**UNITED NATIONS** **E/CONF.100/IP.20**

**ECONOMIC AND SOCIAL COUNCIL**

**Eighteenth United Nations Regional Cartographic Conference for Asia and the Pacific**
**Bangkok, 26-29 October 2009**
**Item 7(b) of the provisional agenda**
**Invited Papers**

# Geospatial Support for UN Operations [*]

[*] **Prepared by the Cartographic Section, Department of Field Support, United Nations**

# Geospatial Support for UN Operations

**UNRCC Asia & the Pacific**

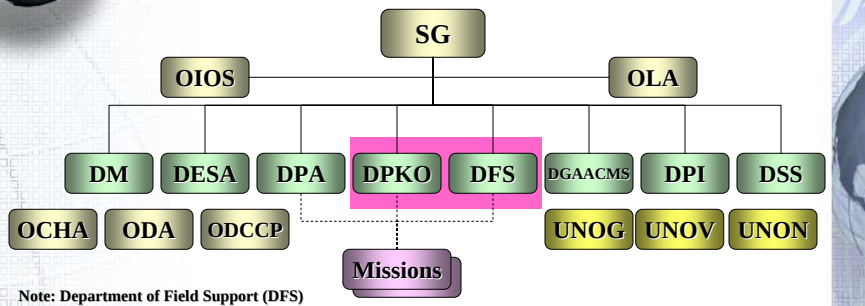
**Cartographic Section**
**Department of Field Support**
**United Nations**



## *Agenda*

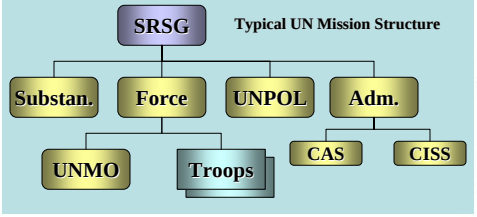
- **UN Secretariat and its Missions**
- **Cartographic Section**
  - **Area of Responsibility**
  - **Geo Operational Concept**
  - **Field Mission Geo Operations**
- **Major developments**
- **Capacity Building**
- **Partnerships**
- **International Boundary Issues**
- **Questions & Answers**

# UN Secretariat & its Missions




Note: Department of Field Support (DFS) has established on 1 July 2007

Typical UN Mission Structure

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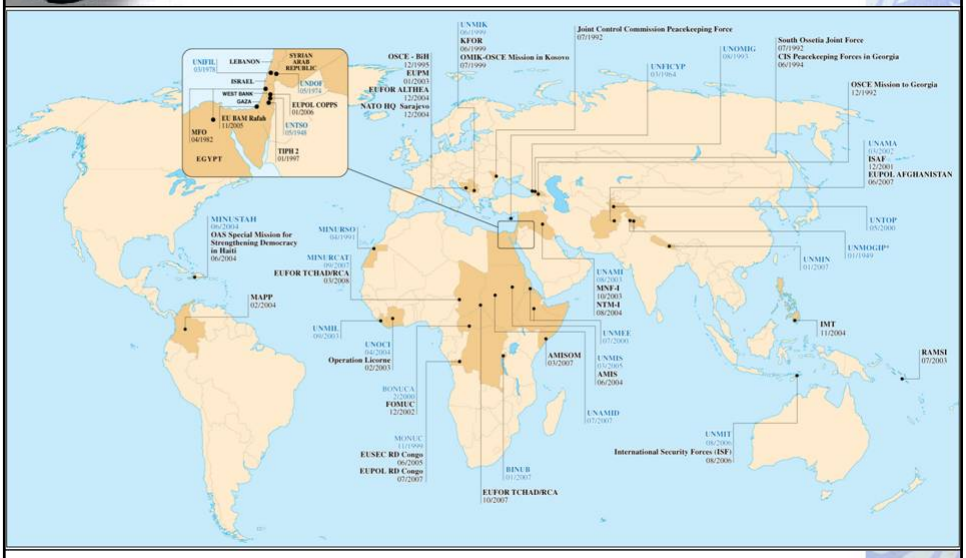
# Peace Operations 2009

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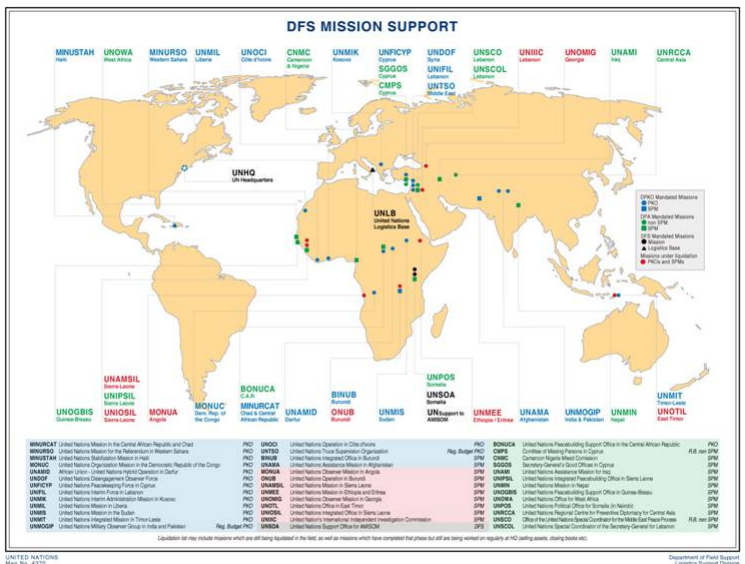
# UN Field Missions 2009






# UN Peace Operations statistics

| 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 2009 – Jun 2010): $8.1 billions
- 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

# Cartographic Section

## Objective:

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

## Principal duties:

- **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)**
- **Coordinate & support of Field Mission GIS operations**
- **Provide technical assistance on International Boundary issues**

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# Areas of Responsibilities

- **HQ Geo Support**
  - . Country profile maps, Peacekeeping force deployment maps
  - . Map production for SG report, briefing, publication, etc.
  - . Map clearance for UN publication, including geographical names & boundary depiction
  - . Maintain geo-database, including imagery & gazetteers
  - . Timely exchange of geo-information between the field and UNHQ
  - . Provide technical advice and solutions on geospatial matters
- **Collaborate with UN agencies & strategic partners on data sharing**

- **International Boundary issues - research & technical support**
  - . Maintain International Boundaries Information System

- **Mission Geo Support**
  - . Manage field mission GIS programme
  - . Start-up mission GIS sections/units
  - . Produce base maps, planning/operation maps & geo-databases
  - . Perform geospatial/terrain analysis and other special analysis
  - . Provide global backup of geo-databases and manage global GIS assets
  - . Conduct geo training

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# Cartographic Section

**Cartographic Section**

**Boundary & Demarcation Projects**
- CNMC
- IKBMP
- AUBP
- UNIBED
- Sudan
- Cyprus
- Iraq

**Geo Support**
- Security Council
- Secretariat
- Map making
- International boundary issues

**Geo Operations**
- UN peace operations
- UN Field missions
- Plans & policies
- Collaboration

**GIS Centre (UNLB, Italy)**
- Base map & geo-data production
- Terrain analysis
- Geo-data repository
- Training

**Regional Service Centre**
- GIS Centre (Entebbe, Uganda )

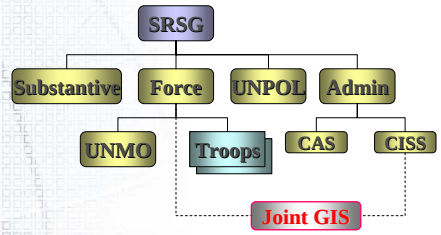
**Mission GIS**
- MINURSO Western Sahara
- MINUSTAH Haiti
- MONUC D.R. Congo
- UNDOF Golan Heights
- UNIFIL Lebanon
- UNMIL Liberia
- UNMIS Sudan
- UNMIT Timor Leste
- UNOCI Ivory Coast
- UNAMID Darfur
- MINURCAT Chad & C.A.R.
- UNAMA Afghanistan
- UNSOA Somalia

**GIS experts in UN Peace Operations**
**2009: 170~190 staff**
**2010: 200~220 staff**



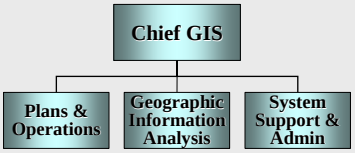
# Field Mission GIS Section

**Typical UN Mission Structure**



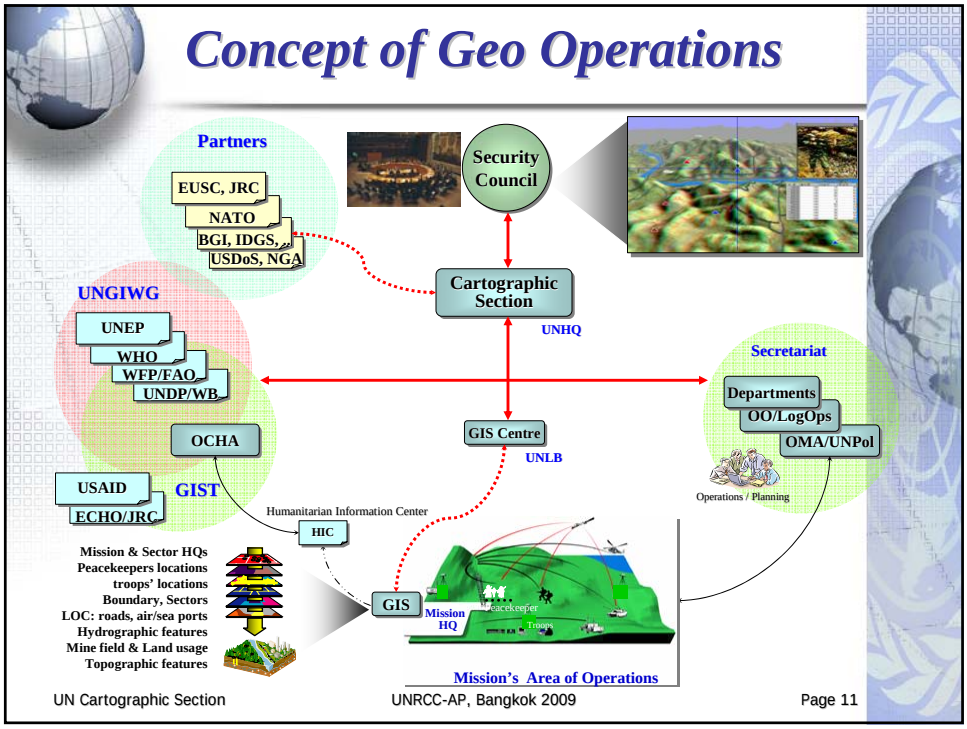

**SRSG**: Special Representative of the Secretary-General
**Substantive**: Political & Civil Affairs, Human Rights, etc.
**UNPOL**: UN Civilian Police
**UNMO**: UN Military Observer
**CAS**: Chief Administrative Services
**CISS**: Chief Integrated Support Services

**Joint GIS**




**Section/Unit size varies according to mission mandate, strength, size of area of operation, etc.**

**UNAMA (Afghanistan): 2 staff**
**UNOCI (Ivory Coast): 8 staff**
**UNMIS (Sudan): 24 staff**
**UNAMID (Darfur): 42 staff**


Concept of Geo Operations
Partners
EUSC, JRC
NATO
BGI, IDGS,
USDoS, NGA
Security Council
Cartographic Section
UNHQ
UNGIWG
UNEP
WHO
WFP/FAO
UNDP/WB
OCHA
USAID
ECHO/JRC
GIST
Secretariat
Departments
OO/LogOps
OMA/UNPol
Operations / Planning
GIS Centre
UNLB
Humanitarian Information Center
HIC
Mission & Sector HQs
Peacekeepers locations
troops' locations
Boundary, Sectors
LOC: roads, air/sea ports
Hydrographic features
Mine field & Land usage
Topographic features
GIS
Mission HQ
Peacekeeper
Troops
Mission's Area of Operations
UN Cartographic Section
UNRCC-AP, Bangkok 2009
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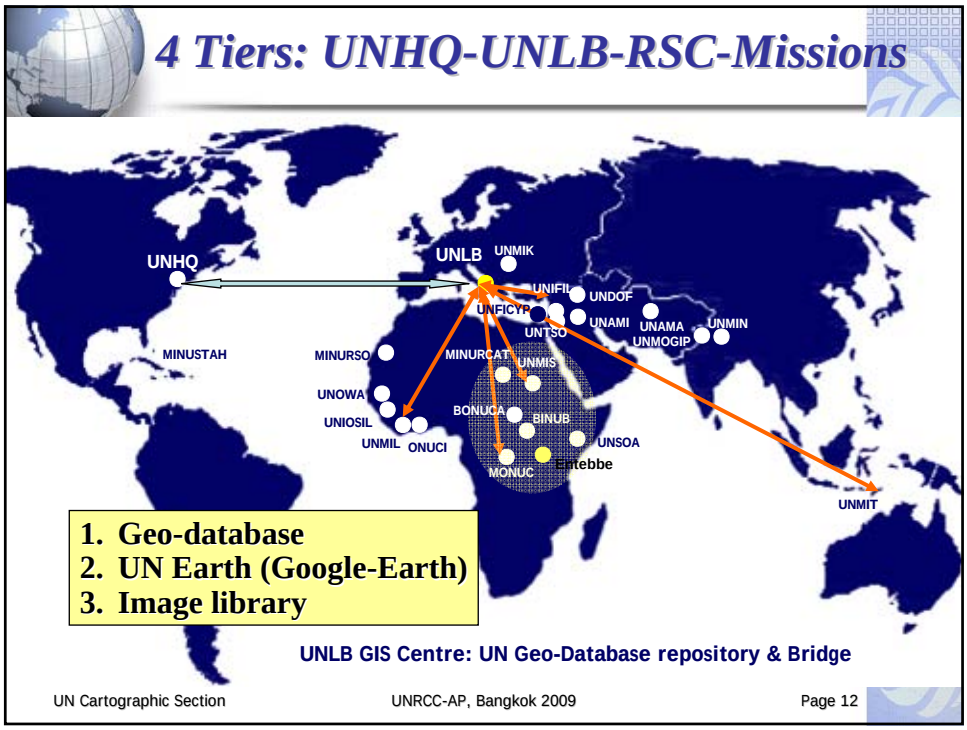
4 Tiers: UNHQ-UNLB-RSC-Missions
UNHQ
UNLB
UNMIK
UNIFIL
UNDOF
UNFICYP
UNAMI
UNAMA
UNMOGIP
UNMIN
UNTSO
MINURSO
MINURCAT
UNMIS
MINUSTAH
UNOWA
BONUCA
UNIOSIL
BINUB
UNMIL
ONUCI
UNSOA
Entebbe
MONUC
UNMIT
1. Geo-database
2. UN Earth (Google-Earth)
3. Image library
UNLB GIS Centre: UN Geo-Database repository & Bridge
UN Cartographic Section
UNRCC-AP, Bangkok 2009
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# 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
  - . Operation & System architecture
  - . GIS start-up: Strategic deployment stocks (SDS) & GIS Rapid Deployable Module (containerized)



# Partnership & Alliances

- **Strategic Partners**
  - . UN Geographic Information Working Group (UNGIWG)
  - . Geographic Information Support Team (GIST)
  - . Interagency collaboration on the field
  - . EU Satellite Centre (EUSC)
  - . EC Joint Research Centre (JRC)
  - . NATO Geo Section
  - . France (BGHMO), EUFOR–Chad/CAR
  - . US State Dept (Office of Geographer & Global Issue)
  - . Italy (DGS), US NGA, Netherlands, Belgium, …
  - . G-MOSAIC (EU funded GMES initiative)
  - . Multinational Geospatial Co-production Program (MGCP)
- **Other partners**
  - . ISO/TC211 Geographic Information/Geomatics
  - . Open GIS Consortium (OGC)
  - . Global Spatial Data Infrastructure (GSDI)
  - . International Steering Committee for Global Mapping (ISCGM)
  - . Committee on Earth Observation Satellite (CEOS)
  - . National Mapping Agencies

# Furthering Partnership

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

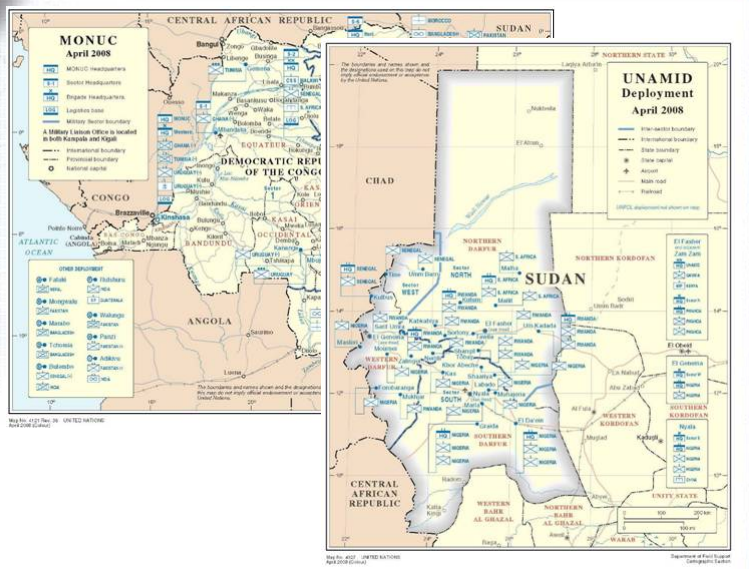
**"Avoid duplications, enhance synergy by cooperation"**

- **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**



# Country Profile Maps

# Peacekeeping Deployment Maps

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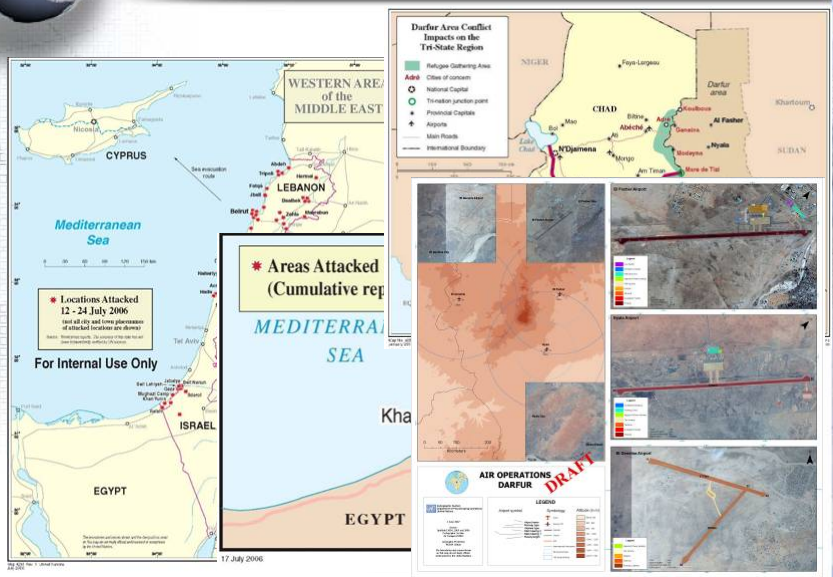
# Situation Analysis

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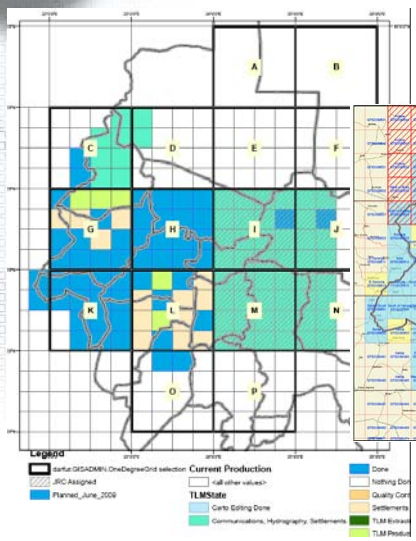
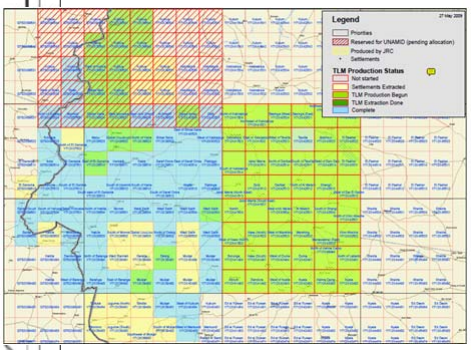
# Mapping & GeoDB (Vmap2) - Darfur

**Duration: 3 years (2008-10)**
**Scope: 11~16 cells**
**Source: SPOT-5 & Reference 3D**
**Image map → TLM → GeoDB**




**TLM production status**

**TLM completed with Q/C: 63 maps**
**TLM completed without Q/C: 47 maps**

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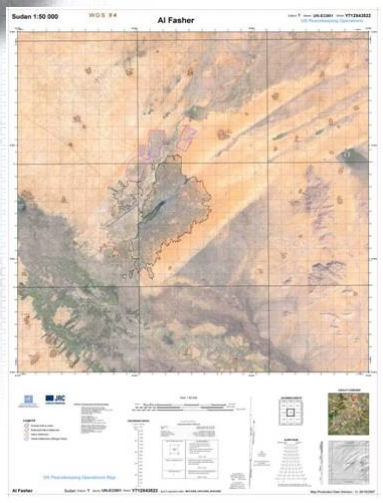
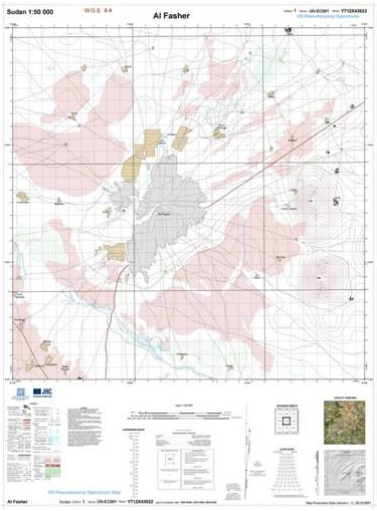
# Mapping & GeoDB (Vmap2) - Darfur

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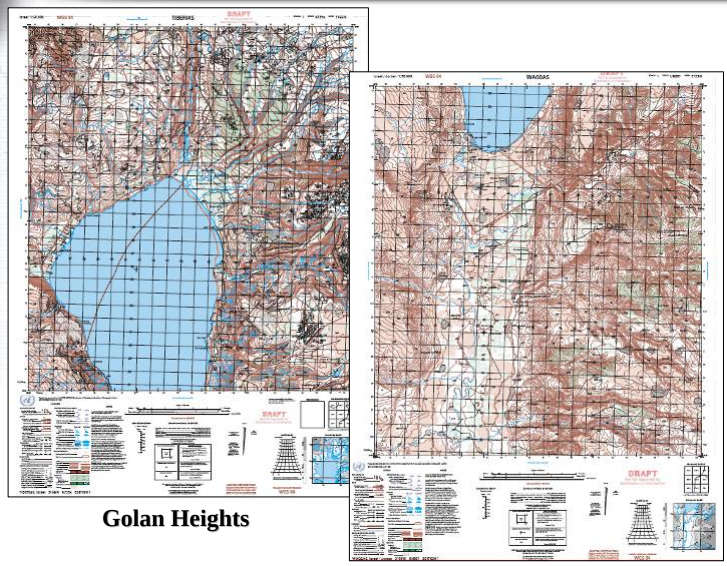
# Mapping & GeoDB (Vmap2) - Golan



**Golan Heights**

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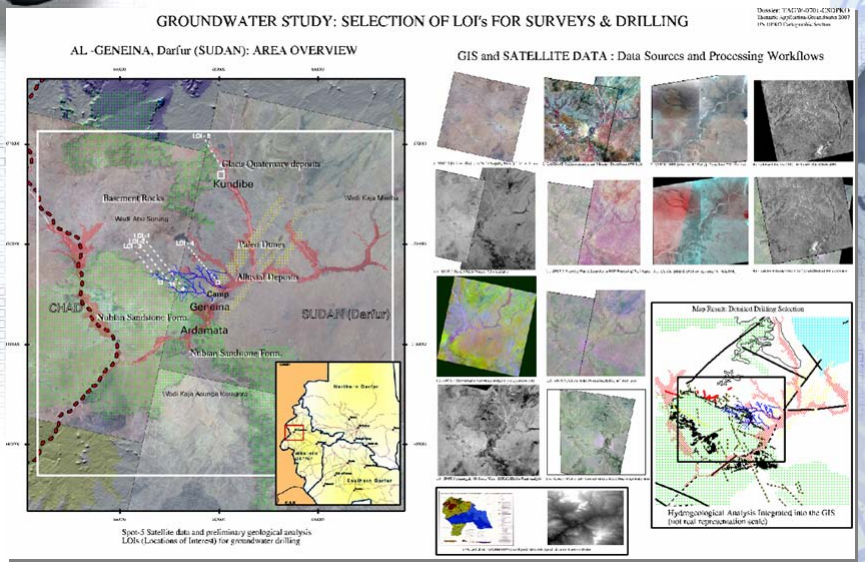
# Ground Water Analysis

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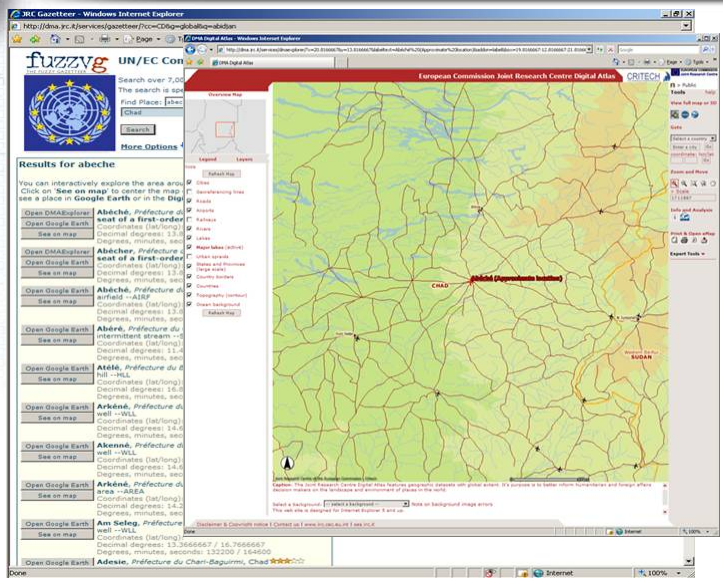
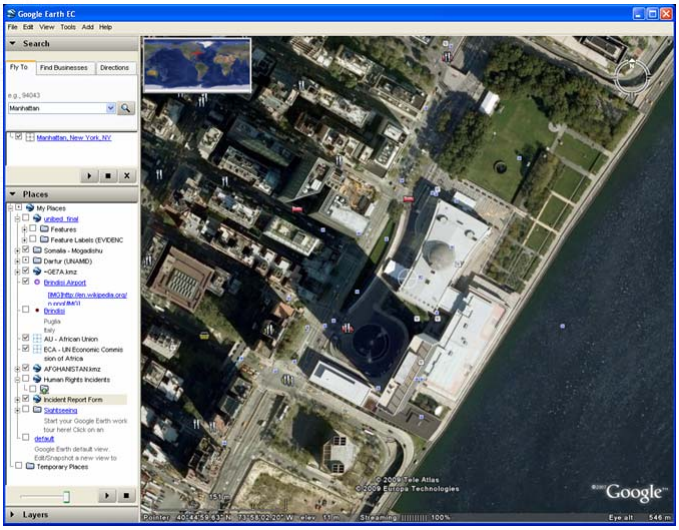
# Map Portal

# UN-EC Gazetteer



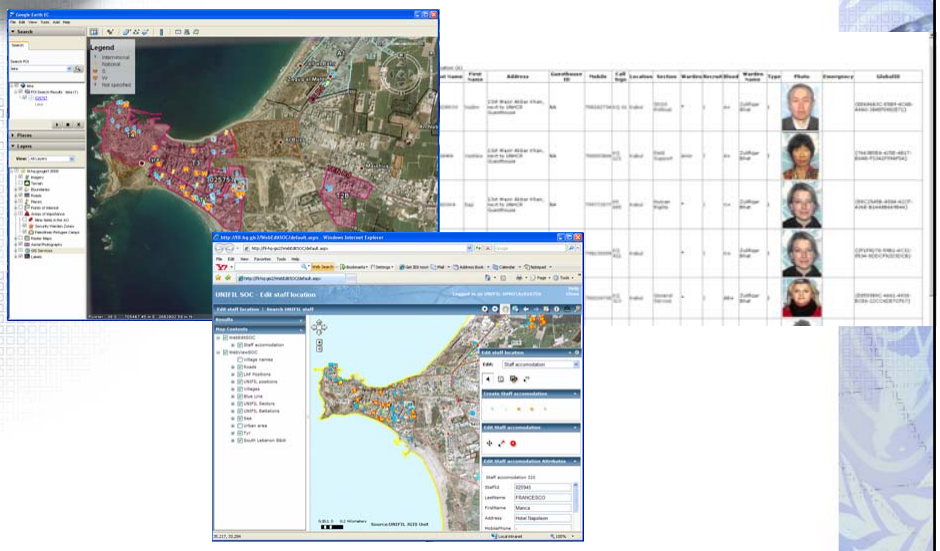
# UN Earth (GE Enterprise)





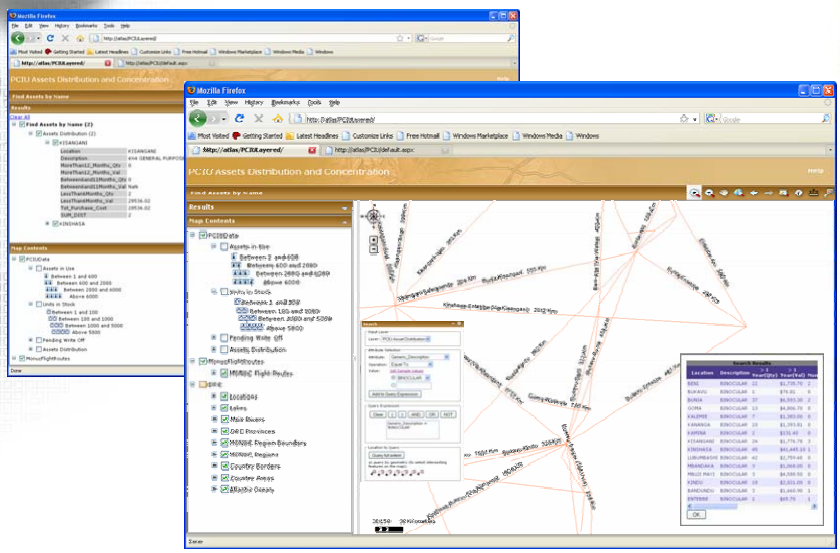

# UNmap (1:10, 5 & 1 millions)

# Security Warden Information System

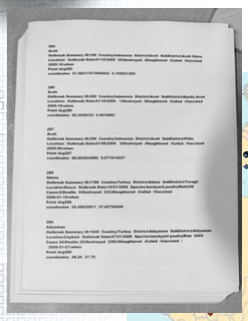


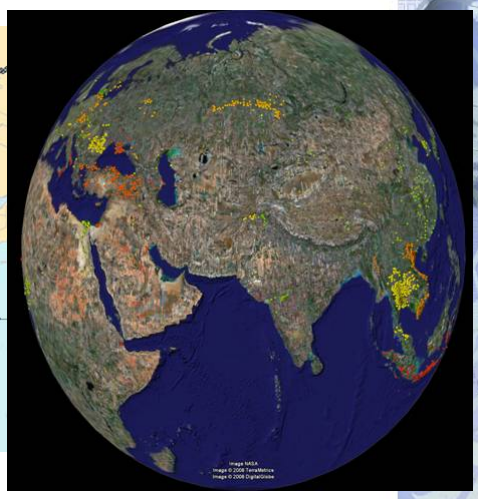


# Resource Management



# Bird Flu Analysis





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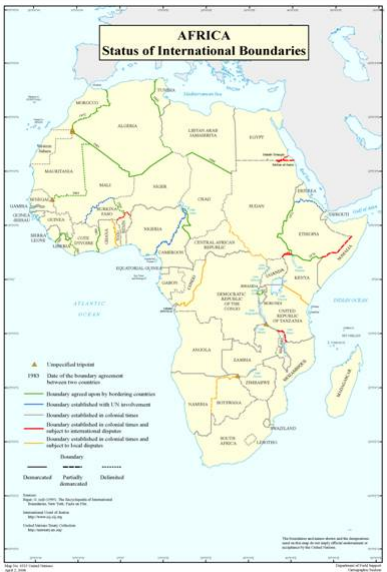
# International Boundaries

- **Boundary delimitation & demarcation**
  - . EEBC (Eritrea-Ethiopia)
  - . CNMC (Cameroon-Nigeria)
  - . IKBDC/IKBMP (Iraq-Kuwait)
  - . Blue Line (Lebanon-Israel)
- **Technical assistance**
  - . AU Border Program
  - . North-South Sudan
  - . Iraq disputed internal boundaries
  - . Green Line (Cyprus)
- **Capacity building**
  - . Boundary Information System
  - . Cooperation with major players

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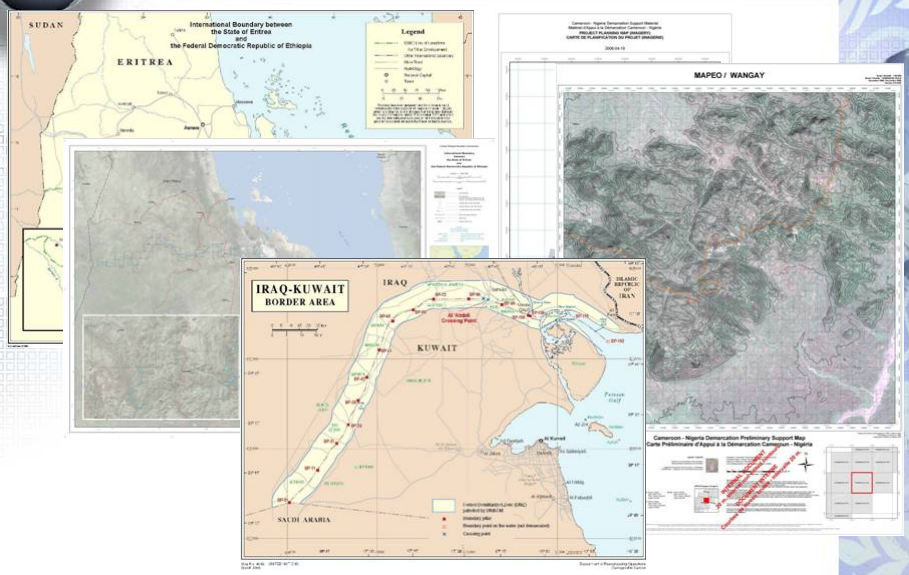
# International Boundaries

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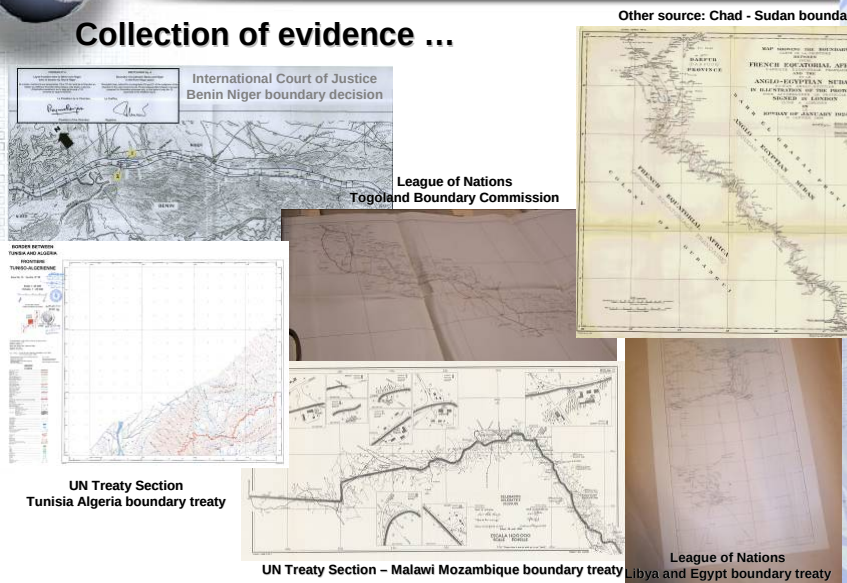
# Boundary Information System

## Collection of evidence …

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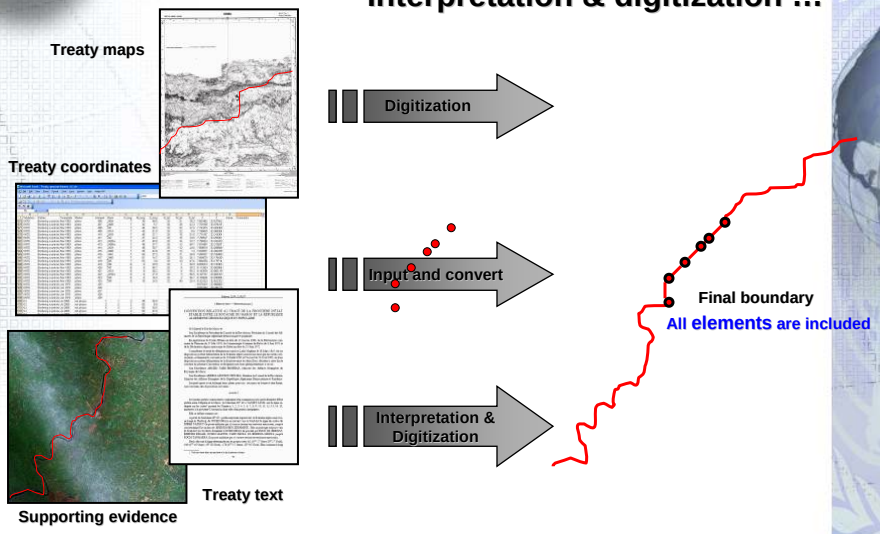
# Boundary Information System

## Interpretation & digitization …

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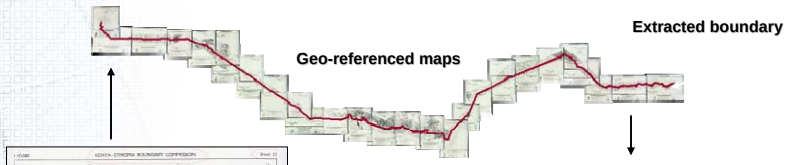
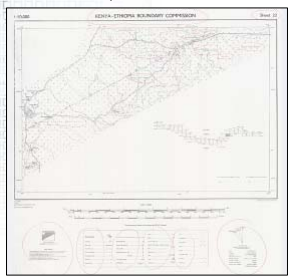
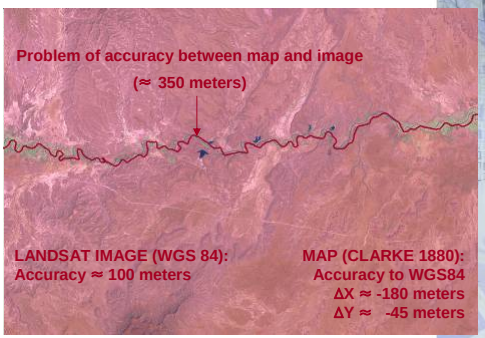
# Boundary Information System

## Interpretation & digitization … (Kenya – Ethiopia)



Treaty map
(Clarke 1880)

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# *Thank you*

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