look at new working arrangements. The UN was moving away from standing bodies towards more needs- and demands- driven meetings and ad-hoc working groups. There was also the need to make more use of electronic and communication technologies to do the groundwork. Ms. Mann suggested that an inventory should be done to find out the number of coordinating bodies in this field. She also commented that the draft Terms of Reference were very internal UN-oriented, lacking a clear indication of the fact that the work undertaken by the group was for the benefit of Member States.

Mr. Robert Missotten of UNESCO emphasised the importance in defining GI and identifying the core members of the group together with its principal and secondary tasks in the Terms of Reference. It was mentioned that there were already a number of coordination mechanisms existing in the UN system. It would help if the boundary conditions could be clearly defined between different technical terms such as GIS and cartographic services.

Mr. Tim Foresman of UNEP raised several points in his remarks. Among them was his concern in identifying some of the goals. The idea of multiple data sets provided, perhaps, too much for this group or the UN to consume. The idea of simplicity in objectives might be a higher order and certainly more obtainable. The idea of attaining a single goal might then promote better cooperation and understanding of the elements of

that cooperation could lead to obtaining further goals. Mr. Foresman believed that the common linkage for the group was international boundaries. New York, through the office of the Chair, had to provide those authorized boundaries for the group to use. Although the issue of funding was a key element, elegant solutions existed and funding should not be a barrier. Another issue he raised was that there was nothing in the draft document that provided guidance for data sharing. There were also regional versus global data issues. Very few people worked with global data; rather they used national, regional and trans-boundary data. The use of regional resources and cooperation was a more efficient mechanism compared to the global mechanism of barriers. Mr. Foresman also pointed out that the UN needed to keep up with technology. Mitsubishi, Oracle, Microsoft and many others were forging partnerships together for the Open GIS Consortium (OGC), which was actually making the advances. The UN needed to be in line to take full advantage of those and put them into the operational context.

Mr. Jean-Yves Bouchardy of UNHCR commented that agencies whose main goal was not to use GI still needed to convince their management the usefulness of GI in their operations. Hence, one of the main goals of the group should be to address just that. The group should also explore new fields such as the use of remote sensing in humanitarian activities.

Mr. David Stevens of UNDCP wanted to ensure that there was no duplication of efforts, an issue long on the agenda of all agencies but difficult to deal with. It was hoped that an umbrella group such as this would make that effort easier. From the UNDCP perspective, the biggest issue was obtaining data. It was imperative that an agreement should be reached that any UN-produced data would be available to all other agencies by default; this should not be even an issue.

Mr. Shawn Messick of UNMAS mentioned that focusing on one group or one issue such as international boundaries would not be productive, given the variety of interests of the different organisations represented at this meeting. There was a need to have multiple interest groups that worked on the areas of interest to them. There was also a need to move information systems, both geographic and standard ones, into the decision support role, where they were integrated into the management programmes.

Mr. Kyoung-Soo Eom of DPKO reminded the participants that GIS was one of many tools to facilitate support, planning, implementation and operation in the field. There should be two kinds of focus: first on how to share the knowledge and experience in data or data sets, second on how to explain to decision makers that GIS was a good tool to use and to be implemented in the field.

Mr. Tim Foresman of UNEP cautioned that the group did not have the resources to tackle all things on the agenda. Hence, having one common data set that all could use regularly would bring with it a litany of benefits to everyone, such as understanding the metadata because everyone used it, understanding the server wrappers because everyone, perhaps, used them too, understanding documentation as a fundamental approach to cooperation, and understanding how standards were being used for spatial data. The Humanitarian

Assistance Information Centre was just one example of collective, cooperative partnerships focused on getting field "juice" of this data. But while these partnerships existed, the UN still did not have a country boundary data set to bind it together.

Mr. Changchui He of FAO noted that there were many issues to tackle and prioritisation was of utmost importance. The group should concentrate on a few areas in which it could achieve some results.

An ad-hoc task group was formed to finalize the draft of the Terms of Reference, which would be made available for review before its adoption on the last day of the meeting.

Mr. Hiroshi Murakami indicated that the task groups could start working. He concluded this plenary session and proposed to move to the concurrent task group sessions.

Concurrent Task Group Sessions

Concurrent task group sessions were held for the rest of the first day of the meeting. Seven task groups were set up, which included:

- International boundaries (land and maritime) and coastlines
- Administrative boundaries
- Cartographic guidelines
- Field operations
- Remote sensing and satellite imagery
- Metadata and clearinghouses
- Training

Tape recordings were available only for three of the sessions.

International Boundaries (land and maritime) and Coastlines
(Tape recording was not available for this session.)

Task Managers: Ms. Hélène Bray, Cartographic Section/LIRD/DPI
Mr. Robert Sandev, Law of the Sea/OLA

The International Boundaries Research Unit (IBRU) was invited to attend this session as a non-UN advisor to the group. The following was the agenda for this session:

1. Adoption of the agenda
2. Participating agencies
3. Discuss the goals of the task group
4. Evaluation of the current situation
   a. Data
   b. Problems encountered through using existing data
   c. Map clearance
   d. Resources of information
5. Needs assessment
6. Plan of action
   a. Short term
   b. Long term
   c. Identifying participants (for the action)
   d. Define tasks for participants
   e. Identify constraints for achieving the goals
   f. Identify paths to minimize the effect of the constraints if not eliminate them
   g. Identify paths to request commitment from participants towards achieving the goals
7. Avenues for collaboration with other task groups
8. Avenues for collaboration with external groups (private sector, research institutes, etc.)

Administrative Boundaries
(Tape recording was not available for this session.)

Task Managers: Mr. Uwe Deichmann, World Bank
                Mr. Steeve Ebener, WHO

The Center for International Earth Science Information Network (CIESIN) was invited to attend this session as a non-UN advisor to the group. The following was the agenda for this session:

1. Introduction
2. Objective
3. Inventory
4. Issues
5. Open discussion
6. Summary of the session
7. Short and medium term agenda

Cartographic Guidelines
(Tape recording was not available for this session.)

Task Managers: Mr. Vladimir Bessarabov, Cartographic Section/LIRD/DPI
                Mr. Gregory Prakas (represented by Mr. Jeffery Lecksell), World Bank
                Mr. Philippe Rekacewicz (absent), UNEP

The International Cartographic Association (ICA) was invited to attend this session as a non-UN advisor to the group. The following was the agenda for this session:

1. Adoption of the agenda
2. Participating agencies
3. Evaluation of the current situation
4. Discussion of the goals of the task group
5. Plan of action
   a. Defining the tasks for the short term plan
   b. Defining the tasks for the long term plan
   c. Identifying the agencies that can serve as the focal points for the short term and long term actions
6. Identifying the avenues for collaboration with other task groups
7. Identifying the avenues for collaboration with external groups (National Mapping Agencies, private sectors, etc.)

Field Operations

Task Managers: Mr. Kyoung-Soo Eom, Engineering Section/DPKO
                     Mr. Pablo Recalde, Field Information Unit/OCHA

The Joint Research Centre of the European Commission (JRC) and the US Department of State were invited to attend this session as non-UN advisors to the group.

For several years, geographic information tools had been used particularly in the field of humanitarian response and planning. In the Kosovo operation, it was acknowledged that information was a critical component for field response and planning. The entire process was able to move forward thanks to additional resources. During this session, the group would like to evaluate the current situation, the coordination mechanisms, the standards for field information and how they could be implemented, and the sharing of information at the field level.

Remote Sensing and Satellite Imagery

Task Managers: Mr. Jean-Yves Bouchardy, UNHCR
                     Mr. Lorant Czaran (absent), UNEP
                     Mr. Alain Retiere, UNOPS

The International Society for Photogrammetry and Remote Sensing (ISPRS) was invited to attend this session as a non-UN advisor to the group.

The issue of standardization was critical. GeoCover, an important initiative led by NASA to create a global geo-referenced database from Landsat data, was utilized by FAO to perform image-to-image registration. This not only saved time but also set the universal standard within FAO. A land cover classification system was also being developed, which would be applied universally by FAO. This meant a scale- and sensor-independent interpretation of data for land cover.

Image data providers present at the meeting expressed the need to know the kinds of products and the priority areas the group was looking for. Technologies existed, especially in the field of delivery, which could make information more accessible. For example, it was possible to send and receive very large amount of data with very simple dish antennas using DVB (digital video broadcasting). Hence, the providers wanted to understand the directions the agencies were taking in order to better serve those needs. It was noted that the UN was considered as a minor user of critical information, and this was the problem.

The Landsat programme had an image database of medium resolution of over 30 years. Landsat 7 had been successfully exploited for better resolutions. One of the advantages of using Landsat 7 data was that it was managed by a government organization, and clients only needed to pay for the cost of reproduction and distribution.

The new charter of the Canadian Space Agency prescribed the release of free satellite imagery for emergency situations. However, this did not cover humanitarian emergencies. The UN should investigate such partnerships. Within the GI Support Team (GIST), work had already started to look at the use of remote sensing for humanitarian operations.

The question "what should be achieved in the next 12 months" was raised. Some answers were:
- Promoting the use of satellite imagery within own organizations.
- Working out specific licensing arrangements with data providers.
- Timeliness of data delivery, especially in case of emergencies.
- Broadening the scope of the first pilot charter with national space agencies and working out the conditions for authorization issues.
- Working out a basis for establishing a mechanism through which the UN would benefit from improved access to data. In exchange, the UN could contribute and pay back by supporting the development of vector-based databases.

It was concluded that guidelines were needed for the use of remote sensing and for streamlining the way resources and fund-raising was done throughout the UN in times of need. FAO, as well as other major agencies in the UN, spent several hundred thousands of dollars last year buying global satellite imagery. Copyright restrictions were often lifted. However, this did not necessarily mean that other UN agencies could benefit from such. For example, recently in Lebanon, a lot of geo-spatial data funded by UNDP was turned over to the local government and subsequently declared to be no longer available publicly. The UN still faced big problems in identifying the information it had and the individual agreements that its agencies set up. There was a need to break down these duplications and effectively use agreements in place as well as benefits available over the whole system.

The issue of "added values" was one of the critical elements in delivering remote sensing products to the field. The field required reliable and updated information at a scale of at least 150,000. Regional resource centres were being created within the UN to build up such capacity. The private sector, as well as universities, could be called upon to assist in this aspect.

The session concluded with agreement on the following:
- The goals and responsibilities of the task group.
- The necessity to promote the use of satellite imagery within the UN, especially at the senior management level.
- The necessity to improve the UN position in regard to licensing and copyrights.
- The necessity to work out mechanisms for more timely access to data.
- Building partnerships for exchange of information.

Metadata and Clearinghouses

Task Managers: Mr. Carrie Howard, ReliefWeb/OCHA
                   Mr. John Latham, FAO
                   Mr. Mick Wilson, UNEP

The Federal Geographic Data Committee (FGDC) was invited to attend this session as a non-UN advisor to the group. The agenda included a look at the metadata – what, why and how, a look at the standards including some examples, and finalizing with the clearinghouse concept: why it was being done, what options were available, and how it was being facilitated through recent technological changes.

Mr. John Latham of FAO explained that the group should share a common interest in creating a UN-wide geographic database. In that respect, a metadata system, which would describe the contents of that database, needed to be agreed upon as well as its location and maintenance issues. Many initiatives that were ongoing around the world in terms of standards-based metadata systems offered a number of very good examples of the application of those standards.

Mr. José Aguilar-Manjarrez of FAO stated that one of the recommendations of the first plenary meeting in New York was to compile an inventory of existing cartographic products and geographic databases within the UN. To accomplish this task, there was a need to create an inventory through the development of accepted metadata standards and tools, and through the establishment of a wide network of clearinghouses. FGDC in collaboration with the Global Spatial Data infrastructure (GSDI) had held two SDI workshops in New York and Geneva to train UN staff on using metadata tools and documenting data. It was an opportunity to have a hands-on training on metadata and clearinghouses. Throughout the workshops, an emphasis was put on the realization of a UN inventory.

The participants also discussed their requirements and experience with metadata. There was a view that the group should try to separate the content from the presentation of metadata. Because nowadays the content of any metadata record could be translated into familiar packaging for the consumer, cross-agency cooperation was more likely. In addition, cross-mapping capabilities of many of the well-known metadata fields existed, which should be taken into consideration.

Training
(Tape recording was not available for this session.)

Task Managers: Ms. Lenni Geroge, UN Staff College
                   Mr. Robert Missotten, UNESCO
                   Mr. Christophe Nutuall (represented by Mr. Jocelyn Fenard), UNITAR

The following was the agenda for this session:

1. Evaluation of the current situation
2. Needs assessment
3. Plan of action
4. Co-operation with other task groups

Open Forum

Moderator: Mr. Changchui He, Chief of Environment and Natural Resources Service, FAO

The Open Forum started with a welcome address delivered by Mr. Dietrich Leihner, Director of the Research, Extension and Training Division and Officer-in-Charge of the Sustainable Development Department of FAO, on behalf of Mr. Jacques Paul Eckebil, Assistant Director-General of the Sustainable Development Department of FAO. It was followed by an introductory address given by Mr. Hiroshi Murakami, Chair of the UNGIWG and Chief of the Cartographic Section of the Library and Information Resources Division (LIRD) of the Department of Public Information (DPI) of the UN. His Excellency Mr. Robert R. Fowler, Ambassador of Canada to Italy, gave the keynote address.

Welcome Address by Mr. Dietrich Leihner, FAO

Your Excellency Ambassador Robert Fowler, Mr. Hiroshi Murakami, Chair of the UN Geographic Information Working Group, distinguished representatives of agencies, dear participants and colleagues, ladies and gentlemen,

It gives me great pleasure, on behalf of the Director-General of the Food and Agriculture Organization of the UN, as well as on my own behalf, to welcome all of you to the Second UN Geographic Information Systems Working Group Meeting. As you may know, this meeting is being organized by the DPI of the UN Secretariat, and hosted by FAO through the Sustainable Development Department, in cooperation with the General Affairs and Information Department and other technical units here at FAO. I am pleased to see that quite a number of representatives from the UN agencies concerned, national governments, academic institutions and the private sector have considered it important to take part in this event.

The organization of this inter-agency meeting is indeed another testimony that the UN system is earnestly committed to addressing the issue of data and information for sustainable development, in partnership with a broad spectrum of stakeholders. All of you will no doubt recall the information and decision support tools that were identified as one of the priority areas in Agenda 21, adopted by UNCED, held in Rio de Janeiro in 1992, and this will receive focused attention at the forthcoming meeting of the UN Commission on Sustainable Development in April of this year. In his Millennium Statement, Mr. Kofi Annan, Secretary General of the United Nations, reiterated his call for a strengthened effort to narrow the digital divide among the developed and developing countries. Obviously, the need for a collective approach in promoting the use of geo-spatial information science and its applications has emerged as an area of common concern in the UN system. This meeting, we believe, is an important step in creating synergies among UN system agencies in an effort to provide its member-states with

better-coordinated products and services in the field of cartography and geographic information databases of various kinds.

At FAO, we attach great importance to these synergies and, moreover, anticipate a fruitful result through inter-agency cooperation in the field of geo-spatial information generation and dissemination.

As the largest specialized agency in the UN system, FAO was founded in 1945 with a mandate to raise levels of nutrition and standard of living, to improve agricultural productivity, and to better the conditions of rural people. The Organization offers direct development assistance through both its normative and field programmes. It collects, analyses and disseminates information, provides policy and planning advice to member governments, and acts as an international forum for debates on food security and sustainable development. In meeting these challenges and through more than 50 years of development practice, it was realized that reliable, timely, updated and widely accessible information to its stakeholder community is of paramount importance. Turning into the new millennium, the recognition of the importance of information technology has been effectively translated into a policy decision, and has been subsequently incorporated in a long-term strategy – the FAO Strategic Framework 2000-2015. In this Strategic Framework, five corporate strategies are identified, with one clearly focused on "improving decision-making through provision of information and assessments and fostering of knowledge management for food and agriculture".

Indeed, FAO has been engaged for many years in the collection, generation and dissemination of a wide range of environmental and natural resources information, covering land, soil, fisheries, water, forestry and agroclimatology, as well as agricultural statistics at global, regional and national level. FAO and its member states have greatly benefited from the operational use of spatial information systems, especially remote sensing, GIS and satellite-based positioning systems, in both its normative and field programmes. A wide range of databases, spatial and non-spatial, and decision support tools and documentary resources have been produced. Currently, FAO is developing its large array of digital resources on the technical, social, economic and environmental aspects of agricultural development and food security into a new generation of inter-related systems. When reading your programme carefully, you will note that there will be an opportunity to listen to brief presentations by FAO staff on several operational systems and information programmes, such as ARTEMIS, AGROMET, ProMIS, GIEWS, FRA and finally WAICENT, the latter being the organization's strategic interdepartmental programme on information management.

I am aware that, like FAO, other specialized agencies in the UN family have also been vigorously promoting and using geo-spatial information technology, as have the governmental organizations, professional societies, NGOs and industries who are represented here today. The achievements by all so far in terms of data, information bases, tools, guidelines, networking, experience and expertise, are a rich intellectual resource that can be capitalized on in our future collaborated endeavours. Obviously, we are not starting from scratch. But indeed, the related activities and programmes in the

UN system have so far not always been well planned, well structured and well coordinated with a view to having compatible outputs for the benefit of member countries.

Geo-information collection, analysis, production and application, database development, maintenance and updating, as well as information networking and exchange, are steps in a complex chain of activities. No doubt, no single organization or agency could do all and do them all well. I hope, therefore, that this meeting will take into consideration the existing programmes and capitalize on the current experience and knowledge in producing an action-driven, results-oriented programme of work. It is our conviction that such a programme should sharply focus on areas of common concern, for example, identifying and filling the gaps in spatial information standards and norms setting, and development of core data sets that are required by the United Nations in its missions on environment and sustainable development, and specifically in relation to its peacekeeping missions. We clearly see the leadership role of the UN Secretariat in facilitating (a) the development of cartographic guidelines to produce unified international administrative boundary maps for the international community and (b) the development of a metadata base on geo-spatial information, as well as promoting a distributed information networking capability in cooperation with various stakeholders. It is our firm belief that such a programme of work can only be successful when it is developed and implemented through a transparent and participatory approach. Furthermore, in this process, the active participation of the NGO community as well as the private sector will also be of key importance.

We could do much better through the coordinated effort and we could do much more if unnecessary duplication could be avoided. Therefore, the partnership approach with a defined common direction is vital and such a partnership needs to be built up based on the comparative advantages of each organization and each player. In this connection, I can assure you that FAO stands ready to participate in, support and contribute to this new initiative in the UN system, based on our expertise and experience in the areas of geo-spatial information development, application and information networking for agriculture and food security.

I would like to thank you all for having come to Rome for this important gathering of a wide variety of technical experts in this field. And since you started yesterday, I wish you the continuation of, what I believe, will be a highly successful meeting and look forward to the outcome of your deliberations.

Introductory Address by Mr. Hiroshi Murakami, Chair of UNGIWG

His Excellency Mr. Robert Fowler, Ambassador of Canada to Italy, Mr. Jacques Eckebil, Assistant Director General of Sustainable Development of FAO, distinguished delegates and ladies and gentlemen, Good Morning!

I am extremely pleased and honoured to welcome all of you who came from United Nations departments, programmes and agencies, international, regional and national organizations, and industries to this exciting meeting of the United Nations Geographic Information Working Group or UNGIWG. This meeting is the second meeting of this Working Group.

The first meeting was held in New York in March last year under the leadership of Mr. Miklos Pinther who is my predecessor and did a wonderful job in starting and establishing the firm ground for this important initiative. He retired from the UN last January. I assumed his responsibility and started working at the United Nations as the Chief of the Cartographic Section about one and a half months ago. In this sense, I am quite new or I might be able to say that I am the newest among the UN officials here in this assembly. But before joining the UN community, I worked for the Japanese government and was responsible for a government-wide committee on geographic information. In this sense, the tasks before us for the UNGIWG sound very familiar to me, and I am very excited to be a part of this important initiative.

As you already know, the concept of United Nations Geographic Information Working Group or UNGIWG was originated from the system-wide need of coordinated use of geographic information and the need of a geographic database in the United Nations. Most UN organizations need to deal with geographic information to adequately and efficiently accomplish their mandates. Actually, Mr. Kofi Annan, Secretary General of the United Nations, made an address in a meeting of the Association of American Geographers (AAG) held in New York, which actually took place last week on Thursday 1 March. He said in his address, "last year we at the United Nations established a Geographic Information Working Group to improve the way in which the many entities in our far-flung system use cartographic and geographic information. One of the Group's main goals is to establish a common UN Geographic Database. It will be working with national mapping agencies, non-governmental organizations, industry groups and research institutions. The first formal meeting will be held later this month. I encourage you to contact us and get involved, if you have not done so already."

I am very much pleased to know that this Working Group is well acknowledged by the Secretary General. And I believe that is why we have here today highly distinguished experts and professionals from international, regional and national organizations and industries as well as from UN organizations. Actually we had very productive task group meetings yesterday. They already laid out plans for the coming year.

The idea of setting up these task groups was agreed and summarised in the resolution of the first UNGIWG meeting last year. The resolution also specified other actions the Working Group should take including the appointment of a focal point from each department, agency and programme of the United Nations, which has been in progress with the letter from Mr. Desai of ACC.

During the past year after the first meeting, many of the participants today also have been working on these issues and made significant progresses. Some of the issues are left for

the discussions for this second meeting, which include for the Chair to invite the General Assembly to consider the initiation of formal collaboration with national mapping authorities, and to investigate possible collaboration with non-governmental organizations, industry and research institutions. These topics are to be covered this afternoon and I am very much looking forward to fruitful discussions.

So based on the resolution of the first meeting, I have the following goals in my mind for this meeting:

    i)   To identify specific tasks we need to work on, set up a task group for each of the tasks based on the terms of reference, and start discussing them to advance the ideas of UNGIWG, which have been mostly accomplished by the discussions yesterday and I look forward to the reports from the task groups tomorrow;

    ii) To find areas where UNGIWG and other related international, regional and national organizations and/or initiatives can cooperate and benefit with each other; and

    iii) To start talking about the vision and a long term strategic plan of this Working Group so that this Working Group will be more focused about its future.

The tasks before us are still daunting, but by sharing the experiences we all have and by uniting our expertise throughout this meeting. I am sure we can make great progresses and prove the power of geographic information for the cause of the United Nations with the help of international, regional and national organizations and industries. I sincerely hope that the enthusiasm we all have will not end as a mere research or a pilot project, but be well reflected and incorporated into our daily practices and well integrated to the daily decision making processes.

For those who came from the international, regional and national organizations, I believe this meeting will be a great opportunity to establish further cooperation with this UN initiative. And for those who came from industry, this meeting will give you better ideas on the needs we have and I would greatly appreciate your cooperation in incorporating cutting-edge technologies into the forefront of the United Nations GI applications.

Last but not least, I am very much grateful for the Food and Agriculture Organization, FAO, for hosting this important meeting. As you already know FAO is one of the leading organizations in the use of GIS under the leadership of Dr. Changchui He. I believe it is a great opportunity for all of us coming here to learn more about the latest development of GIS applications in FAO.

I am very much looking forward to the discussions today and tomorrow and I hope you will all enjoy and benefit greatly from this meeting. Thank you.

Keynote Address by His Excellency Ambassador Robert R. Fowler

My message to you today is that you are capable of producing magnificent products and that you must be more forceful in forcing them down the throats of would be users, who, for all kinds of complex reasons, do not want to have anything to do with your product. The member states should know what you are capable of.

I have essentially negative experiences with the Secretariat's capacity to produce effective geo-political, cartographic information. I am going to particularly relate this experience to my time on the Security Council. I was there for the first twenty months of our 2-year term, leaving the UN at the end of August.

Towards the end of my presentation, I am going to give you a very quick slide show to show you what could be done.

Basically, the audio-visual material provided to the Secretariat generally in New York, I cannot speak for other UN agencies, and especially to the Security Council, was inadequate, because the UN would rather appear inept than politically incorrect. In my view, the change in the attitude could occur, only if there is a strong pressure from both within the Secretariat and from the member states.

We picked arbitrarily this list of issues that had been on the Council's agenda over the first 20 months of our term and we presented a briefing on these. The purpose of the briefing was not informing the Council what was happening, but showing what could be provided in terms of all new visual aids and presentations, and cartographic information. We wanted to show the Council who was where. We discussed diamonds in Sierra Leone for months without ever telling the members of the Council where the diamond areas were and what interest different rebel fractions might have. You will be aware of the issue of re-grouping camps in Burundi. We felt it was very important for people to know where those camps were, especially the most notorious ones. The purpose of this briefing and the slides presentation was to show different kinds of information that could be offered to the Council from all the sources.

My first interest is adequate briefings to the 15 countries that vote for these resolutions. To make an informed, intelligent decision, it's necessary to know the objective and accurate background information. Many of the countries offering troops to the UN today have a vague idea of the geo-strategic situations on which they're putting their troops.

I do know what the Secretariat is capable of, not only the Cartographic Section. During our time on the Security Council, I received extraordinary help from the audio-visual section of the DPI, who helped me put together a couple of video-presentations for the Council's public and private sessions to highlight the work that I had been doing on the conflict diamonds. The diamonds are the fuel for the conflicts in Africa, and effective visual aids can indeed change a lot.

When we took our seat on the Council, it was our sixth term on the Council in January 2000, I simply could not believe how badly the Security Council was briefed. And I could not believe the sense of political timidity, which pervaded everything that was done and presented before the Council.

I was a junior member of our delegation to the Council in the mid-70s, when we did not know how to spell audio-visual, but we certainly should have learned that in the intervening twenty-five years. During my first two days on the Security Council in January 2000, it seemed to me that I was back in high school in the 50s.

When we asked for maps, we were told that for the same reasons we couldn't have any. If they got out of the Council Chamber, the hard copy could create great problems and would further impede the peace effort. We suggested that if the maps were shown electronically, there would be no copy coming out of the room. That did not help either.

You are also aware of the grand intelligence debate within the Secretariat. The Secretariat is extremely reluctant to use any intelligence data provided. On their own part, the providers of intelligence material are not willing to share it with the Secretariat, because they are afraid to see it in the papers the next day.

We urged the UN to be a little bit more forthcoming. Of course, we ran straight into the Great Divide within the Security Council, between the permanent members on the one hand, and the elected members on the other. Such is the reality. There is simply a built-in reticence about using the information.

When we did produce the little slide show in August 2000, virtually each one of the elected members not only appreciated the fact of what we had done and why we had done it, but also learned a lot from those slides. The slides were very basic. The show we produced was produced exclusively from public sources. It was produced by our Defence Department, because I used to be a member of our Defence Department. But it was produced entirely from public sources (newspapers, the Internet, etc.) to make the point that in order to provide effective up-to-date informative briefings to the Security Council, you do not necessarily need intelligence sources. All the 10 elected members of the Council were surprised to learn what was available on the Internet.

Now only identifying geographic locations on the map is acceptable. I would therefore urge you to produce intelligent, simple briefings from publicly available sources. You may become a little more ambitious bit by bit. You may offer shaded areas of territories occupied by one country in the territory of another, and so on.

(A slide show presented by Ambassador Fowler concluded this opening session.)

FAO Presentations

Moderator: Mr. Freddy Nachtergaele, FAO

Presentations:
- Introduction – F. Nachtergaele
- Point Data – R. Gommes
- Display and Analysis of Raster Data and Maps – F.L. Snijders, A. Nadeau and J. Latham
- Terrestrial Ecosystem Monitoring Sites (Tems) – J. Tschirley
- The Forest Resources Assessment – P. Holmgren
- KIMS and FAOMAP – K. Vertucci and J. Aguilar
- Fisheries Global Information System – M. Taconet and F. Carocci
- Livestock Data and Applications – J. Otte
- Geo-networking – J. Latham
- Questions

Plenary Technical Presentations and Discussions

The presentations focused on four areas, namely data (climatic, land cover, fisheries and forestry, land use, livestock, land and water, satellite data), tools (FAOMAP, KIMS, PROMIS, WINDISP), applications (environmental impact, food security, early warning and vulnerability mapping) and vision (geo-networking, clearinghouse). It was noted that the presentations demonstrated the diversity of FAO in-house capacities for provision of data and information, and the tools and technologies which were used to serve that purpose. Three domains of operation were highlighted:

- Physical domain: data that was measured, sensed or counted in the field.
- Symbolic domain: transforming data into information.
- Cognitive domain: projecting information into actionable knowledge through information management systems and decision support systems to facilitate improved decision-making.

This was the emphasis of the information management strategy of FAO, and it was done from a variety of approaches.

If success with data integration and commonality of tools was desired, there was need to have an environment in which information and its supporting standards, as well as infrastructure, were developed in a sustainable way through a spatial data infrastructure. In this way, the components of coordinated data collection, the common geo-referencing of that data, the data access and distribution infrastructure, the supportive information policy and data standards, and the management framework would be integrated and efficiently managed and should work within a cost-effective infrastructure to support decision-making, communications and improved information management.

Afghanistan was cited as an example on how the UN could develop a national spatial data infrastructure (NSDI). In the absence of a centralized government in Afghanistan, UN agencies were actually working under the collective leadership of the UN Resident Coordinator, and dealing cross-sectorally with the proliferation of UN entities, NGOs and the donors themselves. They were working in the indicated sectoral themes, with the backdrop of the UN development assistance framework, which was supported through annual appeals for complex emergencies. An activities tracking system was developed to monitor who was doing what and where and with what resources, and the ultimate results. An information management system was also developed to give transparency to the spatial data infrastructure as well as improved information access. FAO was also building massive data sets with the help of other UN agencies. The data sets were put into an integrated warehouse to be served across the web, which would simplify information management for end users.

Under the auspices of an integrated information management working group, a geo-network concept was evolving within FAO. It was critical that any level of geo-networking, be it in the field or at FAO HQ, be compatible and linked with a UN system-wide clearinghouse.

Finally FAO expressed the hope that it could further forge new partnerships to empower the UN agencies, the NGOs, the academic community and the private sector to better serve communities across the world.

Panel Discussion I – International and Regional Organizations

Moderators: Mr. Alessandro Annoni, Joint Research Centre – European Commission
               Ms. Alice Chow, Cartographic Section/LIRD/DPI

Panel Participants:
- EuroGeographics – Mr. Claude Luzet, claude.luzet@megrin.org
- European Umbrella Organisation for Geographic Information – Mr. Anton Wolfkamp, eurogi@euronet.nl
- European Commission – Joint Research Centre – Mr. Jean Meyer-Roux, jean.meyer-roux@jrc.it
- Global Spatial Data Infrastructure – Mr. Douglas Nebert, ddnebert@fgdc.gov
- International Cartographic Association – Mr. Bengt Rystedt, Bengt.Rystedt@lm.se
- International Organization for Standardization – TC211 – Mr. Henry Tom, Tomcaros@cs.com
- International Society for Photogrammetry and Remote Sensing – Mr. Lawrence Fritz, LWFritz@erols.com
- International Steering Committee for Global Mapping – Mr. Hiroshi Une, une@gsi.go.jp
- Permanent Committee on GIS Infrastructure for Asia and the Pacific – Mr. Yang Kai, yangkai@public.bta.net.cn
- UN Group of Experts on Geographical Names – Ms. Helen Kerfoot, hkerfoot@NRCan.gc.ca

Presentations by Panel Participants

EuroGeographics
EuroGeographics was a regional grouping of nearly 40 European national mapping agencies. It was active in creating harmonised regional data sets, defining adequate GI policies, and working towards more interoperability. To avoid future duplication, it was recommended that UNGIWG made use of their support and expertise.

European Umbrella Organisation for Geographic Information (EUROGI)
EUROGI had about 20 member countries. Its objectives were to encourage the greater use of geographic information in Europe, to raise awareness of the value of GI and its associated technologies, to work towards the development of strong national GI associations in all European countries, to facilitate the development of a European Spatial Data Infrastructure, and to represent European interests in the Global Spatial Data Infrastructure. EUROGI could serve as the link between UNGIWG and the national GI associations in Europe.

European Commission – Joint Research Centre (JRC)
JRC rendered technical and scientific supports to the policy-making departments of the European Commission. It provided fundamental geographic data sets, which did not exist with the national mapping agencies, but were considered important for policies and

regulations. In order to coordinate all the political departments within the Commission, an inter-service group on geographic information was established. One of the major policy thrusts for geographic information could be the global monitoring of environment and security, which would be enhanced by a number of conventions to which the European Union was a signatory.

Global Spatial Data Infrastructure (GSDI)
GSDI was meant to be a forum for professionals and policy-makers to share and learn from, so that compatible spatial data infrastructures could be built. There had been 4 conferences and there were 2 active working groups which dealt with technical, legal and economic issues. The Technical Working Group had published a GSDI cookbook, which was a guide for best practices. The Legal and Economic Working Group was trying to define business cases and organizational and policy solutions.

International Cartographic Association (ICA)
ICA had a vision to collaborate with the UN Geographic Database project to create an electronic world atlas that could be used by universities, schools and people all over the world. Other activities of interest to the ICA included the promotion of the use of maps over the Internet and the creation of a feature catalogue. The features that were most important in this were shorelines, administrative boundaries, water, cities and geographical names.

International Organization for Standardization (ISO)
The purpose of ISO was to develop a family of standards which were integrated. There were over 50 countries participating in TC211, the ISO Technical Committee on Geographic Information and Geomatics. TC211 also had liaison with 11 of the other ISO Technical Committees, but more importantly, external liaison with over 15 international organizations.

International Society for Photogrammetry and Remote Sensing (ISPRS)
ISPRS had a membership of about 174 organizations around the World managed by a 6-member Council. There were 7 technical commissions with 46 working groups in total. Opportunities for collaboration with the UN included joint workshops for training and education, working groups to address imagery needs, the development and promotion of image and data standards, convening user-producer colloquia, reporting on UN specific applications and needs, as well as cooperative agreements for joint endeavours, and the provision of subject matter experts and specialists.

International Steering Committee on Global Mapping (ISCGM)
The objective of the Global Mapping project was to develop 1km-resolution basic geographic data that covered all land area on earth under the voluntary participation of national mapping organizations. Global map data could be downloaded at www.iscgm.org.

Permanent Committee on GIS Infrastructure for Asia and the Pacific (PCGIAP)
PCGIAP operated under and reported to the UN Regional Cartographic Conference for Asia and the Pacific. Its membership consisted of 55 nations in the region. Its objective was to provide a forum for nations in the region to cooperate in the development of the Asia Pacific Spatial Data Infrastructure (APSDI). PCGIAP had four working groups with the respective tasks of establishing a regional geodetic infrastructure, formulating policy for sharing fundamental data, examining issues related to cadastre, and advocating institutional strengthening and capacity building.

Permanent Committee on Spatial Data Infrastructure for the Americas (PCIDEA)
PCIDEA had 21 member nations and four working groups. Its main objectives were to create seamless regional spatial data, to promote the formation of regional spatial policy and NSDI development, to develop a regional spatial data infrastructure (RSDI) for the Americas in the context of commonly adopted standards and practices of GSDI, to act as an inter-American forum for better understanding of national and regional needs, and to place geo-information production as a strategic sector within national development strategies.

United Nations Group of Experts on Geographical Names (UNGEGN)
The concept of UNGEGN was to promote national standardization of geographical names and, from that basis, to work towards international standardization. UNGEGN was divided into 22 geographic and linguistic divisions. It supported several working groups including databases and gazetteers, romanization, training, publicity, country names, terminology and toponymic guidelines.

Panel Discussion

Mr. Doug Nebert of GSDI stressed that the systems of the infrastructures by their nature included data access, services, web mapping, data dissemination, organization, etc. In terms of providing data to GSDI, it would require participation from regional mapping and scientific organizations. GSDI was not expected to have a single set of standard themes worked on by other groups. Rather it would be carrier for any available information.

Mr. Jean Meyer-Roux of JRC proposed that some types of formal links should be established to ensure that harmonization, both horizontal and vertical, of GI activities at the European level would be coherent at the UN level.

Mr. Hiroshi Une of ISCGM responded to a question raised earlier regarding edge-matching the Global Map data. His response was that it would be difficult to achieve edge-matching in the future because national mapping organizations had to obey the guidelines of their national governments. Mr. Bengt Rystedt of ICA added that the only way to create a geographic database was to start with a requirement analysis and conceptual/data modelling, and to follow standards.

Mr. Shawn Messick of UNMAS cautioned that expectations would be raised as the group tried to promote the use of GIS and GIS analysis in the field for directing country-level programmes. If such expectations could not be met and some of the basic items could not be delivered in the immediate future, it risked losing the benefits of cooperation in the implementation of field level geo-spatial solutions for coordination and relief operations, peacekeeping operations and other types of programmes.

Mr. Doug Nebert of GSDI noted that there had not been much discussion directly about the Open GIS Consortium (OGC), although it was a growing body of implementers, and included integrators, data providers, government agencies and vendors. Its focus was on adopting common software interfaces. There was great potential for implementing some of the Open GIS interfaces. Mr. Nebert felt it required three agreements: (1) to implement common software interfaces, (2) to establish a culture of shared data access, and (3) to commit to stand-up information services.

Mr. Henry Tom of ISO commented that many of the OGC industry developed standards would become ISO standards. The importance of the ISO stamp lies in the fact that many countries dictated that only ISO standards could be observed.

Regarding strategic planning, panel participants said that synergy should be in place both ways between the UN and their organizations in order to determine how to move forward. Mr. Lawrence Fritz of ISPRS noted that the group had defined its objectives, but not its goals and requirements. He recommended that an additional task group should be created to work on the strategic plan.

Ms. Alice Chow noted that the panel did not address the issue of coordinating existing efforts in creating global geographic data sets including the Global Map from ISCGM, Global GIS data from USGS and Digital Earth, and that of coordination of regional efforts such as PCGIAP, PCIDEA and CODI.

Mr. Alessandro Annoni ended with a summary of the panel discussion.

Panel Recommendations

The overall recommendation of the panel's discussion was that UNGIWG should first elaborate a GI Strategy Action Plan before starting operational activities of data collection, negotiation with data providers, and setting up clearinghouses. More precisely, the recommendations concerned 5 different well-identified areas:

1. Avoid duplication
2. Better coordination
3. Focus activities
4. Education and awareness raising
5. Capacity building

1. Avoid duplication

- Any initiative or data collection exercise should be built on top of existing activities and projects.
- Links with similar working groups should be established (rather than reinventing the wheel) to save resources.
- A class "A" liaison with ISO-TC211 should be established.
- Other already identified links included: GSDI (e.g. cookbook), ISPRS, ICA, PCGIAP.
- The Action Plan should establish a mechanism to collect information about existing data sets. The panel suggested asking regional organizations to support this survey (PCIDEA, PCGIAP, EUROGI, EuroGeographics).

2. Better coordination

- Decentralize responsibilities when possible.
- UNGEGN was working to realize a Gazetteer which would include multilingual geographical names. UNGIWG should ask UNGEGN to consider eventual "specific" requirements.
- Link with similar initiatives and set up formal agreements with relevant key actors.
- European Union performed similar activities as UNGIWG through its COGI (European Commission Inter-service Committee for GI). Other initiatives of interest that could assist were: GMES (Global Monitoring for Environment and Security), the GI-GIS project of the JRC, etc.
- In the field of GI, some committees already existed (PCIDEA, PCGIAP, EUROGI) and some mapping agencies had already set up regional organizations (e.g. EuroGeographics).
- Identify a clear mechanism to share information (mainly to avoid duplication of activities).
- Feedback from the local level is necessary to assess quality.
- UNGIWG should work to remove duplications in global data sets initiatives.

3. Focus activities

- User needs should be better assessed; a generic expression of interest in "international boundaries" should be processed in order to clearly define data constraints (precision, time stamp, source, official level, etc.).
- A more schematic approach should be used: user needs assessment, technical specifications and data modelling.
- GI strategy should take into account the need to work "by product" instead of by data.
- Activities Planning/GI Strategy should consider short, medium and long term objectives.

4. Education and awareness raising

- Both decision makers and project officers must be better educated in the field of GI.
- Products should be built to raise the awareness of decision makers, i.e. "deliver to convince".
- Universities could be partners in setting up an "educational agenda".

5. Capacity building

- The adoption of standards must be promoted.
- Standardization should concern technical standards (e.g. ISO, OGC, etc.) and standard interfaces (e.g. Web Mapping) but also information services (24-hour services, backup, mirroring and so on).
- Development of best practices and technical guidelines was recommended (e.g. procedures/manuals for each specific field of operation).
- When necessary, links with research on selective topics should be established (e.g. cartography generalization).

Panel Discussion II – National Mapping Agencies

Moderators: Mr. Claude Luzet, EuroGeographics
                  Mr. Vladimir Bessarabov, Cartographic Section/LIRD/DPI

Panel Participants:
- China –   Mr. Yang Kai, yangkai@public.bta.net.cn
                            Mr. Bai Bo, fanbsm@publoc.bta.net.cn
- Germany –   Mr. Dietmar Grunreich, gruenreich@ifag.de
- Finland –   Mr. Jarmo Ratia, jarmo.ratia@nls.fi
- France –   Mr. Jean-Philippe Lagrange, Jean-Philippe.Lagrange@ign.fr
- Japan –   Mr. Norishige Kubo, kubo-n2jg@mlit.go.jp
                            Mr. Hiroshi Une, une@gsi.go.jp
- Oman –   Mr. Nasser Al-Harthy
- Singapore –   Mr. Yeo Yew Hock, safmu@magix.com.sg
                            Mr. Tan Soong Tong, Michael, safmu@magix.com.sg
- Sweden –   Mr. Bengt Rystedt, b_rysted@hotmail.com
- United Kingdom –Mr. Mark Probert. mprobert@ordsvy.gov.uk
- United States –   Mr. John Kelmelis, jkelmeli@usgs.gov

Introductory Speech by Mr. Jarmo Ratia, National Land Survey of Finland

National Mapping Agencies (NMAs)

Every country has a National Mapping Agency (NMA) and they all are public sector bodies. An NMA is responsible for providing geographic information covering the entire country, not just the commercially viable parts. All NMAs apply standard specifications and are responsible for maintaining what they produce. NMAs have wide knowledge about geographic data production, including such aspects as geodetic reference systems, data quality, cartographic presentation, transfer processes and maintenance. Most NMAs have close relationships with users in both public and private sectors and collaborate with private sector partners.

However, NMAs are not identical, e.g. an NMA may be responsible for civilian or military mapping, for land registration or for hydrographic services. Some have responsibilities only for small-scale mapping and leave large-scale interests to local governments or private sector. Others are responsible for all mapping within their borders. The legal background and the pricing of data vary widely from country to country. Because they are designed to satisfy national needs, the data produced by NMAs inevitably reflect national, social, political and geographical cultures.

Having said that data produced by NMAs is a very national product by nature I want now to emphasize the cross-bordering co-operation between the NMAs. For instance European NMAs have as early as 1980 established an organization called at that time CERCO and now Eurogeographics not only to exchange information between members

but also to contribute to the creation of pan-European geographic data sets and other products.

Within this European framework good results have been reached. The Nordic Map Data Base including all the five Nordic countries and Greenland was produced in the scale of 1:2M almost ten years ago. Last year the map database in scale 1:1M of the drainage area of the Baltic Sea was finalized in co-operation with NMAs in 14 countries as well as the database in the same scale of the Barents Sea region covering the northernmost parts of Norway, Sweden, Finland and Russia. Pan-European map database in scale 1:250 000 and the European contribution to the Global Map Initiative are at their early phase. A new updated version of SABE (Seamless administrative boundaries of Europe) has been published. NMAs also work together in the field of geodesy, data harmonization and integration, generalization and visualization, metadata, data quality, cadastral information systems and, of course in internet-based services. These are only a few examples of a fruitful co-operation between different NMAs. There are much more examples in different parts of the world.

My conclusion of this part of my presentation is:

Although Mapping Agencies primarily serve national needs they have large experience and competence also in the international work, which they have carried out jointly. They have the know-how how to work together.

United Nations (UN) and GI

The UN and NMAs have two roles in the field of geographic information. Firstly, the policy-making role. The UN works in this field like in any other sectors of UN activities: trying to contribute to the social and economical development of member countries: to make the world better. This is work of the representatives of the governments and takes place at UN regional cartographic conferences and in the Permanent regional committees. The work on these bodies ends up to recommendations to member countries and resolutions. Very important part of these events is also exchange of information on the basis of country and other reports prepared by participants. One cannot either underestimate the social aspects of the meetings; you will become acquainted with your colleagues in different parts of the world. Representatives of most governments at these conferences and meetings come from the NMAs.

Secondly, the UN system with its all bodies is a remarkable user of Geographic Information. This information is needed to a proper management of the UN bodies. The report on the first meeting of the United Nations Geographic Information Working Group includes good examples of this. NMAs in this context are data producers and the UN bodies are clients to NMAs.

These two-folded roles can also be seen in the structure of the UN headquarters. The "GI policy role" belongs to the Statistical Division and the "user role" mainly to the Library and Information Resources Division. This is sometimes very confusing to outsiders.

Cooperation between the UN and NMAs

The basis for a good and fruitful cooperation between the UN and NMAs is excellent. Both are public governmental bodies. The representatives of governments at the UN meetings of the GI field come mostly from NMAs. NMAs produce the data which UN needs.

NMAs are willing and competent to work on the international level and they have also done so. However, because their primary tasks lie on the national level, the major use of resources to produce international products may in some cases demand a mandate from their Government. A General Assembly resolution could contribute to obtaining this mandate.

There are many regional and global spatial data projects going on in which the data produced by NMAs has a central role like the Global Spatial Data Infrastructure process and the Global Map initiative. It would be important that the results of these projects could be also used in the United Nations Geographic Database project in order to avoid overlapping of the work.

Most Governments in Europe apply so called "user pays" principle, which means in the GI field that data has a price and NMAs have a copyright to the data. I must emphasize that this is not a bad will of NMAs but an officially accepted Governmental Policy, which NMAs as governmental bodies must implement. These problems are also raised in the context of the Global Map Initiative, but I am sure that they can be solved in a satisfactory way in due course.

When the United Nations Geographic Database once is ready, there will be a problem of updating the database. This is also an area where NMAs could have a prominent role. It seems to me that they are perhaps the only bodies that can do it successfully.
It is also necessary to plan in which way this co-operation between the UN and NMAs should be organized. The UN has 189 members. It is not possible to the UN secretariat to work together with all the 189 NMAs. Therefore the work could take place through the existing Permanent Committees, which do exist already in the Asia and the Pacific region (Permanent Committee on Geographic Information Systems Infrastructure for Asia and the Pacific, PCGIAP) and in America (Permanent Committee on Spatial Data Infrastructure for the Americas, PC-IDEA). In Europe the contact organization could be Eurogeographics. For Africa, a permanent committee should be established, too.

Concluding remarks

The UN system has many bodies, which leads very easily to wasting of resources in the fields of interest common for all. Therefore I want to congratulate the Cartographic Section of the Library and Information Resources Division of the Department of Public Information for organising the meeting which led to the establishment of this Working Group. I am sure that it is possible to define a number of core data layers which are needed by all UN departments, specialized agencies and programmes and thus could be

put into one continuously updated database which would be shared by all users within the UN system.

This effort is very valuable, because in recent years geographic information issues, I dare to say, have lost their importance in the policy-making role of the UN. This has resulted in the situation where the main stream of development in geographic information issues takes place outside the UN. Maybe all the geographic information issues in the UN headquarters should be concentrated to the Cartographic Section, that is: also the policy-making role of the UN.

Of course, I can speak only on my own behalf but I am sure that all the NMAs in the world welcome this effort to create a common United Nations Geographic Database.

NMAs have an enormous amount of valuable geographic information which can be used in the creation of this database, NMAs have expertise and competence in all fields of geographic information management, NMAs have experience in working together, I am sure that it is possible to find out the ways and mechanisms for co-operation between the UN and NMAs for the benefits of both.

Panel Discussion

After the introductory speech by Mr. Jarmo Ratia, Director-General of the National Land Survey of Finland, representatives of the national mapping agencies present were requested to give their view on the collaboration with the UN in building its GI capacity. Representatives of China, Germany, France, Japan, Oman, Singapore, Sweden, United Kingdom and United States gave their respective views and a strong approval, in principle, to collaborate with the UN, but were not sure of the level of their commitment.

Other issues raised during the discussion included activities in Africa, ground control points, geographic names gazetteers, data availability from Member States, mandates and policies.

Panel Recommendations

The recommendations resulting from the panel discussion are as follows:

1. UNGIWG should continue cooperation with national mapping agencies through international organizations and regional committees, as well as on bilateral basis.
2. The national mapping agencies would look into issues related to geographic data sharing with the UN through UNGIWG, particularly, data on administrative divisions of countries.
3. The national mapping agencies would recommend to their governments to address the issue of supporting GIS activities in the UN through the UN principal organs, such as the General Assembly and the Economic and Social Council.

Keynote Speech

Keynote Speech by Mr. Tim Foresman, UNEP

The following is the position paper submitted to UNGIWG by Mr. Tim Foresman, Director of the Division of Early Warning and Assessment (DEWA) of the UN Environment Programme (UNEP), together with Mr. Ashbindu Singh and Mr. Ron Witt. The keynote speech was based on this paper.

Setting Priorities for Geographic Database Development and Use Within the United Nations

By
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Background/Mandates

Within the United Nations (UN) system, the Cartographic Section, Department of Public Information (DPI) is responsible for providing cartographic and geographic services to the UN, which requires geo-spatial information for its daily operations, from Security Council briefings to peacekeeping operations on the ground.

The UN Statistical Division (UNSD) has responsibility for organizing Regional Cartographic Conferences for the exchange of information among national mapping organisations and international scientific bodies for developing a global spatial data infrastructure. UNSD also facilitate work of the UN Group of Experts on Geographical Names (UNGEGN).

The specialized agencies (e.g. FAO, UNESCO, UNHCR, WMO and others) and programmes of the United Nations (e.g. UNDP, UNEP, UNICEF et al.) have focused activities related to thematic mapping in support of their mandates.

An inter-agency working group (UNGIWG) has been set up to bring together colleagues within the UN system to address common issues affecting the work of UN organisations in this field. A second meeting is being convened (FAO-Rome on March 5-7) to continue the dialogue addressing common issues related to Geographic Information (GI).

Introduction

The goal for "Friends-of-UNGIWG" should be to focus on the most straightforward path to promoting and sustaining spatial and non-spatial data exchange through the revolutionary options available via Web technologies. The objective is to enable the integration of spatial data into the decision-making process. With a distributed network of GIS databases, the exponential increase in information content for decision-making would make manifest the real benefits for all concerned.

In regard to GI among the UN agencies, UNGIWG has a major opportunity to construct a cooperative and collaborative approach to the future in the exchange and application of each other's data resources. Success in this area, coupled with sustainable operations, will favor the gradual development of practical and useful working relationships amongst agencies.

So what is the path for UNGIWG? Perhaps the leapfrog and piggy-back analogies should be applied. First, UNGIWG will need to leapfrog across the lessons learned from the past decade and more of the U.S. Federal Geographical Data Committee (FGDC)-related experiences and the recent experiences of the Global Spatial Data Infrastructure (GSDI). By successfully landing in the 21st century, UNGIWG could then consider riding on the back of the Open GIS Consortium (OGC), Digital Earth and other international programmes and applying the current reference standards for performance of spatial data exchange and documentation over the Web. What the UN has is both content and application need, on a grand scale that dwarfs all other national or organisational constructs. Would it not be best to focus on a clear, centrally guiding theme to define and maintain the relationship of all the UN agency representatives around the UNGIWG?

What can the Friends-of-UNGIWG do to support a small group in New York as they attempt to utilize the wealth of extant information? And what can a small group in New York offer a distributed network of geographic information stewards?

The most elegant response is that of identifying a single task to be executed which demonstrates both proof-of-concept and faith in the partnerships. This can be done within existing budgets and programmes of work, and furthermore *should* stay within these confines, if UNGIWG believes in a sustainable solution to the expressed requirements of the group.

Analysis of Issues of Import

All things are not equal, and the prioritisation of what is, and what is not, is crucial to a focused approach on solving issues raised or elucidated by UNGIWG. A geographic information infrastructure consists of many elements. Attention to these elements depends upon underlying assumptions of governance, management control and the functional requirements of the institution(s) concerned. The following elements form the *major components* of an inter-agency dialogue:

1. The Framework

The framework represents a collaborative effort to create a widely available source of basic geographic data and associated informational links. A framework is composed of communications links, institutional performances, data and information resources and the tools for access, exchange, and interoperability. Within the framework is the foundation database. The framework foundation database, also referred to as *core data sets*, provides the most common data themes geographic data users require, as well as the infrastructure and environment to support the development and use of these data resources.

The framework's key aspects are:

- a number of core themes of digital geographic data that are commonly required and used, such as **administrative boundaries, elevation, transportation, hydrographic, geodetic control, and cadastral information;**
- guidelines and technology that provide for the integration, sharing and use of these data; and
- institutional relationships and business practices that encourage consistent documentation for the maintenance and use of these data.

The framework represents, quite simply, "data you can trust" ~ the best available data for an area, having been certified, standardised and described according to a common standard. It provides a foundation on which organisations can build by adding their own more detailed data/information and compiling other data sets.

The framework will greatly improve the current situation by leveraging individual geographic data efforts, in accordance with specific mandates or regional foci, so data can be shared. The framework foundation provides basic geographic data in a common format and via an accessible environment that anyone can use and to which anyone can contribute. In this environment, organisations can funnel their resources into applications, rather than duplicating data production efforts, and users can perform cross-jurisdictional and cross-organisational analyses and operations. These are real-time transactional processes that will enable the UN-DPI office in New York, and the UN system as a whole, full-time access to a global database resource.

Digital, thematic land cover data derived from remote sensing platforms are not considered a core data set *per se*. However, its contribution to environmental assessments and temporal updating of core data sets (i.e., transportation, hydrographic etc.) requires that attention be paid to the distribution sources, pre-processing documentation and accessibility. Remotely-sensed data as such should not be included in the cartographic framework data sets.

The six (or more) core data themes provide:

- basic data that can be used in multiple applications;

- a digital cartographic base to which users can add or attach geographic details and attributes;
- a reference source for accurately registering and compiling participants' own data sets; and
- a geo-referenced map for displaying the locations and the results of an analysis of other data.

The framework is built through cooperative and collaborative efforts. A sufficient history of collaboration by international experts in all fields of spatial data and information has led to the present state of the practice. This history includes the pioneering work of the USA's FGDC, GSDI, the OGC and the Digital Earth Reference Model. The magnitude of these previous and ongoing efforts dwarfs the expertise, resources and commitment available within the UN-GIWG. Therefore, professional deference to and proper application of the results of these efforts is highly recommended.

2. Meta-data

Meta-data or "data about data" describe the content, quality, condition and other characteristics of data. Many national efforts in this field are converging to an international standard in the form of ISO/TC211. In addition, there are extant a litany of automated meta-data documentation packages, many of which are embedded in commercial GIS software. While some debate exists on the critical number of fields to be filled out for proper meta-data documentation, there exists significant agreement on the meta-data fields required for search functions and catalogue listings. Again, compliance with ISO standards would negate any requirement of UNGIWG to revisit this issue. UNEP itself, as part of developing the new **UNEP.net** global environmental information network, has chosen to use the relatively brief and straightforward meta-data set known as the "Dublin core" (see *http://dublincore.org/*).

3. Clearinghouse

A clearinghouse is a decentralised system of servers located on the Internet which contains field-level descriptions of available digital spatial data. The descriptive information, known as meta-data, is collected in a standard format to facilitate queries and consistent presentation across multiple participating sites. A clearinghouse uses readily available Web technology for the client side, and the ANSI standard Z39.50 for the query, search and presentation of search results to the Web client.

A fundamental goal of a clearinghouse is to provide access to digital spatial data through meta-data. The clearinghouse functions as a detailed catalogue service with support for links to spatial data and browse graphics. Clearinghouse sites are encouraged to provide hypertext linkages within their meta-data entries that enable users to directly download the digital data set in one or more formats. Where digital data sets are too large to be made available through the Internet or the data products are made available for sale, linkage to an order form can be provided in lieu of a data set. Through this model,

clearinghouse meta-data offer low-cost advertising for providers of spatial data, both non-commercial and commercial, to potential customers via the Internet.

The clearinghouse concept allows individual agencies, consortia or geographically defined communities to band together and promote their available digital spatial data. Servers may be installed at local, regional or central offices, dictated by the organisational and logistical efficiencies of each organisation. All clearinghouse servers are considered "peers" within the clearinghouse activity – there is no hierarchy among the servers – permitting direct query by any user on the Internet with minimum transactional processing.

By promoting the availability, quality and requirements for digital data through a searchable on-line system, a clearinghouse facility would greatly assist UNGIWG in particular, and the UN system in general, coordinate data collection and research activities. A clearinghouse also provides a primary data dissemination mechanism to traditional and non-traditional spatial data users.

4. Terminology and Data Dictionary Standards

The objectives of terminology standards are to provide a common set of terminology and definitions for the documentation of digital geo-spatial data. The standard establishes the names of data elements and compound elements (or groups of data elements) to be used for these purposes, the definitions of these compound elements and data elements, and information about the values that are to be provided for the data elements. While no universally accepted list exists for these standards, neither internationally translatable co-listings, there are some advanced achievements in this area. However, a comprehensive and "authoritatively endorsed" gazetteer for all geographic names with associated geographic coordinates would represent a clear benefit to the UN community.

The following issues are considered important, if "non-essential", for UNGIWG:

5. Training

Training is an issue of an individual's personal performance that should be delegated to the individual's professional development plan and the needs of the office. Group training is inappropriate for inter-agency collaboration; however, UNGIWG may wish to share a list of competencies recommended for the New York office. It must be noted that the web-based mapping and data access applications in existence and being developed by various friends-of-UNGIWG require minimal to no technical training. Perhaps the initiative should therefore focus on more on-site demonstrations at DPI offices in New York for awareness raising under the DPI mission.

6. Cartographic Guidance

All cartographic products should incorporate the fundamental elements of scale, projection, orientation, authoring agent and data sources. Additional elements such as

datum can be added with other explanatory remarks; however, adherence to the first set of elements should be considered essential. Each agency should maintain full control of their own style protocols. Any further cartographic guidance would be wasted on non-cartographers and redundant for trained cartographers.

Proposal for the future work plan

The scope of UNGIWG should be in meeting the specific and limited objectives of getting the UN agencies on board with common GI standards. The most important and effective activity that the **UN Cartographic Section** could do, with support from any/all UN agencies and other partners, would be to provide:

- a set of officially accredited **country boundaries data files** for the entire world, with sub-national and administrative boundaries down to county/district level where, and as far as, feasible; and
- geographic names and gazetteers for use by all UN agencies for thematic mapping purposes.

With these key "official" UN files in place, DPI could help to set the standards for:

1) spatial data interchange,
2) meta-data documentation,
3) protocol exchange and use of UN data,
4) application of decentralised UN system design, and
5) operational development of web-based IMS upgrades.

The unique mission for DPI includes the requirement to provide "authoritative" country boundary files (or maps as clients see them), which is certainly not a trivial exercise. Yet no other member of the UNGIWG-linked community has the mandate. Only UN Headquarters and DPI can set on paper "legal" country boundaries. The UN Cartographic Unit, with the appropriate Headquarters' legal and political partnerships, can give other UN agencies an official reference data set. In return, the rest of the UN can fill the needs for digital maps throughout the globe at multiple scales, and provide DPI the ability to display these in "grand style" before the Security Council and others, using IMS technology-based applications.

UNEP and other agencies can provide moral and technical support and free access to 100% of their relevant digital data files. The UN community can take advantage of this framework arrangement by tapping into a globally distributed network of UN and other agencies' data sets. Recognizing that the UN Cartographic Section has a highly visible job with minimal staff, the rest of the UN and other partners should and can help, as we seek to help our collective selves.

UNEP has just launched **UNEP.Net** and others in the UN system (e.g., World Bank, FAO) are rapidly joining the technology parade for IMS/OGC-compatible access/interoperability solutions. A truly distributed system will be based on the collegial

agreement to cooperate, the technical capacity to exchange, and the strengths and alignment of the partners to keep and sustain the design. No bureaucratic mandate or memorandum of understanding will substitute for collaborative efforts based on mutually perceived benefits and respect for the goals of the same cooperation.

Suggested Outputs of the 2nd UNGIWG Meeting in Rome

With respect to the time and energies spent to meet at FAO in Rome for the 2nd UNGIWG, the following suggested outcomes are recommended to keep the focus clear and the objectives simple. These outcomes are simply:

- develop consensus around the proposed theme; i.e., country boundaries and a gazetteer;
- develop a detailed implementation plan; i.e., who will do what and when;
- develop consensus on a suitable institutional mechanism with adequate funding for archive, maintenance, updating and exchange of country boundaries data sets; and
- develop an agreement to monitor indicators of progress during the next meeting.

Reports from Task Groups

Moderator: Ms. Alice Chow, Cartographic Section/LIRD/DPI

The following are the reports from the seven task groups, which included:
- International boundaries (land and maritime) and coastlines
- Administrative boundaries
- Cartographic guidelines
- Field operations
- Remote sensing and satellite imagery
- Metadata and clearinghouses
- Training

International Boundaries (land and maritime) and Coastlines

The task group established both short-term and long-term objectives, and its next steps.

Objectives:

Short term (1 year)

1. Recommendation of a single UN "standard" set of international boundaries and coastlines based on data sets already in use in the UN system.

   Action to be taken: Review and evaluate existing data sets from the technical and political perspectives.

2. Identification of changed boundaries and areas of uncertainty.

   Action to be taken: Compile a list of these areas and create digital files reflecting UN cartographic practice.

Longer term

Development of a complete set of international boundaries consistent with other data sets such as coastlines, administrative boundaries, topographic data, hydrography, etc.

Issues for consideration in developing the data set:
- Scale(s)/resolution
- Boundary attributes
- Metadata
- Availability (to the United Nations system and civil society)
- Maintenance
- Collaboration with National Mapping Agencies, regional organizations and other bodies

- Further discussion and feedback by e-mail
- Interface with other task groups
- Elaboration of a work plan
- Request for contributions towards implementing the work plan

Administrative Boundaries

About 30 conference participants attended the session. Institutions that were represented included the following: CIESIN, EuroGeographics, FAO, National Mapping Agency of Sweden and Germany, US FGDC, GSDI, UNEP, UN Cartographic Section, UNECA, WHO, World Bank.

In order to guide discussions, the session was opened with a presentation on the pertinent issues relating to administrative boundaries. The task group objective was summarized as follows:

> "To improve the availability of digital administrative boundaries at the second sub-national level or better through improved data exchange and co-ordination among UN agencies, national mapping and statistics agencies, and other producers of such data."

The current status on administrative units is characterized by a multitude of efforts that are currently not coordinated. This is leading to duplication of efforts and a lack of compatibility between data sets. At the same time, however, administrative boundary data availability is improving since many national census organizations are using GIS in their enumeration activities. International efforts such as the Global Map also emphasize the importance of administrative boundaries.

To obtain an overview of databases that were generated by UN agencies and related projects, Steeve Ebeners of WHO carried out an informal survey. The results are summarized in the following table and highlight the fact that considerable information already exists. The challenge is to coordinate these activities and make the information available to a broader user group.

Consequently, the primary requirement of the task group was defined as:
– development and institutionalization of a mechanism for exchange of administrative unit boundaries
– agreement on guidelines for data formats, coding and identifiers, documentation, common int'l boundaries and coastlines, etc.

UN Programmes / Agencies	UNHCR	UNICEF	UNEP	FAO	WHO	CIESIN	ESRI	Landscan
Existence of admin boundaries database	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data source	Various	Various	Various	Various	Various	Various	ESRI/?	Various
Country borders and coastlines	GIET	DCW	DCW	DCW	DCW, ADS	DCW	Various	DCW
Number of countries covered at subnational level	tbd	45	tbd	118	157	161	146	161
Total number of admin unit at the lowest level	tbd	7699	tbd	33883	37769	126000	9647	69211
Redistribution for UN agencies	Partial	Yes	Partial/?	Yes	Yes	Partial	Under discussion	No

These objectives raise various issues. Among these is the question of whether one should initially create an informal data exchange or try to get data sets officially endorsed by the originating national agencies. The suggestion was made that initially data exchange should be organized in a pragmatic, informal way, while the long-term objective should be to obtain and disseminate officially endorsed data sets.

Questions raised concerning an informal exchange include the following:
− who would build and maintain a data exchange mechanism; where would it be housed; and how would it be implemented?
− what are the benefits of having an "external organisation" maintain such a site rather than one of the UN agencies?
− should the informal exchange be accessible only to UN agencies or open to all?
− what are the relative merits of a central clearing house vs. a distributed "peer-to-peer" system?
− do we need to enforce a unique data standards or simply distribute multiple versions/formats?
− how can such activities be funded?
− what are the copyright issues?

Discussion

The presentation was followed by an open discussion of the issues raised. There was no strong disagreement to the proposed course of action outlined by the task team leaders, but a number of useful suggestions and comments were made. The most important of these are listed below:

− In addition to coordinating distribution of administrative unit databases, there would also be great value in sharing information on who is currently working on a given country or region.

− There are no complete standards for coding of lower level sub national units, so the task group should agree on a common strategy. There was a consensus that the

proposed database structure and coding scheme developed by FAO should form the basis of any such effort.

− In terms of database development, standards, documentation and dissemination, lessons can be learned from the Seamless Administrative Boundaries for Europe (SABE) project. EuroGeographics offered to share their experiences with any UNGIWG effort. Access to the SABE database itself could possibly be negotiated at a reduced price (which may, however, still be too high for non-commercial users).

− Access to the data should be as public as possible to facilitate information sharing of raw or value-added data among end users.

− Also, in terms of distribution of administrative boundary data sets, it was suggested that a multi-tier system could be established in which access to all or selected data sets could be restricted to UN agencies, or where conditions could be put in place for use of the data.

− Some copyright issues might be addressed by negotiating license agreement for free use in non-commercial applications. ESRI suggested that such an agreement might be feasible for their own administrative data sets.

− Some mechanism should be developed to deal with changing boundaries (i.e., temporal GIS issues). These could range from simply providing multiple versions of data sets for the same country reflecting multiple time periods, to a more complex, fully integrated temporal GIS database. The first of these options appears more realistic in the short term.

− Based on the experience of EuroGeographics' SABE database, the importance of ensuring compatibility of international boundaries was highlighted. Obviously there is overlap with the international boundary database project. Also, in an ideal world, internal administrative boundaries would be made compatible with physical features such as rivers which often define these boundaries. However, the effort involved in ensuring cross-theme compatibility goes beyond any resources available to this group.

− In addition to administrative unit boundary databases, village level data sets, such as those developed and used by WHO, could also be incorporated in a data exchange mechanism.

− The global mapping initiative is producing administrative boundary data sets among other themes. These should be incorporated into the clearinghouse envisioned by the UNGIWG task group.

− Africa is one of the most critical regions because of the large number of countries, the limited work being done so far by national mapping agencies in digital mapping, and the large emphasis on work in this region by many members of the UNGIWG. The UNECA representative stressed his agency's commitment to improving data holdings in the region and offered his full cooperation.

Proposed work program

Short term:

Develop a clearinghouse for administrative boundaries with the following objectives and characteristics:

- Agencies urgently need access to administrative boundaries for a multitude of applications. GIS professionals in the agencies are able to evaluate the suitability of a given data set for their tasks. Initial emphasis should thus be put on quick distribution of available data rather than on development of a "perfect" data set.

- Develop a data exchange mechanism quickly and un-bureaucratically.

- Make data sets accessible as widely as possible, but allow for the option to restrict access if the data providers do not agree to fully public release.

- Develop limited documentation and metadata in order to facilitate very quick distribution of already available data sets; the "*meta-light*" standard developed by USGS and incorporated in ArcInfo v. 8 will be the basis for data set documentation.

- Allow for multiple versions of administrative data layers for a given country (e.g., derived from different scale source maps, reflecting different points in time, or using different coastline/int'l boundary templates), thus allowing the user to select the one that is most suitable for a given task.

Medium term:

Develop an internally compatible global administrative unit database at the second subnational level based on best-available administrative boundaries for each country. An initial effort in this direction will be carried out by WHO in close collaboration with FAO and other UNGIWG member agencies.

- Agree on a common attribute data format, coding scheme and coastline/int'l boundary template.

- Select the highest quality data set for each country available from the clearinghouse or from other sources and apply these data format conventions to this data set.

- Make the resulting database widely available to UNGIWG members and other non-commercial users.

Long term:

Upgrade the global database to include data sets that were generated or officially endorsed by national mapping agencies.

Cartographic Guidelines

Discussion

As the participants discussed in general questions related to cartography and GIS, and some of the comments were purely of the purpose of creating cartographic standards for the geographic database. Other comments were directed towards map design and map production. The topics which were discussed were as follows: differences in representation of international boundaries and nomenclature between IBRD and UN world maps, geographical names, recommended projections of maps, symbology for maps and visualization for databases, representation of international boundaries, method of sharing GIS data and nomenclature data among UN family organizations, coding of attributes in GIS data file, identification of focal point for action.

Plan of actions

1. UN Group of Experts on Geographical Names. Ms. Helen Kerfoot.
   Task1: preparing the guidelines for the UN Gazetteer. (Short term, 1 year)
   Task2: proposing a solution to the difficulties of using Romanized nomenclature. (Long term)

2. Food and Agriculture Organization. Mr. Ergin Ataman.

   Task 1: identifying the projections that could be recommended to use for individual countries and regions. (Short term, 1 year)

3. The World Bank Map Design Unit, Mr. Gregory Prakas, Mr. Jeffrey Lecksell, and the UN Cartographic Section, Mr. Vladimir Bessarabov.

   Task 1: resolving the differences in representation of the boundaries (Short term, 1 year) and nomenclature (Long term) on world maps between the two organizations.

4. The UN Environment Programme/GRID - Warsaw, Mr. Marek Baranowski, and the UN Cartographic Section, Mr. Vladimir Bessarabov.

   Task 1: create samples of the legend for the UN common geographical database. (Short term, 1 year)

Field Operations

Support to field operations was understood as the provision of operationally relevant (appropriate scale, reliable, updated, etc.) baseline and thematic data (GI and not) to all the relevant actors. Emergencies operations are most often undertaken in countries where scant spatial and other data exists, where governments and their related bodies are weak or non-existent, and most important, where people's lives are at stake thus time is of essence. In all field operations, there is a core set of essential information for the undertaking of the activities. Such core sets are currently being identified.

SHARE is the basic information-reporting standard used by the humanitarian agencies today. It consists of:

- Date/time stamp (date the information collected and its frequency – date range)
- Geo-reference (region, country, 1st administrative unit, 2nd administrative unit, population centre, latitude/longitude)
- Source of information (provider – collector)
- Information about the data (measurements, methodology, terms, etc.)

Specific timelines are needed for the:

- development of some of the field coordination mechanisms;
- implementation of regional resource centres;
- implementation of humanitarian information centres linkages;
- capacity of building resource centres in the field in the region;
- possibility to jumpstart a process of data preparation within regions;
- distribution of some data sets that are becoming available to us through donors.

The actions and needs for field operations were considered in four areas, namely standards, guidelines, data providers and data storage/repository.

Standards

Actions:
- Expand the SHARE concept paper into a framework
- Link SHARE with UNDAF, CCA, etc.
- Link with ISO standards

Needs:
- Resources to complete development and publication
- Involvement in the revision and application of the standards

Guidelines

Actions:
- Complete the development of guidelines related to standards
  - o Coordination mechanisms
  - o Rapid multi sectoral assessments
  - o Pcoding
  - o Detail definition of user needs
    - Remote sensing
    - Use of GIS

Needs:
- Resources for the development and publication
- Involvement in the revision and application of the guidelines

Data Providers

Actions:
- Increased covered area
- Promote and increase information exchange

Needs:
- Formal exchange of information
- Division of areas of responsibility
- Standardization of products
- Establish priorities
- Coordinate requests

Data Storage/Repository

Actions:
- Backup of critical operational data
- Maintenance and update of operational data
- Data mirroring
- Dissemination
- Set up access/security policies
- Ownership of data

Needs:
- Sustainable capacity for data management
- Resources to initiate and maintain the above actions

There exist currently several information centres, which include the HCIC in Kosovo, the Information Coordination Centre in Eritrea, the RCIC in the Horn of Africa, the Sierra Leone Humanitarian Information Centre, and the DPKO GIS units in the Democratic Republic of the Congo, Sierra Leone and Eritrea/Ethiopia. There are five planned regional centres under development in Nairobi, Southern Africa, the Balkans, South America and Asia.

Remote Sensing and Satellite Imagery

Main issues raised

- Precise user needs based on track record and on potential applications by curent and foreseen users.
- Improve rapid access to accurate updated earth observation (EO) raw data as well as derived information.
- Enhance the use of EO-derived products to overcome licencing and copyrights constraints.

- UN as a single customer for accessing EO data, for building common standardized baseline database (avoid stand-alone agreement for data purchase).
- The need to raise awareness at senior management level within UN agencies on usefullness on remote sensing
- Improve offer in technical assistance and training services to end-users.
- Seek partnership approach between UN and Member-state cartographic authorities, National and Regional Space Agencies, Industry, Universities (including information exchange).

Priorities of action

- Drawing on the on-going inventory of needs carried out by GIST, and taking full stock of experience accumulated by FAO and UNEP among other agencies, prepare a UN system-wide review of the experience accumulated in use of EO in field operations.
- In partnership with Space Agencies, EO Industry and Research to keep UN updated on existing and forthcoming EO-based solutions.
- In cooperation with Industrial Data Providers, develop and update an UN system-wide inventory of EO data procurement in the context of field operations and compile existing procurement agreements.
- Design and implement an awareness campaign at UNHQ level, to discuss UN needs on the EO sector.

Follow-up

In close consultation with and on behalf of the UNGIWG Chair, UNHCR and UNOPS volunteer for keeping momentum among the task group, through e-communication, in order to make the action plan happen.

Metadata and Clearinghouses

Implementing metadata requires an accepted metadata standard, easy-to use, integrated systems for metadata input, storage, maintenance, search and access, effective leadership and management articulating a vision of data access and sharing, and a clear business reason to implement. If it takes too much time or it costs too much, it probably won't get done. There exist several metadata standards including:

- FGDC (U.S.) standard for spatial data metadata
- E.g. Applied subsets – in FAOMAP, ProMIS – multiple info. types
- European Topic Centre on Catalogue of Data Sources or ETCCDS
- ISO Metadata Standard 19115 (ISO/TC 211 under review – FGDC transformation/harmonization taking place)
- Dublin Core
- GLS – all types of information holdings

– Australia/New Zealand Land Information Council (ANZLIC) standard for spatial data metadata
– Canada and South Africa adopted FGDC-related standard

Conclusions

- Determine metadata elements currently used within community
- Look forward to FGDC/ISO metadata standard integration
- Identify a core minimum set of metadata fields for UN community
- Look to UN geographic focal points to identify information within each agency or organisation
- Examine parallel systems available (i.e. academia, FAOMAP, etc.)
- Use inertia of meeting to push tasks forward
- Give attention to special needs of the international community – i.e. multilingual, thesaurus
- Interagency pilot projects

Looking Forward – Tasks

1. Identify focal points – UN and international community, industry, academia and government to point to data holders

2. Survey metadata elements currently employed in UN
   - revisit last year's survey
   - strongly encourage participation

3. Adopt ISO 19115 metadata standard
   - ID core group of required metadata fields within standard

4. Begin collection of geographic information in clearinghouse
   - Identify core group to begin entry and encourage the greater group to begin entry once trial has been validated

5. Education and Training

6. Pilot Project – FAO/UNEP test of interoperability

Principles of Action

- Don't reinvent. Leverage existing work.
- Communicate.
- Keep the overall goal in mind – making data and information broadly accessible, sharable and usable. Define minimum critical data set for international community.
- Metadata and clearinghouse support this goal.
  – The business case needs to reflect the goal (i.e. don't build a business case on the basis of the importance of metadata and/or clearinghouses, but on the basis of the businesses they support.)

Summary

▪ Implementation requires four key factors: accepted metadata and transfer standards, technology supporting input and search, management leadership support, and a good business case/reason.

▪ FGDC an accepted standard, but others exist and used for spatial metadata. ISO standard soon.

▪ Metadata needed for more than just spatial data – tabular and documents. Reflected in GILS, Dublin Core.

▪ Metadata key to Data Clearinghouse and therefore access to data.

▪ Focus on OVERALL goal to improve access, sharing, broader use of data and therefore understanding.

▪ Project goal to set direction for metadata and clearinghouse implementation within UN.
   − Can leverage and learn from multiple experiences elsewhere;
   − Should look at "pilot" areas for implementation, evaluate their success, and rollout from them.

Training

Goals of the task group

It was agreed that we would return to and clarify the goals of the task group after discussion with the secretariat. The new TOR for the UNGIWG will have additional elements included to help clarify the specific goals of this group.

Evaluation of the current situation

The group agreed that it is important not to replicate effort. We identified the following existing training activities and co-ordinating mechanisms. The UN office for Outer-space affairs (OOSA) is an example of such a co-ordinating mechanism they facilitate an inter-agency meeting that publishes a directory of fellowships in Remote sensing activities. The point was made that we should consider producing the training materials in as many languages as possible.

Examples of on-going training

UNMAS reviewed a TOR for Cranfield Mine Action Programme to undertake a needs analysis.

Geneva Institute Centre – Training programme video and CD, on-site instructors.

ESRI & University Redlands – Developing 11 month masters programme in International GIS.

Many agencies undertake their own training e.g. UNECE, FAO (developing a resource tool kit to use and share info on agriculture and food security – one module on spatial data) FAO maps and satellite for early warning food and agriculture, UNEP, UNDP, UNESCO (computer based packages in scientific disciplines),

DPA in partnership with CESAR setting up an information technology lab and with the Harvard group on how to deploy databases for desk officers and senior managers.

University of Wisconsin – occasional workshops in Geo IS and emergency management. (Don Schram).

It was suggested that the group writes out to agencies and asks them to identify training and learning that already exists on the relevant topics.

Needs assessment

It was recommended that we ask the system what its training needs and priorities are in relation to Geo-spatial information. In this exercise we should also address if there is a big difference between operational projects and programme planning and management. Shawn Messick suggested one of the gaps was the lack of case study material from which lessons could be learned and learning applied. Gregory Elmes suggested a further meeting of the group alongside the International Geographical Union's Conference in Durban (South Africa) in August 2002. It was suggested that we need to help develop an understanding of the potential of the tools at project, office and country level.

It was agreed that it is difficult to know what level of turnover is in the training target group, and that this should be addressed in the training needs questionnaire. Jocelyn suggested that many of the staff were recruited with a background in the field, and therefore the nature of the input would be toward the training rather than the education side and be biased to operational and practical uses.

There were suggestions about designing training for those intervening in crisis and emergency situations, that extend beyond information and into analysis, decision making, co-ordination and management.

It was obvious from a session earlier in the day that the work of our task group will impinge on the work of all the other groups, and that we should therefore prepare a training needs assessment from activities emerging from the other task groups.

It was suggested that this group re-convenes in November 2001 in Nairobi where the 5th AfricaGIS conference is taking place. The UN Staff College offered to host any meetings as required.

The role of evaluating the learning products and programmes is important and it was suggested that the design groups should take responsibility for this and design the validation and evaluation methods when they are considering and designing the different modalities for training and development.

Nate Smith suggested that even with all the support in the community there is still a need to address the issue of resourcing and sustainability that should be discussed with the Secretariat. Perhaps with a view to a full-time position being funded.

Plan of actions

1. To report our recommendations to the plenary.
2. To meet with the chairs of each task group to get their input to the work of this group.
3. To develop a training needs analysis questionnaire to be distributed electronically through the UNGIWG.
4. To analyse the results of the questionnaires and formulate design groups for each specific programme.
5. For the task group to continue to work together and communicate through a web page.

Offers

Jean Francois Dallemand offered to provide study visits within the framework of existing projects and a copy of the Pan European Link for Geographical Information compendium guide to GI and GIS – a digital version is also available.

Gregory Elmes offered to discuss the possibility of sharing the EC distance learning modules (Utrecht).

Lenni George offered to draft the training needs questionnaire and host the web page where we could establish a forum, a link to web sites and resource material.

Summary of recommendations

1. It was recommended that we ask the system what its training needs and priorities are in relation to geo-spatial information.

2. It was agreed that it is difficult to know what level of turnover is in the training target group, and that this should be addressed in the training needs questionnaire.

3. It was suggested that the group writes out to agencies and asks them to identify training and learning that already exists on the relevant topics – and willingness to share materials.

4. The nature of the input would be toward the training rather than the education side and be biased to operational and practical uses.

5. We should therefore prepare a training needs assessment from activities emerging from the other task groups.

6. It was suggested that this group re-convenes in November 2001 in Nairobi where the 5th AfricaGIS conference is taking place.

7. There is still a need to address the issue of resourcing and sustainability that should be discussed with the Secretariat.

8. For this group to continue to work together and communicate through a web page (hosted by the UN Staff College).

Concluding Plenary Session

Chair: Mr. Hiroshi Murakami, Chief of Cartographic Section, LIRD/DPI

Discussion on Strategic Planning

There were concerns that the strategic plans emerging from these consultations would be rendered irrelevant. Mr. Nevio Zagaria of WHO emphasised that the group needed to work in a more open/transparent environment. WHO had a list of what it could make available, such as a database of 100,000 villages in Africa as well as 50,000 administrative boundaries records. WHO should be ready to promptly share what it had to avoid duplication.

It was believed that the structure and the kind of discussion in the last 3 days were not adequate. There could be a need for a smaller forum as a powerful body to be able to take executive decisions. UN agencies would nominate one meeting participant who would come to such a meeting to discuss and take decisions. In this case, not enough time was devoted to discussions. Hence, all members should revisit the outcomes of all the task group deliberations, and only after that, take decisions and make any commitments.

A need for a short-term vision was raised. Since the group had a wide range of perspectives, a constructive working environment was needed. Mr. Ergin Ataman of FAO mentioned that the short-term views expressed were compatible with the long-term vision.

In the short term, there was a lot that could be done. The group could well take the international boundaries issue up by starting with the Digital Chart of the World (DCW) and tried to modify and adapt it to the recent changes. The UN did have a lot of data, so all the group needed to do was to compile, format and start sharing it. This could be done easily in the short term if there was the will. The group should not wait for the long-term vision to materialize, as it would probably take too long. The group should start working on what was available.

Mr. Pablo Recalde of OCHA suggested another task force be created for the purpose of developing a strategic plan with the help of a contractor. He appreciated all task managers that had worked a lot during the past three days, and noted that a lot of their proposals could be carried out in the short term. After the presentation that was made to the DSG, she requested formally that the Cartographic Section and OCHA developed a strategic plan and everybody's participation was needed for that. The process towards creating a strategic plan might be a way to come to terms with various issues raised here.

In concept with the strategic development, Mr. Mick Wilson of UNEP suggested that something a little bit more radical could be done. The group could take the same operational philosophy and publish spatial data onto the net, using a fairly simple

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framework. By the next meeting in D.C., the group would be able to reach that main point if it set this as a goal. At that point, some agencies that were not motivated enough to participate now, might also decide to get on board and join the efforts.

It was reiterated by other participants that the development of the strategic plan was so fundamental that a special group should address it. Mr. Changchui He of FAO suggested that this special group should draft the first version of the plan; then circulate it to all the members for their input. It was agreed that the Cartographic Section would take the lead, but everyone had to participate. If the UN Foundation money was approved, the group could hire a consultant to help with the plan.

Another discussion followed regarding the metadata, data exchange and GIS standards that should be in place for an effective collaboration. There were calls for setting up a task group on guidelines to deal with issues such as GI standardization.

Mr. Hiroshi Murakami mentioned that each task group manager was supposed to communicate with the Cartographic Section to coordinate activities. If decided to set up another task group on the strategic plan, volunteers were needed to prepare a draft for the next plenary meeting. Such volunteers should communicate to the UNGIWG Secretariat.

It was agreed that the first objective of the strategic plan was to work out a common vision. Missions and the vision of different organizations had to be taken into account, and then a framework needed to be developed to define the strategic plan for the UN.

Closure of the Meeting

The Terms of Reference of UNGIWG was adopted. Full text can be found in Annex 2.

It was decided that the World Bank would host the third plenary meeting of UNGIWG in Washington D.C. in April 2002.

Mr. Hiroshi Murakami announced that UNGIWG had been accepted as a class A liaison to ISO/TC211.

There was no other business and the meeting was adjourned.

Annexes

1. Presentations and Papers
    (See "Meetings" section at **http://www.ungiwg.org/**)

2. Terms of Reference of UNGIWG

3. List of Member Agencies

4. Agenda

5. List of Participants

2. Terms of Reference of UNGIWG

THE UNITED NATIONS GEOGRAPHIC INFORMATION WORKING GROUP (UNGIWG)

TERMS OF REFERENCE

Background

The establishment of the United Nations Geographic Information Working Group (UNGIWG) was the culmination of several years of efforts to bring together professionals in the fields of cartography and geographic information science within the United Nations system to address common issues affecting the work of the Organization in these fields. A proposal was submitted to the Assistant Secretary-General for Policy Coordination and Inter-agency Affairs to formalize this group in the Administrative Committee on Coordination (ACC) framework. At its 16th session, the Consultative Committee on Programme and Operational Questions (CCPOQ) of the ACC considered and strongly endorsed this initiative and invited the Working Group to bring to its attention any matter requiring its support.

The UNGIWG receives support of many United Nations departments, specialized agencies, programmes and organs, as well as endorsements and pledges of support from various governmental and non-governmental organizations, research institutions and industry. This high level of interest from within and outside the system reflects the importance of this effort and the need for the United Nations to take a leadership role in this area.

Mandate

Recalling and drawing inspiration from the Economic and Social Council resolution 131 (VI) of 19 February 1948, entitled "Coordination of cartographic services of specialized agencies and international organizations", and recognizing the increasing complexity of the operational requirements and rapid technological advances that have occurred since then, the UNGIWG was established in March 2000 under the auspices of the CCPOQ of the ACC to facilitate inter-agency co-operation and co-ordination on specific issues in the fields of cartography and geographic information science.

Objectives

The overarching objective of the UNGIWG is to promote the use of geographic information within the United Nations system and Member States for better decision-making. The UNGIWG shall aim at attaining the following:

To identify and implement protocols for sharing, maintaining and assuring the quality of geographic information within the United Nations system for efficient

and cost effective use of such information with close co-operation with Member States, non-governmental organizations, research institutions and industry;

To develop and maintain a common geographic database as a crucial capacity-building effort to enhance normative, programme and operational capabilities and efficiencies within the United Nations system.

Membership

In line with the objectives set out above, members of the UNGIWG shall consist of focal points and professionals working or interested in the fields of cartography and geographic information science within the United Nations system. A focal point shall be designated by each department, specialized agency, programme and organ of the United Nations system as the voting members of the UNGIWG.

Modus Operandi

The UNGIWG shall function in a task-driven, goal-oriented and flexible manner as a network of professionals working or interested in the fields of cartography and geographic information science. Modern telecommunication technologies shall be used as a major means to facilitate this networking.

The Chair of the UNGIWG shall be the focal point of the organization elected by the voting members of the UNGIWG every two years. The organization can be re-elected. The Chair may appoint a Deputy Chair if desired. The Chair may call a meeting of focal points when necessary. The Cartographic Section of the Library and Information Resources Division of the Department of Public Information shall serve as the Secretariat of the UNGIWG.

The UNGIWG shall work through a dual process:

➢ Plenary meetings, chaired by the Chair and consisting of all members of the UNGIWG;

➢ Time-bound ad hoc task groups, set up by the UNGIWG and consisting of UNGIWG members and invited organizations outside the United Nations. These task groups, voluntary in nature, shall cease to exist after completion of their tasks.

The UNGIWG plenary meetings shall be held once a year at the invitation of its Chair after appropriate consultations. They shall in particular:

➢ establish and revise, if necessary, the short-term goals and long-term vision of the UNGIWG;
➢ identify the specific tasks to be undertaken to achieve those goals and vision;

- establish an ad hoc task group for each specific task identified, decide on the mandate and time frame of each task group, and appoint task managers of the task group;
- revise, if deemed necessary, the terms of reference.

In cases where a task is of an urgent nature and demands prompt action, the Chair shall immediately inform the members of the necessity to form an ad hoc task group and, as appropriate, invite other members to participate in the task. While all UNGIWG members have the right to accept or to decline participation in any given task group, any such group should benefit as much as possible from the participation of those members that are most concerned with the task.

Each ad hoc task group shall be responsible to fulfil the given mandate within the set time frame. In the event a task group is not able to meet the deadline, it shall submit a proposal on how and when to accomplish the task to the Chair at least six weeks before expiration of the deadline. The UNGIWG will decide on the proposal.

Participation of Non-Members

Representatives of Member States, relevant sectors of the civil society and industry with potential and specific expertise related to issues being deliberated by the UNGIWG may participate in plenary meetings of the UNGIWG by invitation of the Chair of the UNGIWG. They may also participate in the work of an ad hoc task group if required by the specific task under discussion and if so decided by the task group. Accordingly, the task managers of the ad hoc task group will invite the respective additional participants.

Reporting

The Chair, with the assistance of the Secretariat, shall prepare a report of each plenary meeting and a half-year update on UNGIWG activities, to be distributed to all members of the UNGIWG and submitted to the ACC.

The Chair, upon request by the ACC, shall attend ACC meetings and report on the activities of UNGIWG.

The task managers of each ad hoc task group shall communicate regularly with the Chair and submit results of their work to the Chair, who shall transmit the results to all members of the UNGIWG.

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3. List of Member Agencies

CEB	UN System Chief Executives Board for Coordination
DESA	Department of Economic and Social Affairs
DM	Department of Management
DPA	Department of Political Affairs
DPI	Department of Public Information
DPKO	Department of Peace-keeping Operations
ECA	United Nations Economic Commission for Africa
ECE	United Nations Economic Commission for Europe
ECLAC	United Nations Economic Commission for Latin America and Caribbean
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
FAO	Food and Agriculture Organization of the United Nations
IAEA	International Atomic Energy Agency
ICAO	International Civil Aviation Organization
OCHA	Office for the Coordination of Humanitarian Affairs
OLA	Office of Legal Affairs
OOSA	United Nations Office for Outer Space Affairs
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNCHS	United Nations Centre for Human Settlements
UNDCP	United Nations Office for Drug Control and Crime Prevention
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNITAR	United Nations Institute for Training and Research
UNMAS	United Nations Mine Action Service
UNOPS	United Nations Office for Project Services
UNSSC	United Nations Staff College
UNU	United Nations University
WFP	World Food Programme
WHO	World Health Organization
	World Bank

4. Agenda

AGENDA OF THE SECOND UNGIWG PLENARY MEETING

Date: **5 – 7 March 2001**
Place: **Food and Agriculture Organization of the United Nations (FAO)**
       Viale delle Terme di Caracalla
       00100 Rome, Italy

** All sessions are open to all except the Monday morning plenary meeting from 9:00 to
10:30 AM when the Terms of Reference of UNGIWG will be discussed. This session
will be open to UN representatives only.*

Time	Room	Activity
Monday, 5 March 2001		
08:30-12:00	http Room	*Registration and Secretariat of the meeting* *(The http Room is located on the ground floor of Building-A)*
09:00-10:30	German	**Plenary Meeting** (*UN representatives only) Chair: Hiroshi Murakami, Cartographic Section/DPI *Objectives:* − Updates from member agencies − Discuss the terms of reference and working procedures of UNGIWG
10:30-11:00	Coffee break (FAO coffee shops)	
11:00-12:30	India German	**Concurrent Session I** Task force on international boundaries (land and maritime) and coastlines Task managers: • Hélène Bray, Cartographic Section/DPI • Robert Sandev, Law of the Sea/OLA Task force on field operations Task managers: • Kyoung-Soo Eom, FALD/DPKO • Pablo Recalde, Field Information Support/OCHA
12:30-13:30	*Lunch (FAO cafeteria, canteens or nearby local restaurants)*	

13:30-15:00	India	**Concurrent Session II**
		Task force on administrative boundaries
		Task managers:
		• Uwe Deichmann, World Bank
		• Steeve Ebener, GPE/WHO
	German	Task force on remote sensing and satellite imagery
		Task managers:
		• Jean-Yves Bouchardy, UNHCR
		• Lorant Czaran, UNEP
		• Alain Retiere, RESS/UNOPS
15:00-15:30	Coffee break (FAO coffee shops)	
15:30-17:00	German	**Concurrent Session III**
		Task force on metadata and clearinghouses
		Task managers:
		Carrie Howard, ReliefWeb/OCHA
		John Latham, SDRN/FAO
		Mick Wilson, UNEP
	India	Task force on cartographic guidelines
		Task managers:
		Vladimir Bessarabov, Cartographic Section/DPI
		Gregory Prakas, World Bank
		(represented by Jeffrey Lecksell)
		Philippe Rekacewicz, UNEP
	Mexico	Task force on training
		Task managers:
		Lenni George, UN Staff College
		Robert Missotten, UNESCO
		Christophe Nutall, UNITAR
		(represented by Jocelyn Fenard)

Tuesday, 6 March 2001		
09:00-10:00	Iran	**Open Forum**
		Master of Ceremony: Changchui He, FAO
		– Welcome address by Mr. Dietrich E. Leihner, Director of the SDR and Officer-in-Charge of the Sustainable Development Department of FAO
		– Introduction by Mr. Hiroshi Murakami, Chair of UNGIWG
		– Keynote address by H. E. Mr. Robert Fowler, Ambassador of Canada to Italy
10:00-10:30	*Coffee break (Iran room)*	
10:30-12:00	Iran	**FAO Presentations**
		Moderator: Freddy Nachtergaele, FAO
12:00-13:30	*Lunch (FAO cafeteria, canteens or nearby local restaurants)*	

13:30-15:00	Iran	**Panel Discussion** (International and Regional Organizations) Moderators: Alessandro Annoni, EC-JRC Alice Chow, Cartographic Section/DPI *Objectives:* – Brief introduction by each organization – Explore possible ways of collaboration between international and regional organizations and the UN
15:00-15:30	*Coffee break (Iran room)*	
15:30-17:00	Iran	**Panel Discussion** (National Mapping agencies) Moderators: Claude Luzet, EuroGeographics Vladimir Bessarabov, Cartographic Section/DPI – Introductory speech by Mr. Jarmo Ratia, Director General of National Land Survey of Finland *Objectives:* – Explore possible ways of collaboration between national mapping agencies and the UN – Examine a draft General Assembly resolution on coordination of geographic data and services between the UN and Member States
17:00-19:00	Blue Bar	**Industry Showcase**
17:30-18:30	Blue Bar	**Reception hosted by FAO**
Wednesday, 7 March 2001		
09:00-09:30	German	**Keynote Speech** by Mr. Tim Foresman, Director of the Early Warning and Assessment Division of UNEP
09:30-10:15	German	**Task Force Reports and Discussion** Moderator: Alice Chow – Task force on international boundaries (land and maritime) and coastlines – Task force on administrative boundaries – Task force on cartographic guidelines
10:15-10:45	*Coffee break (FAO coffee shops)*	
10:45-12:00	German	**Task Force Reports and Discussion** (continued) Moderator: Alice Chow – Task force on field operations – Task force on remote sensing and satellite imagery – Task force on metadata and clearinghouses – Task force on training
12:00-13:30	*Lunch (FAO cafeteria, canteens or nearby local restaurants)*	
13:30-15:00	German	**Plenary Meeting** Chair: Hiroshi Murakami, Cartographic Section/DPI *Objective:* – Discuss the short and long term strategic plans of UNGIWG
15:00-15:30	*Coffee break (FAO coffee shops)*	

15:30-17:00	German	**Plenary Meeting** (continued) Chair: Hiroshi Murakami, Cartographic Section/DPI *Objectives:* − Decide on the venue and dates for the third (2002) plenary meeting of UNGIWG − Other business − Closing remarks

Facilities:

- http Room (Building-A lobby)
    Registration and Secretariat of UNGIWG
- German Room (C-269)
    Plenary Meeting Room, Monday 5th and Wednesday 7th
- India Room (A-327)
    Task Force Meeting Room, Monday 5th
- Mexico Room (D-211)
    Task Force Meeting Room, Monday 5th
- Iran Room (Building-B lobby)
    Presentation/Plenary Room, Tuesday 6th
- Blue Bar (Building-C, 8th floor)
    Coffee Breaks, Evening Reception and Industry Showcase, Tuesday 6th

5. List of Participants

Second UNGIWG Plenary Meeting

FAO Headquarters, Rome
5-7 March 2001

As of March 5

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