

Emerging issues to use geospatial initiatives in the societal context of disaster managing

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Contributions and thanks

- AFIGEO (France)
- Cektra (Slovenia)
- DDGI (Germany)
- Hunagi (Hungary)
- IRLOGI (Ireland)
- Sapienza University of Rome (Italy)
- University of Bologna (Italy)
- Politecnico Milano (Italy)
 - until August 2013, more expected

document's aims

- to **contribute to geospatial initiatives** which States are willing to take for disaster management ;
- to demonstrate that **geospatial information are relevant resources of the social capital** as part of the entire disaster management process;
- to propose the **social dimension of geospatial information and initiatives for Assembly's resolutions**. (see INSPIRE mentioned in the 9th UN RCCA resolutions)

References (some)

1. the **World Risk Report 2012** by the United Nations University Institute for Environment and Human Security (UNU-EHS), the Alliance Development Works/Bündnis Entwicklung Hilft and The Nature Conservancy (TNC).

WRR2012

“ The risk a country runs of becoming a victim depends crucially on social economic and institutional factors”

the *worldriskindex* via **four components** :

- exposure to natural hazards ;
- susceptibility depending on infrastructure;
- coping capacities to reduce negative consequences;
- adaptation as capacities for long term strategies for societal changes.

References (some)

1. the **World Risk Report 2012** by the United Nations University Institute for Environment and Human Security (UNU-EHS), the Alliance Development Works/Bündnis Entwicklung Hilft and The Nature Conservancy (TNC).
2. the **“Future trends in geospatial management: the five to ten year vision”** (UNGGIM)

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2. the **“Future trends in geospatial management: the five to ten year vision”** (UNGGIM)
3. the **OXERA report** (recently commissioned by GOOGLE) “.. *Omissis .. quantified the economic value of the sector, based on reported commercial revenues, as being in the range of \$150 billion to \$270 billion.*”

What is the economic impact of

GEO SERVICES

COXETA

Geo services are:



Satellite receivers and manufacturing



Satellite imagery



Satellite navigation



Location based services

Geo services global revenues are \$150-\$270 billion per year

Video games industry \$25 billion

Geo services \$150-\$270 billion

Airline industry \$594 billion

Geo services global revenues are around \$100 billion per year

Geo services save:



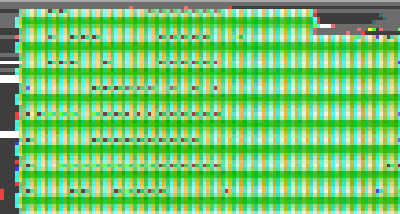
Geo services save 3.5 billion litres of gasoline per year—approximately 0.4% of the total world production of liquid oil products

Smart roads will help to reduce the number of accidents and improve traffic flow, leading to a more efficient and safer road network

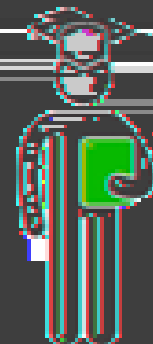
The use of smart roads can help to reduce the number of accidents and improve traffic flow, leading to a more efficient and safer road network



Geo services can improve the efficiency of logistics, leading to a more efficient and safer supply chain



Geo services can help to reduce the number of accidents and improve traffic flow, leading to a more efficient and safer road network



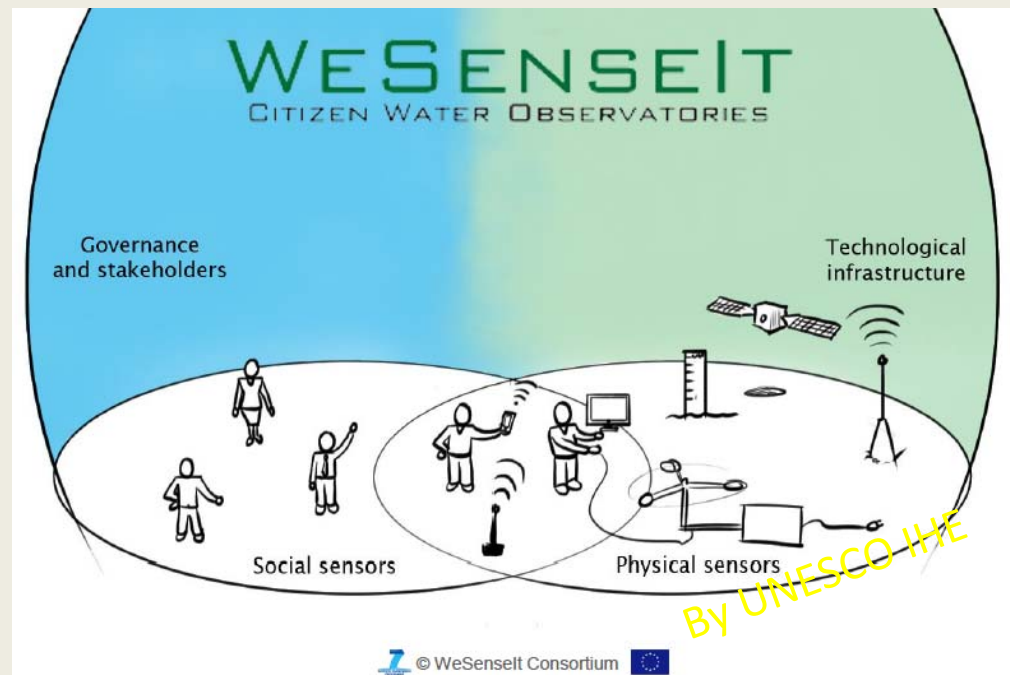
3% Higher energy usage per year after production for the world's most

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4. Scientific research :
 - Societal and legal dominion
 - Technical dominion

Scientific research (societal, legal and technical)

Social capital , social
geo information,

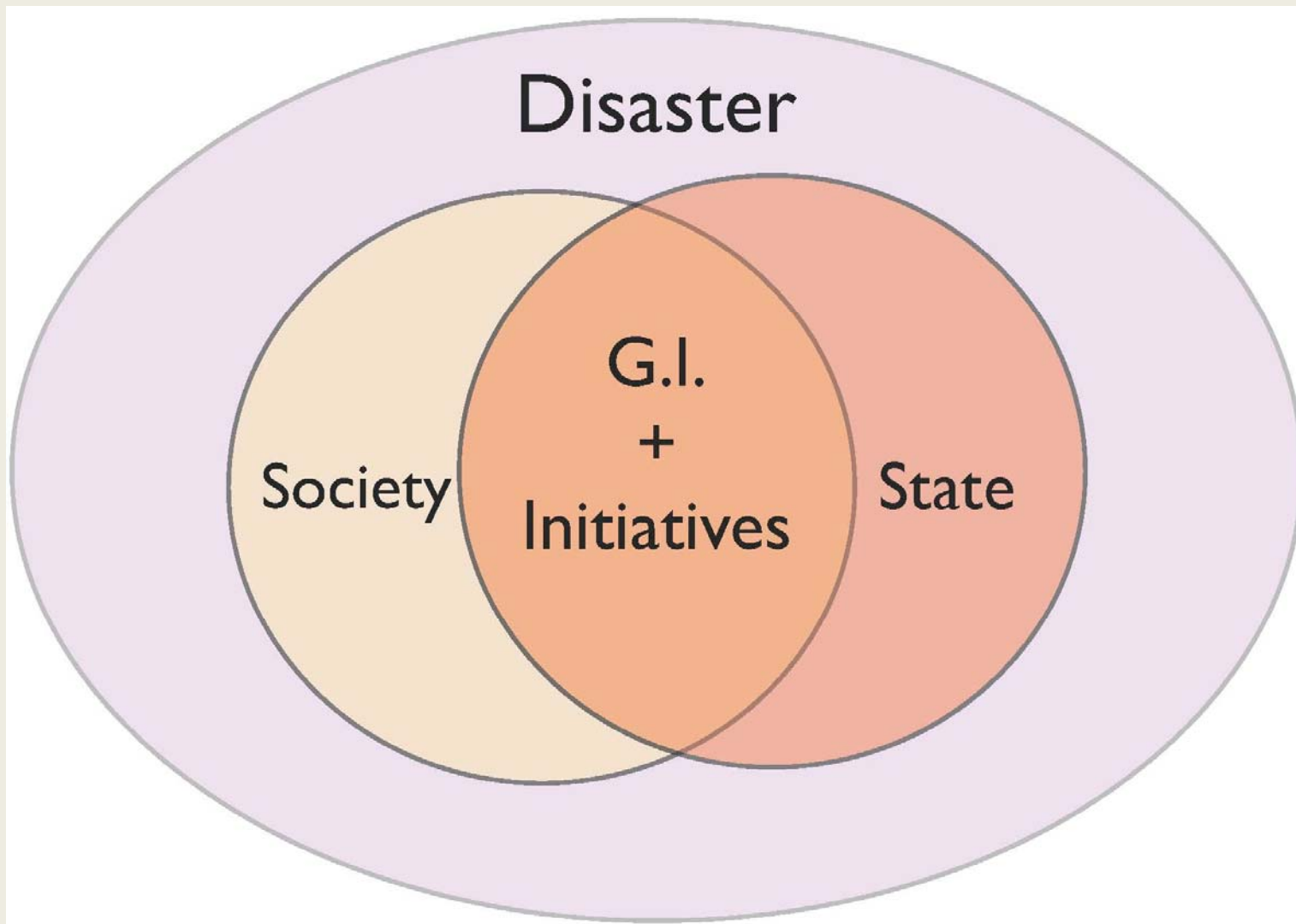


- Putman says : *"The central idea of social capital, in my view, is that **networks and the associated norms of reciprocity have value.**"*

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4. Scientific research :
 - Societal and legal dominion
 - Technical dominion
5. Outcomes of institutional and NGO activities :
INSPIRE, Open data , Global mapping, etc.

Geospatial initiatives in the context of disaster management

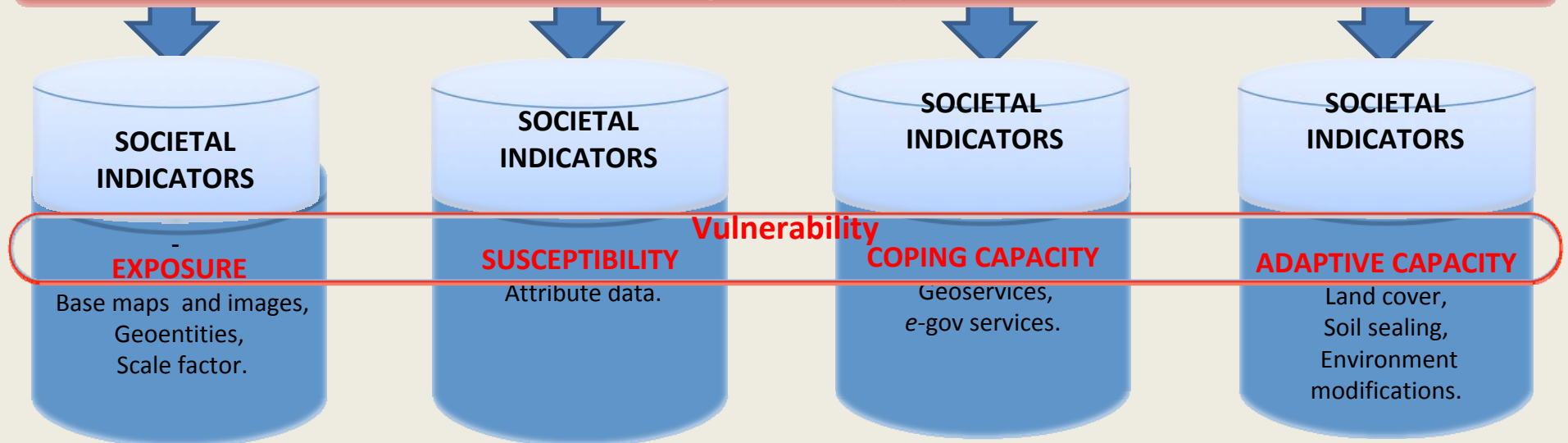


Vulnerability/ GI

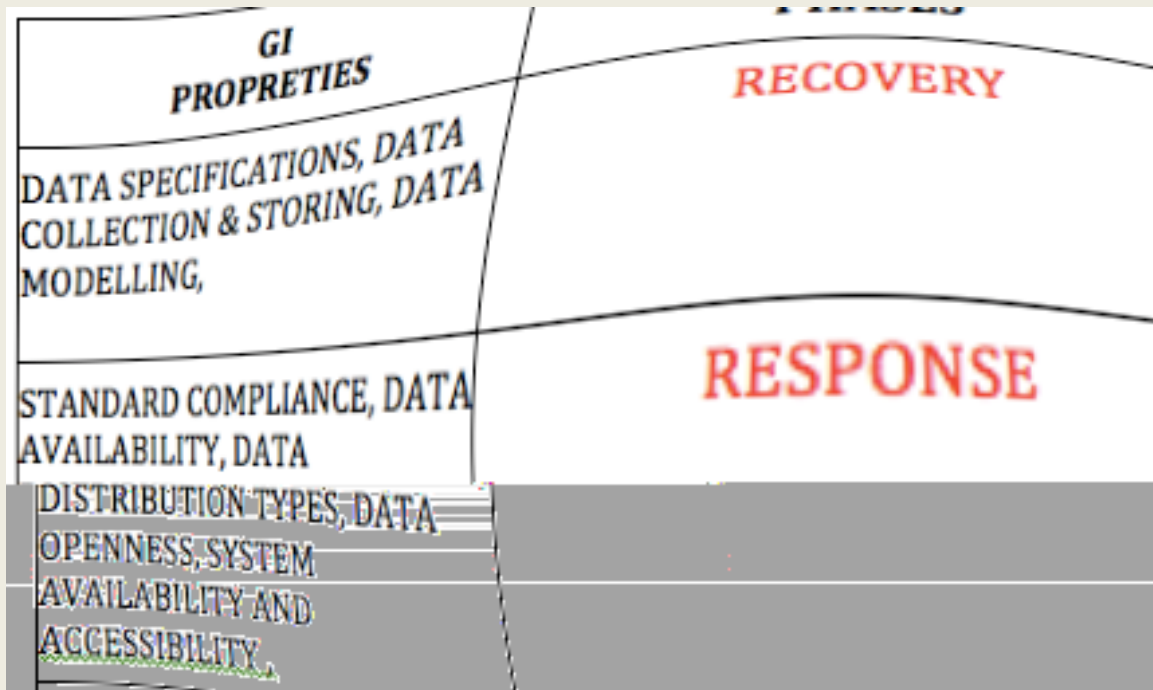
V indicates the level of exposure of an object to natural and manufactured hazards

Vulnerability component (*)	Geo information components
<u>exposure</u>	<u>base maps and images, geo-entities, scale factor, population statistics ,census tract granularity</u>
<u>susceptibility</u>	<u>attribute data, data quality</u>
<u>coping capacity</u>	<u>geoservices, e-gov services</u>
<u>adaptive capacity</u>	<u>land cover, land use, soil sealing , environment modifications</u>

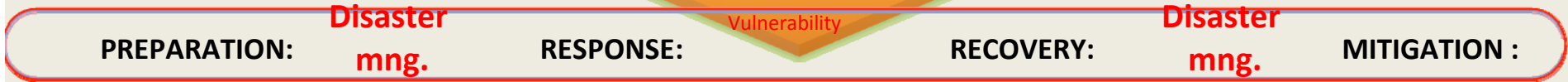
RESILIENCE



Disaster mng /GI

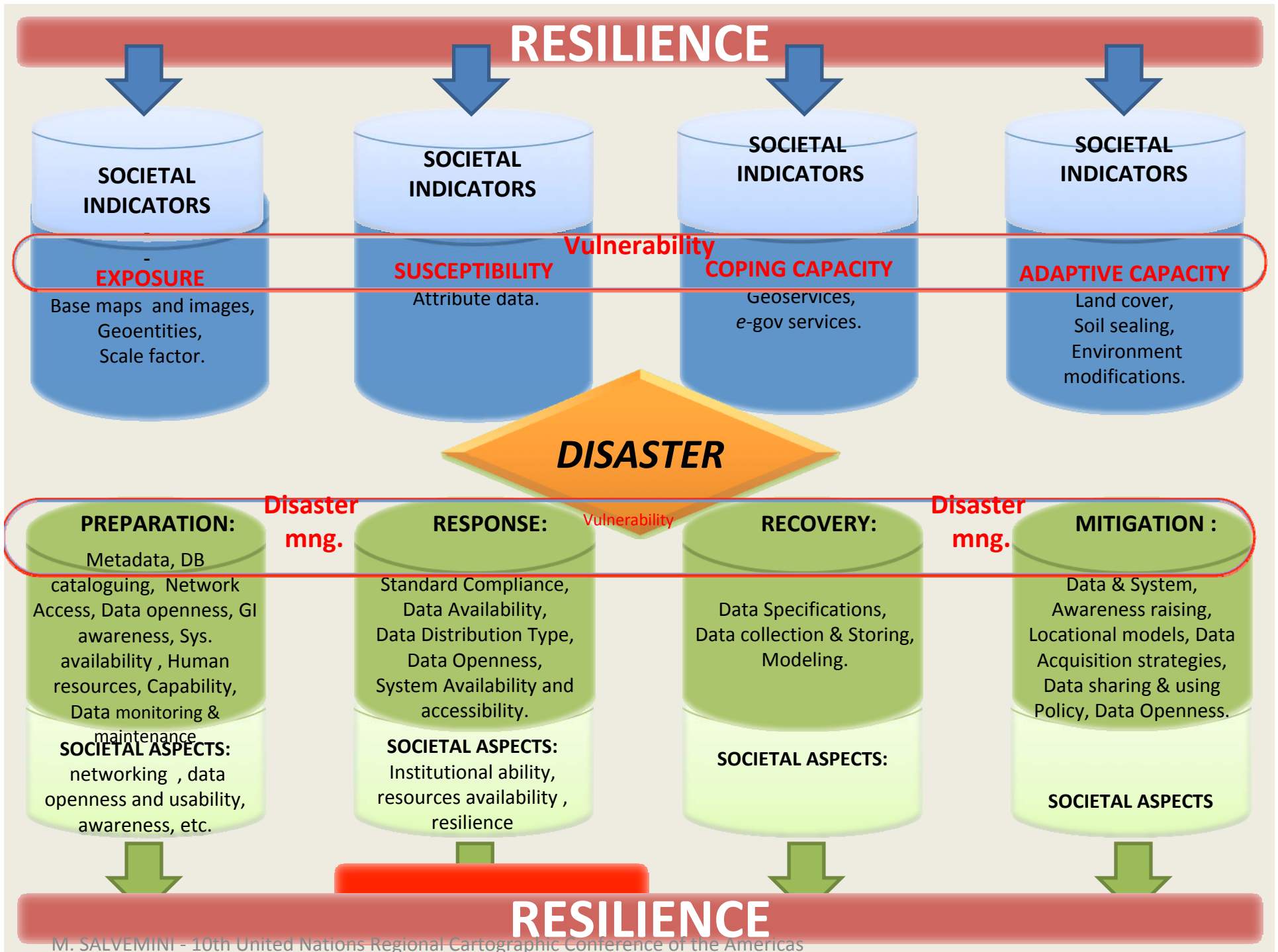


Disaster mng /GI



GI PROPERTIES	DISASTER MANAGEMENT PHASES
METADATA, DATABASE CATALOGUING, NETWORK ACCESS, DATA OPENNESS, GI AWARENESS, SYSTEM AVAILABILITY, HUMAN RESOURCES CAPABILITY, DATA MONITORING & MAINTENANCE	PREPARATION
DATA & SYSTEM AWARENESS RAISING, LOCATIONAL MODELS, DATA ACQUISITION STRATEGIES, DATA SHARING & USING POLICY, DATA OPENNESS	MITIGATION

RESILIENCE



Slovenia

Public participation in determining the extent of flooding (2012) :

citizens/organisations have been asked to provide photos (from an elevated location with some references) of flooded area ;

interactive method based on coverage of the entire country already existent;

Institution: Geodetic Institute of Slovenia

results achieved : material originated on time , awareness of citizenship,



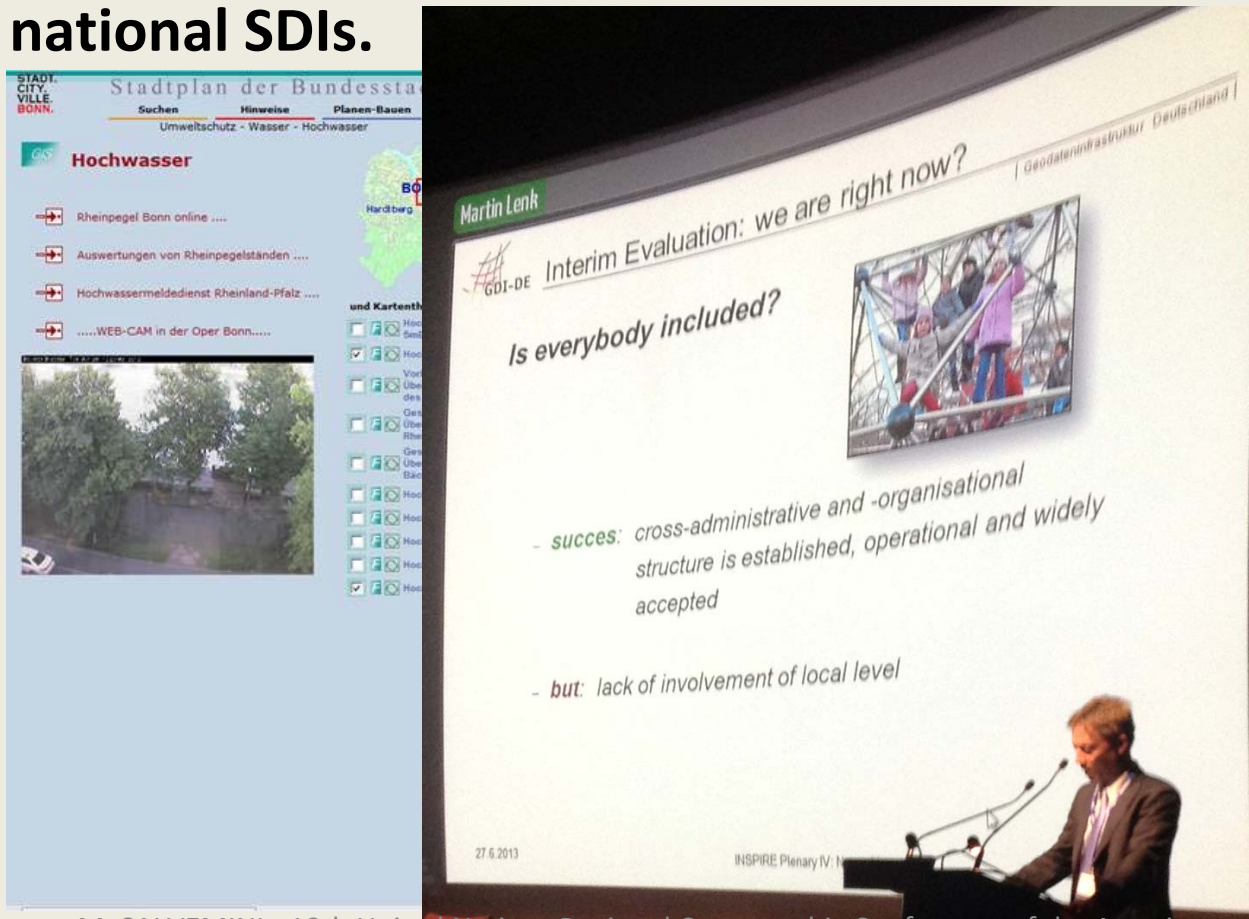
Primer poplave Ljubljanskega barja.
Posneto 20. 9. 2010, fotograf Matija Zorn.
Stojišče: Sv Ana nad Podpečjo.



Prikazani rezultati obdelave na ortofotu.

Germany

Prediction levels ,for all major rivers. Maps for different flood levels based on the topographic base (map 1:10000 and the laser DEM 1 dm accuracy). **Powered by national and sub-national SDIs.**



Citizens involvement according to usage of SDIs.

Italy 1/2

The project



The sample

Twitter during the first day of the #earthquake:
31 318 tweet

A. Sharing informations/organization

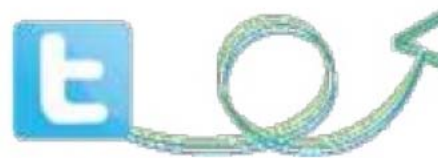
The ol PER CHI VUOLE VEDERE L'EPICENTRO
Grassr DEL TERREMOTO A MODENA GUARDI
QUà #terremoto MODENA ->
pic.twitter.com/KEPDIoBM

3. Geo-referenced data

SOME FIRST REMARKS

Building a **circulatory narration** through images and symbols helped develop the trauma and bring out the **relational character** that has been enhanced by the use of a social network platform like Twitter

re-fero + re-ligo: networked witness



Earthqu
May 20,

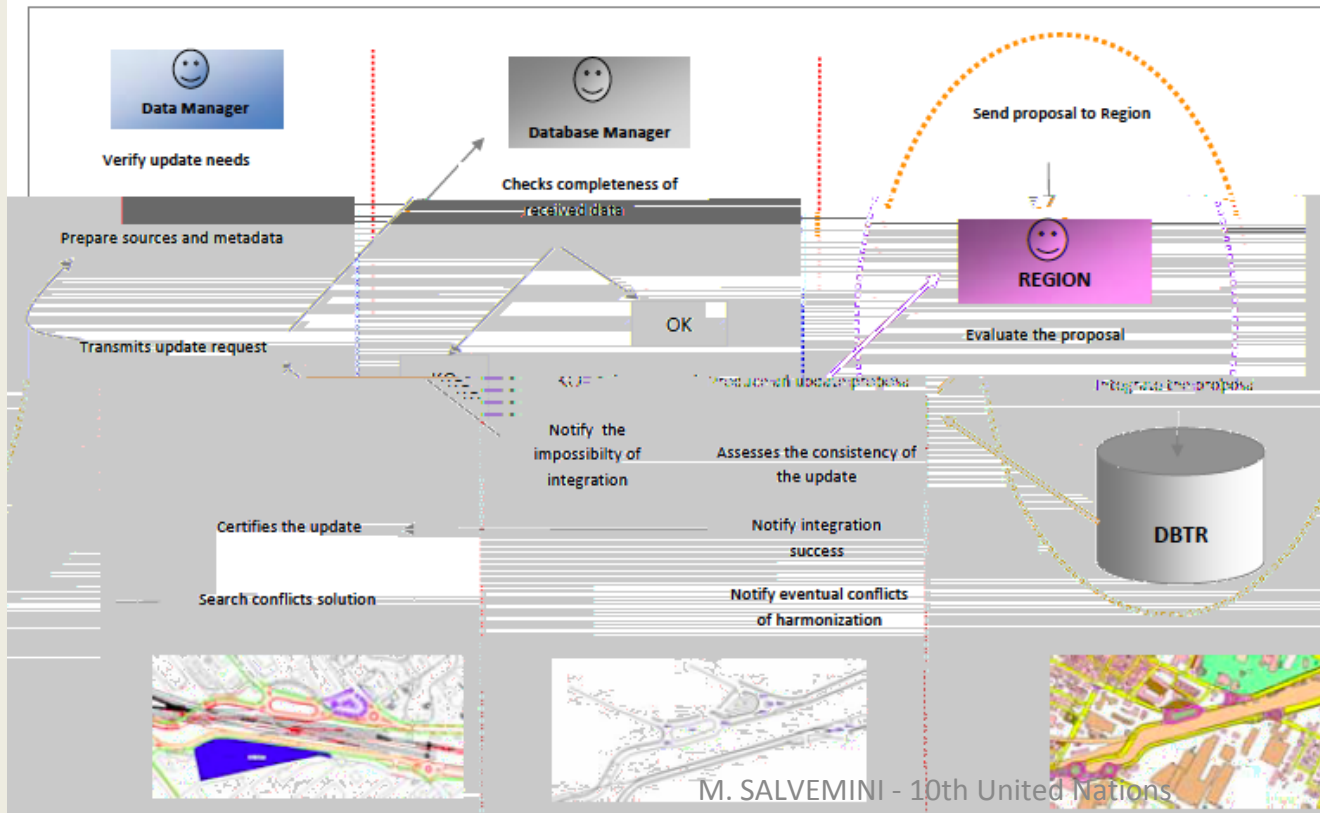


2:51 AM - 20 Mag 12

M. SALVEMINI - 10th United Nations
Regional Cartographic Conference of the
Americas

ITALY 2/2

Cooperative updating of DBTR Data flow and rules



THE VERY EFFECTIVE AND IMMEDIATE RECOVERY PHASE HAS BEEN BASED ON AN ALREADY COOPERATIVE PROCESS OF GEOSPATIAL INFORMATION UPDATING AND SHARING AMONG INSTITUTIONS AT DIFFERENT LEVELS AND WITH CITIZENS

Problems, caveats and conclusions

GI<>DM

- a consistent part of occurring digital divide is geospatial information related ; **SOCIAL CAPITAL**
- technical quality is needed common viewer functions (zoom and pan) are not sufficient , the access to robust and complete databases previously organized is needed; **SDI + GEOSERVICES**
- adequate basic resolution of the mapping and the access to data (before, during, after) ; **EFFECTIVE**
- to give to all States, specially the less favored ones, an equal opportunity to access data (at a sustainable cost or for free) and the adequate national capacity for data processing it is major key point; **MAPPING**

Problems, caveats and conclusions for considerations and recommendations :

- UNGGIM - *“ Geospatial information can play a critical role in spurring economic growth and productivity, enhancing governance and improving a citizen’s quality of life.* Use of UNGGIM as pillar
- To augment the power of authoritative geo-data by other originated data (volunteered, ngo, sub-national, social network, etc.) integration of different sources
- To give SDIs data cataloging and sharing and the application of modeling and services to standard data sets , as they are fundamental functions in disaster managing phases; Infrastructural approach
- Adequate design, provision and management of GI components and proprieties. Design, tech and mng. components

GI PROPERTIES

DATA SPECIFICATIONS, DATA COLLECTION
& STORING, DATA MODELLING,

STANDARD COMPLIANCE, DATA
AVAILABILITY, DATA DISTRIBUTION TYPES,
DATA OPENNESS, SYSTEM AVAILABILITY
AND ACCESSIBILITY

METADATA, DATABASE CATALOGUING,
NETWORK
ACCESS, DATA OPENNESS,
GI AWARENESS, SYSTEM AVAILABILITY,
HUMAN RESOURCES CAPABILITY,
DATA MONITORING & MAINTENANCE

DATA & SYSTEM AWARENESS RAISING,
LOCATIONAL MODELS, DATA ACQUISITION
STRATEGIES, DATA SHARING & USING
POLICY, DATA OPENNESS

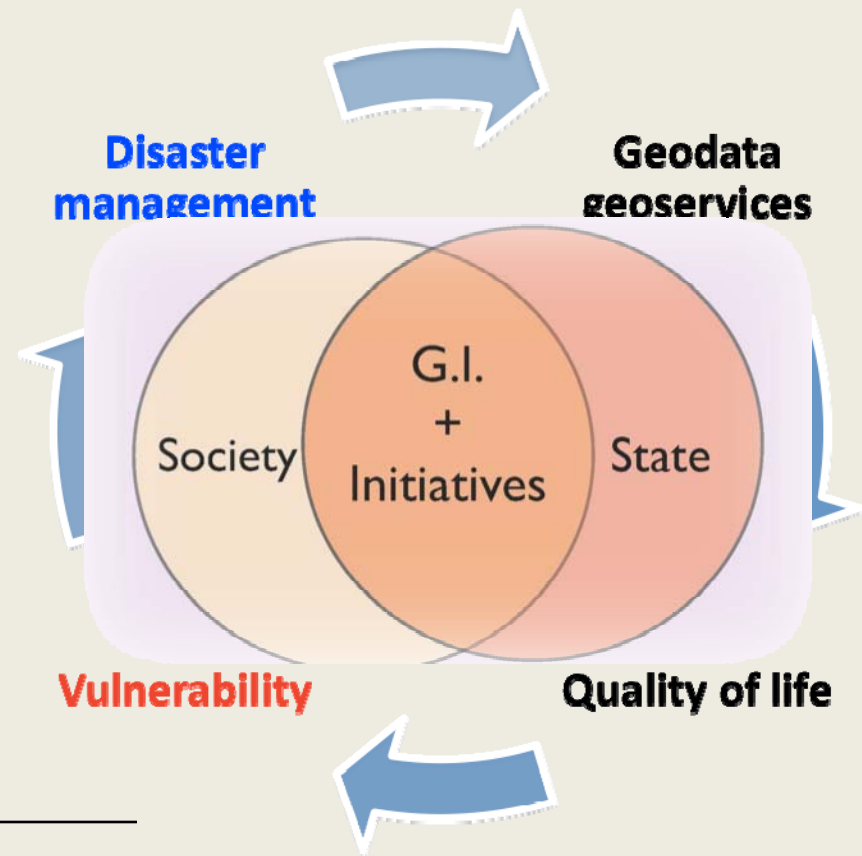
Geo information components

base maps and images, geo-entities, scale factor,
population statistics ,census tract granularity

attribute data, data quality

geoservices, e-gov services

land cover, land use, soil sealing , environment
modifications



Thank you for consideration

Grazie

Gracias