United Nations Institute for Training and Research

Operational Satellite Applications Programme (UNOSAT)

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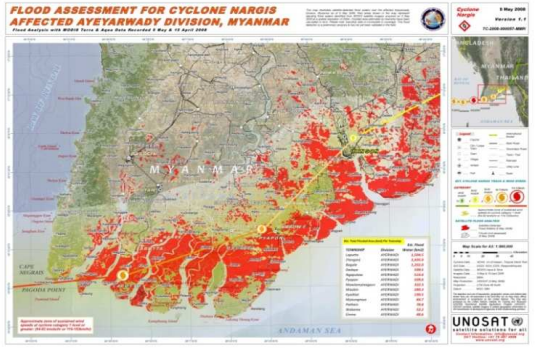
UNOSAT

- UNOSAT is part of the United Nations Institute for Training and Research (UNITAR)
- UNOSAT = Operational Satellite Applications Programme – entirely dedicated to researching and applying solutions in geospatial information and integrated systems (GIS, navigation, geopositioning)
- Launched in 2000 as a project, evolved into a UN centre of excellence with global outreach supported by a worldwide network of partners
- UNOSAT means over 1000 maps/analyses since 2000, taskings in over 250 emergencies & conflicts; professional training; research & methodology

SYSTEM AREAS

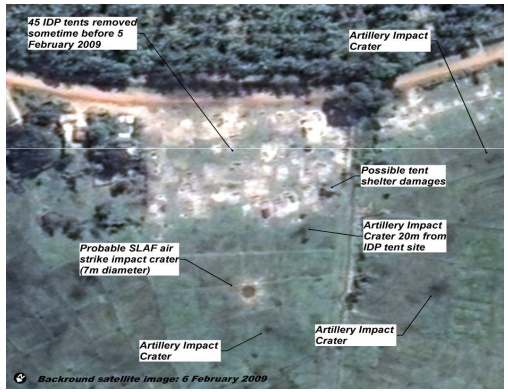
Humanitarian Aid and Relief Coordination

- Crisis & Situational Mapping
- Damage assessment



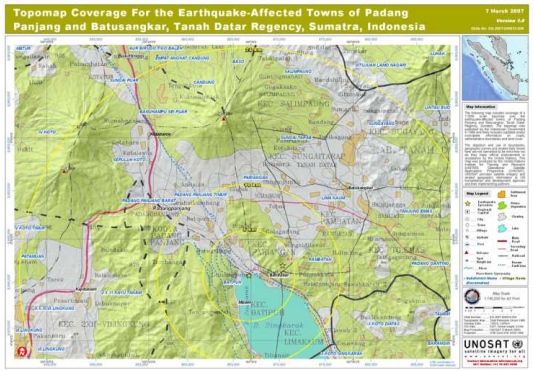
Human Security

- Monitoring
- Human Rights
- Safety and Security

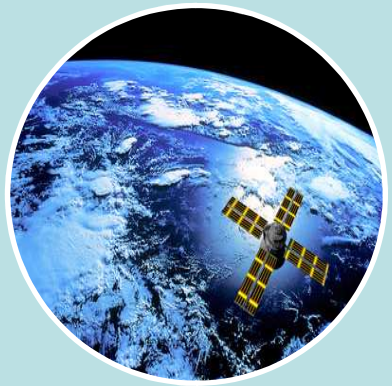


Territorial Planning and Monitoring

- Capacity Development & Technical Assistance
- Training and Knowledge Transfer



UNOSAT COMPETENCIES & SKILLS



MAPPING

Research, Analysis & Applications

IN-FIELD

Technical Support and Capacity Development

PROJECTS & METHODOLOGY

Training, Design, Knowledge Dev

TECHNOLOGY & INNOVATION

CHANGE

FROM NEEDS TO SOLUTIONS

PROCESSES

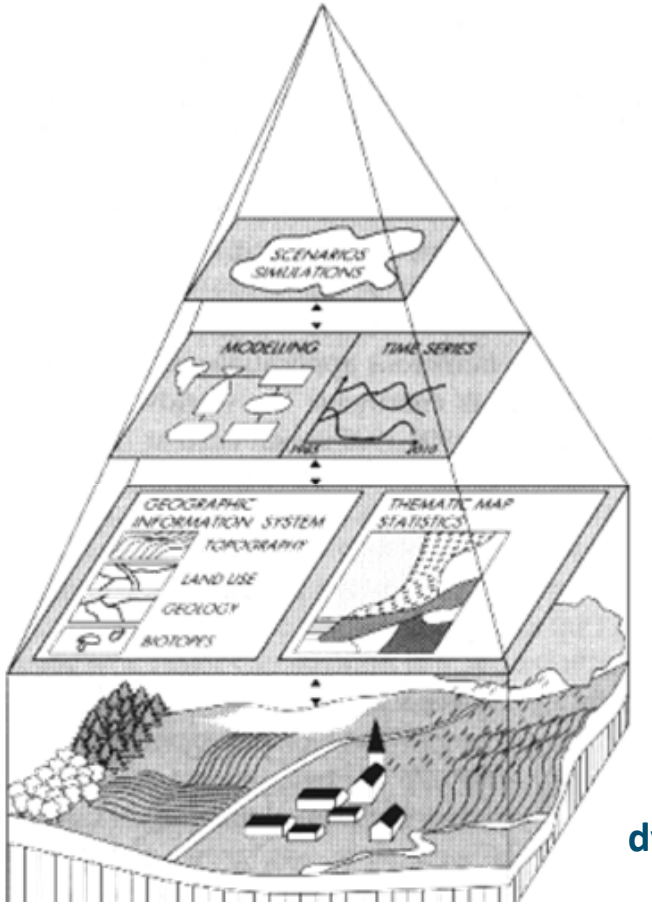
CAPACITY DEVELOPMENT

GIS: rendering information in geographic layers

strategic level

data collection and management

real world



decision making

scenario generation

analysis and processing

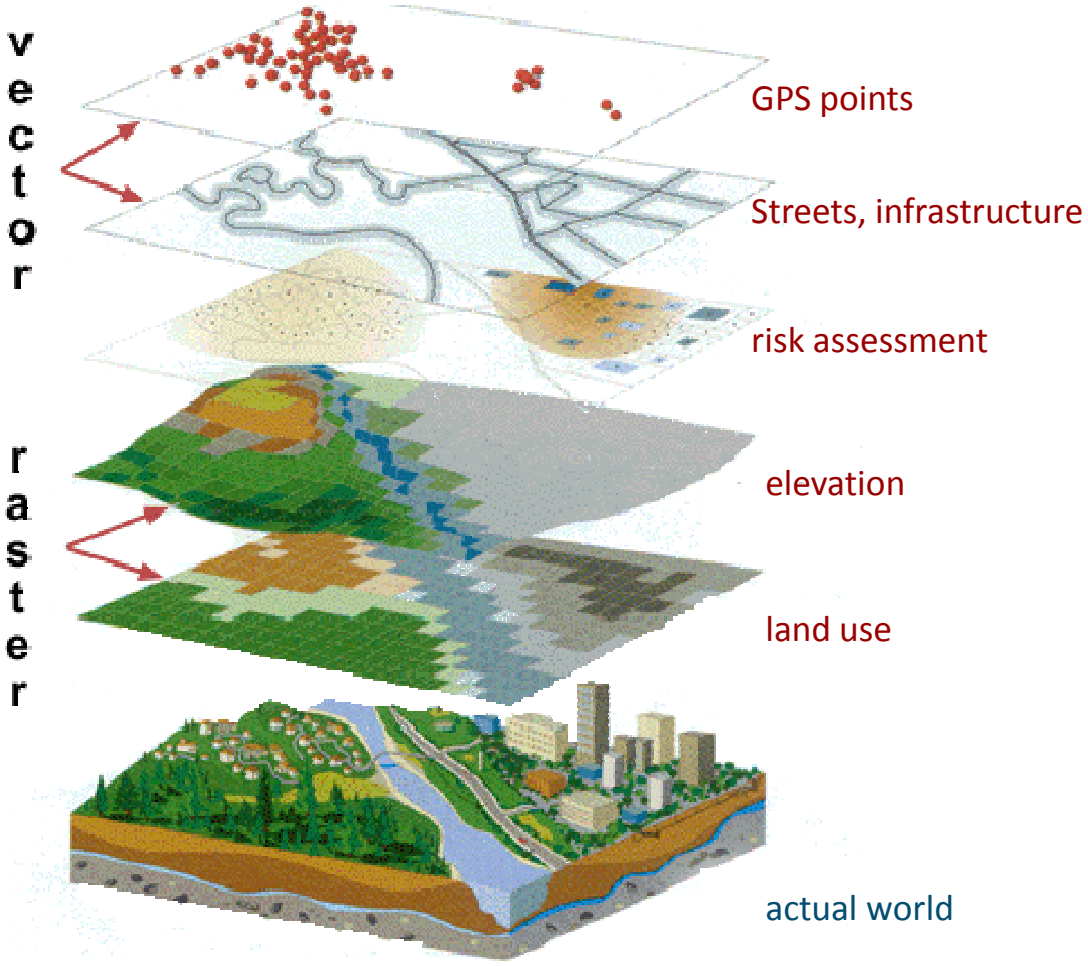
dynamic phenomena and processes

By using a GIS a simplified world can be visualised in a dynamic way to support decision making and monitoring

GIS data integration

GIS integrates a variety of data layers (spatial datasets) from different sources and digital formats (e.g. satellite images, topographic maps, spreadsheets, etc.).

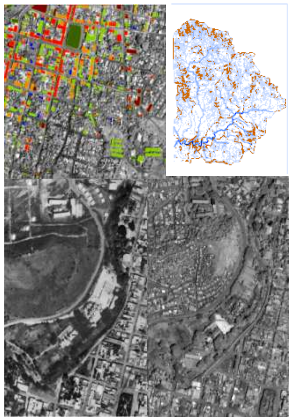
Condition for data integration within a GIS is that all data are geo-referenced in a given coordinate system with a known datum.



GIS competency centres

Dashboard

- ❑ Analysis
- ❑ Decision making
- ❑ Evaluation

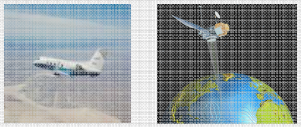


- oTerritorial management
- o Urban planning
- o Disaster risk reduction
- o Environmental assessment
- oProject monitoring

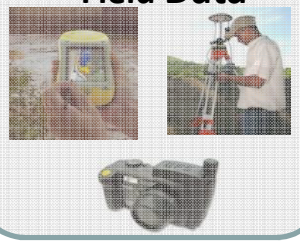
Agriculture
Transport
Water Resource
Education
Environment
Health
Housing
Works
Land and Survey
Urban Development
Information
Others..

Thematic Data

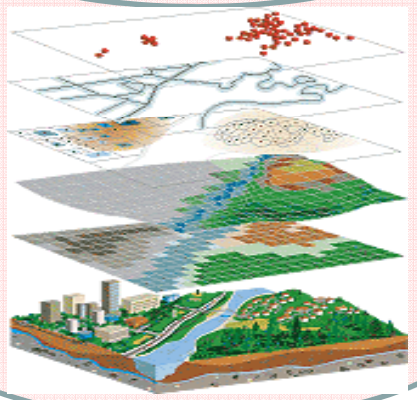
Aerial/Satellite Data

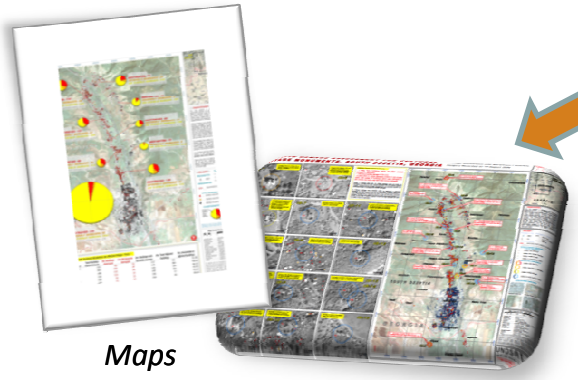


Field Data



Situation Room





Maps
Analysis

Communication
Web

Decision Making

Planning

Evaluation Monitoring

UPDATE 2: FLOOD WATER OUTFLOW FROM INDUS NEAR SUKKUR BARRAGE ENTERING BALOCHISTAN PROVINCE, PAKISTAN

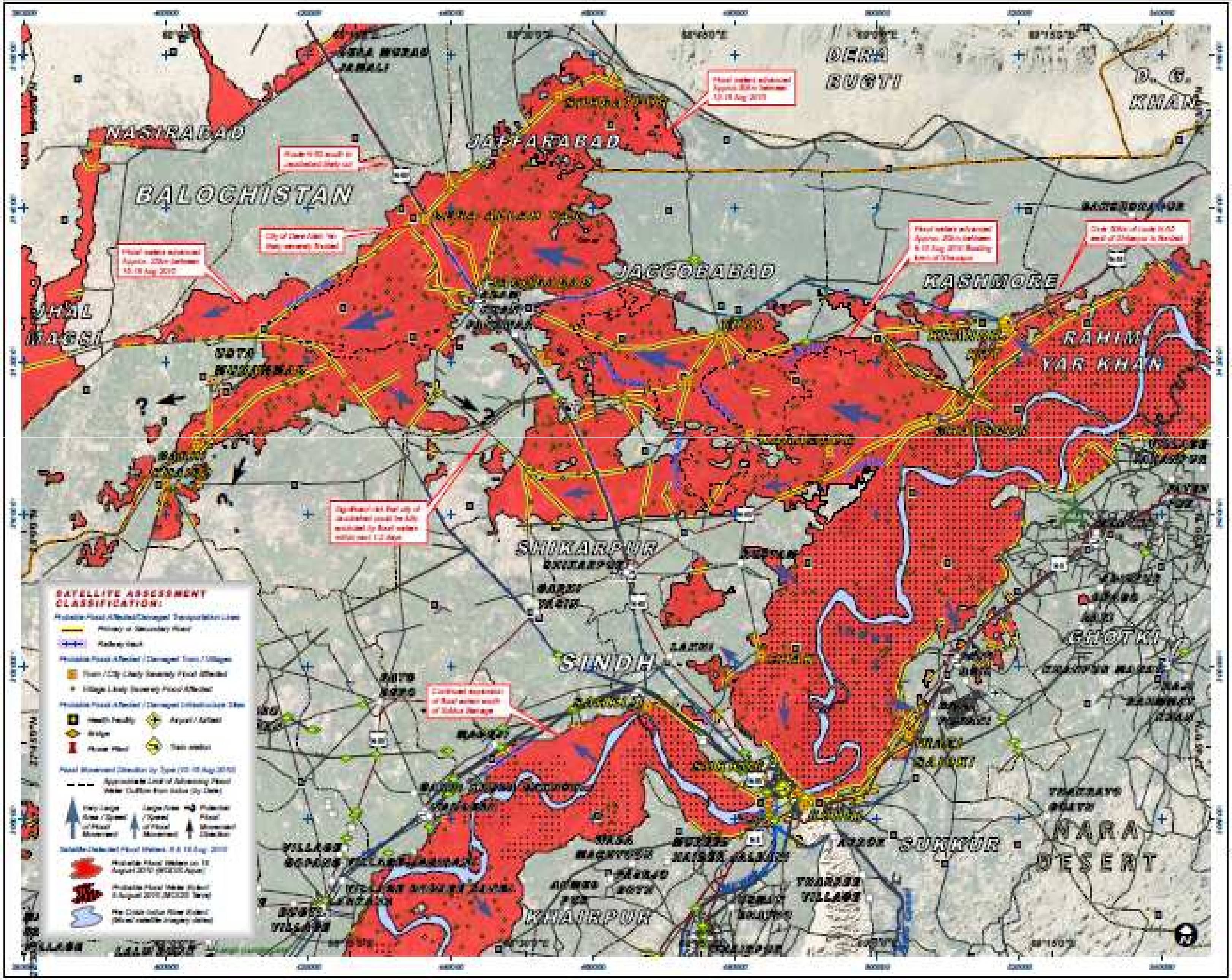
Flood Analysis Based on Satellite Data Recorded on 15 August 2010

Monsoon Rains & Flooding

18 August 2010

Version 3.0

Glide No: FL-2010-000141-PAK



MAP SCALE FOR A3: 1:500,000

Legend

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Risk identification at the local level
Matagalpa example

•Collaboration with local authorities in the aftermath of Hurricane Mitch, 1998;

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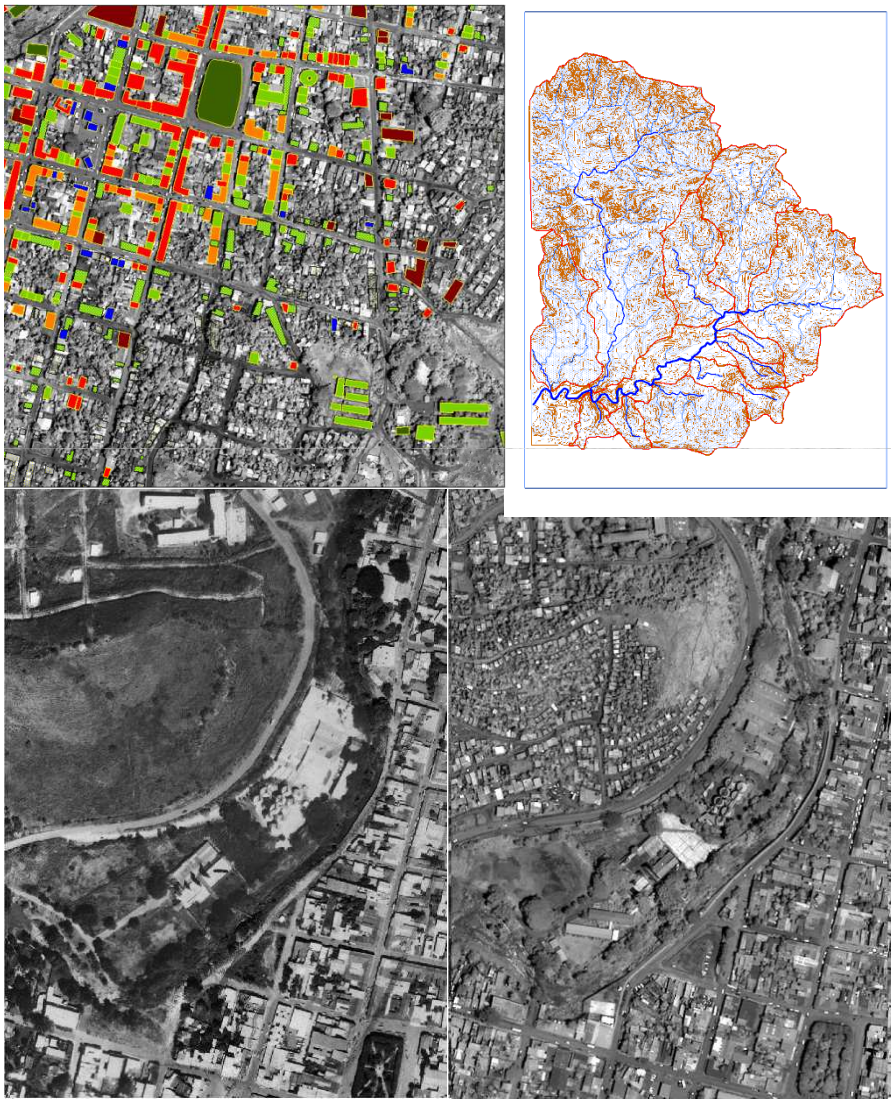
❑Destructive phenomena: flash floods, debris flows, landslides

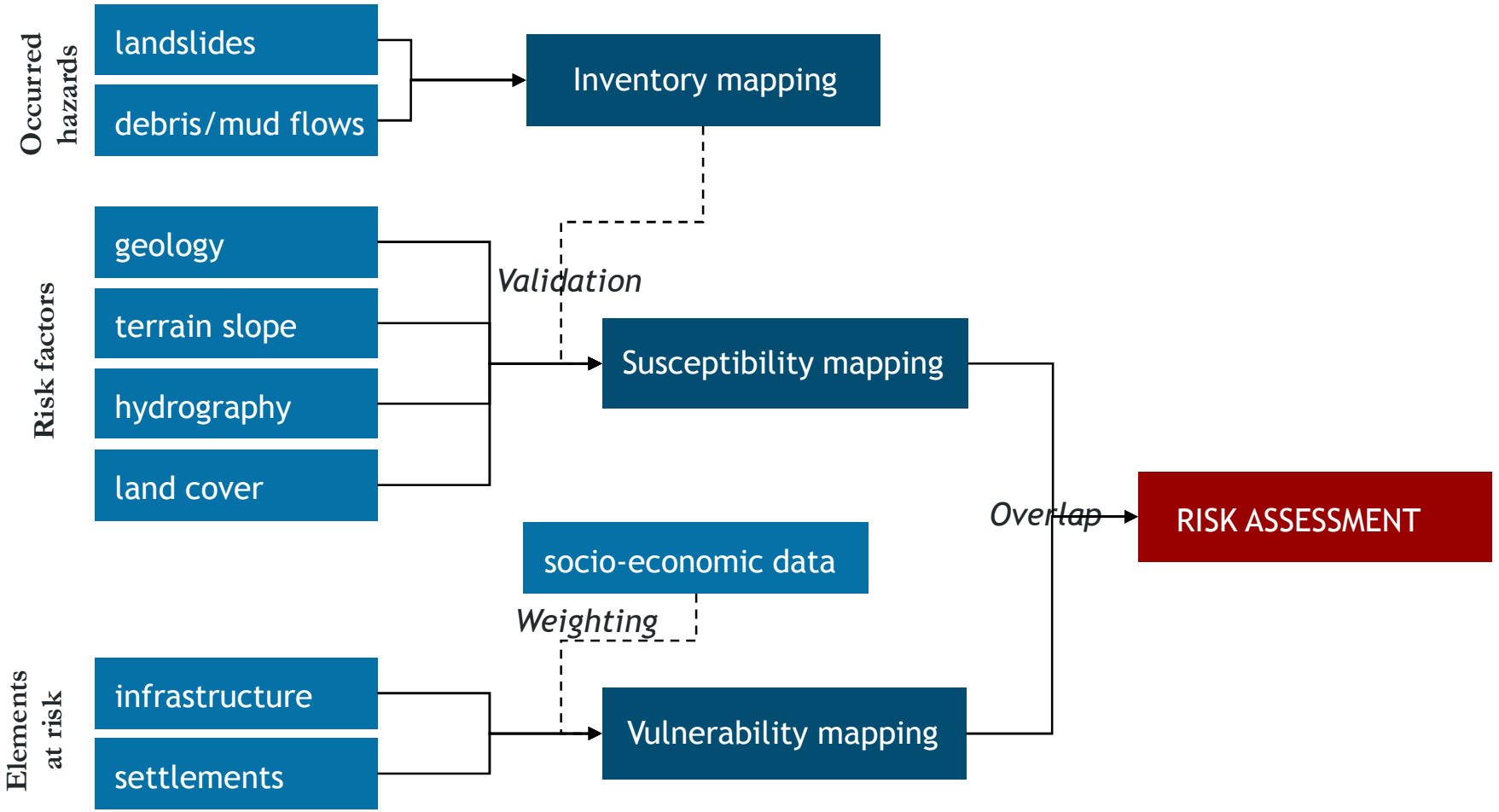
❑Immediate assistance to victims and their settlements based on poorly informed decisions

Implementation of a GIS resource center – CIGMAT

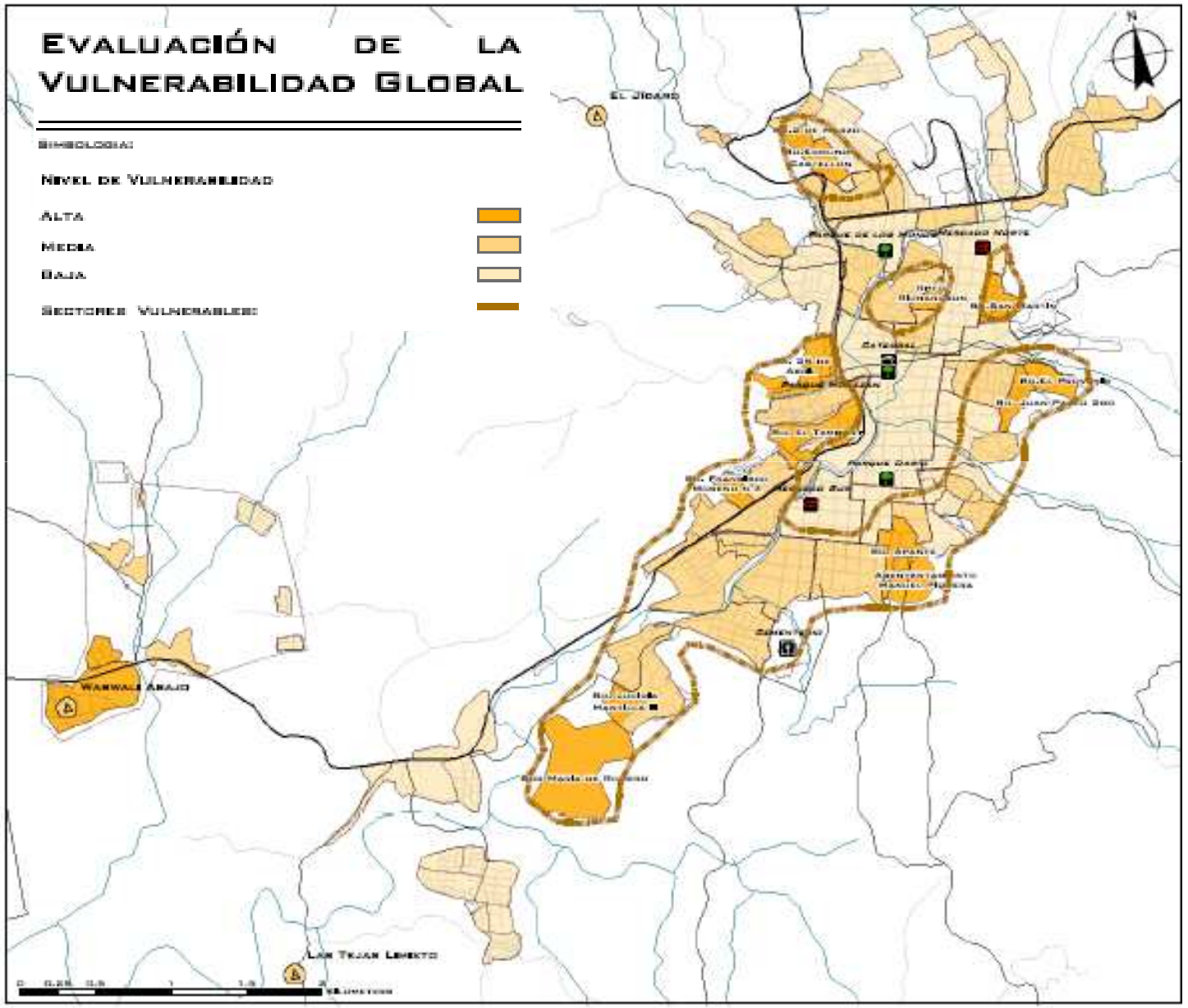


- ❑ Establishment of GIS office for improved risk assessment and urban planning
- ❑ Local authorities focus on safety and territorial management
- ❑ Know-how transfer to facilitate geographic data management (staff trained by UNOSAT)
- ❑ CIGMAT is currently generating its own projects and has its own clients

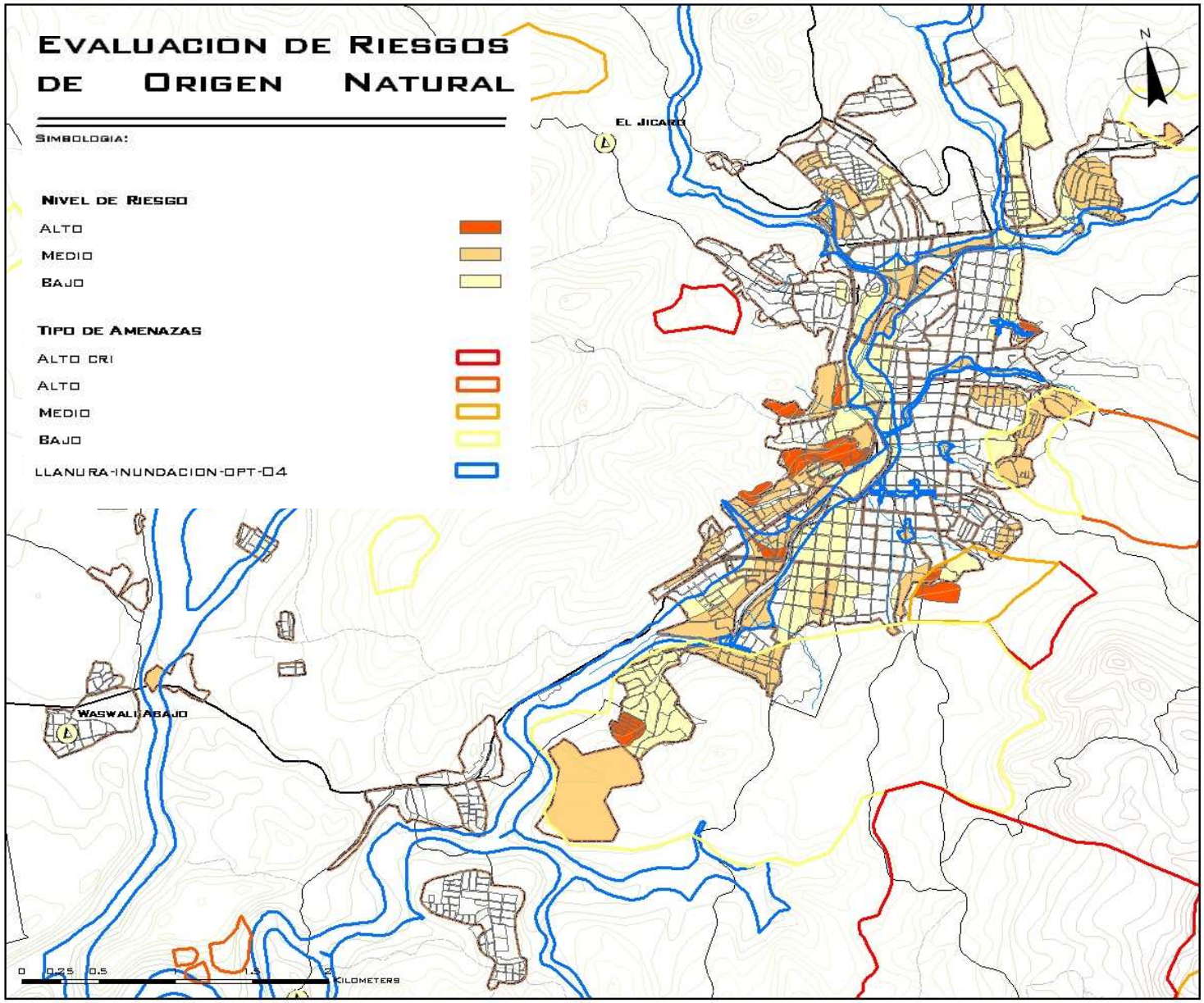
From hazard mapping to risk assessment



Vulnerability mapping

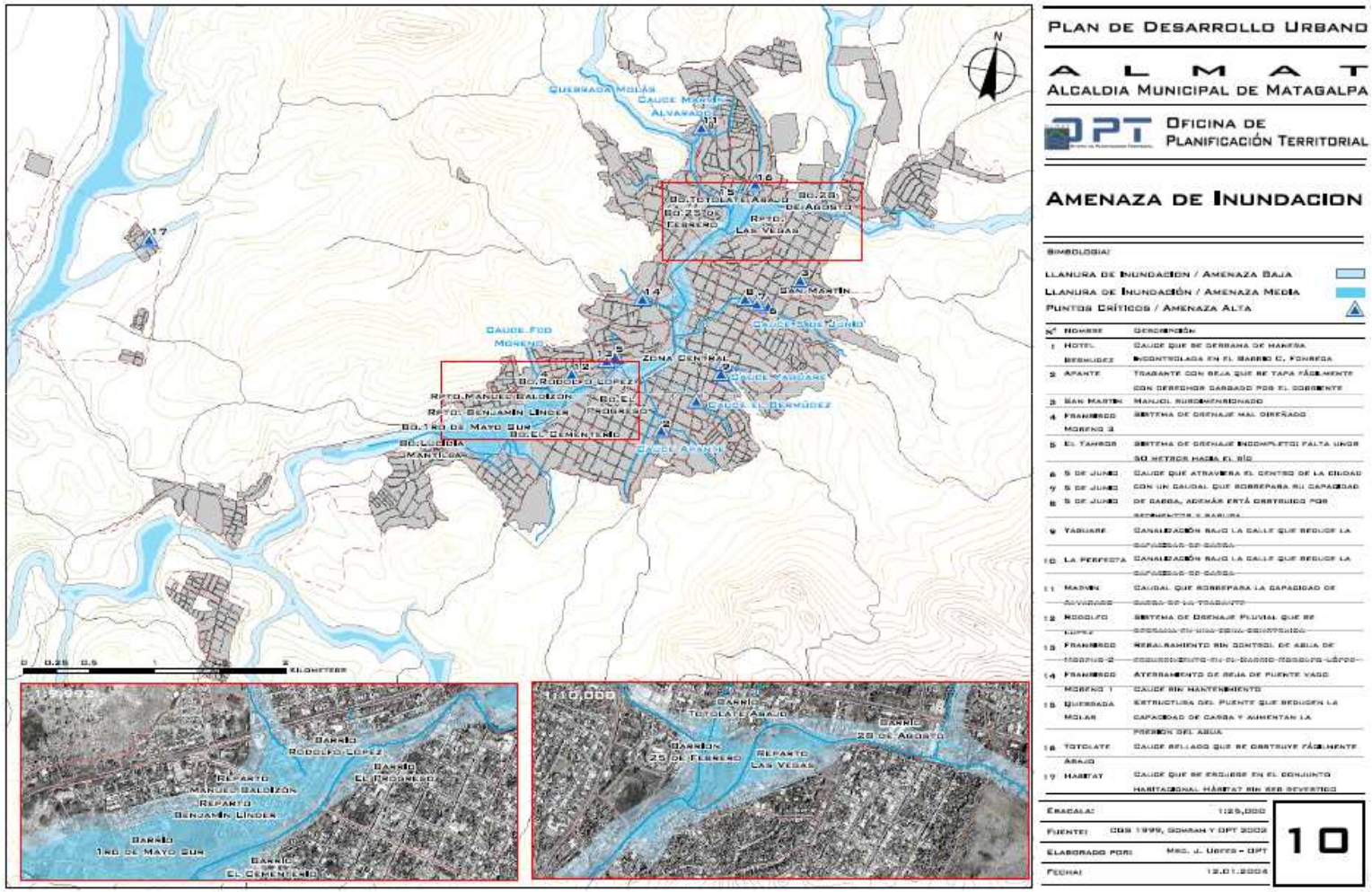


Risk mapping



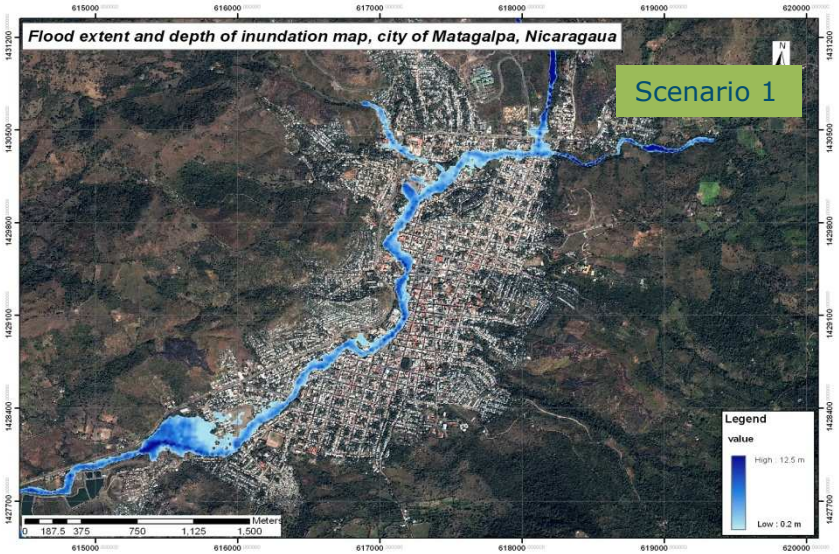
Susceptibility X Vulnerability

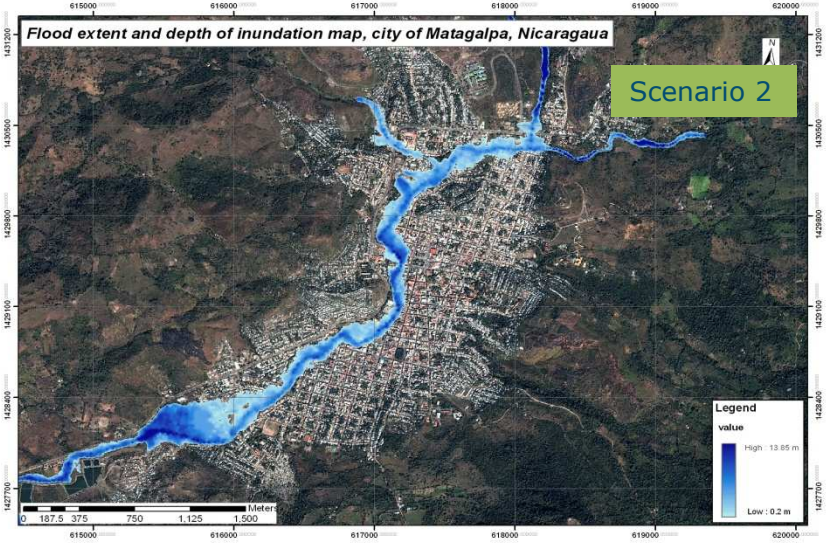
Risk identification at local level : flood preparedness

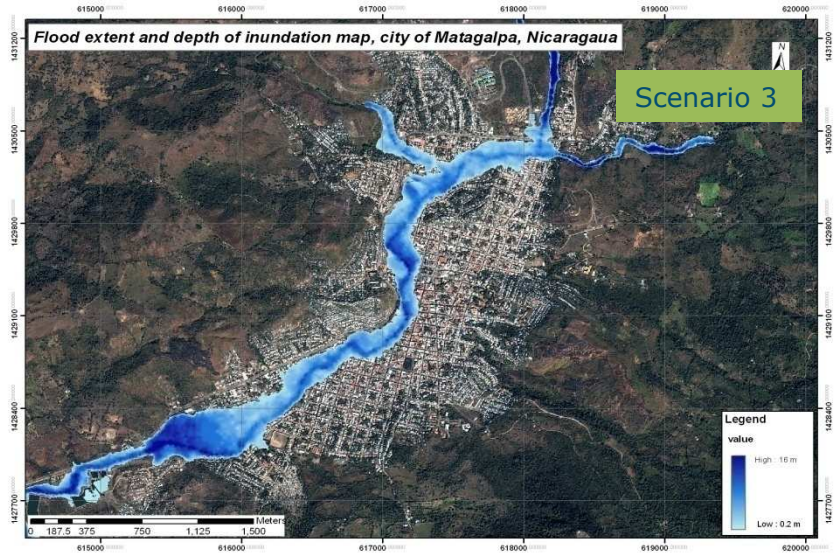


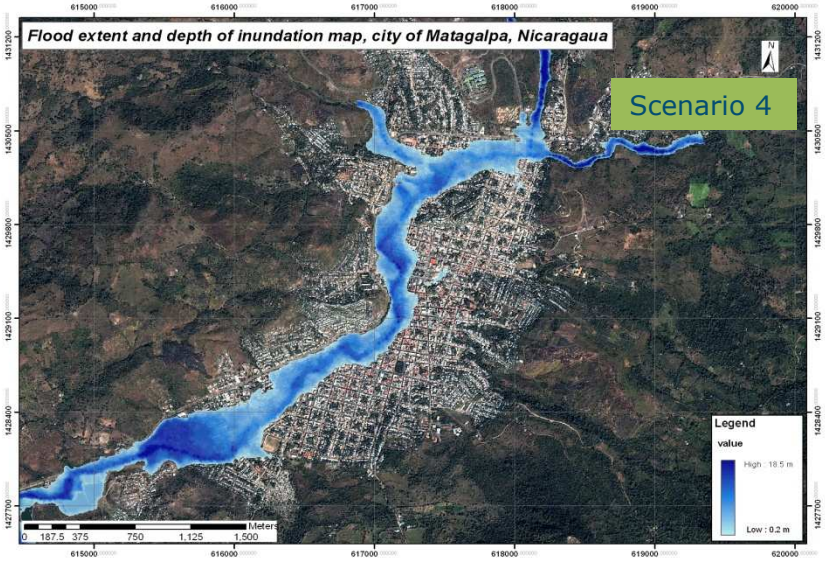
Risk Mapping & Prevention

Phenomena modeling in GIS



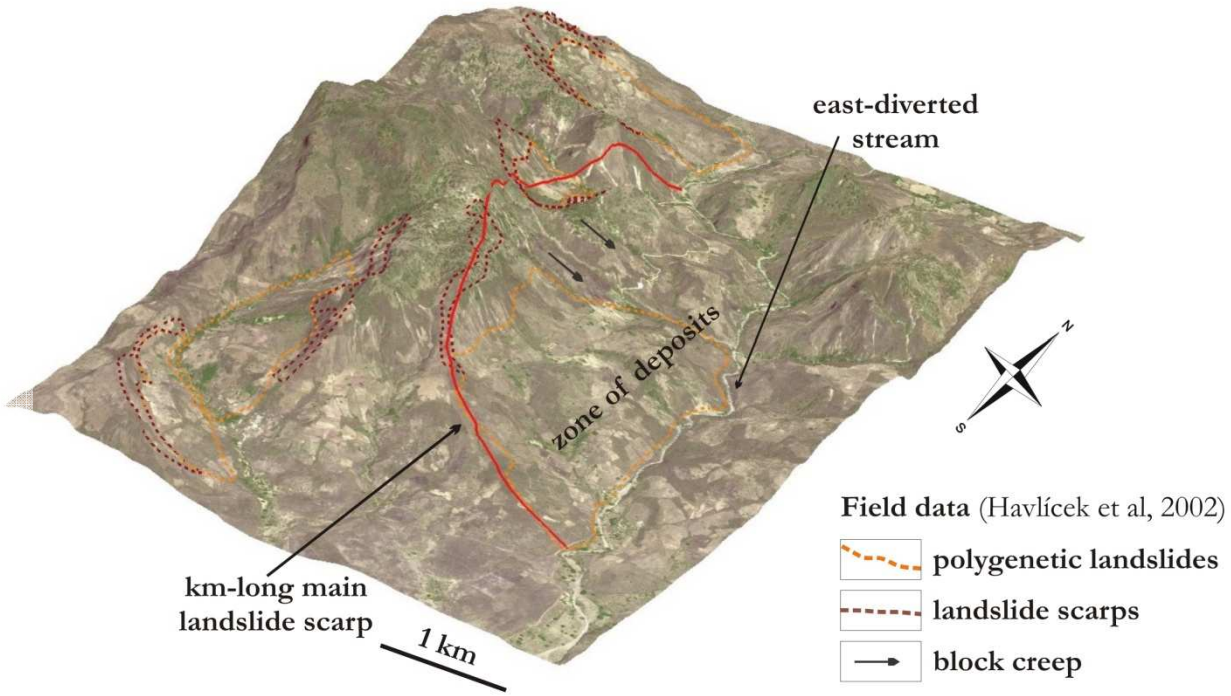






landslide risk assessments using 3D analysis

- Tailored for detection of landslides and recent debris and mud flows at scales up to 1:25’000 (master plan)
- Satellite image detected hazard phenomena are consistent with field observations
- Qualitative monitoring of landslide activity through vegetation disturbance
- Senior geologist interpreter required



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