

# **CARTOGRAPHY AND GEOGRAPHIC INFORMATION SCIENCE**

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## **Report on the Fourth Plenary Meeting of the United Nations Geographic Information Working Group**

UNEP, Nairobi, Kenya 22 - 24 October 2003

## **Notes**

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## **Preface**

Following the successful establishment of the United Nations Geographic Information Working Group (UNGIWG) and its first three plenary meetings in New York (March 2000), Rome (March 2001), and Washington, DC (June 2002), the Fourth UNGIWG plenary meeting was held in Nairobi, Kenya, from 22<sup>nd</sup> to 24<sup>th</sup> October 2003, it was hosted by the U.N. Environment Programme (UNEP). 60 staff experts from the U.N. system organizations, as well as some local experts and geo-spatial industry observers participated in this meeting. Topics covered included the work progress of the Working Group as well as the review and re-organization of the Task Groups.

The 4<sup>th</sup> Plenary came 16 months after the 3<sup>rd</sup> one, and the longer period between the two meetings was a direct result of the busy period faced by U.N. agencies in the wake of the Iraq conflict as well as given the lack of progress reported by most task groups of the UNGIWG.

One of the objectives of this year's Plenary was to choose a location that would have a better reach to U.N. agencies and field offices. The presence of over 25 staff members from the Nairobi duty station as well as from other U.N. agencies, proved Nairobi to be a successful location choice.

This report summarizes the discussions and outcomes of the three-day meeting. All efforts were made to summarize as closely as possible the discussions and arguments, as well as the conclusions reached during the meeting.

The UNGIWG Secretariat wishes to express its gratitude to the staff of the UNEP Division of Early Warning and Assessment for their professional arrangements, hospitality and support extended to all 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).

After the restructuring of the ACC into the United Nations Chief Executives Board for Coordination (CEB), UNGIWG now operates as an ad-hoc interagency coordination group under the framework of the High Level Committee on Programmes (HLCP) of the CEB.

## ***Opening Plenary Session***

### ***Introduction***

The 4<sup>th</sup> UNGIWG Plenary was opened - as scheduled - in the morning of the 22<sup>nd</sup> of October 2003. The United Nations Environment Programme and its Division of Early Warning and Assessment (DEWA) hosted the Plenary, at UNEP Headquarters in Gigiri, Nairobi. The list of the participants is attached as Annex I. Representatives from CTBTO (Vienna), DPA, DPI (Cartographic Section and Map Library), DPKO (GIS Unit, the UNMEE, UNAMSIL and MONUC GIS Units), FAO, HABITAT, UNECA, UNEP, UNHCR, UNMOVIC, UNOOSA, UNOPS, World Bank, WHO, and regional office representatives of UNICEF, UNDP (Somalia) and WFP (DEPHA Nairobi) registered for the meeting, bringing the number of participating Member Agencies above 50% of the total membership once again, and making a quorum - for eventual decisions to be valid - possible.

The Co-Chairs - representing UNEP/DEWA and WHO – addressed the participants and highlighted in their opening remarks the fact that during the last period their involvement with the UNGIWG tasks was under expectations. It was noted that this was due to the fact that UNEP/DEWA management went through a transitional period in which a new Director (by default also the UNGIWG Co-Chair) was only appointed in July 2003, while the WHO Co-Chair was occupied with other urgent duties during 2003.

The newly appointed UNEP/DEWA Division director and UNGIWG Co-Chair, Mr Steven Lonergan of Canada, also took the opportunity to introduce himself to the participants.

However, both Co-Chairs expressed their continued commitment to the work of UNGIWG and promised to engage much more actively in implementing the agenda and work programme of the Group during the coming period. They also reiterated the fact the need for open, transparent and shareable databases remains a high priority, and that the role of UNGIWG is crucial in helping that become a reality in the U.N. System.

It was stated that besides getting together to coordinate, share resources and merge activities with a common goal; knowing what each agency has to offer as well as their needs is very important in the process. This makes UNGIWG much more than just a technical gathering.

The provisional agenda provided by the Secretariat was adopted with some changes. The final agenda of the Plenary, as approved, is available as annex II in this document.

## ***Reports, Keynote Speech and Introduction of New Members***

A number of reports were presented by the UNGIWG Secretariat and the different Task Group managers, highlighting the respective activities in the period between the last Plenary and this one. The session was completed by a keynote presentation by Mr David Gadsden of ESRI and the introduction of two new members (UNMOVIC and CTBTO).

The content of these reports and of the presentation is summarized below. The full reports can be found in the Annexes.

An Agency Report was also filed electronically by the FAO with the UNGIWG Secretariat, prior to the beginning of the Plenary. The report is made available online, as delivered, under the following UNGIWG web site link:

<http://www.ungiwg.org/docs/FAOreport4.doc>

### **A. Report of the UNGIWG Secretariat**

Mr Hiroshi Murakami, Chief of the Cartographic Section at U.N. Headquarters, presented the report of the Secretariat on activities related to the Working Group.

The report included follow-up actions taken since the last Plenary on some of the topics that fell into the responsibility of the UNGIWG Secretariat, including representation and participation in ISO, OGC and CEOS meetings. The report is transcribed in detail in Annex III.

It was also noted that some tasks decided during the 3<sup>rd</sup> Plenary could not be followed up by the Secretariat given the shortage in resources, among those the setting up and coordination of GI and Metadata training activities with and for the Working Group members.

### **B. Keynote Presentation (ESRI)**

Mr David Gadsden of ESRI gave a keynote presentation on practical uses of GIS in humanitarian, peacekeeping, sustainable development, environment and other U.N.-related operations, highlighted the importance of GIS in monitoring and mapping the Millennium Development Goals.

### **C. New Members Introduction (UNMOVIC and CTBTO)**

Based on an established tradition, new members are given the floor at the Plenary to introduce themselves and their geo-spatial work to the UNGIWG membership. This is important, as often there is not enough awareness of the different activities of various U.N. agencies, especially those that did not participate in UNGIWG before.

At this Plenary, The U.N. Monitoring and Verification Commission (UNMOVIC) and the U.N. Preparatory Committee of the Treaty on Banning Nuclear Test Explosions (CTBTO) were welcomed for the first time as participants, and given therefore the floor to introduce themselves.

Both delivered interesting presentations about their activities, as highlighted below.

Mr Erik van Schijndel (**United Nations Monitoring Verification and Inspection Commission, UNMOVIC**), after the introduction of his Organization, highlighted the complex and various image interpretation and processing they are working with.

Evaluated was the impact of new sources of high-resolution satellite imagery on the operations within UNMOVIC. The activities specifically highlighted were:

- Image interpretation
- Infrastructure
- GIS

The United Nations Monitoring, Verification and Inspection Commission (UNMOVIC) was created through the adoption of Security Council resolution 1289 of 17 December 1999. UNMOVIC was to replace the former U.N. Special Commission UNSCOM and continue with the latter's mandate to oversee the disarmament of its weapons of mass destruction (chemical, biological weapons and missiles with a range of more than 150 km), and to operate a system of ongoing monitoring and verification to ensure Iraq's compliance with its obligations not to reacquire the same weapons prohibited to it by the Security Council.

Within this organization (the organic structure is explained in the line diagram, see figure 1. of the presentation, available online at <http://www.ungiwg.org/>) an Imagery/GIS Unit was created to support the inspection and monitoring efforts. Within this unit a large amount of data was and is available to achieve this task. The main tools available for image manipulation and GIS are ERDAS Imagine 8.6 and ArcGIS 8.3.

Mr Robert Gough (**Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization, CTBTO**), presented his organization's relatively new setup and structure, as well as the activities where GIS and Remote Sensing are used.

It was also noted that in the past year, CTBTO was fortunate to receive support from the UNGIWG Secretariat and UNEP in obtaining quick access to needed satellite image data for their work.

Inspectors of the CTBTO are users of GIS technologies in preparing data and procedures for international inspections on suspected sites.

Such tools are used to monitor and record data from stations and collect relevant data to an international data center, and are part of a first line of “defense” in enforcing this new and important Treaty that will soon enter into force.

Only pre-approved technology can be used, and the approximately 40 inspectors have to be ready at any time to deploy for up to 30-120 days into areas up to 1,000 sq. km. large anywhere around the World, making the need for accurate support of geographic data even more stringent.

A simulated inspection in Kazakhstan and its theoretical timeline were demonstrated to the participants at the end of the presentation.

#### **D. Reports of the current Task Groups**

At the end of the Third Plenary Meeting a list of the Task Groups that would operate had been established (see the report of the previous meetings). At the time only 7 Task Groups were identified, however only 4 were present in Nairobi through their leaders, and therefore able to provide the plenary with a report. These were:

- (a) International and Administrative Boundaries
- (b) Remote Sensing
- (c) Interoperable map services
- (d) Metadata and Clearinghouses

The reports presented to the Plenary by these task groups are reported in the Annex IV.

A quite lengthy discussion followed the presentation of the Task Group reports, with the objective of deciding an ideal way of breaking out into discussion groups.

Opinions were expressed about the high number of existing tasks that fragment the small number of active members able to deal with them, and it was suggested that a smaller number of tasks should be identified for the coming period, and that the participants should break into a maximum of 2 or 3 discussion groups only and address the categories of topics identified.

Areas of work and topics should include international and administrative boundaries, remote sensing, interoperable services (registries, map services, metadata clearinghouses), hydrological and other global layers of primary importance, sub-national statistical data representation. Gaps should be identified, as well as core data priority needs of agencies should be determined for the next 12 months.

It was finally agreed to divide the participants into 3 groups (Remote Sensing, SALB and International Boundaries, Core Geo-database) for a first round of breakout sessions, and then re-combine into another 2 groups (Interoperable Services, GIS Map Production Guidelines) for the second, afternoon breakout sessions.

The breakout sessions were lengthier than in previous plenary meetings and gave participants opportunities for extended and detailed discussions on the respective topics.

Each discussion group then reported back to the Plenary a summary of their discussions.

## **E. Reports from the Breakout Discussion Groups**

The reports delivered to the Plenary by the discussion group conveners after the breakout sessions are attached - as provided - in annex V. to this document.

### ***Closing Plenary Session***

#### **New Task Groups: Work Plans and Schedules**

As requested at the beginning of the plenary meeting on 22<sup>nd</sup> of October, a good time was dedicated by the Plenary on the last day to define and perfect a new Task Group structure for the UNGIWG. The inputs and conclusions that came out from the breakout discussions were extensively used.

The need to re-organize was also important given the fact that many of the earlier-established tasks could not be followed up properly. It was felt that a smaller number of concrete and achievable tasks, better grouped and according to concrete commitments by the different Agencies, could be the best way forward. The result of this discussion has been materialized in 5 (five) Task Groups.

A debate took place on how exactly to best group the identified tasks, and led to a commonly agreed setup that is detailed below. The Plenary then continued with identifying the membership for each new Task Group.

The new Task Groups then went into short separate sessions to identify and agree on a work plan, deliverables and time frames for the next period until the end of 2004.

The Plenary re-convened later to approve the work plans presented by each Task Group, and Task managers were introduced as selected. Comments and suggestions were noted as the different work plans were introduced.

Each of the approved Task Groups and their work plans - as agreed upon in the Plenary - are described in detail in Annex VII.

#### **Recommendations, Other Issues and Closing of the Meeting**

The Plenary has adopted a number of proposals concerning the reorganization of the task groups. This has been materialized in the reduction of the number of task groups forming the UNGIWG.

The Plenary also adopted a proposed **grouping** of the task groups in two main categories, **Core Data and Standards**, as well as the increased role of the two Co-

Chairs in overseeing the progress of task groups in the two categories (Core Data by the WHO Co-Chair, Standards by the UNEP Co-Chair).

These two elements have been synthesized in a figure that illustrates the new operational structure for the UNGIWG (see Annex VII.). In this new structure the different task groups work on the generation of recommendations and agreements for the members of the UNGIWG.

In this regards, the Plenary has also accepted to recognize the **SALB coding scheme** as a UNGIWG recommendation and to encourage the submission of the SALB scheme to ISO/TC211 for adoption as an international standard at a later stage.

The Plenary also adopted a **statement proposed by the Remote Sensing Task Group** (see the full text below in Annex) inviting a broader list of conditions to be allowed in order for the U.N. to make use of some Space Agencies' **International Charter on Space and Major Disasters (Charter)**. The plenary recommended that U.N. OOSA convey this statement to the Charter as soon as possible.

The Plenary also discussed a point raised by Ergin Ataman during the breakout discussion on International Boundaries (see Annex IV). Geographic representation of Disputed Areas and other Political Anomalies (DAPA) maps has been an important issue and no central point with a mandate to clear such maps exists within the U.N. system. For FAO there has to be one central office for clearing such maps, as each U.N. agency cannot set up its own clearance mechanism. FAO suggested one more time the UNCS to be this unit as they already have the responsibility for clearing such maps for the U.N. Secretariat and the Security Council. UNCS delegate then noted that even though UNCS is committed to pursue its effort on developing an International Boundaries dataset, it is extremely difficult, legally speaking, to have an official U.N. stamp on this dataset. It was even do agreed that Mr Murakami would seek legal advise on this issue. This task has been included in the action list of UNGIWG.

The Plenary agreed that a **press release about the meeting** should be drafted and released by the Co-Chairs and the UNGIWG Secretariat in order to improve outreach of the Working Group and inform the geo-spatial community inside and outside the U.N. System about the outcomes.

The World Health Organization Co-Chair, Mr Nevio Zagaria, proposed that the next UNGIWG Plenary be hosted by the WHO in Geneva, as a natural follow-up to this year's hosting by the other Co-Chair organization, UNEP. The tentative timeframe proposed, considering also the fact that at least a year's timeframe should be allowed to lapse between two meetings, was the month of October of 2004, with the exact dates to be determined at a later stage.

There was no objection raised to this proposal and it was therefore unanimously adopted by the Plenary. The host organization, WHO, together with the UNGIWG Secretariat will take the necessary steps for the organization of the next Plenary, as needed.

The Co-Chairs and participants expressed their thanks and gratitude for the host of the meeting, and for the excellent arrangements and hosted dinner provided.

The 4<sup>th</sup> UNGIWG Plenary concluded on Friday the 24<sup>th</sup> at 17:30.

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## ***Annexes***

## I. List of Participants

The list of participants was compiled from online records resulting from the registration process. There is no specific order in the below list therefore, other than the order of registration and a re-sorting based on agency names as provided at registration.

<b>Nr.</b>	<b>First, Last Name</b>	<b>Agency / Group</b>	<b>Sector</b>	<b>E-mail address</b>
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57	Gregory Prakas	World Bank Group	U.N.	gprakas@worldbank.org

## **II. Adopted Agenda of the 4<sup>th</sup> Plenary Meetings**

Available online (link below) with the last significant changes agreed upon after the start of the Plenary included:

[http://www.ungiwg.org/docs/agenda\\_4th-final.pdf](http://www.ungiwg.org/docs/agenda_4th-final.pdf)

### III. Report of the UNGIWG Secretariat

The Chief of the U.N. Cartographic Section, Mr Hiroshi Murakami, presented the report.

Several topics and activities of the UNGIWG Secretariat since the last Plenary were highlighted.

On the **UNGIWG Web Site operation** – apologies were relayed given the numerous downtimes during the last year. It was explained that hardware was upgraded thanks to a UNEP contribution and UNEP New York Office is hosting the new web server. The Cartographic Section manages and administers the server. The Enhancement of the UNGIWG web site is ongoing, but contributions from all Members would be welcomed and are needed, especially from the task group leaders!

On the **UNGIWG Mailing List**, it was explained that following anti-virus and anti-spam upgrades at U.N. Headquarters, sending messages from outside became suddenly impossible. U.N. ITSD was notified but unable to solve the problem. While troubleshooting is ongoing, it was considered using another server as the mailing list, placed outside the U.N. HQ ITSD management, or on the UNGIWG web server.

On **Liaison Activities**, the Secretariat participated in a number of relevant meetings as those of the Open GIS Consortium Technical and Planning Committees in Annapolis (NASA hosted) and Dulles (Intergraph hosted) in 2003.

The ISO/TC211 Plenary and Editing Committee meetings were also attended on behalf of the UNGIWG in South Korea (Nov. 2002) and Switzerland (May 2003), the latter in joint representation with UNEP/GRID Geneva.

Staff also participated in CEOS/WGISS technical meetings in Alexandria (Sept. 2002, NASA), Toulouse (May 2003, CNES), and Bangkok (Sept. 2003, NASDA / GISTDA).

With Regard to the **Chairs of the Working Group**, it was recalled that after the last UNGIWG Plenary, UNEP and WHO nominated as the Co-chairs Mr Daniel van Claasen (as acting DEWA director) and Mr Nevio Zagaria for WHO respectively. In August 2003, Mr Steve Lonergan, was appointed as the new UNEP/DEWA director, took over the UNEP Co-chair position. The Co-chairs were elected for a period of two years, until the 2004 Plenary.

On the **Terms of Reference (ToR)** for the Working Group, an option to accept formal liaison with external organizations (as needed) was included in the revised draft, but comments were still needed from the Membership on all the proposed and incorporated changes. The draft document is available since February 2003 on the UNGIWG web site for consultation, and no negative feedback was received. The ToR document still needs a formal approval by the Plenary to be considered accepted and valid.

On the **Report of the 3<sup>rd</sup> Plenary Meeting**, a draft version has been posted since December 2002 on the UNGIWG web site, for review and any practical use as needed. No comments or suggestions to improve that draft were received, while the Co-chairs requested the refining of the contents. All revisions, corrections, and proofreading were done at the Secretariat, and an Official U.N. document number was provided the U.N. DPI. The final version - as sent for printing – was posted online since 22<sup>nd</sup> September 2003. Acknowledgements were relayed to UNEP for printing the report prior to the 4<sup>th</sup> Plenary Meetings.

On the **Action Items Outstanding**, metadata training for the Membership was mentioned, noting that no formal requests were received from Member Agencies. Also, no funding for the UNGIWG Secretariat to take concrete actions was available, so no concrete approach exists so far therefore.

The Secretariat received offers from the ISO/TC211 Advisory Group on Outreach to support training in standards, metadata for U.N. staff. There would be a need in this sense to define suitable (U.N.) events to link such training with, so that wider U.N. presence is leveraged to maximize the benefits.

Finally, it was noted that the **transfer of Cartographic Section to DPKO** was scheduled to take place in January 2004, pending still a formal approval by the U.N. General Assembly. Preparations were however in progress for this transfer, and the Section offices were relocated from the Library to another building (DC1). It was also emphasized that the Cartographic Section will continue in its role as the UNGIWG Secretariat.

Expressing special thanks to UNEP once again for their role and efforts in hosting this Fourth UNGIWG Plenary concluded the Secretariat Report.

## **IV. Current Task Group Reports**

### ***International and Administrative Boundaries Task Group***

#### ***International Boundaries***

The report of activities was presented in the form of a brochure distributed to the participants. The major outputs mentioned in this document are:

- A second version of the International Boundaries dataset at 1:1 million has been made available on the UNGIWG web site.
- Comprehensive studies for each international boundary has been undertaken in order to better correct the depiction of international boundaries and to better answer queries.
- A list of international boundaries disputes and other geo-political anomalies has been established.
- Cooperation with the SALB project and FAO has been strengthened which allows keeping both dataset compatible and developing a polygon version of the International Boundaries dataset.

#### ***Administrative Boundaries; SALB project***

Detailed report of activities being regularly posted on the SALB web site (project overview page) and sent to the UNGIWG members (last one in June 2003) the objectives of the presentation to the plenary were:

- to describe what is new since the last report and the progresses made since the launching of the SALB project (2001);
- to discuss how we could in fact move forward in order to fill the gaps;
- to present some lessons learned since the launching of the SALB project.

The slides presented will also be posted on the SALB web site.

The discussion about how to move forward in fact took place in the context of the task group breakout and will then be discussed in chapter 2 of this document.

#### ***What is new***

The major improvement recently operated concerns the SALB codes download page where users can now download one single file by country that contains all the information collected in the context of the SALB project, this includes (when available):

- the list of administrative units names as observed in January 2000 (118 countries as of October 2003);
- the historic changes observed at the 1<sup>st</sup> admin level since 1990 (83 countries);
- the historic changes observed at the 2<sup>nd</sup> admin level since 2000 (82 countries);
- key correspondence table.

Compare to the situation observed at the launching of the project this represent an increment of 99 countries for the situation observed in January 2000 and 83 countries for the historic changes as this information was not part of the project at its launching.

The second new element concerns the codification of all the historic changes posted on the SALB web site following the protocol created for the context of the SALB project (downloadable from the web site).

The next major step achieved is the finalisation of a Memorandum of Understanding (MOU) that help us have access to digital maps owned by institutions ready to give their digital map to the SALB project but willing to keep their copyright on the original data. This MOU already allowed us to have access to the map created by CIAT and we are currently in discussion with the Organization in order to get other maps.

At the time of the meeting in Nairobi, we were authorised to use maps for 141 countries which represents an improvement of 24 compare to the situation at the launching of the project. It was specified one more time that having access to a map does not necessarily mean that this map is up-to-date. Maps have been sent for validation to the National Mapping Agency (NMA) for 46 countries (+24 since the launching) and we have received validation for 16 of them.

The letter sent by Brenda Brookes (U.N. map Library) to the NMA; requesting them to inform us when a change is taking place in the country in terms of administrative boundaries as well as regarding the NMA contact information are giving good feedback as 92 NMA were contacted and already 39 of them have positively answered to this request.

It was finally mentioned that new support to the project were received through its mention in different news letter including the one from: ISO, FIVIMS, GSDI; ESRI.

### ***Lessons learned***

The first one concerns the network that it has been possible to create, which now includes more than 50 U.N. and non-U.N. institutions (without counting the NMA) contributing at one step or the other in the process. We think that this represents a good example of collaboration and co-ordination that could maybe be applied to other layers of reference.

The second lesson learned concerns the poverty of the meta-information generally available when dealing with administrative boundaries layers. Big gaps concerning the source, redistribution rights and representatiion continue to be observed. This unfortunately generates a large amount of time lost for searching this information.

Finally, the important variety of layers collected in the context of the SALB project made us use some layers of reference for the homogenization of the data set. This was mainly concerning the coastlines, international borders and river networks that are used for reference for the administrative boundaries. Using the global mosaic of satellite images recently available (Landsat) an estimation of the validity of the layer of reference has been done. The conclusion of this analysis is that we should think about defining a "master" that would be used as a ground reference. In addition to allowing a better homogenization of the administrative boundaries this master would also facilitate the integration of all the data collected/digitized at all the levels (local, national, regional, global).

### ***Remote Sensing Task Group***

#### **Report to the 4<sup>th</sup> UNGIWG Plenary on activities from July 2002 to September 2003**

The various participants in the Task Group on Remote Sensing have made progress in several areas of priority within their respective organizations and carried out several joint undertakings, not always in a formalized and coordinated manner through the UNGIWG. The Task Group recognizes that it can improve the way it works as a Group and should in the coming year pursue selected objectives towards a common benefit for the UNGIWG.

A detailed list of the various Remote Sensing activities within individual U.N. organizations is included in the annual "Report of the Secretary-General on the coordination of space-related activities within the United Nations system", coordinated by the U.N. Office for Outer Space Affairs (U.N. OOSA), the Task Group sees little additional benefit to list in detail the activities by each participant in this common report of the Task Group on Remote Sensing. However, to inform the UNGIWG of selected key milestones during the last year, the Task Group nevertheless would like to pay attention to the following developments.

### **Cartographic Section**

The Section was invited and participated in evaluating 8 complex bids for a UNHQ high resolution satellite imagery System Contract initiated by DPKO and UNMOVIC. Several technical meetings with DPKO, UNMOVIC and the Procurement Division were held in the last 12 months, in addition to the evaluation of bids done together with DPKO. The Cartographic Section tried to promote the common interest of the UNGIWG as well as easier satellite image data sharing and flexible licensing for the outcome of the contract.

The Cartographic Section was also invited to work with and participated in the last 3 (since June 2002) Technical Meetings of the Working Group in Information Systems and Services (WGISS), Committee on Earth Observation Satellites (CEOS). It acts as Task Manager for the Global Datasets Task Team in WGISS and the Section representative was recently invited to take on the role of the User Vice-Chair of WGISS.

With the dedicated support of UNEP/GRID Sioux Falls, a large number of individual “base-line” satellite imagery were provided to DPKO, UNMOVIC, UNAMSIL, IAEA, CTBTO and WHO. This included approximately 650 ASTER scenes. In addition, the Cartographic Section supported DPKO in purchasing Landsat ETM Ortho scenes covering all operational areas of DPKO in Central and Southern Africa. The data was also shared with other U.N. agencies, thanks to the agreement of DPKO.

The Cartographic Section facilitated the purchase of individual Landsat ETM Ortho scenes of Iraq, which were partially used by private companies to develop a 15 m. mosaic of the country. This mosaic was in return freely shared with the Cartographic Section, and subsequently with UNMOVIC, OCHA and UNEP Geneva/Cambridge/Sioux Falls offices.

The entire Landsat Africa dataset (over 900 scenes) was shared with a number of NGOs in Southern Africa who would further disseminate these scenes in their region.

Finally, thanks to financial backing from UNEP/WCMC, the Cartographic Section helped procure the entire NIMA DOI10 (SPOT 10 m. resolution, Orthorectified Pan) dataset. This mosaic covers areas in North America, most of Europe, Middle East and parts of South-East and East Asia. The data was also widely shared with other U.N. Agencies.

#### **U.N. Office for Outer Space Affairs (U.N. OOSA)**

A key milestone was the successful negotiation with the members of the International Charter Space and Major Disasters (the Charter), to have the United Nations accepted as a Cooperating Body of the Charter. U.N. OOSA coordinated this inclusion of the U.N. through regular telephone conferences with a wide range of U.N. agencies and meetings held in Vienna and Geneva.

On 1 July 2003, the Charter was made available to support all United Nations agencies with a unified system of space data acquisitions and delivery to those affected by natural or man-made disasters. This means that the U.N. can receive free satellite imagery through the Charter by following the routines already in place to activate the Charter. It should be noted that the Charter does not commit itself to provide free value adding services, which are needed to make use of the imagery, but have in many cases nevertheless taken on this as well. U.N. OOSA maintains a list of U.N. agency focal points who can trigger the Charter and maintains an operational 24 7/7 service to ensure that requests for Charter activations are forwarded to the space agency operator on duty without delay. To date, the Charter has been triggered only once by the U.N. (the Nepal floods and landslides in August 2003, activated by UNOPS / UNOSAT).

### **U.N. High Commissioner for Refugees (UNHCR)**

UNHCR continues to explore how remote sensing can best be applied to support its mandate towards protecting refugees. The Geographic Information and Mapping Unit (GIMU) has started to use ASTER imagery for general mapping of refugee hosting areas and environmental assessments and the Iraq emergency, in collaboration with UNEP/Grid Sioux Falls and UNOPS/UNOSAT. In addition, UNHCR is evaluating the use of very high resolution imagery from Ikonos and QuickBird for improved camp management and as support to registration exercises in collaboration with Metria, affiliated with the Swedish Ministry of the Environment.

With the new registration initiative, PROFILE, UNHCR will develop a system that will include geographic information as a part of the overall registration database. This allows UNHCR to account for the spatial distribution of its beneficiaries down to family level, as one can combine the use of GPS and very high resolution satellite imagery to produce for example detailed thematic maps of the internal camp distribution of children fewer than five years, single elderly refugees, girls within school age etc. UNHCR is deploying considerable effort in incorporating remote sensing as part of its standard GIS activities.

A new project initiative, in collaboration with UNOPS, will use satellite imagery at camp level coupled with other geographic information to support site managers, but also aggregate data to country and regional level, so that one can apply the right scale of information for various refugee-related assessments.

### **United Nations Office for Project Services (UNOPS)**

During the last year, the UNOSAT service has become fully operational. UNOSAT is a United Nations initiative aiming to expand direct access to satellite imagery through the Internet and other multimedia tools. UNOSAT's overall goal is to facilitate physical planning and programme implementation by local authorities, project managers and field personnel, working in emergency response, disaster management, risk prevention, peacekeeping, environmental rehabilitation, post conflict reconstruction and social and economic development.

UNOSAT is a UNITAR project executed by UNOPS relying on a U.N. - Private consortium established in collaboration with the European Space Agency (ESA), the French Space Agency (CNES), the European Organization for Particle Physics (CERN), the EC Joint Research Centre (JRC), SPOT Image, INTAS Space Turk (previously known as Space Imaging Eurasia) and value-adding companies Digitech Int. and Gamma Remote Sensing.

UNOSAT's website provides users with easy access to browse available imagery and other GIS information in the database, but also to launch requests for new data and follow the status of ongoing projects. Being open to the full U.N. community, UNOSAT is supporting a wide variety of agencies. Key projects have been/are carried out together with UNEP's Post Conflict Assessment Unit (Afghanistan), UNDP BCPR (Conflict Maps), OCHA (monitoring the West Bank separation wall, Matagalpa/Nicaragua landslide risk assessments), UNITAR (Benin) and UNODC.

As the first U.N. agency to trigger the Charter, UNOPS/UNOSAT assisted OCHA and UNDP with satellite imagery and in-house produced derived products for the August 2003 floods and landslides in Nepal. The methodology developed for the U.N. to activate the Charter worked very well and UNOOSA's role as focal point for the U.N. deserves recognition.

UNOSAT has signed satellite image discounts agreements with SPOT Image (starting at 20% (SPOT 5), 30% (SPOT 1-4) and 35% on ERS and ENVISAT radar data) and INTAS Space Turk (starting at 15% for Ikonos data, but with U.N. wide license for the price of a single-user license). UNOSAT is continuing to explore improved data agreements for the benefit of all U.N. agencies.

**Suggested activities for the Task Group on Remote Sensing to focus on for the next Year (2003-2004)**

1. Collect shareable satellite imagery, notably Landsat 7 and ASTER, but also others, located in individual U.N. agencies' servers to a single point of entry for easy access to the whole U.N. community. Updated notifications to this database could be automatically sent to all interested parties. UNOPS offers to co-ordinate this effort and host this database on its already operational UNOSAT web server at no extra cost to the U.N. Sharable images uploaded will be freely available for download.
2. Develop an inventory of which organization has which expertise/field of specialization in remote sensing. This could be done at various levels, such as HQ, Regional and Country. UNOOSA offers to help in this endeavor.
3. Explore how all U.N. agencies could be listed when purchasing multi-user license imagery. It is proposed that all UNGIWG member organizations automatically submit a list of all U.N. agencies when specifying the users of multi-license data. UNOPS offers to assist with this undertaking.
4. Continue to work on improved data agreements for the U.N. family.

### ***Interoperable Map Services, Metadata and Clearinghouse Task Groups***

Developments related to the work of the Metadata and Clearinghouses Task Group as well as that of the Interoperability and Technology Task Group from the perspective of WHO, WFP, FAO and their respective field programmes were reported on in a presentation by Jeroen Ticheler, FAO.

#### **Metadata development**

FAO presented a first draft metadata profile based on the ISO19115-Draft International Standard for Geographic Metadata at the UNGIWG meeting in Washington in 2002. FAO has continued working on that draft proposal, closely following the developments at ISO/TC211. In March 2003 the ISO19115 Metadata standard was released as International Standard.

ISO/TC211 started the development of an implementation standard based on ISO19115, known as ISO19139. FAO used ISO19115 and ISO19139 draft version 0.7 as the basis for its new version of the metadata profile. The second draft metadata profile is formatted as an XML Schema, ensuring full compatibility with the ISO19115 standard and thereby interoperability.

#### **Interoperability and clearinghouses developments**

The concepts and standards used by FAO, WFP and WHO in implementing their Spatial Data Infrastructure through GeoNetwork, as well as the current status of their implementation was presented.

The Working Group organizations work towards a Spatial Data Infrastructure that is based on the standards developed by the ISO/TC211 on Geographic information/Geomatics and the OpenGIS Consortium, more specifically the ISO 19115 Metadata standard and the OpenGIS Web Map Services and Web Catalog Services specifications. GeoNetwork for example uses OpenGIS Consortium compliant dynamic map services, it allows for distributed maintenance and ownership of spatial data and provides easy to use tools to accomplish data sharing and use.

GeoNetwork is developed as Open-Source software, allowing it to be freely downloaded and installed by anyone interested in sharing spatial data.

The application consists of:

- a web based metadata catalog application for publishing of spatial data (metadata editing, management, searching functions);
- a web based interactive map viewer application, InterMap. This application allows combining of Web Map Services from distributed servers through a website;
- an integrated Web Map Server, based on the Open Source Degree Web Map Server.

GeoNetwork can be downloaded from <http://sourceforge.net/projects/geonetwork>. Currently FAO and WFP are actively setting up nodes in projects and in country- or regional offices.

Other tools that are used in the spatial data production environment are for example the ESRI ArcIMS, ESRI ArcSDE Geodatabase and ESRI ArcMap.

## **V. Reports to Plenary from the Breakout Discussion Groups**

### ***International Boundaries Discussion Group***

Even if most of the discussions regarding the continuity of the management and update of the International Boundaries data set took place in ad-hoc discussions rather than during the breakout discussion group's discussion took place regarding the difficulties of having and distributing an official international boundaries dataset from the cartographic section.

In this context, Ergin Ataman, reminds the participants that Geographic representation of Disputed Areas and other Political Anomalies (DAPA) maps has been an important issue, as no central point with a mandate to clear such maps exists within the U.N. system. U.N. Cartographic Section (UNCS) at NY HQ has been clearing such maps for the U.N. secretariat and the Security Council. With the advent of the Internet, this issue has become even more important as it allows widespread dissemination of many maps which include DAPA.

All the U.N. agencies and the SALB Project have started to use the International Boundaries 1:1 000 000 scale map prepared by UNCS and it has now become a de facto UNGIWG standard. With FAO's preparation of its polygon version which had to include codes and attributes also for the DAPA, the clearance of DAPA maps had to be addressed by the UNGIWG plenary. Therefore the FAO delegation raised the issue at the meeting. FAO's point was that there has to be one central office for clearing such maps, as each U.N. agency cannot set up its own clearance mechanism, which would lead to divergent representations of the DAPA and duplication of effort. FAO also suggested that the unit best positioned for this purpose would be UNCS as they already have the responsibility for clearing such maps for the U.N. Secretariat and the Security Council. UNCS expressed skepticism about the possibility of extending the mandate of the section and therefore no decision was taken at this stage of the meeting.

### ***Administrative Boundaries Discussion Group***

The objectives of the Task Group Breakout were to:

- identify possible mechanism in order to fill the gaps;
- discuss the possibility of presenting the SALB coding scheme to ISO;
- confirm the reasons for continuing the International Boundaries task related activities (this item was accepted by default given its importance).

#### **Filling the gaps**

A table containing the list of countries for which difficulties have been encountered was distributed to the participants. This list was divided into 3 categories:

- 1) NMA contact information as there are some countries for which we:
  - do not know about the contact information of the National Mapping Agency (NMA);
  - have difficulties to get feedback from the NMA;
  - have faced a negative answer regarding our request for information.

In this case we were looking for institutions that have a project or an office in these countries and would accept to be the intermediate between us and the NMA.

- 2) Delimitation of specific administrative units that we are missing in order to update the maps available for some countries. Here we are looking for jpg files, paper maps or even better shape files that would contain the delimitation of these units.

- 3) Countries for which we are missing the full map as it happens that:
  - those for which we have found no map so far;
  - we have found a map but we have difficulties with the redistribution rights (no information or under discussion);
  - we have a map but a too large number of units are missing in order to update the map.

In this last case, we are looking for paper maps or shape file that could be used in the context of SALB. The number of units, when known) is indicated in the last column.

Some of the participants were directly able to provide possible source of information or proposed their help in order to fill the gaps.

For the remaining countries it has been proposed to that a specific page is created on the SALB web site that would list these needs including also the list of countries that are ready for editing in case one institution would be able to free some GIS technician time. This proposition has been accepted and included in the coming year work plan.

### **The SALB coding scheme**

It has been recently proposed that a discussion takes place in order to know if we should not present the SALB coding scheme to ISO in order to perhaps replace the actual sub national coding scheme distributed by this Organization (ISO 3166 – 2, Codes for the representation of names of countries and their subdivisions. Part 2: Country subdivision code).

Taking advantage of this meeting the participants of the group breakout were asked to give their feedback on this idea.

The feedback was positive and it was in fact proposed to first ask the plenary of UNGIWG to recognize the SALB coding as one of its recommendations and then to present it to the U.N. Statistics Commission.

### ***Remote Sensing Discussion Group***

Mr Jean-Yves Bouchardy and Mr Lorant Czaran briefly summarized the discussions. The group highlighted the need for a coordinated approach to document existing purchased high-resolution imagery at U.N. Agencies, to facilitate sharing and cost reductions. UNOSAT offered a service to register and search for such imagery metadata.

Agencies participating in the discussion group presented their remote sensing activities and data needs. It was also concluded that often more than one U.N. entity purchases high-resolution satellite imagery without knowing that the same imagery is already available at another U.N. Agency and could be therefore shared for a much lower cost. The group hoped that such duplication could be avoided in the future, with good cooperation and arrangements in place.

Many Agencies noted that they had to outsource image-processing jobs due to the fact that they lack the internal expertise, or that they only use medium and low resolution, freely accessible imagery for now.

The global Landsat imagery was also the topic of a lengthy discussion, as the group explored possibilities for better access and exploitation of this public imagery data set. It was also expressed that better information on upcoming CEOS events, as well as imagery purchase contracts should be circulated, and that the International Charter information should be made available to the Working Group.

Suggestions were made to schedule periodic teleconferences and setting up of a remote sensing mailing list for the interested members.

The concrete actions for the following period will be identified in the work programme of the continuing Remote Sensing Task Group, to be agreed upon the following day.

### ***Core Geo-database Discussion Group***

The breakout discussion for this new Task Force took advantage of the different participants to make a list of the global framework core data layers that could complement the one already under process for the international and administrative boundaries.

A first round table allowed the identification of 23 layers of interest to the participants (see table below).

A survey was then done among the participants in order to identify the level of priorities of treatment as well as the scale of work of interest.

The top 3 priority layers that came out of this small survey were:

- transportation network;
- population centres / gridded population density;
- hydrography / Hydrology / drainage network.

In terms of scale the needs of the participants were varying from 1:5 M down to 5 K depending on the layer and area of work of the institution in question.

As some of these layers were part of the priority list of FAO, Ergin Ataman accepted to become the task manager for that group with the objectives to:

- a) Make an inventory of the data layers selected by the UNGIWG Plenary. A first quick inventory will be completed by the end of January 2004.
- b) Based on UNGIWG comments on the results of the above inventory, a second more in depth survey will be made in May 2004, which will include also data available from commercial sources. The results of the survey will be evaluated for the resources required for preparing the maps/data layers for U.N. system use. Scale and data interoperability issues will also be evaluated. VMAP level 1 database will be considered as a potential base for the core data layers. A report summarizing the above will be submitted to UNGIWG for selection of the layers and for securing the financial resources needed.

These elements formed the list of task to be accomplished by this task group for the year to come.

### ***Interoperability Services Discussion Group***

The discussion of the breakout task group focused on three main topics:

- 1) The standards related to Interoperability were briefly discussed. It was concluded that a recommendation to the U.N. agencies should be made on what standards to support. The task group recommends that the following standards to be supported:
  - ISO 19115 metadata standard to describe spatial data;
  - OpenGIS WMS 1.1.0 specification for Image Web Map Services to access spatial data interactively;
  - OpenGIS CAT 1.1.1 specification for Catalog Services to search for spatial data. More specifically the Z39.50 profile.

Furthermore it is recommended that U.N. Agencies consider implementing standards from the ISO/TC211 and specifications from the OpenGIS consortium wherever possible to ensure smooth transfer to a more comprehensive Interoperable infrastructure.

- 2) A discussion on the goals of the task group for the coming year. It concluded that the task group should focus on assisting U.N. partners in their implementation of Interoperable technologies. See the work plan and schedules section.
- 3) A U.N. metadata profile based on FAO's work in this area was discussed. Common agreement was that UNGIWG will use the FAO profile as basis for further development of the profile. This resulted in action points as listed in the work plan and schedules section.

### ***GIS Map Production Guidelines Discussion Group***

There was only a brief report presented by Mr Ergin Ataman, pointing out that the guidelines are necessary for the development of the Working Group and that FAO together with other participants in the discussion will further revise and present a plan the following day to create a new task group.

## VI. New Task Group Work-plans

### International and Administrative Boundaries Task Group

#### Objectives

- 1) Provide a usable standard worldwide boundary database within the U.N. community;
- 2) Create a re-distributable Second Administrative Level Boundaries global data set (SALB) to be used with the GIS technology completed by a database on historic changes.

#### Task Managers

International Boundaries: H  l  ne Bray (U.N. Cartographic Section)

Administrative Boundaries: Steeve Ebener (WHO)

#### List of Tasks

##### International Boundaries

- **6 months:** Finalise International Boundaries Database version 3 (2003) (H  l  ne Bray)
- **3 months:** Seek Legal advice for disputed territory (Hiroshi Murakami)
- Produce a page size template (world map) accepted by U.N. OLA (Greg Prakas, Hiroshi Murakami)
  - 2 months: production of the map
  - x months: acceptance by OLA
- **2 months:** Distribute for information to the U.N. community documentation and guidelines on the representation on international boundaries (H  l  ne Bray)

##### Administrative boundaries

- **few hours:** request to the plenary to have the SALB coding scheme becomes a UNGIWG recommendation.
- **1 month:** Wish list of missing information on the SALB web site.
- **3 months:** Inform the U.N. Statistics Commission about the SALB coding scheme (informal first) (Steeve Ebener, UNGIWG).
- **6 months:** work on the proposition of presenting the SALB coding scheme to ISO TC 211 (Steeve Ebener, UNGIWG).
- **1 year:** Progresses of SALB (Steeve Ebener):
  - tables (January 2000) for all the U.N. members;
  - obtain the authorisation to use the map for the 46 countries still under discussion;
  - send maps to validation for 75 countries.

## **Core Geo Database Task Group**

### **Objectives**

Take the continuity of the International and Administrative boundaries work and start working on the "development" of one or few new framework data layers (global coverage).

### **Task Managers**

Ergin Ataman (FAO)

### **List of Tasks**

- 1) Make an inventory of the existing layers:
  - inventory available by the end of January 2004 for comments;
  - additional survey by the end of May 2004 (including other private resources);
  - come back to UNGIWG about resources required for completing the data base and layers.
- 2) Reflection on the scale and data interoperability (reference) issue. Consideration of VMAP level 1 database for the context this task force.

## **Remote Sensing Task Group**

### **Objectives**

1. To provide UNGIWG members an overview of which organization has what type of very high-resolution imagery over which areas.
2. To provide the UNGIWG members with satellite imagery purchasing agreements that ensures easy ordering, rapid access and reduced cost to data.
3. To expand the range and objectives for the Charter to better comply with U.N. requirements.

### **Task Managers**

Jean-Yves Bouchardy (UNHCR)

Alain Retiere / Einar Bjorgo (UNOPS)

Lorant Czarán (U.N. Cartographic Section)

### **List of Tasks**

- 1) Who has what, and where?
  - Metadata form for high resolution (EROS, Spot 5, Quickbird, Ikonos) images  
Action: FAO (first quarter 2004 for standard metadata extension), UNHCR and UNOPS for short metadata form to quickly launch process (November 2003).
  - E-mail working list
    - Agencies sending metadata for VHRS. Deadline: 10.12.03
    - 1<sup>st</sup> Teleconference: 12.12.03
  - Web site development. Action: UNOPS, working service by 31.12.03 and ongoing depending on access to agencies' metadata.
  - Encourage development of metadata for medium resolution images (on going).
- 2) Agreement with private companies and copyright issues
  - Circulation of system contract documents to the RSWG. Action: CS, deadline: November 2003.
  - Discussion of the documents during 1<sup>st</sup> Teleconference (12.12.03).
  - Create a coordinated and collective response with the private companies for providing discounts. Action: Agencies to assess within their own organizations if they would like to participate. If so, UNOPS or other entity could facilitate the request for letters from Heads of agencies stating that they support the initiative and that the participating agencies act as one single entity. Progress to be discussed at first Teleconference (12.12.03).
- 3) International Charter
  - Charter documents sent (OOSA / UNOPS 27/10/03) to UNGIWG.
  - Agendas of all CEOS and other related RS meetings to all RSWG /CS asap and on going).
  - Decide for next presentation to the Charter (OOSA date and location to be decided) (1 Teleconference), and reporting.

#### ***Text for UNGIWG Charter statement as proposed (and adopted by the Plenary)***

*"The United Nations Geographic Information Working Group (UNGIWG) welcomes the acceptance of the United Nations as a co-operative body of the International Charter on Space and Major Disasters (the Charter). For the United Nations to fully benefit from this useful initiative, the UNGIWG recommends to consider natural and man-made disasters, including complex emergencies, as thematic areas for which the Charter can be triggered, when and where applicable."*

## **Interoperability Services Task Group**

### **Objectives**

The Interoperable Services Task Group works on improving access to and interactive use of spatial data to enhance data sharing and support decision making through international standards and specifications.

### **Task Managers**

Jeroen Ticheler (FAO)

Bobby Chaudhry (U.N. Cartographic Section)

### **List of Tasks**

#### **Interoperable services:**

- Provide the list of proposed standards related to Interoperability.
- Survey on what public services (the implementations) are running in the different agencies (6 weeks, by U.N. Cartographic Section).
- Assist U.N. partners where resources allow (patching non compliant services (e.g. enable WMS on ArcIMS), setting up new services).
- Investigate authentication issues to ensure a common authentication mechanism for services.
- Facilitate access to relevant documentation on Interoperability (WMS OGC cookbook, whitepapers et cetera).
- Work on a common Introduction Interoperability Slideshow.

#### **Metadata:**

- Post the second draft metadata profile (within 6 weeks, by FAO).
- Review and comment second draft of metadata profile (deadline is 31 January 2004).
- FAO will take up the development of a free, stand-alone metadata editor through commercial/interested vendors, compliant with the U.N.-ISO19115 profile.

### **Members:**

- Alice Chow
- Eric van Schijndel
- Ian May
- Dozie Ezigbalike
- Sean Khan
- Michelle Anthony
- Kais Zouabi

## **GIS Map Production Guidelines Task Group**

### **Objectives**

The aim of the Map Production Guidelines Working Group is to compile a set of standards applicable to most mapping situations. Due to the vast range of products, types and uses, any standards cannot be rigorous but should be considered as guidelines. It is the intent of the Task Group to compile documentation that covers most generalized cartographic forms. It will cover layout, content, marginal information, coloration, fonts, line types and symbology.

### **Task Managers**

Rob Gray (DPKO/UNMEE)

### **List of Tasks, timeframes**

- Review the draft document submitted by FAO, posted on the UNGIWG website.
- Add/propose 1:25.000, 1:50.000, 1:100.000 and 1:250.000 guidelines within 6 weeks (Eric van Schijndel, UNMOVIC and Rob Gray, DPKO).
- Submit a re-compiled and reviewed document (based on FAO document, after 3 months, in cooperation by all members of the Task Group).
- 3 months for review and adoption of the guidelines document (UNGIWG).

### **Members:**

- Ergin Ataman
- Eric Schijndel
- Michael Mwangi
- Steeve Ebener
- H  l  ne Bray
- Johannes Akiwumi
- Orlando Nino
- Ashraf Abushady
- Gregory Prakas
- Jean Yves Bouchardy

## VII. New operational structure of UNGIWG

This Organizational Chart was developed and finalized during the last plenary session of the Nairobi UNGIWG Meeting.

The chart reflects the new structure of the Working Group, its new Task Groups as defined, with an aim to simplifying and focusing the limited resources of the Membership towards achievable and common goals.

The work in the two main areas (as identified) will be closely supervised by the two Co-chairs, as highlighted below.

