Global health-care facilities their monitoring and adequacy to cope with acute and pandemic emergencies

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Was this a rare example? Are there other potential potential Extremes.

Earthquakes, atmospheric events, floods and landslides are regular extremes with effects on population.

Epidemics are causing an escalating demand of hospitalizations that is case of pandemics lead to acute needs beyond the normal capabilities.

Toxic industrial releases and radioactive accidents are rare but with significant population exposure.

These are transient events leading to potential heath emergencies for which the status and operational capabilities of health infrastructure is important.
Goals for the Area: 
**E. Health Care Infrastructure**

- Develop a partnership with UN agencies (WHO, UNISDR, UNEP) and governmental agencies (Australia, Canada, China, European Union, India, United Kingdom, United States) that share an interest in better identifying health care facilities at risk from environmental stressors and extreme weather events.

- Integrate EO datasets in order to develop an informational resource that assesses the vulnerability of health care infrastructures to local environmental stressors (during seasonal loads and local population needs).

- Develop methods to assess the adequacy of these infrastructures under regional acute catastrophes or during escalating chronic pandemics. This has implications for both real-time operations and for long-term health adaptation planning.
Steps for Health Care Infrastructure assessment:

- Geo-locate the health infrastructure facilities with their operational capabilities (mostly public in developing countries, starting from WHO).
- For countries with advanced private health care, update initially with satellite imagery.
- Assess nearby health stressors versus local population density attributed in pixels of 1x1 Km² (account also the life expectancies and disease risks).
- Examine the adequacy of seasonal loads and treatments during regular conditions.
- From remote images, identify the installed energy, transportation and communication resources.
- Establish a consistent framework for remote images that could be used on real-time for emergencies and construct suitable extraction algorithms with reasonable precision.
- Conduct operational test for several pilot events and provide improvements.
Hospitals at North and South Europe

Geolocation processes on the basis of:
Public health care facilities at 27 EU member states in Europe and recently from US hospitals, medical centers, federally qualified health centers, home health services and nursing homes (arcgis.com and dhs.gov).
State-of-the-art handling required for:

- Algorithms with:
  Graphical extraction of structural changes

- In-situ monitoring of:
  Meteorology and external/internal site vision

- Suitable satellite sources:
  Image complementarity and re-visit frequencies.

IDEA
Apply
Demonstrate
Data Advances

Global Deployment
Modules
Reduce cost

FORESIGHT
Effective Pilots
Real-time use
Big-data for efficient handling of emergencies

Assessment of **population** health care capabilities associated with environmental exposure.

**Adequacy** of health care infrastructure facilities under usual and acute events.

Testing of health infrastructure needs during humanitarian interventions.

Coupled remote sensing with static in-situ observations for testing **real-time** extraction processes.

**Moving** population densities (with e-passports) and

Assessment and **adaptation** of health needs (intelligent with in-situ technologies).
This is the starting work and the initial efforts for developing an operational collaboration for health-care resilience,

- Identifies the data sources for static geo-located data,
- Covers the observations needed for assessing vulnerability of health care facilities and
- Describes the flow of data necessary for conducting the monitoring and assessment process.
- This process could identify the areas where additional humanitarian facilities will be necessary or the resources that could be borrowed from neighboring areas and
- Can assist in the optimization of relief capabilities during emergencies.