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IPA DRAM

DISASTER RISK ASSESSMENT AND MAPPING IN THE WESTERN BALKANS AND TURKEY

*Stefania Traverso, IPA DRAM RM and ERRA KE
UR BALKANS, Belgrade 17th-19th September 2018*

*Open Data, international standards
and DRR*



Swedish Civil
Contingencies
Agency

ADMINISTRATION



FOR CIVIL PROTECTION
AND DISASTER RELIEF

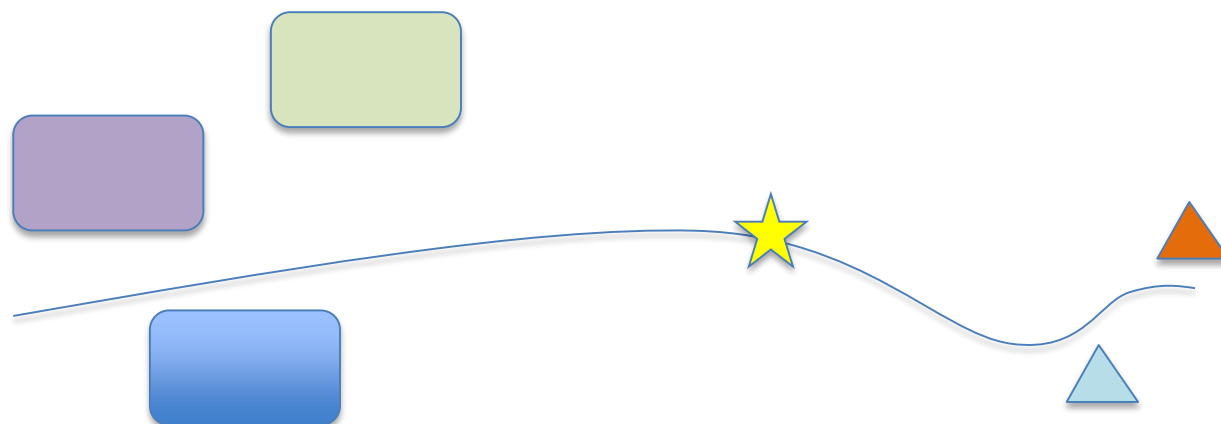


the importance of the existence of spatial data infrastructure for communities, institutions and companies is not different from the needs of roads, factories and crops for communities, with specific regulations

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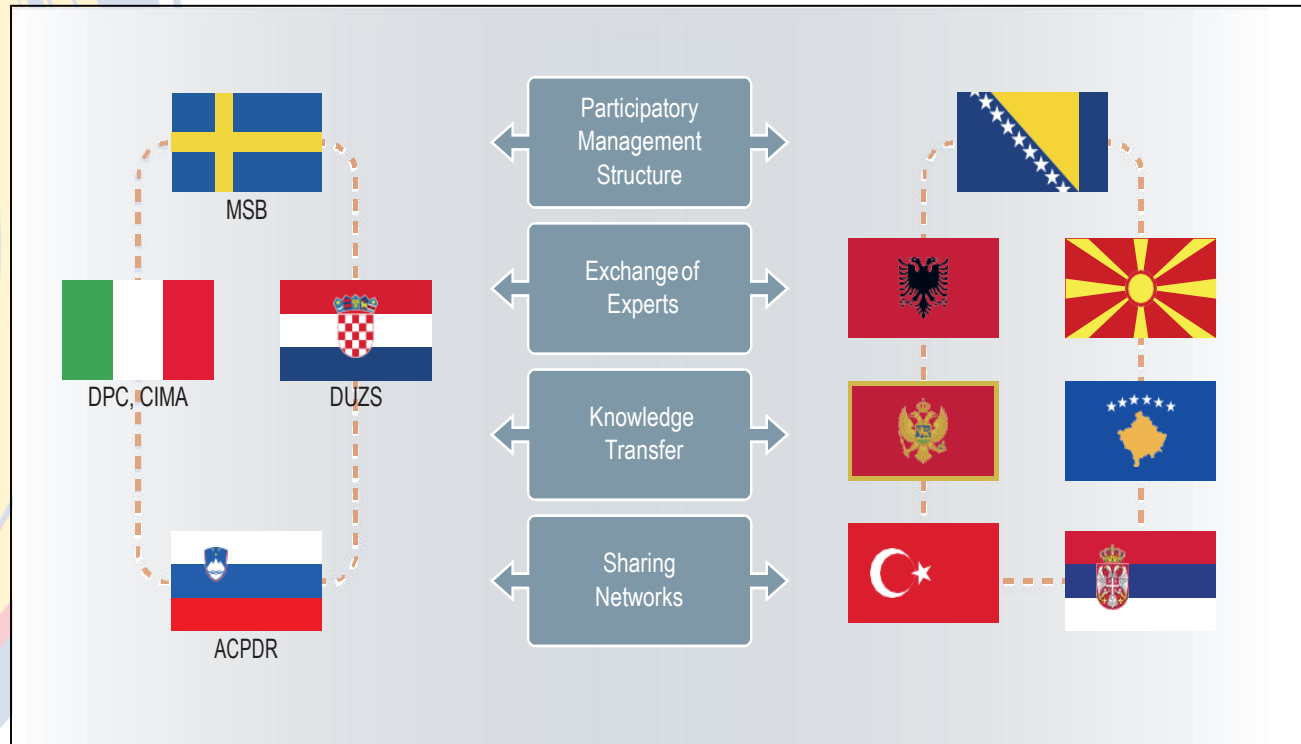


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3 technical components of IPA DRAM: **DRA , DLD and RM**

Partnership among national civil protection agencies





technical assistance to public institutions of Partner countries in applying the methodology for risk mapping and in compliance with INSPIRE Directive

at least 3 main hazards, identified in the risk assessment component as the **most relevant for the region**, plus other ones with a more **country-specific profile**

benefits to share data in a regional context and to cope with cross-border disasters



national policies and legislation on data sharing

tool in risk assessment and mapping (ERRA)
throughout the Programme and beyond

to develop a draft regional approach for
harmonization and improvement of regional
Risk Mapping, with the Partner countries and
in close liaison with DPPI, as well as JRC and
other key stakeholders

The tool ERRA IPA DRAM is a web portal that facilitates the management of disaster risk information from multiple sources and platforms:

- ❑ **maps** are collected by national or local institutions, agencies and organizations
- ❑ **data** comply with standard formats and facilitate the combination of hazard maps with vulnerability and asset maps

Risk assessment is a
data-intensive process

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strategy management

involves accessing information
from a **wide range of stakeholders**,
including mapping agencies,
scientific and technical ministries
from across government,
universities, research institutions
and the private sector



QUESTION: What kind of Geospatial Data?



key datasets, data formats, institutional mapping for
usage in implementing DRA and Risk Mapping



Building a reference
key dataset:
core data for DRA



The datasets required for conducting risk assessment are valuable resources

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- can be **expensive** to create
- can be used by a diverse set of users for **multiple purposes**
- improper management or limiting access to data can lead to duplication of effort (other organizations may be recreating data that already exist)
- **data management plan** can help encourage stakeholders to share their data and ensure that the processes for sharing data are effective and transparent

- **Stakeholders Involvement and Accountability**

- **Standard Data Formats**

- **Data Licences**

- **Metadata**

- **Recommendations**



EU Risk Assessment and Mapping Guidelines for Disaster Management

Risk assessment and mapping are the central components of a process

which furthermore identifies the capacities and resources available to reduce the identified levels of risk, or the possible effects of a disaster (capacity analysis), and considers the planning of appropriate risk mitigation measures (capability planning), the monitoring and review of hazards, risks, and vulnerabilities, as well as consultation and communication of findings and results.

**national risk assessments and mapping
deliver the essential input for informed capacity building
and the enhancement of both
disaster prevention and preparedness activities**

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Words into Action Guidelines

National Disaster Risk Assessment

Governance System, Methodologies, and Use of Results

2017

In support of the Sendai Framework for Disaster Risk Reduction 2015 - 2030

United Nations Office for Disaster Risk Reduction

F. Data Management throughout the National Risk Assessment Process

Key words:
data management, data license, open data, metadata

G. Use of Geospatial Data in Implementing NDRA

Key words:
geospatial data, spatial data, geographic information systems, GIS

Hazard Specific Risk Assessment

In support of the Sendai Framework for Disaster Risk Reduction 2015 - 2030

United Nations Office for Disaster Risk Reduction





Strategic Framework on Geospatial Information and Services for Disasters

Working Group on Geospatial Information and Services for Disasters (WG-GISD)
The United Nations Committee of Experts on
Global Geospatial Information Management
(UN-GGIM)

published on
August 2017



UN-GGIM

United Nations Committee of Experts on
Global Geospatial Information Management

ggim.un.org





Strategic Framework on Geospatial Information and Services for Disasters

Scope and Purpose

The strategic framework aims to guide all stakeholders and partners in the management of geospatial information and services in all phases of disaster risk management

Expected Outcome

The social, economic, and environmental risks and impacts of disasters are prevented or reduced through the use of geospatial information and services

Goal

Quality geospatial information and services are available and accessible in a timely and coordinated way to support decision-making and operations within and among all stakeholders and partners and in all phases of disaster risk management

Priorities for Action

Member States with the support of regional and international organizations as well as other relevant organizations should focus their action on the following five priorities for action:

Priority 1 Governance and Policies	Priority 2 Awareness Raising and Capacity Building	Priority 3 Data Management	Priority 4 Common Infrastructure and Services	Priority 5 Resource Mobilization
Policies, collaborative agreements and legal frameworks aiming at improving the availability and accessibility of quality geospatial information and services among all stakeholders and partners established and implemented in all phases of DRM	Awareness is raised among concerned entities on the importance of geospatial information and services and all necessary technical and human capacities are built and/or strengthened	Geospatial databases and information products are developed based on common standards, protocols and processes as important tools in every decision-making process across all phases of DRM	Common facilities and services are established for all key stakeholders and partners to have a common operational picture of emergency scenarios	All necessary technical, human and financial resources are available to sustain all the activities of DRM

Guiding Principles

The strategic framework is guided by the 2030 Agenda for Sustainable Development, International Strategy for Disaster Reduction, Sendai Framework for Disaster Risk Reduction (2015-2030), the UN-GGIM Global Statistical Geospatial Framework, UN General Assembly resolution on international cooperation on humanitarian assistance in the field of natural disasters, from relief to development and other relevant instruments. It is also guided by the principles of open data and requirements of national data infrastructure, and by the UN-GGIM's Statement of Shared Guiding Principles for the Management of Geospatial Information.

CODs and FODs provide baseline data for coordinating the humanitarian response in an emergency, for mapping and other information and planning purposes.

Common Operational Datasets (CODs) are the de facto standard for the humanitarian community:

Administrative boundaries.

Populated settlements, towns, cities.

Transportation network (roads, ports, etc.).

Hydrology (streams, bodies of water, etc.).

Hypsography (elevation models, contours).

Population statistics.

Humanitarian profiles (caseload).

Fundamental Operational Datasets (FODs) are datasets that are specific to a particular sector or fall outside the COD categories above. FODs cover:

Everything else: **schools, flood plains, security incidents, wells, etc.**



INSPIRE

INfrastructure for SPatial InfoRmation in Europe

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INSPIRE Directive is a European Commission project with the objective to regulate geospatial information and to create spatial data infrastructure in the EU

ANNEX: 1



[Addresses](#)



[Cadastral parcels](#)



[Geographical grid systems](#)



[Hydrography](#)



[Transport networks](#)

ANNEX: 2



[Elevation](#)



[Land cover](#)



[Administrative units](#)



[Coordinate reference systems](#)



[Geographical names](#)



[Protected sites](#)



[Geology](#)



[Orthoimagery](#)

ANNEX: 3



[Agricultural and aquaculture facilities](#)



[Atmospheric conditions](#)



[Buildings](#)



[Environmental monitoring Facilities](#)



[Human health and safety](#)



[Meteorological geographical features](#)



[Natural risk zones](#)



[Population distribution and demography](#)



[Sea regions](#)



[Species distribution](#)



[Utility and governmental services](#)



[Area management / restriction / regulation zones & reporting units](#)



[Bio-geographical regions](#)



[Energy Resources](#)



[Habitats and biotopes](#)



[Land use](#)



[Mineral Resources](#)



[Oceanographic geographical features](#)



[Production and industrial facilities](#)



[Soil](#)



[Statistical units](#)



4 different key spatial object
types are modelled:

- Hazard area
- Observed event
- Risk zone
- Exposed element

Example for hazard area:

Abstract Hazard area:

- An identifier
- A method of determination
- A type of hazard (category value, type)
- Date in which the object was entered into the dataset
- The period of validity
- An association to “observed event”
- The likelihood of occurrence (method, quantitative value)
- The magnitude or intensity



WMO new improvements for developing descriptions and scenarios for extreme meteorological events

OGC on January 2018 UTC announced



Disasters Interoperability Concept Development Study

Release Date: *Study and further initiatives aim to collate, document, and make freely available the knowledge and best practices required for geospatial data, product and information sharing in times of crisis.*

The Open Geospatial Consortium (OGC) has announced the **Disasters Interoperability Concept Development Study** (CDS). The CDS will assess the current state of data and product exchange technologies as used in disaster planning, response, and recovery. The information gained in the CDS will aid in developing a series of future pilots that will in turn advance the state of Spatial Data Infrastructures (SDIs) that support disaster risk reduction across the globe.

ONGOING ACTIVITIES FOR IMPROVING STUDIES ON DATA FOR DISASTERS, ORIENTED TO RISK REDUCTION AND DISASTER RESILIENCE

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OpenDRI Open Data for
Resilience Initiative



The Global Facility for Disaster Reduction and Recovery (**GFDRR**) launched the Open Data for Resilience Initiative (OpenDRI) to apply the concepts of the global open data movement to the challenges of reducing vulnerability to natural hazards and the impacts of climate change.

OpenDRI supports World Bank Regional Disaster Risk Management Teams to build capacity and long-term ownership of open data projects with Partner countries, that are tailored to meet specific needs and involve sharing, collecting and using data.

OPEN DATA FOR RESILIENCE INITIATIVE FIELD GUIDE



DLD ASPECTS NEED TO BE TAKEN INTO ACCOUNT

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specific data envisaged by SDGs and Sendai Framework target

EX_6	Exposure	Critical infrastructure	facilities	Shapes of lifeline infrastructures such as utilities that provide essential services to the people. Critical infrastructures include roads, railways, power, water, and telecommunication networks and assets as well as bridges, airports, harbors, education and health facilities.	National
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Global target D: Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.

D-1 (compound)	Damage to critical infrastructure attributed to disasters.
D-2	Number of destroyed or damaged health facilities attributed to disasters.
D-3	Number of destroyed or damaged educational facilities attributed to disasters.
D-4	Number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters.

The decision regarding those elements of critical infrastructure to be included in the calculation will be left to the Member States and described in the accompanying metadata. Protective infrastructure and green infrastructure should be included where relevant.



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IMPULS PROJECT : The aim of the project is to support the Agencies in Western Balkans in their work to adjust to the EU directive INSPIRE, which specifies how a country should organize the National Spatial Data Infrastructure (NSDI).

The project will provide the basis for how technical interoperability can be achieved, how authorities should disseminate geodata in an electronic format via services and how they should share geodata
Beneficiaries are:



Immovable Property Central Registration Office of the Republic of Albania (IPRO)

National Authority for Geospatial Information in Albania (ASIG)

Federal Administration for Geodetic and Real Property Affairs of FBiH (FGA)

Republic Authority for Geodetic and Property Affairs of the Republic of Srpska (GARS)

Kosovo Cadastral Agency of the Republic of Kosovo

Agency for the Real Estate Cadastre of the Republic of Macedonia (AREC)

Real Estate Administration of the Republic of Montenegro (REA)

Republic Geodetic Authority of the Republic of Serbia (RGZ)

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GENERAL TO SPECIFIC



WE CAN DEFINE AT LEAST 5 CLASSES OF DATA

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BASIC DATA	HAZARD DATA	EXPOSURE DATA
General datasets required for interpretation of the results from the risk assessment, as well as observational records on historical events and associated losses in the past	Datasets required for hazard modelling or characterisation of the hazard	Datasets describing the assets at risk

VULNERABILITY DATA	RISK DATA
Data or models related to the likelihood of suffering damage or loss conditional on a given intensity of the hazard	Quantitative information and indicators related to risk from previous DRM studies. These can be used for validation and verification purposes

AIM	RISK ASSESSMENT AND RISK MAPPING
FRAMEWORK	PLANNING/REAL TIME
SCALE	NATIONAL/LOCAL
TYPE OF HAZARD	EARTHQUAKES
	FLOODS
	FOREST FIRES
CLASSES OF KEY LAYERS	BASIC INFORMATION
	HAZARD
	EXPOSURE
	VULNERABILITY
	RISK MAPS
SCENARIOS	SCENARIO MAPS
DLD SENDAI	HISTORICAL
DATA HOLDERS	who owns, creates or publishes data
SHARING POLICIES	authorization mechanism tools/OPEN DATA
IT SOLUTIONS	via standard protocols

CHALLENGES

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- ❑ updated disaster risk assessments in all countries supported by GIS modeling
- ❑ DLD enriched with economic, social, health, education data (SEND AI), environmental, cultural heritage (EU Guidelines),
- ❑ built knowledge of civil servants and capacities in authorities at all levels relevant for disaster risk analysis, disaster loss data and risk mapping
- ❑ authorization dissemination data mechanism

Open Data could be THE reference support!

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Thank you for your attention!

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