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**Invited papers on recent developments in geospatial information
management in addressing national, regional and global issues**

**Geospatial support for the United Nations Secretariat:
geospatial activities by the UN Cartographic Section ****

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Summary

The present paper describes the activities of the United Nations Cartographic Section (UNCS) in supporting the geospatial requirements of the United Nations Secretariat and the Security Council. UNCS has the principal responsibility to provide accurate and timely geospatial information to support the decision-making and operational needs of the Security Council, the Secretariat particularly in the Department of Peacekeeping Operations (DPKO), the Department of Political Affairs (DPA) and the Department of Field Support (DFS). UNCS is mandated to provide map clearance services for all maps issued by offices in the United Nations Secretariat, as well as subsidiary bodies of the General Assembly, Security Council and the Economic and Social Council; and it provides technical assistance on international boundary delimitation and demarcation issues. It supports the United Nations Committee of Expert on Global Geospatial Information Management (GGIM), serving as a joint Secretariat with the Statistics Division of the Department of Economic and Social Affairs (DESA). UNCS also provides overall programme management and oversight role to GIS operations in the UN Field Missions. In order to provide institutional and operational support within the UN Secretariat, the UNCS has developed and maintains United Nations Geodatabase (UNmap), United Nations International Boundary Information Systems (UNIBIS), UN Earth and UN Gazetteer.

I. Introduction

1. In 1946, the Cartographic Unit started as one of the original organizational units of the United Nations Secretariat under the Bureau of Documents of the Conference and General Services. At the time, it was comprised of only one staff member. The unit has since evolved as United Nations Cartographic Section (UNCS) under the Division for Geospatial, Information and Telecommunications Technologies (DGITT) of the Department of Field Support (DFS) and with a mandate is to provide geospatial support for decision making and operational requirements of the Security Council and the Secretariat, including UN field missions, and cartographic and geospatial services across the Secretariat.
2. This paper provides an overview of the main activities undertaken by the UNCS to meet the geospatial requirements of the Secretariat and the Security Council.

II. Operational activities

3. One of the historical cartographic services the UNCS has been providing the Secretariat since its establishment is the production of country profile maps and UN peacekeeping forces deployment maps. The country profile maps are developed, updated and maintained based on the needs of the Secretariat, whilst the deployment maps are updated based on the mandate expiry and extensions authorized through the Security Council resolutions. Whilst the former cartographic product requires research into authoritative information with regards to the geospatial information, the latter cartographic product requires accuracy in the deployment of UN peacekeeping troop and police contributing countries. Both maps are treated as the official records of the Secretariat.

4. The UNCS receives ad-hoc requests from the Security Council and senior management of the Secretariat for customized maps to facilitate their decisions such as whether a particular entity or country will be listed by the Security Council's Sanctions Committee. These customized maps are increasingly using satellite imagery information to provide analytical richness to the information.

5. As geospatial information was increasingly perceived to enrich the discussions, the UNCS has also been involved in providing daily geospatial support to the Security Council's Closed Consultation. Providing critical information using geospatial platform to senior management is increasingly common in many entities and is gaining wider usage by numerous offices in the Secretariat, such as the UN Operations Crisis Centre (UNOCC) which is the first attempt by the Secretariat to provide a coordinated UN response in crisis or DPKO Situation Centre which provides information on the on-going peacekeeping efforts by the UN. These are areas whereby UNCS is engaged in its development and progress.

6. As a Secretariat office with institutional cartographic and geospatial expertise, the UNCS provides map clearance service for maps produced or issued by UN Secretariat offices, in accordance with a Secretariat administrative instruction. This responsibility allows the Secretariat to ensure that all cartographic and geospatial products are produced following UN policies and practices. This service is also extended to UN System-wide offices on a need basis. In the same spirit, the UNCS also provides publication permission to the general public who want to use maps produced by UNCS or the Secretariat in their publication work, following the requirements by the United Nations Publications Board.

7. In terms of direct support to Member States, the UNCS has been called on to provide technical assistance on international boundary projects. The Section has been involved in providing technical support to the Iraq-Kuwait Boundary Demarcation Commission, the Eritrea-Ethiopia Boundary Commission, the establishment of Blue Line between Israel and Lebanon, the Green Line in Cyprus, the Cameroon-Nigeria Mixed Commission, the Africa Union's Border Programme and the North-South Sudan Border Technical Committee. The type of technical support the Section provides ranges from participating in a Commission Secretariat role to being actively involved in the process of surveying, delimitation, demarcation and providing technical guidance on how best to implement boundary demarcation. The Section is currently supporting the technical requirements of the Iraq Kuwait Boundary Maintenance Project and the Cameroon-Nigeria Mixed Commission. The UNCS is at times requested to provide different Secretariat offices with analysis and guidance on issues related to international boundary and territorial disputes.

8. Whilst the above-mentioned activities relate to programmatic requirements at United Nations Headquarters, the UNCS also provides overall programme management and oversight role for the GIS programme in UN field missions. As there is a time lag between a conflict arising and UN peacekeeping intervention, the Section is involved in providing support in the planning process leading up to the establishment of a peacekeeping mission through the Security Council resolution. Until there is a physical presence, the Section provides programme management support in areas of asset management, budget planning and preparation, personnel management and technical guidance on how best to operate geospatial components in the field.

9. Currently, there are 12 peacekeeping or political missions including the Global Service Centre (GSC) in Brindisi, Italy which have a Geographic Information Services (GIS) Centre where they provide geospatial support to meet the respective mission mandates. The GIS support provided is very diverse, ranging from military operations to electoral support.

10. The GIS offices in UN field missions under the peacekeeping or political umbrella vary in size and mandate, ranging from small military-orientated offices comprised of a two-staff operation to large integrated offices of 30 staff which may have sector offices in remote outposts of the mission area.

11. In responding to the operational requirements by the peacekeeping missions, the UNCS established the GIS Centre in 2007 in Brindisi, Italy which today has now transformed into Global Service Centre GIS Centre, an office which specializes in large scale topographic mapping to support the UN missions and provides training facility for the GIS staff in the UN field missions to ensure that the geospatial skill set by the community is continuously up-to date.

12. Due to this operational expertise and experience in using geospatial tools to support the Secretariat's diverse requirements, the UNCS joined forces with the Statistics Division (UNSD) of the Department of Economic and Social Affairs (DESA) to serve as the Secretariat to the UN Committee of Expert on Global Geospatial Information Management (GGIM) since its preparatory phase in order to support the Member States achieve their main goal in setting the agenda for the development of global geospatial information and to promote its use to address key global challenges.

III. Institutional assets

13. In order to provide the above geospatial support, the UNCS has developed various institutional assets.

14. One of the fundamental institutional asset is the UN Geo-database (or UNmap) which is the basis of cartographic and geospatial products by the UNCS. Currently, the UNmap-0 which is prepared at 1:1,000,000 scales is used as the baseline in producing country profile maps for the Secretariat, and planning maps for the peace operations. Some Secretariat offices access the UNmap for their thematic requirements which allows them to focus on enriching their thematic information whilst depending on the accuracy and currency of the base map provided by UNCS. Scalability of UNmap is an area where development is under progress together in coordination with UN field missions as they focus in larger map scales to meet the operational requirements of their areas of operation.

15. The UN International Boundary Information System (UNIBIS) was designed, developed and maintained by UNCS as a knowledge base of geospatial practices and information with regards to international boundary and disputed territories to meet the operational requirement of the Secretariat. The UNCS has been providing data and information on a need basis to the UN Geographic Information Working Group (UNGIWG) community on international boundary information in order for them to map their operational requirements. Furthermore, in order to meet the requirements of the Secretariat and Member States, the UNCS has been compiling international boundary related data and information from authoritative sources such as treaty documents, maps, and survey records to compile a comprehensive knowledge base on international boundaries for

the Secretariat purpose. Selected information is shared upon request to the Member States.

16. UN Earth (Google Earth enterprise system owned/operated by UN) is an attempt by UNCS, GSC GIS Centre and UN field missions GIS Section/Unit to collate and allow accessibility of satellite imagery that has been acquired and used by the GIS components in the peacekeeping and political missions. Whilst accessibility to free satellite imagery is taking place in the commercial arena, there are limitations of imagery availability in the context of area of peace operation. The UN Earth allows users to have the satellite imagery as a base and add their interested thematic information.
17. The UN Gazetteer is an attempt to improve the geospatial information with regards to location place names for the use in peace operations. The locational place names are validated by the UN field missions on the ground, and are used as common geospatial information for their respective reporting purposes. Attempts to improve both the data model and schema are on-going to-date.
18. One of the strengths in the GIS field operations in the UN field missions is the fact that the principle concepts of operation is streamlined and sharing of the assets is common in the context of standardization of hardware and software platforms, personnel exchange, and data sharing amongst the community.

IV. Way forward

19. As in any Organization, the United Nations Secretariat is going through Change Management where it is continuously being requested to

streamline and find more effective and efficient ways to operate. In the same spirit, the UNCS continues to align its activities and deliverables to meet the changing requirements of the Organization. The Section has been in the forefront to adapt to changes as geospatial requirements continue to increase its potential and use in the Secretariat's decision-making process.