Record of
UNGIWG Task Managers video Conference

Date: 13 May 2005

Attended:
UN NY:
Kyoung Soo Eom (DPKO/UNCS)
Lorant Czaran (DPKO/UNCS)
Helen Bray (DPKO/UNCS)
Richard Rigby (DPKO/Situation Center)
Amor Laaribi (DESA)

Geneva:
Steeve Ebener (WHO)
Jenny Bredin (UNHCR)

Rome:
David Kaatrud (WFP)
Jeff Tschirley (FAO)
Suha Ulgen (OCHA)
Menghestab Haile (WFP)
Geraud Servin (FAO)
Jeroen Ticheler (FAO)
Ergin Ataman (FAO)

Agenda:

1. Introduction of the agenda
2. Statements by the new Co-chairs David Kaatrud and Jeff Tschirley
3. Review the status of each TG, the current activities and the future plans.
4. New UNGIWG Flyer (attached) prepared by FAO
5. New UNGIWG web site (presented by Geraud Servin, FAO)
6. The Sixth Meeting in October 2005
7. Getting Vmap1 and other matters

Main points:

1. TG3 (RS) and TG5 (GIS Guidelines) could not participated in the meeting. As Mr Rob Gray is leaving the UN a new Task Manager for TG5 needs to be found. Also Mr Bouchardy has left the TG3 (RS). Ms Jenny Bredin took over his responsibilities as the UNHCR focal point, but not Mr Bouchardy's responsibilities as TG3 co-manager.
2. The functions and responsibilities of the secretariat in relation to the new chairs were raised. It was agreed that the secretariat work should be carried out by the agencies of the Co-Chairs. DPKO/UNCS which has been hosting the secretariat will hand over the UNGIWG web site, email server etc to WFP/FAO.
3. TG email list will be open only to the UN members who are members of the TG.
4. The structure diagram in the report of the fifth meeting should be changed. The secretariat will be removed from the diagram. Also the division of the TGS to two main groups as data and standards groups is no longer needed.
5. The next meeting should be held in Ethiopia during the third week of October 2005. The meeting should be organized for 3 days. The first day only the task groups should meet

and prepare their report to the Plenary. The second day all participants including NGOs, industry representatives can participate in the discussions. The third day, only the voting (focal points) members would participate in the meeting for taking decisions.

6. The fact that FAO and WFP have been nominated as the new co-chairs of UNGIWG and that the secretariat of UNGIWG would be carried on by the agencies of the Co-chair should be announce to the UNGIWG members
7. Reports of the TGs:

i.a) TG1,International Boundaries

The TG has finally received the official legal guidance for the cartographic representation of Jammu-Kashmir, Aksai-Chin and Arunashal Pradesh. The PDF file of the world template map has been up-dated and posted and the boundaries website: www.boundaries.ungiwg.org. The databases are being updated and corrected for few islands. The TG has checked over 20 boundaries for SALB.

Plan for the coming months:
Follow-up with Legal office for Kurile Island, Iloumi Triangle and Halaib triangle
Correct the databases as needed
Investigate with SALB and TG2 on the possibility of using a standard ground reference layer.

i.b) TG1, SALB:

In order not to take too much time during the video-conference a progress report for the SALB project has been sent to the participants the same day (attached hereby in annex-1). Nevertheless some key elements were raised during the video-conference itself:

- the necessity to pool resources, in addition to the ones recently found through USAID and GAVI, for making SALB "reach the present" by the end of 2006. For the moment US$ 562 378 remains to be found and in this regards the importance of the following action item accepted during the last UNGIWG plenary meeting has been emphasized: " having the UN agencies interested in the SALB data (especially in the Geneva area) to support with resources the centre or network of expertise to accelerate the process"
- Emphasize will be put in the coming months in order to establish SALB nodes in the regions, in addition to UN ECA for the African continent, in order to reduce the costs but also take advantage of knowledge located in the concerned regions themselves
- the importance to have a yearly update of the National Mapping Agencies (NMA) contact information because of the important turn over which takes place in this type of institution. Discussion are currently taking place with ISCGM to centralize this process
- the remaining large number of countries for which a map or the delimitation or some units are missing (see the "help us" page on the SALB web site". In this regards the other action items accepted during the last UNGIWG plenary meeting as been mentioned again: "Have the institutions that needs to answer a particular request to look first at the SALB web site to see if this information is available and provide feedback if they found information or data that could complete SALB."

Few questions regarding the progresses made and the one expected for the end of the year have been raised. As since the beginning of the year it is difficult to make any prediction of the number of maps that will be online by the end of 2005 but it is expected that the discussion started with EuroGeographics could solve the situation for more than 30 countries in Europe and that the resolution presented during the last CODI meeting in Addis could make things move forward for the African continent. The next target being now the Americas for which we are expecting to have a new resolution accepted during the coming *8th United Nations Regional Cartographic Conference for the Americas (27 June-1 July 2005)* in New York

ii) TG2 CGDB

CGDB TG integrated the comments received for the inventory report prepared by consultant Joe Dooley. The report was also expanded and now is about 150 pages. The main findings of the report are:

1. the best available dataset for UNGIWG is Vmap1 and the WG should do its best to obtain it.
2. a definitive trend towards the development and release of increasingly higher resolution satellite, derivative climatological and anthropogenic raster databases suitable for a variety of analytical uses into the public domain, and;
3. the improved availability of framework vector map data libraries at a variety of scales which are suitable both generalized spatial referencing and project specific support.

The group has also updated the matrix it submitted to the 5th meeting in Geneva. The new version is attached hereby in annex-2. This matrix needs to be discussed and approved by the WG.

iii) TG3: RS (Task Managers did not participate in the meeting)

iv) TG4: Interoperability

The main outcomes of the GeoNetwork week, held 9-13 May 2005 in FAO-HQ-Rome, were presented. These are among others:

- The participating agencies were FAO, WFP, UNEP, WHO, OCHA, CGIAR (IWMI), Chinese Academy of Sciences
- The establishment of a steering committee for GeoNetwork consisting of members of the participating UN agencies (FAO, WFP, UNEP, WHO, OCHA). The TOR for this committee will be drafted by FAO and WFP.
- A letter of intent to share public spatial metadata and data across the network will be written for the agencies to sign.
- Further developments related to each agency's Spatial Data Infrastructure will by co-ordinated through the collaboration wherever possible.

v) TG5: GIS Guidelines (Task Manager did not participate in the meeting. The text below summarizes of the status of the activities of the TG and provided by E. Ataman)

GIS Guidelines TG prepared two reports for the standardization of spatial data and norms for the UN. These reports identified a set of standards that needs to be reviewed and adopted by the UNGIWG. However, the review and adoption of two such large documents may require considerable time and interagency effort and resources. Therefore the GIS Guidelines TG decided to identify a core set of " UNGIWG Spatial Standards" that are probably less controversial and could be easily adopted and implemented by the GIS users in the UN. This proposal (attached in Annex-3) proposes the first set of such core standards. GIS Guidelines TG intends to submit the rest of the report also in parts in the near future to have it evaluated and approved gradually. These standards are intended for the newly created datasets, but they are also recommended for the existing data (which might need conversions, reprojection or adjustments)

vi) TG6 (GNSS)

At the 5th UNGWIG meeting it was decided that a new Task Group would be formed to focus on field data capture. The main objective of the task group is to harmonize and facilitate the various field data collections undertaken by the different UN agencies. To be able to share field data between different agencies and programmes effectively it is important to develop a standardized data collection procedure. It is within this context that the TG on GNSS was formed. The TG has planned a number of activities towards meeting its objectives including:

- Reviewing GNSS training materials that various agencies have developed such as WHO, WFP and UNDP (AIMS) in order to develop a harmonized training material
- Undertake survey of the use of GPSs within each agency at country level in order to set priorities on the training activities

The TG will look at ways of better integration of field data in analysis.

Activities to follow up:

1. FAO/WFP: Prepare for the Sixth Meeting in October 2005. FAO to follow up with the FAO office in Ethiopia for logistics in Addis Ababa.

2. Each TG manager will submit the text for his/her TG in the new UNGIWG flyer.

3. Acquisition of Vmap1 to be followed up by WFP and FAO.

4. FAO's work on the UNGIWG web site to continue.

Annex-1

SALB project
Progress report and plan for the coming months
12.05.2005

1. Introduction

WHO being engaged in a major restructuration process (which started more than one year ago and which is not over now) a lot of energy of the SALB coordination group had to be engaged in this process in order to insure the continuity of all its activities, including the SALB project. This of course directly had an influence on the achievement of some of the tasks decided during the lat UNGIWG plenary meeting.

Because of the reason mention before and also due to the necessity to find external resources in order to continue the SALB project within WHO most of the efforts of the project coordination group has been, since last October, put on resource mobilization and strengthening of collaboration with Global or regional entities.

2. Follow up on the Tasks decided during the last UNGIWG meeting for the 2005-2006 period

2.1 Create a centre or network of expertise for the management of sub national data (15th January 2005).

In order to reduce the cost of the SALB project, offer the possibility to provide additional support to institution working with data collected at the sub national level the possibility to create a network of center of expertise has been explored.

The idea we were having last October was to establish one node at University of Geneva in complement to the node that the project already has for the Africa continent at UN ECA in Addis Ababa.

Unfortunately the proposal submitted to the Geneva International Academic Network (GIAN) at the end of last year has not been accepted. Until now, no other potential source of funding has been identified for establishing this potential node.

Nevertheless, the recent confirmation received from USAID for a contribution of 75'000 US$ to the SALB project in connection with a proposal sent to them at the beginning of the year, the additional founding found within WHO (30'000 US$) in relation with the GAVI initiative as well as a political commitment from the cluster in which we are located will allow us to keep a node within WHO/EIP/KMS for the year to come. The situation will have to be evaluate again in summer 2006.

We also recently received the confirmation from UN ECA that half time of a GIS technican there will continue to be at the disposal of the SALB project until the end of 2006.

In addition to that, Santiago Borerro has expressed the possible interest of the Pan American Institute of Geography and History (PAIGH) to become the regional node for Latin America. We will follow up on this issue with him soon.

In conclusion, we do not have fully reached the objective fixed last October for the 15 of January but we do already have two confirmed node for the year to come plus one potential additional one for the Americas.

2.2 January 2000 table for all the countries (June 2005)

To date tables for 163 countries are available online form the SALB web site and it will be very difficult to finally be very difficult to fill the gap for June as:

- we have a lot of difficulties to obtain the information from 11 of the 184 NMA contacted
- 5 countries do not have a NMA and we are still trying to located who in the government could provide us with the necessary information
- for 2 countries we do have the contact information but still did not succeed to reach them

As seen during the attending of the GSDI-8 conference and CODI IV meeting we need to better publicize the project in the context of some international or regional groups (ISCGM, PAIGH, …) as we have started to do (see section 4 of this document). We are therefore welcoming the update to the UNGIWG web site as well as the flyer on which it would be good to add the project URL.

2.3 New contact round of the NMA to know if new changes have occurred in the countries (October 2006)

The participation to the GSDI-8 conference and CODI IV meeting confirmed the rapid turn-over which is taking place within NMA and the need for a more regular update of the contact information database. We will try to integrate this on a yearly basis in the context of the project workplan.

In terms of historic changes, we have started the new round for 2005 and have already contacted 75 countries in order to have the update until 2005. Until now answers have been received from 22 of them. The remaining NMA will be contacted in the coming month. This information has already been posted on the SALB web site, the page being even modified for better visualizing for which country it is possible to have access to the 2005 information.

The results received unfortunately confirmed that some of the NMA that agreed on updating us regarding potential changes that would occur in their country finally did not contact us. This is partly to be put in relation with the turn over issue mentioned before.

Based on these experiences we are now thinking to initiate the same process for updating these two types of information at the beginning of each year which would have for consequence that in October 2006 we will in fact have the data set up-to-date for January 2006.

One other element will have to be discussed in relation with the NMA contact information database as we do receive more and more request for having access to this information. A distribution policy will therefore have to be decided certainly in agreement with the NMA themselves.

2.4 Solve the copyright issue for the all the UN member countries (October 2006)

Since last October it has been possible to solve the copyright issue linked to a map for 6 new countries bringing us up to maps for 98 countries. Unfortunately the number of countries for which we are still missing a map which would correspond to the list provide by the NMA remains quite high (see the help us page on the SALB web site) which will discussion will have to take place regarding the possible use of their map. In this regards the MOU generated in collaboration with the Office of the Legal Counsel and important help from the UN Cartographic Section already allowed us to solve the situation for several countries.

We are also hoping that the fruitful discussion which took place with the Executive Director of Eurogeographics wil allow us to solve this issue for all their member countries (46 countries). Eurogeographics will now be looking at the possibility to generate a data set which could directly be integrated into the SALB project based on their EuroGlobalMap product. In addition to presenting the advantage of insuring the compatibility between their product, the Global Mapping Initiative and SALB, this solution would reduce the amount of work that would need to be put from our side in order to cover Europe. The generation of this specific data set will nevertheless have a cost which is currently under discussion with Eurogeographics.

2.5 More than 100 maps available online for January 2000 (October 2006)

Right now, maps for 27 countries can be downloaded from the SALB web site and Germany is about to be put back online in the coming week (+3 compare to last October). The maps for 54 remains under validation.

As still seen from the beginning of the project the validation from countries remain an important problem but we are confident to reach this objective for October 2006.

One more time one of the major limitation for us to have maps ready to be send for validation resides in the high number of countries for which we are still missing a map corresponding to the table provided by the NMA (see help us page). In this regards it would be good if the co-chair could take action regarding the following task for UNGIWG mentioned during the 5th plenary meeting:

"Have the institutions that needs to answer a particular request to look first at the SALB web site to see if this information is available and provide feedback if they found information or data that could complete SALB."

2.6 Have 50 maps representing the situation as observed in 2005 on the SALB web site (October 2006)

Since last October emphasize has been put on finalize the January 200 version of the data set but steps have already been taken in order to modify the actual map download page on the SALB web site to allow the download of a map for each period of representativity. This should be available soon as we do already have maps ready for Germany for all the periods of representativity observed since January 2000.

2.7 Pursue the ISO TC211 route regarding the presentation of the SALB coding scheme

After the presentation of the SALB coding scheme during the ISO meeting in Pallanza further search regarding the possibility to extend the ISO 3166-2 code to levels lower than the 1st sub-national level have been done.

As this possibility was not obvious in the documents available from ISO I was in discussion with Lorant to see how we could then move forward with this issue.

As it is my understanding that the role of Lorant as liaison to ISO is currently under discussion at the UN Cartographic Section it is difficult to move forward with this issue as long as a decision regarding this issue has not been taken.

3. Resources Mobilization

At the last UNGIWG plenary meeting it has been asked to have an evaluation to be done to know the cost to finalize the complete data set for the end of 2006.

Having now received the confirmation from UNECA regarding the continuity of their precious participation to the project and taking into account that for the moment the treatment of the rest of the world will have to continue taking place at WHO (at least until the discussion with PAIGH has been finalized), the remaining cost as of today for accomplishing this task is of: **735'788 US$.** Table 1 provide with the distribution of this cost among the different elements as well as the indication of what has already been found or is covered. To date a remaining amount of 562'378 US$ remains to be found in order to have an up-to-date complete data set by the end of 2006.

The difference compare to the figure presented last October (637'000 US$) is not that big partly because of the important difference of salary which exist between a UN staff in Geneva and one in Addis Ababa. This should encourage us to decentralize the work linked to the SALB project by looking for other nodes in the other regions.

	Technical work	Supervision	Material	Data	Travel	Total
Gross cost	$584,050	$78,500	$7,000	$40,000	$25,000	
Amount on which the charge apply	$500,640	$78,500	$7,000	$40,000	$25,000	
Functionning cost WHO (13 %)	$65,083	$10,205	$910	$5,200	$3,250	
Total cost	$565,723	$88,705	$7,910	$45,200	$28,250	**$735,788**
Already found or covered	$168,410	$0	$0	$0	$5,000	**$173,410**
Remaining cost	$397,313	$88,705	$7,910	$45,200	$23,250	**$562,378**

Table 1 - distribution of the cost for having a complete up-to-date data set at the end of 2006

This estimation represent therefore the maximum amount of funding that still needs to be done. A small amount might be taken out from this total depending on the possibility for the UN map library to cover the update of the NMA contact information for all the countries in the Americas. If PAIGH would become a new node for SALB we would save money as well. Regarding the supervision of the project, discussion still has to take place at WHO to see if part of this could not continue to be covered.

In any case resource will have to be found and it would be of great help if the request made to the new chairs to take precise action in order to have the UN agencies interested in the SALB data (especially in the Geneva area) to support with resources the center or network of expertise to accelerate the process (see 5th UNGIWG plenary meeting report).

4 Other progress of work and information

During the GSDI-8 conference in Cairo (18-21 April 2005), a very fruitful discussion took place with the Secretary General, the assistant secretary general and the chair of the International Steering Committee on Global Mapping (ISCGM) regarding the possibility to strengthen the collaboration between the Global Mapping Initiative and the SALB project. In the short term it has been decided to merge the respective NMA contact information data sets in order to improve the possibility to contact the countries and obtain the data/information needed for both projects. For the middle term the possibility to have only one unique administrative boundaries layer for both projects will be analysed. In the mean time, I will be nominated as a liaison member of the ISCGM and take part of the discussion for the generation of the new specifications to be attached to the Global Mapping Initiative. In addition to allowing us to take advantage of the visibility of this global project, this collaboration might allow us to reduce cost by pooling resources in the future.

The presentation of the SALB project done during one of the session of the GEO sub committee of the CODI IV meeting (25-27 April 2005) has been very well received and a recommendation to the Committee On Development Information (CODI) has been done requesting the member states to provide the data and information to the project. This recommendation will be brought to the conference of Minister which will take place in May. If accepted this would offer us an additional means to move forward with the African countries. The UN ECA sub committee on statistics will also be informed about the SALB project.

This participation to the CODI IV meeting has also been the occasion to link the SALB project with the MAfA initiative which statement is encouraging countries to participate in the Global Mapping and other relevant regional international initiatives. The meeting that took place with both GIS units at EMRO allowed me to restart the discussion regarding the data/information we are still missing for this region. In both case, promise has been made that help will be provided to the project in order to move forward. Finally, it has been possible for me to establish new useful contact at the World Bank, at the International Cartographic Association (ICA) and with the Human and Sciences Research Council of South Africa which is going to work on administrative boundaries in the SADC countries in the coming 12 months.

The participation to both eh GSDI conference and the CODI meeting allowed me to enter in direct contact with representative of the NMA of 25 countries (Algeria, Austria, Brunei Darussalam, Burkina Faso, Chile, Colombia, Congo, Czech Republic, Ghana, India, Indonesia, Jordan, Kenya, Lithuania, Malaysia, Mali, Mozambique, Namibia, Nigeria, Senegal, Sierra Leone, South Africa, Swaziland, United Kingdom, United Republic of Tanzania). It has also been possible to establish indirect contact through other institutions located in Georgia, Iraq, Morocco, Saudi Arabia and Sudan.

5. Plan for the coming months

Along with the continuity of the work for finalizing the January 200 data set as soon as possible, the task of the group between now and the next UNGIWG plenary meeting include:

- leverage the funding already obtained to cover the remaining cost, including the discussion with PAIGH and other partners concerning their potential participation/contribution and with the help of the co-chairs in connection with what has been requested during the last UNGIWG plenary meeting
- try to take advantage of the 8th United Nations Regional Cartographic Conference for the Americas (27 June-1 July 2005) for make steps forward with the countries in the Americas. In this regards it would be good to know who from the UNGIWG task managers might be

attending this meeting as I might be able to go. I will also take contact with Amor Laaribi in this regards

- update the NMA contact information list in collaboration with the UN map library (to be discussed)
- contact the NMA for having the update of the information until 2005
- strengthen the link with the ISCGM
- try to get to an agreement with EuroGeographics regarding the maps for the European countries
- take contact with ISO again in case a decision is made regarding the liaison with UNGIWG

Annex-2

Tabular Rating of Most Suitable Globally Identified Databases by Topical CGDB Core Data Reference							
CGDB Data Layer	Highest Rated	LOE[1]	Secondary Database	LOE[1]	Tertiary Database	LOE[1]	Comments and Notes
Boundaries: Coastal, Administrative, and Areas of Special Interest							
Coastline and Maritime Boundaries	WVS+	4	UNCS/VMap0	3	RWdB2	3	As all three layers identified are from framework data libraries it is likely more cost-efficient to process source library as a whole rather than individual layers
Country, Political, and Area of Dispute Boundaries	UNCS	n/a	WVS+	4	VMap0	4	See above note in reference to secondary and tertiary databases
Country and Subnational Boundary Data Layers	SALB	n/a	FAO fasttract	n/a	Vmap0/RWdB2	8/5	See above notes and Note-[1] below
Areas of Conflict, and Landmine Dispersal	UNCS	n/a	SALB	n/a	VMap0	1	Other than the demarcation of areas in dispute, no robust area of conflict or landmine dispersal areas were identified
Parks, Conservancies, and Protected Areas	WDPA/WCMC	n/a					Only globally consistent data

[1]As concerns framework data libraries containing multiple vector data layers, the number of days reflected within each column reflect minimum estimates of the Level of Effort (LOE) required to process an individual CGDB data layer. In the case of such libraries however, it should be noted that a significant saving in the LOE can be realized by processing the library as a whole rather than on a layer-by-layer basis. This is particularly true in cases such as administrative boundaries where coastlines, country, and sub-national boundaries need to be robustly integrated from both linear and polygonal layers and extends to the consideration of broader topical themes including: population, transport infrastructure, surface hydrology, topography and physiography where additionally the integration of point reference layers will also need to be considered.

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							source identified
Human Health: Boundaries and Facilities							
Human Health Infrastructure and Statistical Databases	EIP	n/e					No finalized sources of data were identified to support this topical CGDB reference category. However, WHO EIP data should be considered
Human Population: Population Centres and Distribution							
Population Centres and Census Databases	ALLM & Europa	c	CIESIN	n/a	GNS & VMap0	21	See text in report and notes on processing of framework data libraries and requirement to integrate linear, polygonal and point source data layers in Note-[1]
Population Density 2015	CIESIN/FAO/CIAT	n/a					UNDER DEVELOPMENT
Population Census and Distribution Databases	LANDSCAN	n/a	CIESIN	n/a	Europa	c	Preferred database for

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							either CIESIN or LANDSCAN must be based on purposed use of outputs
Rural Population density	FAO poverty mapping project	n/a					This entry is for info only as this database still needs to be considered as UNGIWG CGDB
Transportation: Roads, Railways, Airports, Harbours, and Navigation/Routes							
Roads Databases	ADC	c	VMap0	14	RWdB2	4	All sources dated however UNGIWG should: lobby for VMap1 release; contact map producers; i.e. NAVTEQ or Michelin; see also Pop. & Rail notes and Imagery reference
Railway Line, Station, and Marshalling Yard Databases	VMap0	7	ALLM & ADC	c	RWdB2	2	Processing must be conducted in conjunction with relevant VMap pop. & roads data layers

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Airport Databases	ALLM	c	GNS, VMap0, RWdB2	15	Europa	c	See text in report, notes on processing of framework data libraries, and inter-library consolidation. Jeppersen and sub-1:1m aeronautical charts should also be considered.
Harbour Databases	Europa	c	ALLM	c	GNS, VMap0, RWdB2	4	See text in report and notes on processing of framework data libraries
Navigation/Routes	n/e	n/e	n/e	n/e	n/e	n/e	Other than admiralty and harbour navigation charts, no sources of digital data were identified
Bathymetry and Terrestrial Elevation							
Bathymetric Databases	GEBCO/ETopo2	9	GNS	3	VMap0/WVS+	4	See: report notes on processing of framework data; integration with

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							terrestrial reference layers; & creation of composite image backgrounds
Terrestrial Elevation	SRTM 3-arc second (90m)	22	SRTM 3-arc second/GTopo30 (1km)	5	VMap0	11	See above note on integration of terrestrial & bathymetric DEMs and text on the creation of image backdrops and virtual base maps
Geo-Physical: Geology, Geo-Morphology, Seismic, and Hydro-Geology							
Geology or Minerals Databases	GlobalGIS	2	GNS	3	VMap0/DCW	4	Only limited data identified, further LOE needed to process sources
Geo-Morphology and Physiographic Databases	DCW/VMap0	42	GNS	5	GlobalGIS	3	See text in report on processing of framework data libraries & Note-[1]
Earthquake, Tsunamigenic and Volcanic Databases	Earthquake USGS-NEIC UN-GSHAP	2	Tsunamigenic NOAA-NGDC UNESCO/IOC/ITSU		Volcanic Smithstonian GlobalGIS	2	See text in report, a further LOE is required to process reference data sources in real-time

[1]As concerns framework data libraries containing multiple vector data layers, the number of days reflected within each column reflect minimum estimates of the Level of Effort (LOE) required to process an individual CGDB data layer. In the case of such libraries however, it should be noted that a significant saving in the LOE can be realized by processing the library as a whole rather than on a layer-by-layer basis. This is particularly true in cases such as administrative boundaries where coastlines, country, and sub-national boundaries need to be robustly integrated from both linear and polygonal layers and extends to the consideration of broader topical themes including: population, transport infrastructure, surface hydrology, topography and physiography where additionally the integration of point reference layers will also need to be considered.

Tabular Rating of Most Suitable Globally Identified Databases by Topical CGDB Core Data Reference							
CGDB Data Layer	Highest Rated	LOE[1]	Secondary Database	LOE[1]	Tertiary Database	LOE[1]	Comments and Notes
Hydro-Geological/Aquifer Databases	n/e	n/e	n/e	n/e	n/e	n/e	No sources of data were identified to support this data layer
Surface Hydrology: Drainage, Surface Waterbodies, Watersheds, and Water Points							
Drainage and Flow Routing Databases	VMap0 with reference to DCW	52+	RWdB2	4	H1k	14	See text in report on processing of framework data libraries & Note-[1]; must be processed in conjunction with SWB databases
Surface Waterbody (SWB) Databases	VMap0 and potentially DCW	28 or 40+	NASA-ESAD LANDSAT derivative contracted to EARTHSAT	~12	RWdB2	6	See text in report and notes on processing of framework data libraries. UNGIWG should pursue release into public domain of NASA-ESAD LANDSAT based data produced by EARTHSAT
Watershed and River Basin Databases	New SRTM based Effort	148	H1k	20	GIWA	4	See text in report for details and review of options

[1]As concerns framework data libraries containing multiple vector data layers, the number of days reflected within each column reflect minimum estimates of the Level of Effort (LOE) required to process an individual CGDB data layer. In the case of such libraries however, it should be noted that a significant saving in the LOE can be realized by processing the library as a whole rather than on a layer-by-layer basis. This is particularly true in cases such as administrative boundaries where coastlines, country, and sub-national boundaries need to be robustly integrated from both linear and polygonal layers and extends to the consideration of broader topical themes including: population, transport infrastructure, surface hydrology, topography and physiography where additionally the integration of point reference layers will also need to be considered.

Tabular Rating of Most Suitable Globally Identified Databases by Topical CGDB Core Data Reference							
CGDB Data Layer	Highest Rated	LOE[1]	Secondary Database	LOE[1]	Tertiary Database	LOE[1]	Comments and Notes
Water Points and Limnological Databases	WorldLakes & DCW/VMap0	26	GNS	8	ICold Dams	c (3)	See: text in report; processing notes for framework data libraries; and Note-[1]; inter-library data harmonization

[1]As concerns framework data libraries containing multiple vector data layers, the number of days reflected within each column reflect minimum estimates of the Level of Effort (LOE) required to process an individual CGDB data layer. In the case of such libraries however, it should be noted that a significant saving in the LOE can be realized by processing the library as a whole rather than on a layer-by-layer basis. This is particularly true in cases such as administrative boundaries where coastlines, country, and sub-national boundaries need to be robustly integrated from both linear and polygonal layers and extends to the consideration of broader topical themes including: population, transport infrastructure, surface hydrology, topography and physiography where additionally the integration of point reference layers will also need to be considered.

Annex-B

Short List of Data Sources Identified		
Framework or Primary Database	Acronym	Utility of Dataset
GEOnet Name Server Gazetteer ~1:250k	GNS	Framework
World Vector Shoreline Plus 3rd Edition	WVS+	Framework
VMap1 Data Library 1:250k (non-global)	VMap1	Framework
Digital Chart of the World 1:1m	DCW	Annotation & Land Features
VMap0 5th Edition 1:1m	VMap0	Framework
Relational World Databank II v1.1	RWdB2	Framework
UNCS 1:10m & 1:5m Quick Impact Data	QID	Framework
UNCS-FAO Political & WHO-SALB Subnational Boundaries	SALB	Long term Partnership
WHO EIP/CSR Health Facilities	EIP	Potential Baseline
UNEP WDPA Parks and Protected Areas	WDPA	Long term Partnership
ALLM Gazetteer	ALLM	Commercial
ADC WorldMap	ADC	Commercial
EuropaTech Discovery	Europa	Commercial
CIESIN GPW v.3 and GRUMP	CIESIN	Primary Resource
ORNL LandScan	ORNL	Primary Resource
USGS GlobalGIS	G-GIS	Secondary Resource
ETOPO2 and/or GEBCO	ETopo2	Source of Bathymetry
GTopo30 and/or Globe	GTopo30	Dated Resource
SRTM-GTopo30 & SRTM-3 arc second	SRTM	Framework
HYDRO 1 Kilometre Database	H1k	Secondary Resource
AVHRR-IGBP SPOT-GLC2000	GLC	Potential Baseline
NASA-LandSat Orthorectified Library	NASA-OLIL	Framework or Baseline
EarthSat GeoCover ~1:250k	GeoCover	Commercial
FAO World Lakes and Rivers Database	FAO-WorldLake	Potential Baseline
Global International Water Assessment watershed delineation	GIWA	Tertiary Resource
NASA Earth Science Applications Directorate buy-in related to EARTHSAT GeoCover	NASA-ESAD	Currently Commercial
National Earthquake Information Center & Global Seismic Hazard Assessment Program	USGS-NEIC UN-GSHAP	Real-Time and Historical Resources
NOAA-NGDC Tsunami Database UNESCO/IOC/ITSU Historical Tsunami Database	NOAA-NGDC UNESCO/IOC/ITSU	Primary and Historical Resources

UNGIWG Core Spatial Standards Set -1
A proposal prepared by the GIS Guidelines TG

Argument	Recommended Standards for UNGIWG Use	Notes
Data formats	Maintain as much as possible compatibility with ESRI data formats. ESRI Geodatabase recommended for central database. For data distribution, and in absence of a geodatabase schema, ArcInfo coverages and GRIDs are currently recommended; Shapefiles when ArcInfo coverages are not supported. GeoTiff format for images.	1
Map Scales	Datasets for distribution should be suitable for displays analysis at four map scales: 1:1,000,000; 1:5,000,000; 1:10,000,000 and 1:40,000,000	2
Minimum Mapping Units (minimum acceptable polygon area)	Given according to map scale: Scale 1:1,000,000: 4Km^2 Scale 1:5,000,000: 100Km^2 Scale 1:10,000,000: 400Km^2 Scale 1:40,000,000: 6,400Km^2	3
Cell-size for raster data	Given according to map scale it is recommended to use: Scale 1:1,000,000: 200m 0.001666º (6 arc-sec) Scale 1:5,000,000: 1000m 0.008333º (30 arc-sec) Scale 1:10,000,000: 2,000m 0.016666º (1 arc-minute) Scale 1:40,000,000: 4,000m 0.083333º (5 arc-minutes) or at least an exact multiple or divisor of the cell sizes above.	4
Map projection	*Land:* World: Mollweide (preferred) or Flat Polar Quartic or the Lambert's Cylindrical Equal-Area Projection North America: Lambert Azimuthal (center in 50N, 100W) South America: Lambert Azimuthal (center in 15N, 60W) Europe: Lambert Azimuthal (center in 55N, 20E) Africa: Lambert Azimuthal (center in 5N, 20E) Asia: Lambert Azimuthal (center in 45N, 100E) Australia: Lambert Azimuthal (center in 15S, 135E) Antarctica: Lambert Azimuthal (center in South Pole) National level datasets: Lambert Conformal Conic or Albers Equal Area Conic Sub-National Level datasets: Universal Transverse Mercator (UTM) *Oceans:* North Atlantic: Lambert Azimuthal (center in 30N, 30W) South Atlantic: Lambert Azimuthal (center in 30S, 20W) North Western Pacific: Lambert Azimuthal (center in 30N, 150E) South Western Pacific: Lambert Azimuthal (center in 20S, 150E) North Eastern Pacific: Lambert Azimuthal (center in 30N, 130W)	5

	South Eastern Pacific: Indian Ocean: Arctic: Antarctic:	Lambert Azimuthal (center in 30S, 130W) Lambert Azimuthal (center in 10S, 80E) Lambert Azimuthal (center in 90N, 0) Lambert Azimuthal (center in 90S, 0)	
Datum	WGS84		6
Spheroid	IAG-GRS80		7
Metadata	Compatible with ISO 19115 metadata standard		8

Argument	**Suggested Spatial Norms for UNGIWG Use**
Feature harmonization (extension of polygons beyond coastlines)	Extension of outer polygons of thematic polygon layers (e.g. soils) beyond coastlines so that it can be clipped using a standard coastline layer to standardazie coastlines on all thematic layers. Rubber-sheeting techniques to be applied when the registration of the two layers is below the minimum accuracy standards

The following notes provide justifications for the proposed standards:

Notes	Reference Argument	Selection Criteria for the Standards
1	Data formats	1) ESRI data formats are the most commonly used in the UN system 2) They are often used as formats for data exchange at international level
2	Map Scales	1) Commonly used scales; 2) International datasets at global level are built on this scales reference;
3	Minimum Mapping Units	1) Selected on criteria of readability of the dataset when represented at its scale of reference
4	Cell-size for raster data	1) each cell size should be an exact multiple of all datasets of smaller cell sizes and a divisor of all datasets of larger cell sizes to avoid sub-sampling when maps with different cell sizes are combined or analyzed together. 2) shapes in raster and vector should be preserved to allow bi-directional data conversion without major alterations of the represented units/boundaries; 3) raster resolutions vis-à-vis the reference map scales should be consistent with criteria 1 and 2 4) These are also the most commonly used cell sizes on global mapsdeveloped by the UN, NGOs and other many international organizations.
5	Map projection	1) Mollweide and Polar-Quartic are both equal area projections and have little distortion in most developing parts of the world (Latin America, Africa, South Asia, Middle East) Lambert's Cylindrical Equal-Area Projection proposed as a replacement to the Peter's projection which has much larger distortion in the developing parts of the world noted above. 2) National level datasets should either be equal area or represent a good trade-off between an accurate representation of the shapes and a fair approximation of the areas 3) Sub-National Level datasets might use UTM projection because is widely used and uses standard parameters for the zones
6	Datum	WGS84: widely used; works internationally
7	Spheroid	IAG-GRS80; associated to WGS84
8	Metadata	ISO 19115 is being adopted by several UN agencies