



Example of use of space-derived geospatial data in the context of the WHO/EMRO Atlas of Disaster Risk



Outline of the presentation

- The context
- The WHO/EMRO Atlas of Disaster Risk
- Use of space-derived geospatial data in the Atlas
- Connection with Telemedicine
- Conclusion

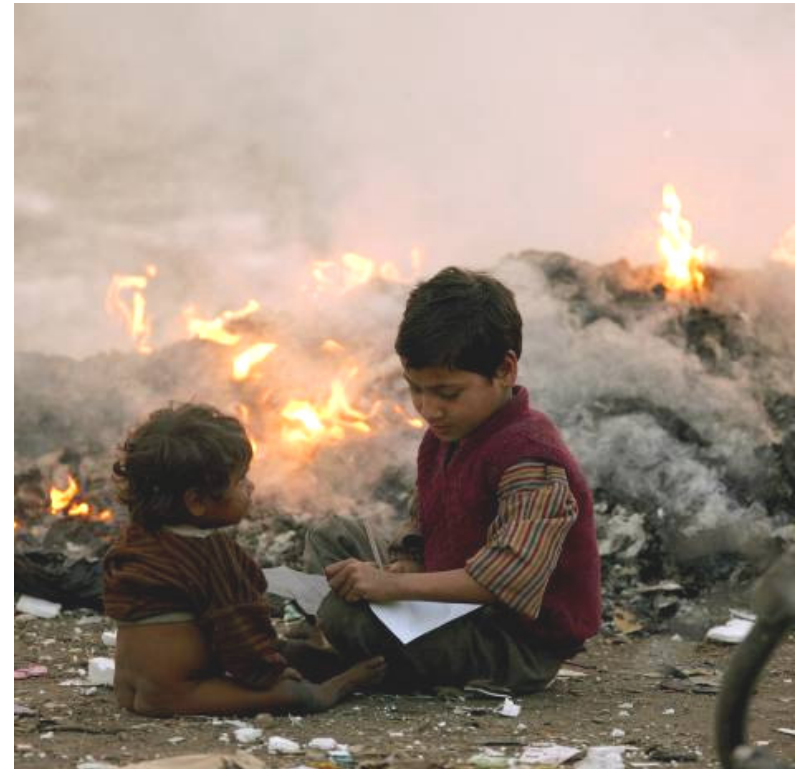


Eastern Mediterranean Region

- Afghanistan
- Bahrain
- Djibouti
- Egypt
- Iran
- Iraq
- Jordan
- Kuwait
- Lebanon
- Libya
- Morocco
- Pakistan
- Palestine (Opt)
- Qatar
- Oman
- Saudi Arabia
- Somalia
- Sudan
- Syria
- Tunisia
- United Arab Emirates
- Yemen

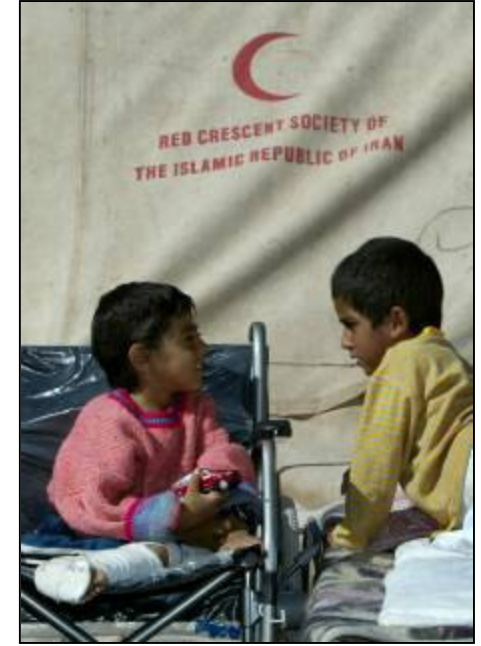


The Diversity of Crisis



Complex emergencies: Afghanistan, Lebanon, Iraq, Sudan, Opt, Somalia

The Diversity of Crisis



Natural disasters: Iran, Pakistan, Djibouti, Yemen, Morocco...

Recent trends in EMR Region

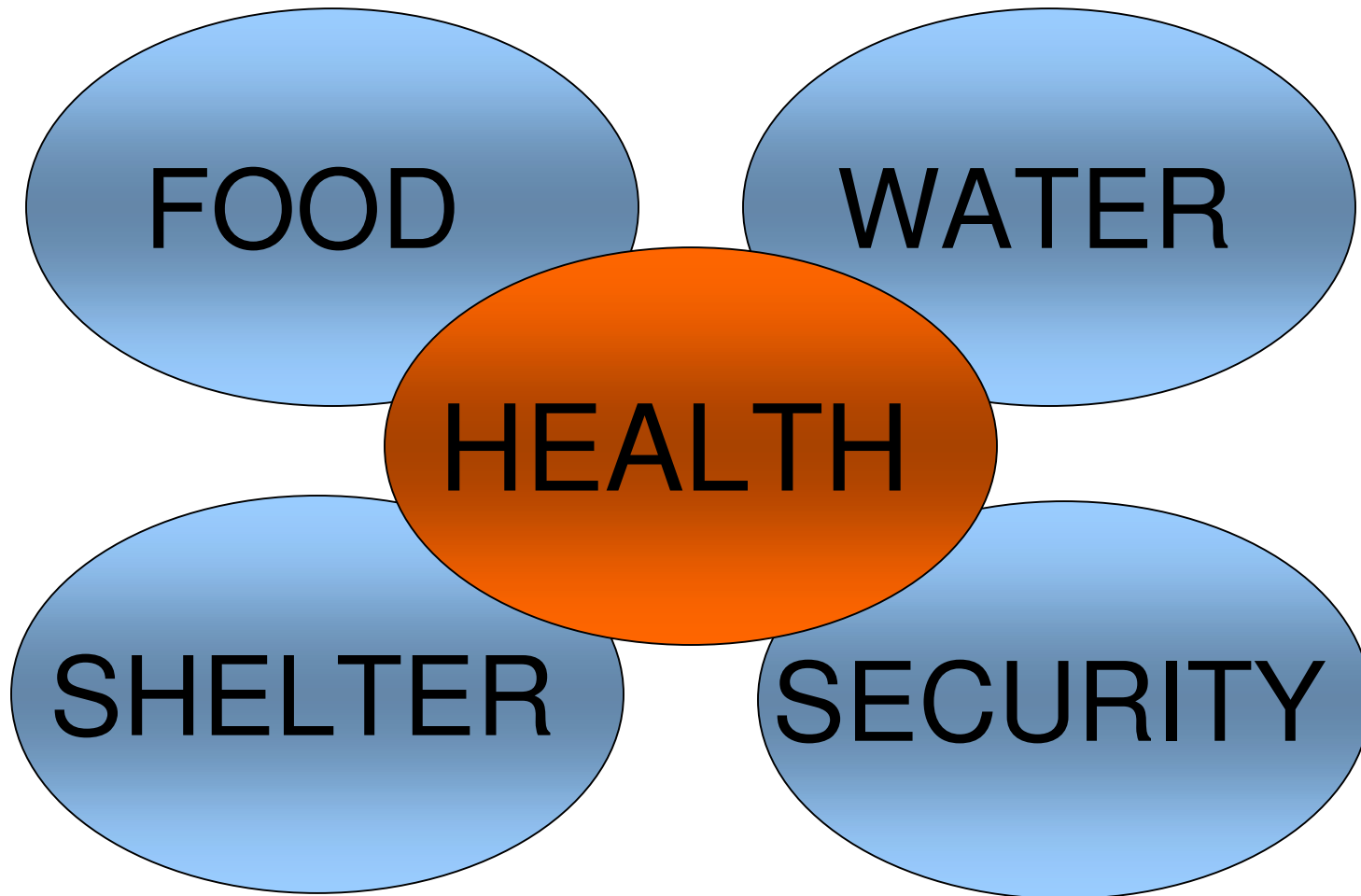
Four Major Emergencies over last 5 years:

- **Lebanon Crisis** :\$5+ million, 900,000 people affected
- **Pakistan Earthquake**: \$15+ million, 3.2 million people affected
- **Darfur Crisis**: \$20+ million, 4 million people affected
- **Iraq Crisis**: \$100+ million, 25 million people affected

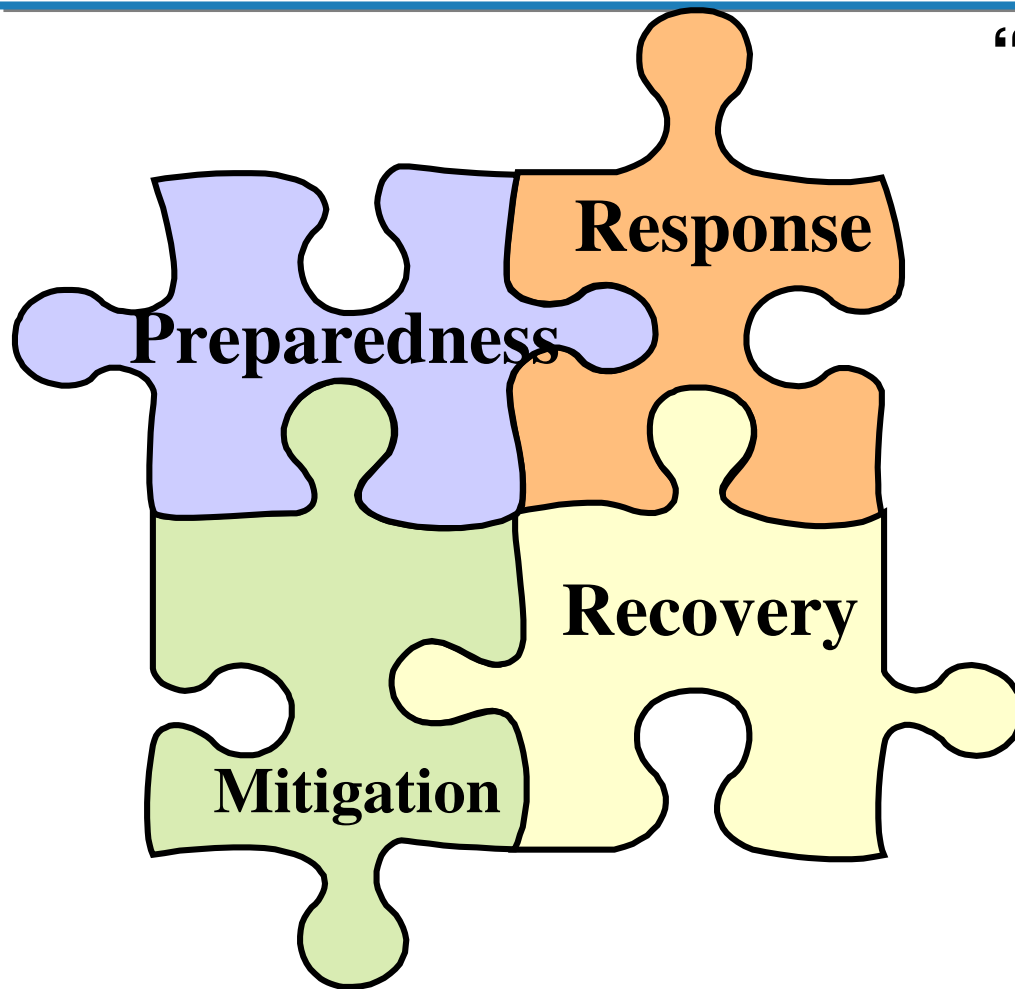
And others: Horn of Africa Drought, Bam earthquake, etc



Our challenge in response



Strategic framework provided by the World Health Assembly in 2005



“Urging all Member States to build up the national capacity for emergency preparedness and disaster reduction/mitigation and response, in order to reduce avoidable mortality and disability”

Health Survey in the EM Region

“Assessing the Level of National Disasters Preparedness”

Although 95% had experienced disasters in the past , however ...

DOES NOT EXIST!	% (out of 20 countries)
National policy or higher committee	30
Regular simulation exercises	50
Health sector plan for emergency response	30
Mitigation measures for health facilities	50
Community involvement	30
Standard Operating Procedures for response	60
National Disaster database of hazards and risks	60
Donor cooperation and resource mobilization	65
Human resources strategy (training)	65



✓ 20 countries responded out of the 22 countries in EMR (Saudi Arabia & Qatar)



The WHO/EMRO Atlas of Disaster Risk

Activities essential for effective disaster mitigation and planning include (Noji, 1997):

- **Mapping** specific potential disaster locations,
- Pinpointing potential disaster-associated risks,
- Conducting a **vulnerability analysis**,
- Developing an inventory of existing disaster response **capacities and resources**,
- **Planning and implementing** appropriate preventive, preparedness, and mitigation measures, and;
- Conducting education, **awareness raising and training** of health personnel and the community to better respond to disasters if and when they occur



The WHO/EMRO Atlas of Disaster Risk

Distribution of the risks for five hazards (floods, heat, earthquakes, wind speed and landslides) at a resolution of one square kilometre with the objective of better understanding the health impact and vulnerabilities to such events

- mapping 3 components:
 - The distribution of each hazard (Volume 1)
 - The distribution of population's vulnerability (Volume 2)
 - The distribution of the risk (Volume 3)



Volume 1 – hazard distribution

The first volume of the Atlas to be released soon contains:

- the data (when redistributable) and documents that have been compiled and/or created in order to generate the distribution of the five selected natural hazards,
- the resulting maps in pdf (country level) and GIS (regional level) format;
- links to other information of interest regarding natural disaster risk assessment (web sites, reports, etc).



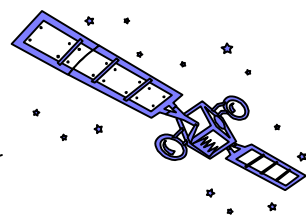
Volume 2 – Vulnerability distribution

The second volume of the Atlas will address population vulnerability through:

- the various socio-economic factors that affect the vulnerability of a population's health status to natural hazards (this could include wealth, baseline health status, education, etc.);
- accessibility to the different infrastructures which can help decrease a population's vulnerability to hazards (health facilities, schools, etc.);
- proximity to infrastructures that can make them more vulnerable to hazards (chemical plants, nuclear power plants, pipelines, etc.).



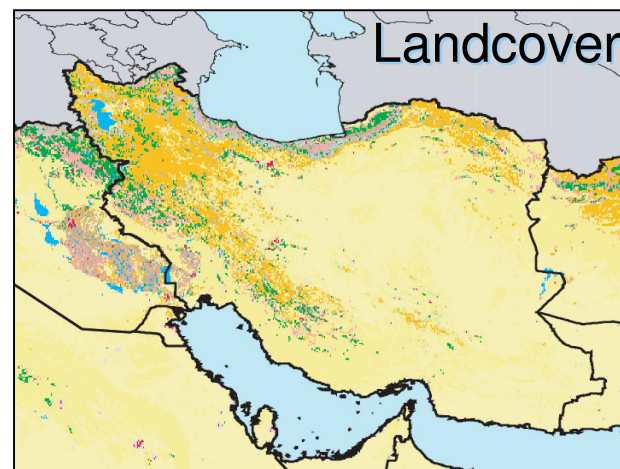
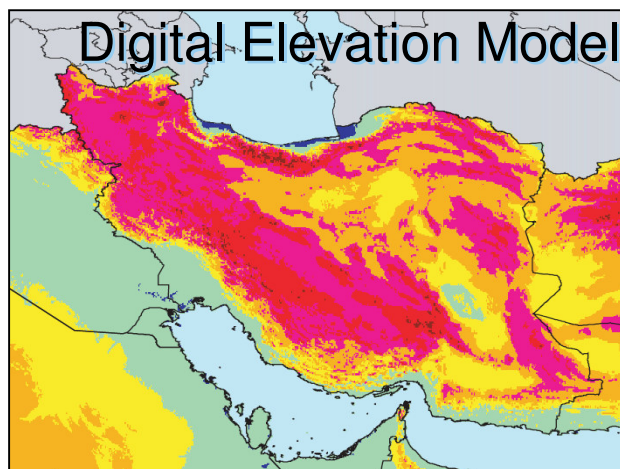
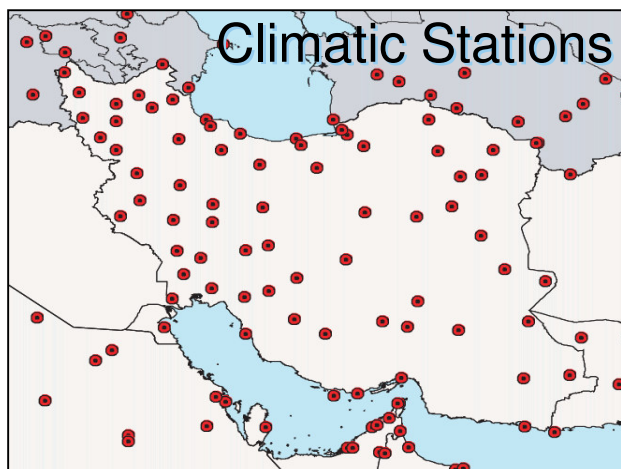
Use of space-derived geospatial data in the Atlas (Volume 1)



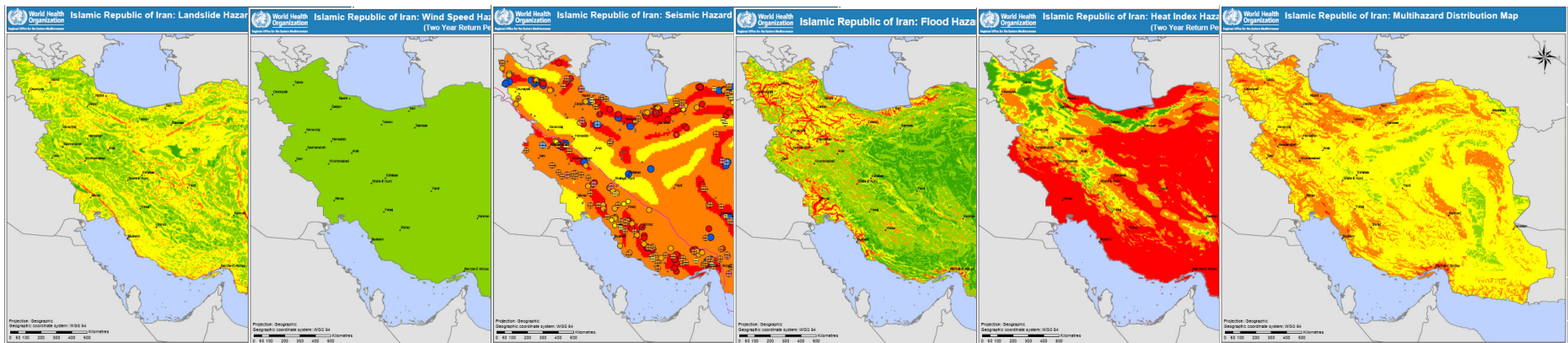
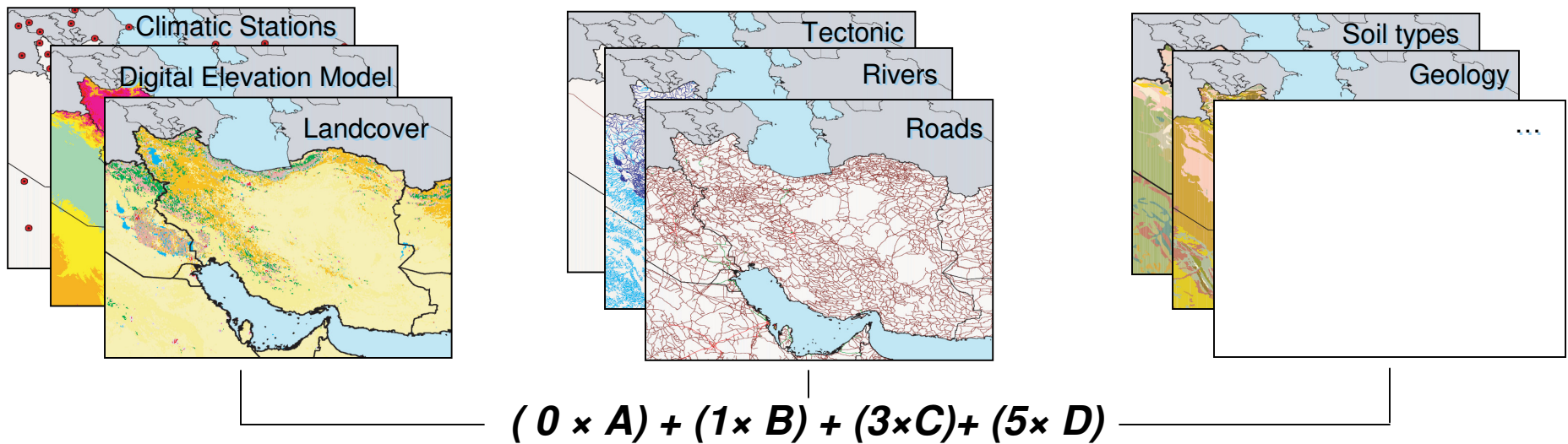
GPS

Radar
imagery

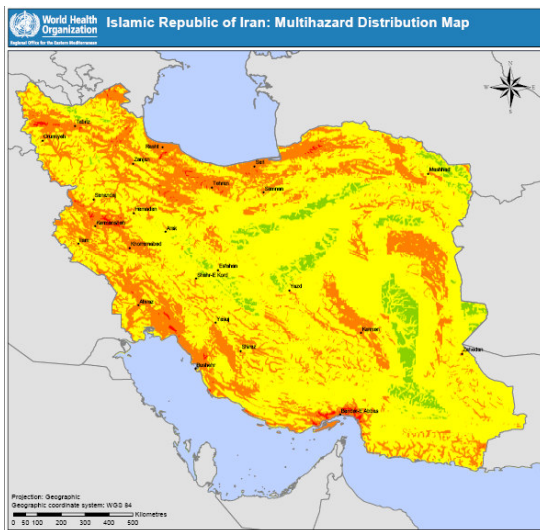
Optical
imagery



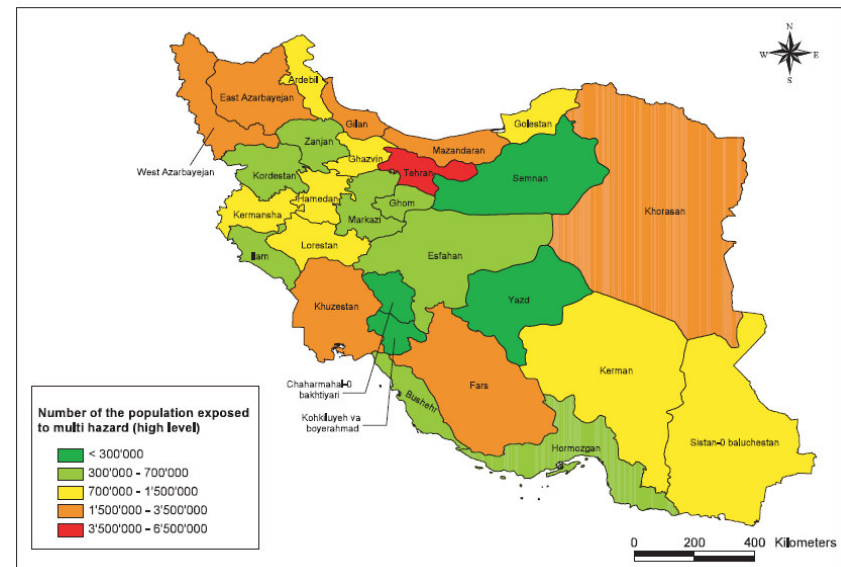
Use of space-derived geospatial data in the Atlas (Volume 1)



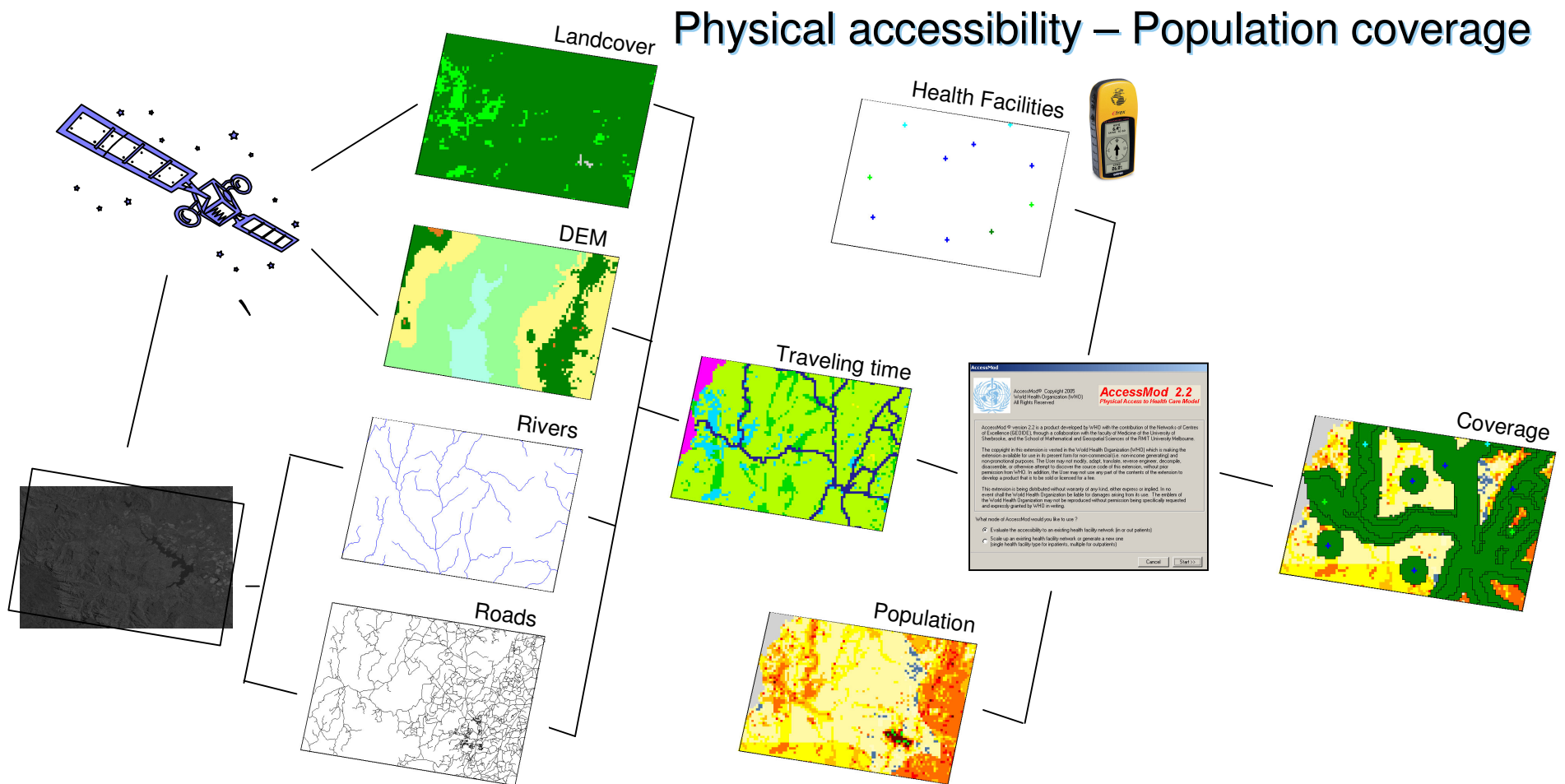
Use of space-derived geospatial data in the Atlas (Volume 1)



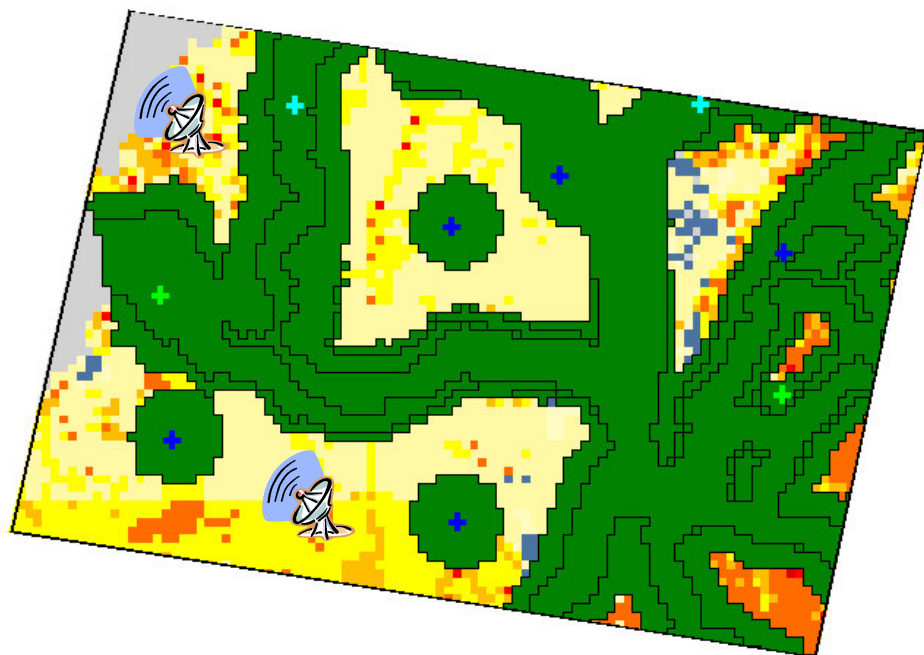
Population Distribution



Use of space-derived geospatial data in the Atlas (Volume 2)



Connection with Telemedicine



- The continuity of the collaboration between the WHO Regional Office for Europe and the European Space Agency (ESA) in the Telemedicine Alliance (TMA) consortium;
- The publication of the ESA Telemedicine via Satellite Programme;
- The setting up of a Task Force on telemedicine in Sub-Saharan Africa composed of the regional African organizations, WHO, the European Commission and ESA;
- The extension of the WHO/SEARO's Health Telematics Programme to cover Nepal and Myanmar.

Conclusion

- Space-derived geospatial data is key to the development of the Atlas
- The methods that have been presented could be applied in other part of the world
- The maps that are produced in the context of the first volume can already be used by decision makers for disaster mitigation and planning
- Several countries have already expressed their interest in applying this approach at the country level (Iran, Morocco, Pakistan, Sudan and Yemen)
- Work remains to be done and data to be found in order to develop the vulnerability layer



Thank you for your attention



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