




# Better Support for UN Operations

**UNRCC for the Americas**



**Cartographic Section  
Department of Field Support  
United Nations**

UN Cartographic Section Page 1



## Agenda


- **UN Secretariat and its Missions**
- **Cartographic Section**
  - Area of Responsibility
  - Geo Operational Concept
  - Field Mission Geo Operations
- **Major developments**
  - Capacity Building
  - New GIS Capacity in missions
  - Partnerships
- **International Boundary Issues**
- **Questions & Answers**



UN Cartographic Section UNHQ, New York Page 2



## UN Peace Operations statistics



**MISSIONS ADMINISTERED BY THE DEPARTMENT OF PEACEKEEPING OPERATIONS**


\* political or peacebuilding mission


**Personnel**

	PKO	PBO
• Peacekeeping operations since 1948:	63	
• Current Operations:	16	11
• (Peace-building administered by DPKO):	3	
• Uniform personnel:	87,957	474
• Countries contributing troops/polices:	119	
• International civilian staff:	5,177	845
• Local civilian staff:	12,461	1,843
• UN Volunteers:	1,908	252
• Total (16 peacekeeping):	107,503	3,406
• Total 19 operations:	109,571	

**Peacekeeping Financial Aspects**

- Approved resources (Jul 2008 - Jun 2009): **\$7.1 billions**
- Approved resources (Jul 2007 - Jun 2008): **\$5.3 billions**
- Total cost of operations since 1948: **\$54.0 billions**





**ONGOING POLITICAL AND PEACEBUILDING MISSIONS**

Office of the United Nations Special Coordinator for Lebanon

\* Mission directed and supported by the Department of Peacekeeping Operations

UN Cartographic Section
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Page 5

## Cartographic Section

**Objective:**

**Cartographic Section provides geographic support to the full range of United Nations Operations**

**Principal duties to provide:**

- ⇒ Accurate and timely geospatial information in support of the decision-making and operational needs of
  - the Security Council and the UN Management
  - the Secretariat
  - direct support to UN Peace Operations (DPKO, DPA & DFS)
- ⇒ Coordination & support of Field Mission GIS operations.
- ⇒ Technical assistance on International Boundary issues.

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Page 6

## Areas of Responsibilities

- **HQ Geo Support**
  - . Country profile maps, Peacekeeping force deployment maps
  - . Map production for SG report, briefing, publication, etc.
  - . Map clearance, including geographical names & boundary depiction, for UN publication
  - . Maintain geo-database
  - . Timely exchange of geo-information between the field and UNHQ
- **Coordinate/collaborate with UN agencies & strategic partners for geo-data sharing**
- **International Boundary issues research & technical support**
  - . Maintain/update International boundaries database
- **Mission Geo Support**
  - . Coordinate and support mission geo operations
  - . Provide mission planning map & geo analysis
  - . Manage global GIS assets
  - . Establish mission GIS units & deploy start-up team
  - . Produce base maps & geo-database, terrain analysis
  - . Provide global geo-database & backup, GIS training

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Page 7

## Cartographic Section

Cartographic Section

**Boundary & Demarcation Projects**

- CNMC
- IKBMP
- AUBP
- UNIBED
- Sudan
- Cyprus
- Iraq

<p><b>Geo Support (UNHQ support)</b></p> <ul style="list-style-type: none"> <li>• The Security Council</li> <li>• The Secretariat</li> <li>• International border issues</li> </ul>	<p><b>Geo Operations (Mission Support)</b></p> <ul style="list-style-type: none"> <li>• Plans &amp; policies</li> <li>• Operations &amp; coordination</li> <li>• Field missions</li> </ul>	<p><b>GIS Centre (UNLB, Italy)</b></p> <ul style="list-style-type: none"> <li>• Production of base Geo-DB &amp; maps</li> <li>• Terrain analysis</li> <li>• Geo-data repository</li> <li>• Training</li> </ul>
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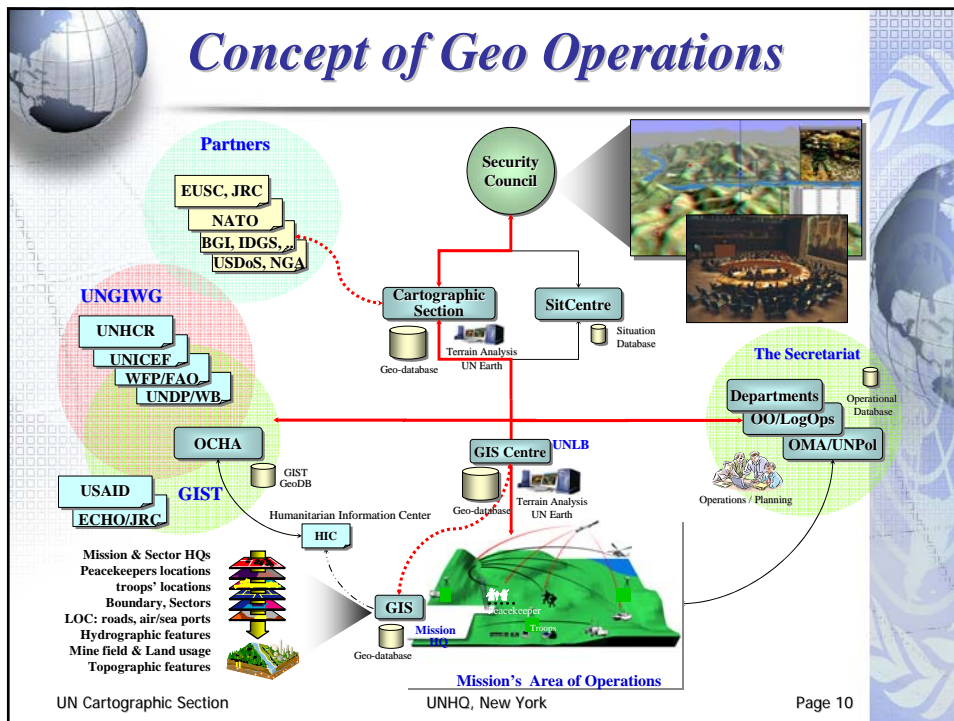
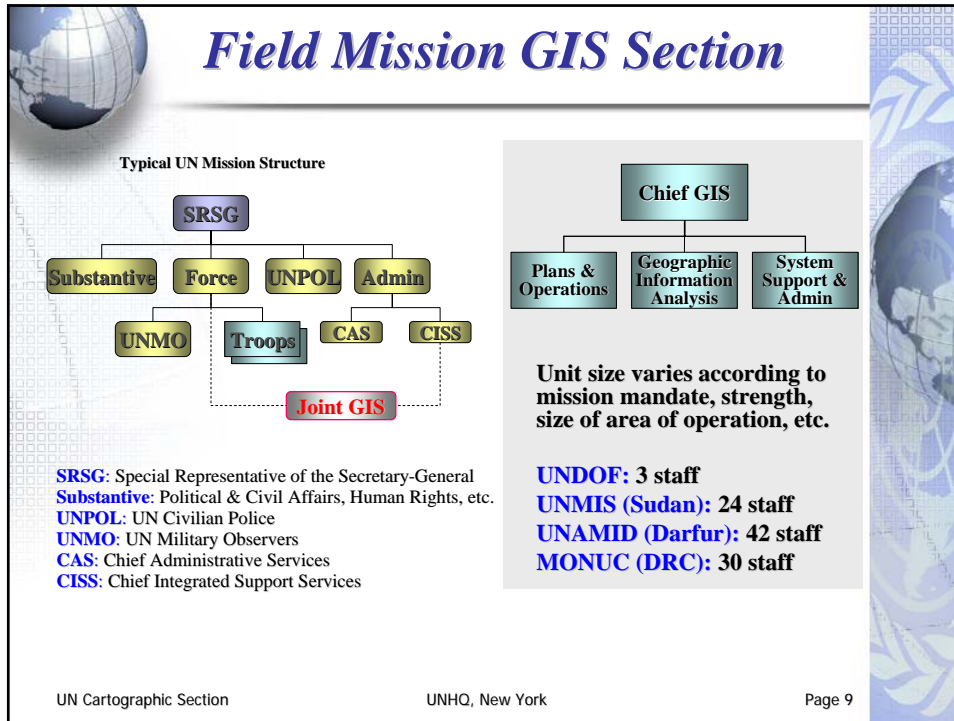
**Mission GIS**

- MINURSO
- MINUSTAH
- MONUC
- UNDOF
- UNIFIL
- UNMIL
- UNMIS
- UNMIT
- UNOCI
- UNAMID
- MINURCAT
- UNAMA
- UNSOA
- UNAMI

**UN Geo Experts**  
 2009: 170~190 staff  
 2010: 200~220 staff

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Page 8





### 3 Tiers: UNHQ-UNLB-Missions

1. Geo-database  
2. UN Earth (Google-Earth)  
3. Image library

UNLB GIS Centre: UN Geo-Database repository & Bridge

UN Cartographic Section UNHQ, New York Page 11


The slide features a world map with UNHQ in New York and UNLB in Bonn highlighted. Numerous UN missions are marked with dots and labeled, including UNMIK, UNOMIG, UNIFIL, UNDOF, UNAMI, UNMIN, UNMOGIP, UNAMA, UNMEE, UNMIS, UNTSO, UNFICYP, UNMIL, ONUCI, MONUC, BINUB, UNOSIL, UNOGBIS, MINURSO, MINUSTAH, and UNMIT. Orange arrows point from UNLB to several of these missions. A yellow box in the bottom left corner lists three tiers: 1. Geo-database, 2. UN Earth (Google-Earth), and 3. Image library. Below the map, text identifies the UNLB GIS Centre as the UN Geo-Database repository & Bridge. The footer includes 'UN Cartographic Section', 'UNHQ, New York', and 'Page 11'.

### Major Developments

- **Capacity building**
  - . Established GIS Centre (Oct 2007)
  - . Mapping (Vmap2) projects (UNDOF, UNIFIL and Darfur)
  - . Terrain Analysis and Groundwater Assessment
  - . UN-EC Gazetteer system
  - . UN Geo-database
  - . UNmap (1:1, 5, 10 millions)
  - . UN Earth (Google Earth enterprise system)
  - . UN Image Library
  - . Map portal (UN Internet & Intranet)
  - . Field Reporting Tool (for data collection & verification)
  - . UN World Map
  - . SOPs & Guidelines
  - . Established Systems Contracts – ESRI, MDA Geo, SPOT
  - . Operational & System architecture
  - . GIS start-up: Strategic deployment stocks (SDS) & GIS Rapid Deployable Module (containerized)

UN Cartographic Section UNHQ, New York Page 12

The slide is titled 'Major Developments' and lists a 'Capacity building' section with 15 bullet points detailing various GIS-related initiatives and systems implemented by the UN Cartographic Section. The footer includes 'UN Cartographic Section', 'UNHQ, New York', and 'Page 12'.




## *Major Developments*

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### **Mission GIS start-up**

- **UNAMID (Darfur)**
- **MINURCAT (Chad/CAR)**
  
- **UNAMA (Afghanistan) ... June 2009**
  - . Staffing: P3+UNV (2009), additional 2 staff (2010)
  - . Chief GIS: Ms. Olujemisi Olugbile
  - . Start-up team deploy: 27 July
  - . Will be operational in mid August (election)
  
- **UNSOA (Somalia) ... July 2009**
  - . Staffing: P4+2NPO, to be expanded under UN operations
  - . Chief GIS: Mr. Rob Gray
  - . Start-up team deploy: end August
  
- **UNAMI (Iraq) ... Nov 2009**
  - . Staffing: 3 staff, ad hoc start-up in 2009
  - . One GIS Unit support UNAMI operations
  - . Start-up plan is under development

UN Cartographic Section UNHQ, New York Page 13



## *Major Developments*

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- **Partnerships**
  - . EU Satellite Centre
  - . EC Joint Research Centre
  - . NATO Geo Section
  - . France (BGI)
  - . EUFOR–Chad/CAR
  - . US State Dept (Office of Geographer & Global Issue)
  - . Italy (DGS - Geospatial Section)
  - . G-MOSAIC (EU funded GMES initiative)
  
- **Collaboration**
  - . Multinational Geospatial Co-production Program (MGCP)
  - . Belgium, Netherlands, Spain, USA
  - . Canada, Germany, ...
  
- **Ad hoc support**
  - . Netherlands (Eastern DRC mapping)
  - . Romania (Vmap2)

UN Cartographic Section UNHQ, New York Page 14

## Furthering Partnership

**To meet the Operational needs effectively & timely fashion within the given resource/capacity.**

**“Avoid duplications, enhance synergy by cooperation”**

- **Sharing geo-data, knowledge & experience**
- **Geo-data co-production (Darfur, Somalia, etc)**
- **Joint Task Force**
- **Joint Projects (e.g., evacuation, water source)**
- **Cross-training & education**
- **Technology exchange**
- **Staff exchange**
- **Other areas**

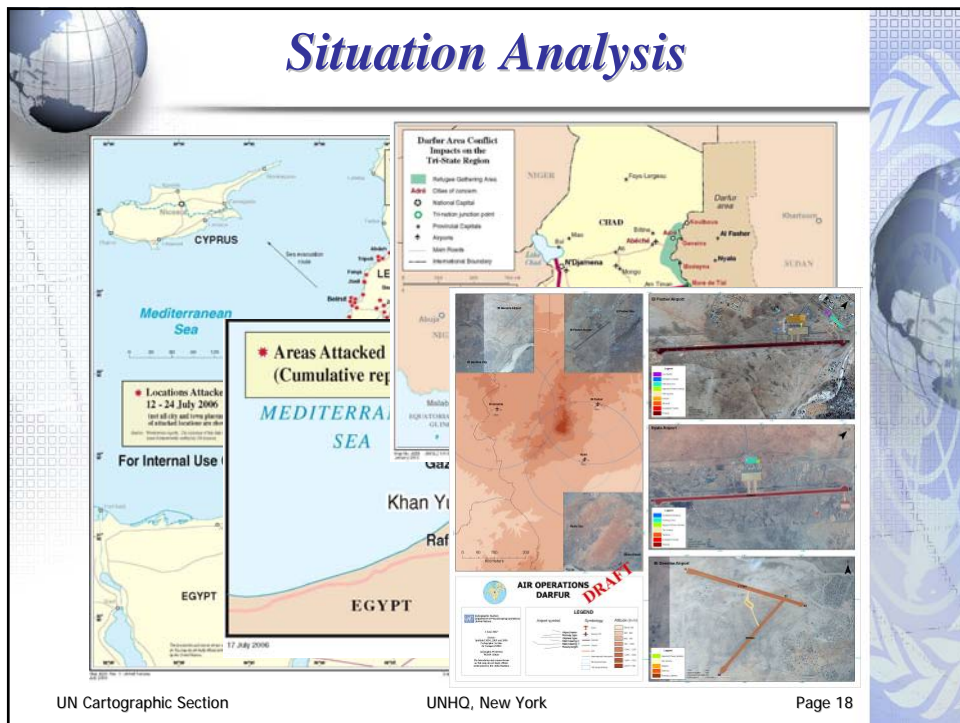
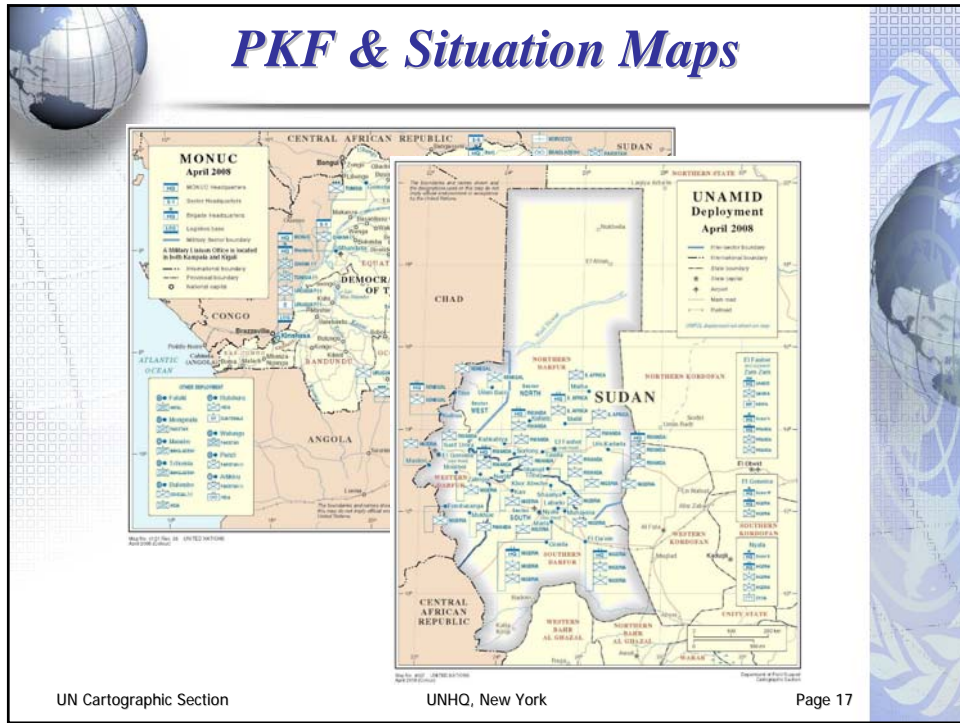
UN Cartographic Section
UNHQ, New York
Page 15

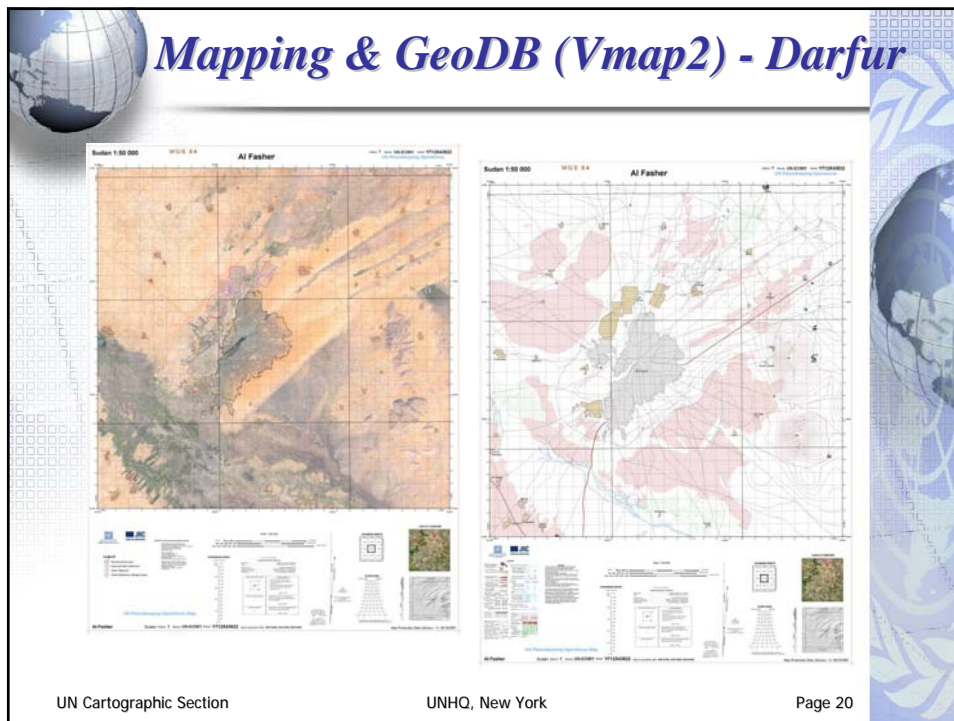
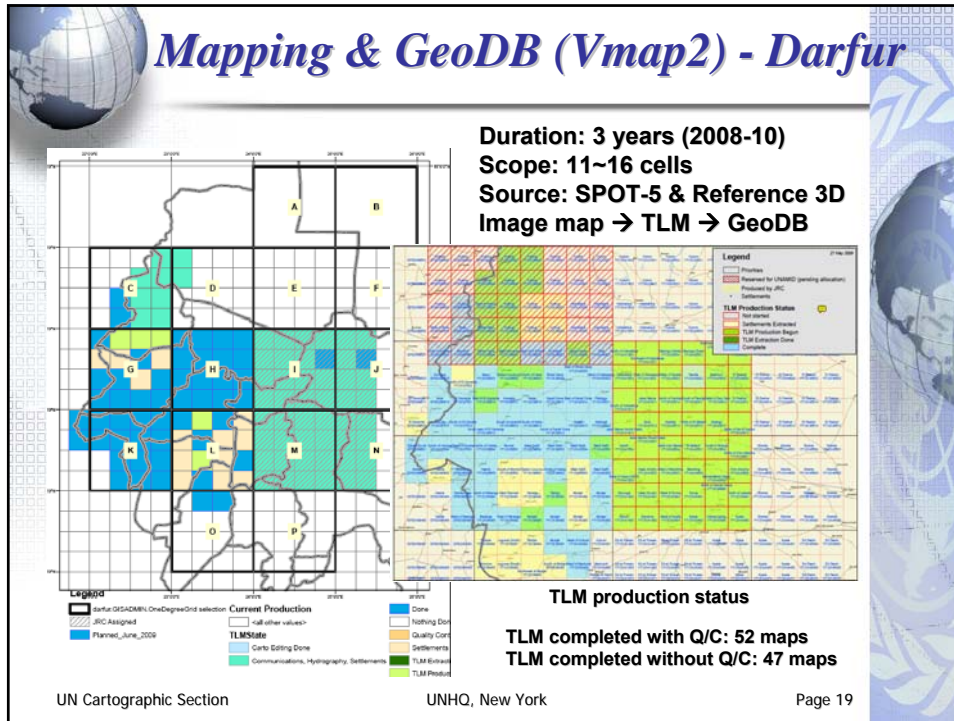
## Country Profile Maps

The slide displays three maps. The top-left map shows the Horn of Africa region, including Chad, Libya Arab Jamahiriya, Egypt, Niger, Nigeria, Sudan, Eritrea, Ethiopia, Kenya, Uganda, and Tanzania. The top-right map shows the Economic and Social Commission for Asia and the Pacific (ESCAP) region, covering Russia, China, India, Mongolia, Korea, Japan, and Australia. The bottom map is a detailed map of the Horn of Africa region, showing the same countries as the top-left map but with more detail and a legend for members and associate members.

UN Cartographic Section
UNHQ, New York
Page 16

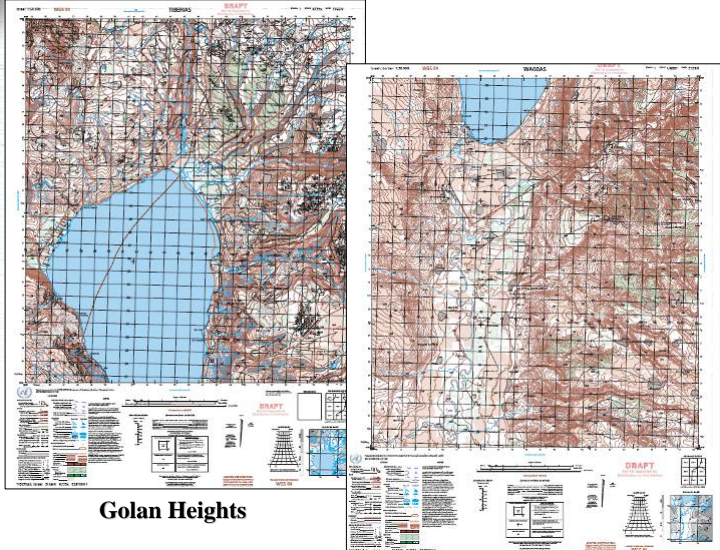








## Mapping & GeoDB (Vmap2) - Golan



**Golan Heights**

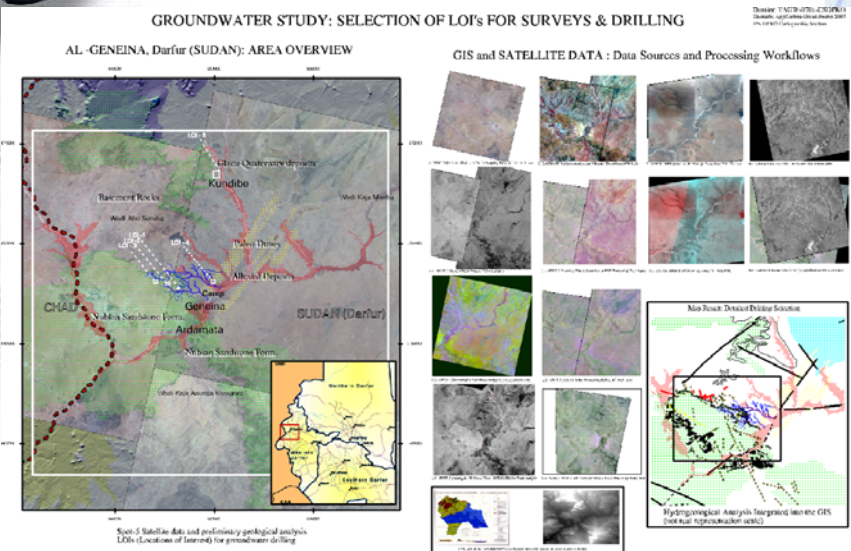
UN Cartographic Section                      UNHQ, New York                      Page 21

## Ground Water Analysis

GROUNDWATER STUDY: SELECTION OF LOI's FOR SURVEYS & DRILLING

AL - GENEINA, Darfur (SUDAN): AREA OVERVIEW

GIS and SATELLITE DATA : Data Sources and Processing Workflows



Spot-5 Satellite data and preliminary geological analysis  
LOIs (Locations of Interest) for groundwater drilling

Geo-Risk Derived Priority Scores  
Hydrogeological Analysis Integrated into the GIS  
(Individual hydrogeological units)

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## Map Portal

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## UN-EC Gazetteer

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## UN Earth (GE Enterprise)



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## UNmap (1:10, 5 & 1 millions)



UN Cartographic Section      UNHQ, New York      Page 26

## Property Management

The screenshot displays a GIS application window with a map showing property boundaries in red and black lines. The interface includes a toolbar at the top, a legend on the left, and a data table on the right. The data table lists various property details, including location, area, and status.

Location	Area (sq. m)	Status
ALGERIA	100,000.00	1
ALGERIA	100,000.00	2
ALGERIA	100,000.00	3
ALGERIA	100,000.00	4
ALGERIA	100,000.00	5
ALGERIA	100,000.00	6
ALGERIA	100,000.00	7
ALGERIA	100,000.00	8
ALGERIA	100,000.00	9
ALGERIA	100,000.00	10
ALGERIA	100,000.00	11
ALGERIA	100,000.00	12
ALGERIA	100,000.00	13
ALGERIA	100,000.00	14
ALGERIA	100,000.00	15
ALGERIA	100,000.00	16
ALGERIA	100,000.00	17
ALGERIA	100,000.00	18
ALGERIA	100,000.00	19
ALGERIA	100,000.00	20

UN Cartographic Section                      UNHQ, New York                      Page 27

## International Boundaries

- **Border demarcation**
  - . EEBC (Eritrea-Ethiopia)
  - . CNMC (Cameroon-Nigeria)
  - . IKBMP (Iraq-Kuwait)
  - . Blue Line (Lebanon-Israel)
  - . Green Line (Cyprus)
- **Technical assistance**
  - . AU Border Program
- **Capacity building**
  - . Border knowledge base
  - . Cooperation with major players

The map shows the continent of Africa with various international boundaries. A legend indicates different types of boundaries: Disputed, Partially Disputed, and Disputed. It also shows the status of boundaries, such as those established by treaty, those established by colonial times, and those established by unilateral declaration.

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## International Boundaries

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## Boundary Knowledge Base

### Knowledge base for International boundaries

- Gather authoritative source information and evidence on international treaties such as treaty maps, coordinates, boundary text description, satellite imagery...
- Compile the information in a seamless and comprehensive geo-database on international boundaries
- Provide a user friendly interface to key players to access the compiled geo-database on boundaries
- Serve as knowledge base for delimitation process

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## Boundary Knowledge Base

### Collection of evidence ...

**International Court of Justice  
Benin Niger boundary decision**

**Other source: Chad - Sudan boundary**

**League of Nations  
Togoland Boundary Commission**

**UN Treaty Section  
Tunisia Algeria boundary treaty**

**UN Treaty Section – Malawi Mozambique boundary treaty**

**League of Nations  
Libya and Egypt boundary treaty**

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## Boundary Knowledge Base

### Interpretation & digitization ...

**Treaty maps**

**Treaty coordinates**

**Supporting evidence**

**Treaty text**

**Digitization**

**Input and convert**

**Interpretation & Digitization**

**Final boundary**  
All elements are included

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## Boundary Knowledge Base

**Interpretation & digitization ... (Kenya – Ethiopia)**

The diagram illustrates the workflow for digitizing a historical boundary. It starts with a 'Treaty map (Clarke 1880)' on the left. An arrow points to 'Geo-referenced maps' in the center, which are then processed into an 'Extracted boundary' on the right. A detailed inset shows a 'Problem of accuracy between map and image (≈ 350 meters)' where a red line from the map does not perfectly align with a red line from a satellite image. Below this inset, technical data is provided:

<b>LANDSAT IMAGE (WGS 84):</b> Accuracy ≈ 100 meters	<b>MAP (CLARKE 1880):</b> Accuracy to WGS84 $\Delta X \approx -180$ meters $\Delta Y \approx -45$ meters
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UN Cartographic Section                      UNHQ, New York                      Page 33

## Thank you

A photograph of a young boy in a blue UN uniform, wearing a cap with the UN emblem, saluting with his right hand. The background is a soft-focus green field.

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UN Cartographic Section                      UNHQ, New York                      Page 34