

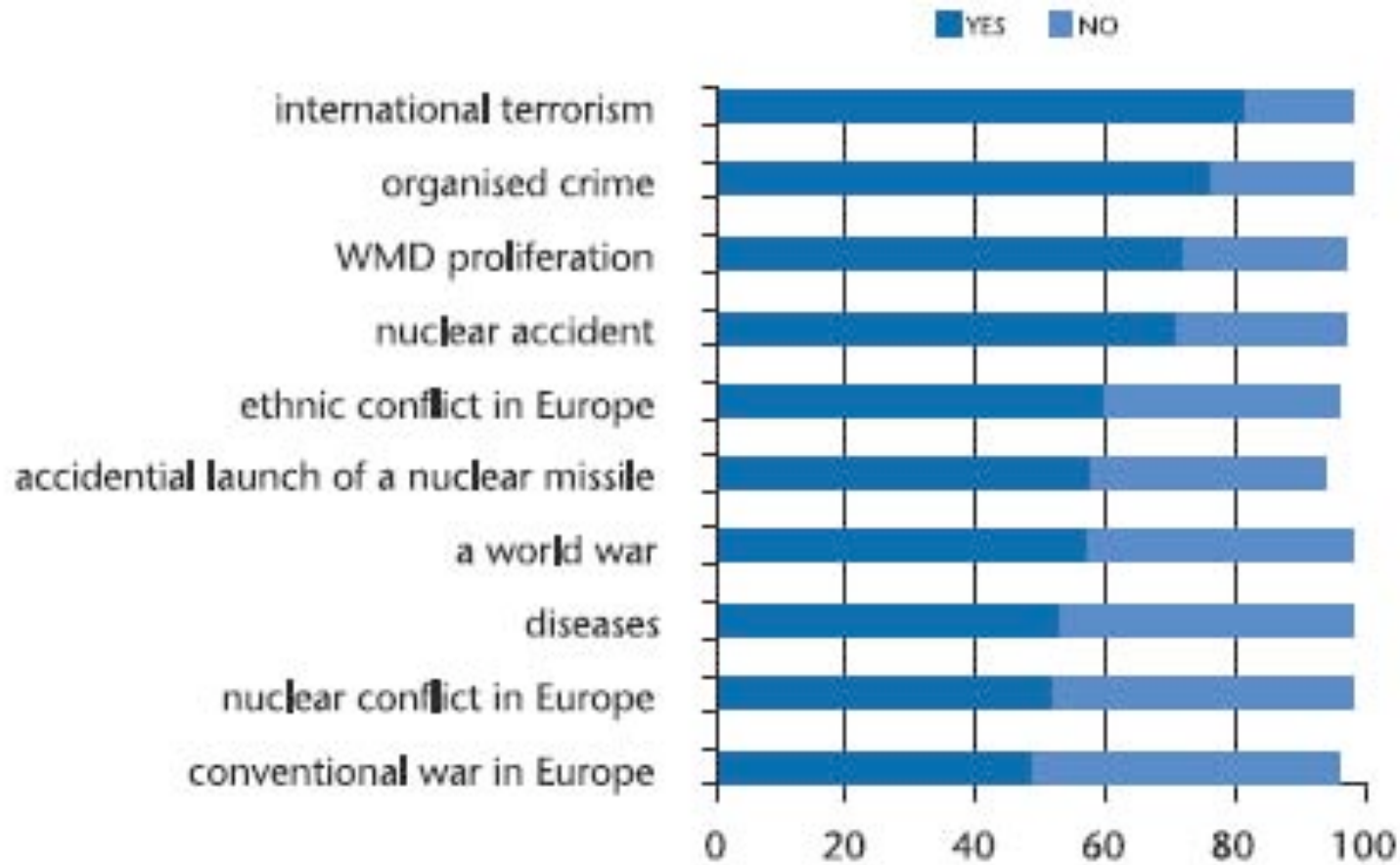
Overview of European research projects in the context of risk management



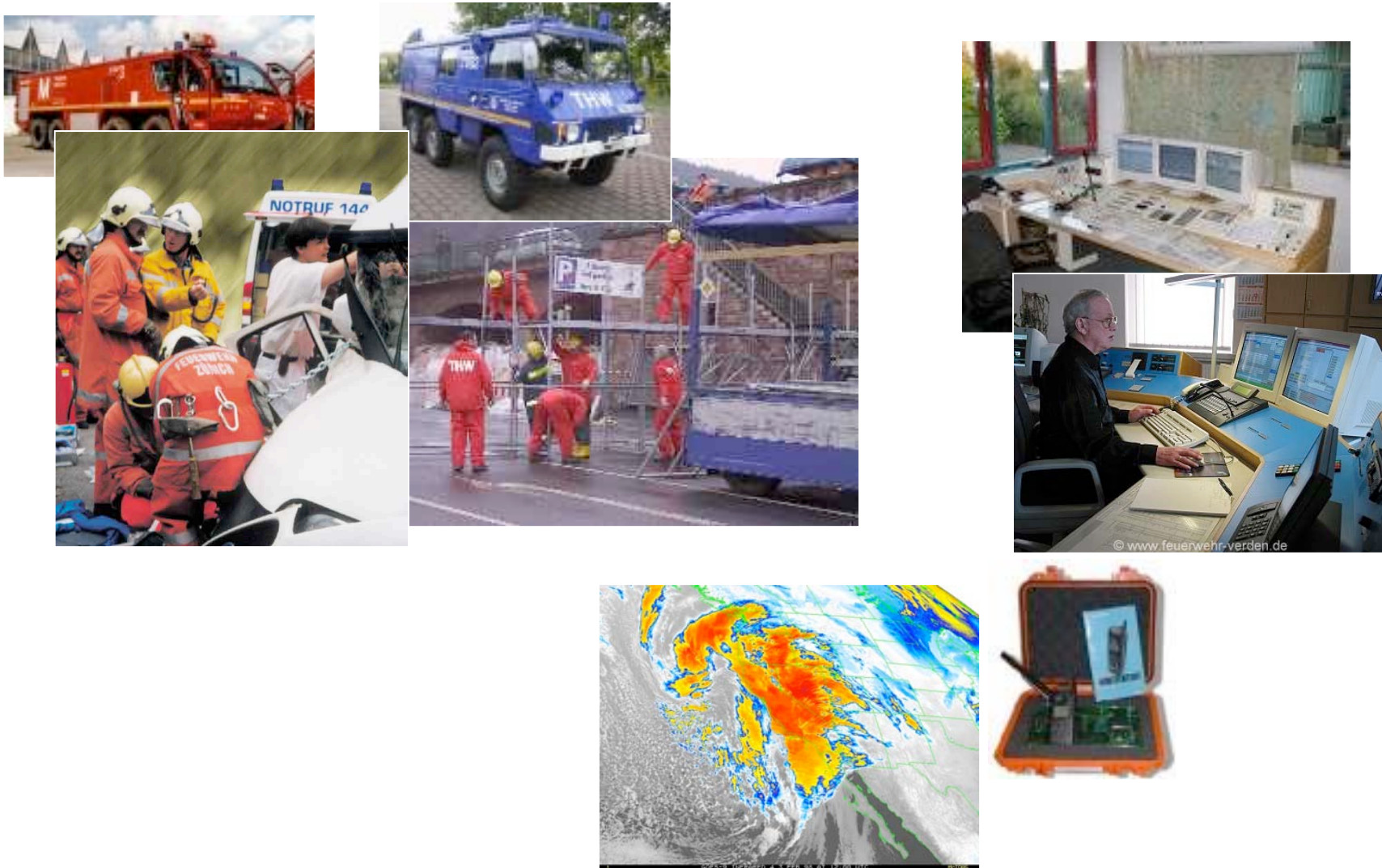
Thomas Rose
Martin Sedlmayr







Source: Eurobarometre, Sondage no. 58.1, Oct./Nov. 2002

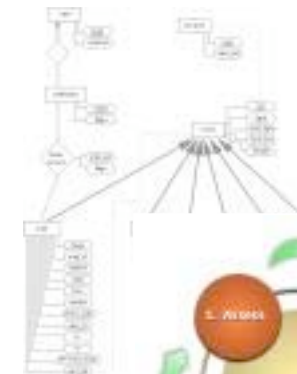
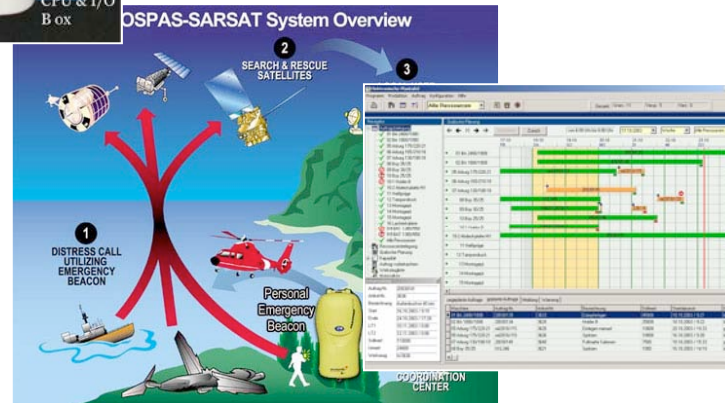
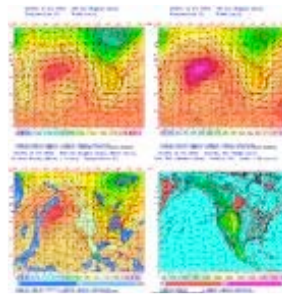


Research has addressed and improved so far

- Floods - forecasting
- Landslides - hazard assessment
- Avalanches - hazard assessment
- forest fires - hazard mapping and suppression techniques
- Earthquakes - resistant structures
- volcanic eruption - monitoring
- industrial hazards - process safety (Seveso II Directive)

Achievements so far

- Methods and components for hazard forecasting and monitoring, risk assessment, management and mitigation



All 25-member states of the EU have very different...

- information systems
- operational procedures
- communication systems

Public authorities poorly equipped

Market is small (slow investments)

↳ EU investments

↳ interoperability

Intention:

Design, validate and demonstrate a generic integrated risk management open system to support the whole chain of activities

RTD activities:

- Situational awareness
- Decision support

Large-scale and cross-border disasters

Risk management, public safety

Military

Security

Information technology

eGovernment

Health

Environment

...

↪ Immediate and applied research

↪ „Networking“ and development

Improvement of **information interoperability** of civil protection equipment allowing for joint intervention in case of major disaster

Development of **harmonized geo-spatial information** for the maintenance of vulnerability information and allowing the management of inter-related risks (including domino effects)

Developing new approaches for the deployment of in-situ **sensor networks** and bridging the gap between in situ and remote sensing observation in the context of GMES

RM components being developed by vast range of institutions and organizations.

Administrative and legal boundaries

Lack of interoperability on the technical side

↳ Inspire Initiative

Development of service architectures based on „open“ standards.

Goal

- to reduce the cost of building and maintaining risk management applications
- appropriate handling of systemic risk and domino effects

The initiative intends to trigger the creation of a European **spatial information infrastructure** that delivers to the users integrated spatial information **services**. These services should allow the users to identify and access spatial or geographical information from a wide range of sources, from the local level to the global level, in an **inter-operable way** for a **variety of uses**.

The target users of INSPIRE include policy-makers, planners and managers at European, national and local level and the citizens and their organisations.

Possible services are the visualisation of information layers, overlay of information from different sources, spatial and temporal analysis, etc.



Global Monitoring of Environment and Security (GMES)

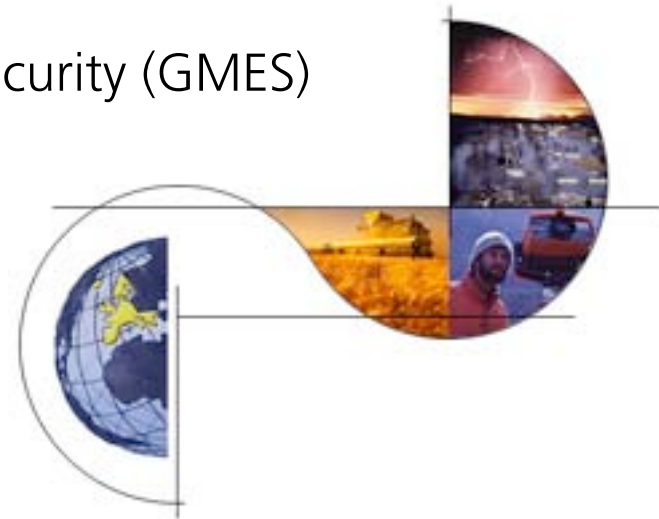
GMES is a joint initiative of the [European Commission](#) and the [European Space Agency](#) , designed to establish a European capacity for the provision and use of operational information for Global Monitoring of Environment and Security.

In 2008 the foundations and the structuring elements of the European Capacity for Global Monitoring of Environment and Security should be in place and operating. This Capacity is seen to be composed of three modules, which together constitute the functional GMES "system":

1. the production and dissemination of information in support of EU policies for Environment and Security;
2. the mechanisms needed to ensure a permanent dialogue between all stakeholders and in particular between providers and users
3. the legal, financial, organisational and institutional frame to ensure the functioning of the system and its evolution.

Many elements of the modules already exist but have been conceived, designed and managed in isolation, thus limiting interoperability and production of relevant information. The coherence, efficiency and sustainability of a shared information system for Europe will be the added value of GMES. It will be achieved by developing compatibility between the existing elements, establishing cooperation between the organisations and filling the gaps where necessary.

The expected benefits are better information at the users' end and a more active economy in the information production related sectors.



Applied IST research addressing major societal and economic challenges

2.3.2.9 Improving risk management

Objective

- To develop open platforms, integrated systems and components for improved risk management, civil security applications (including threats from anti-personnel landmines), and environmental management.
- To foster the emergence of a European info-structure and service platforms which will facilitate the use of interoperable components and sub-systems.
- The work should contribute to the implementation of the GMES action plan, notably to the development of the part related to risk management.

- ❑ **DELVE** - Restructuring demining research from regional initiatives within Europe (DELVE)
- ❑ **EURITRACK** - European illicit trafficking countermeasures kit
- ❑ **EUROPCOM** - Emergency ultrawideband radio for positioning and communications
- ❑ **MITRA**- Monitoring and intervention for the transportation of dangerous goods
- ❑ **OASIS** - Open advanced system for crisis management
- ❑ **ORCHESTRA** - Open architecture and spatial data infrastructure for risk management
- ❑ **STREAM** - Technology to support sustainable humanitarian crisis management
- ❑ **WIN** - Wide information network for risk management integrated project

Applied IST research addressing major societal and economic challenges

2.4.3 Towards a global dependability and security framework

Objective

- building technical and scientific excellence, as well as European industrial strength in security, dependability and resilience of systems, services and infrastructures, whilst meeting European demands for privacy and trust
- seeking to strengthen the interplay between research and policy development in line with the eEurope objectives both within the EU and world-wide, and contribute to standardisation activities in network and information security
- giving particular attention to involving all members of the enlarged Europe in a coherent EU security RTD strategy.

Preparatory Action on „Enhancement of the European industrial potential in the field of Security Research 2004-2006“

The European security strategy, “A Secure Europe in a Better World” proposes three strategic objectives for the Union:

- Addressing threats
- Building security in our neighbourhood
- An international order based on effective multilateralism

Fields of Activity

- Improving situation awareness
- Optimising security and protection of networked systems
- Protecting against terrorism (including bio-terrorism and incidents with biological, chemical and other substances)
- Enhancing crisis management (including evacuation, search and rescue operations, active agents control and remediation)
- Achieving interoperability and integrated systems for information and communication

179 proposals

- 123 projects
- 50 supporting activities
- 6 ineligible

<i>Title</i>	<i>PR / SA</i>	<i>Security scope</i>	<i>Application / technology</i>	<i>Funding €</i>
ESSTRT	SA	Security assessment	EU new security challenges	656.038
TERASEC	PR	Suicide bombs and mail attacks	Terahertz imaging	2.276.856
VITA	PR	Protection of highly networked infrastructures	Assessm. of threats, tools, methods and technologies	1.103.907
IMPACT	PR	Scenarios and best practices against CBRN attacks	Sensors, materials, biological detection, early warning	3.024.000
ASTRO+	PR	EU Security	Application of space technologies to security	2.453.602
CRIMSON	PR	Urban crisis	Virtual reality tech. for preparation to crisis	1.693.581
SENTRE	SA	EU Security	Strategic research, network of users, experts, assessment, guidelines	931.850
ISCAPS	PR	Crowded areas, terrorist attacks	Automated surveillance, intelligent sensor-based systems	2.035.904
TIARA	SA	Radiological contamination	Assessm. of practices and physician knowledge for detection and decontamination	171.900
SUPHICE	PR	EU citizen privacy rights	Assessm. and guidelines for a common EU crypto platform	1.454.062
GEODATA	SA	Situation awareness	Use of geospatial data, assessm. of techniques and databases	294.250
CREW	SA	Preparedness / Early warning	Guidelines for integrated systems with multiple data sources and processing techniques	344.922

The Euro-Mediterranean Disaster Information Network (EU-MEDIN) promotes the sharing of disaster-related information and data, research, results, knowledge and expertise. The Initiative aims at harmonising methods to improve pre-disaster planning as well as hazard, vulnerability and risk assessments.

seismic risk	assessing the hazards; earth
volcanic risk	understanding the p
landslides and avalanches	understanding the mechanisms and mapping
floods and storms	establishing the links to climate change, assessing an the enviromental and socio-econom
forest fires	fire propagation and suppression methodologies, parti

Earthquakes

The European Union actively supports research in the field of earthquakes.

Research in this field aims to:

- Provide a better understanding of the processes leading to earthquakes, while identifying high seismic risk areas and implementing support technologies and methods to analyse and monitor earthquake-related phenomena
- Harmonise earthquake data and enhance accessibility and dissemination, especially in the earthquake engineering field

Related Projects

• 3F-CORINTH	• EMICES	• OPTSEDT	• SEISCANEX
• 3HAZ CORINTH	• EPSI	• PREPARED	• SEISLINES
• AEGIS-CORINTH	• ESPON_HAZARDS	• PRESAP	• SESAME
• ARMONIA	• EU-MEDIN	• RELIEF	• SPIDER
• CORSEIS			
• DGLAB-CORINTH			
• E-RUPTIONS			

Project Title: EMICES
Contract Number: EVK2-CT-2001-80002
Subtitle: European-Mediterranean Infrastructure Co-ordination for Earthquake Seismology
Abstract: The consortium will organise three European workshops to co-ordinate on-going European efforts in earthquake data management and exchange. The immediate goal is to engage more observatories and researchers from Europe and the Mediterranean area in existing initiatives, notably EC-project MEREDIAN (EVRI-CT2000-40007) and EPSI (EVRI-CT2000-40006). Another goal is to co-ordinate a large number of both regional and global on-going initiatives with regard to earthquake data.
Web Page: <http://orfeus.knmi.nl/emices/>

Seismic Engineering

Together with earthquakes, the E

Research in this field aims to:

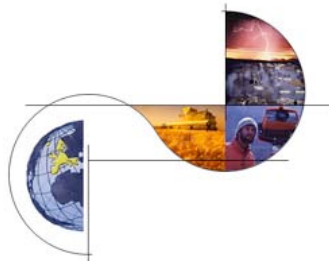
- Improve building design of existing, historic and new constructions using new methods to assess vulnerability, risk and local ground motion variations
- Further knowledge of the socio-economic costs and impacts - including the human dimension - of earthquake intervention

Related Projects

• 3HAZ CORINTH	• ISTECH	• QUAKER	• SPACE
• EU-MEDIN	• NEDIES	• RISK-UE	• SPIDER
• Formidable	• OPTSEDT	• SEISLINES	• VAST-IMAGE
• INDEPTH	• PRESAP	• SEISMOCARE	

15 projects

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Key objectives

- Integration of hazard assessment with local vulnerability
- Use of an integrated chain (hazard-vulnerability-risk) to predict the environmental, social and economic consequences of disasters.
- Evaluate alternative mitigation measures that can be economically justified and socially acceptable

Civil crisis management methodology

Research on disaster reduction:

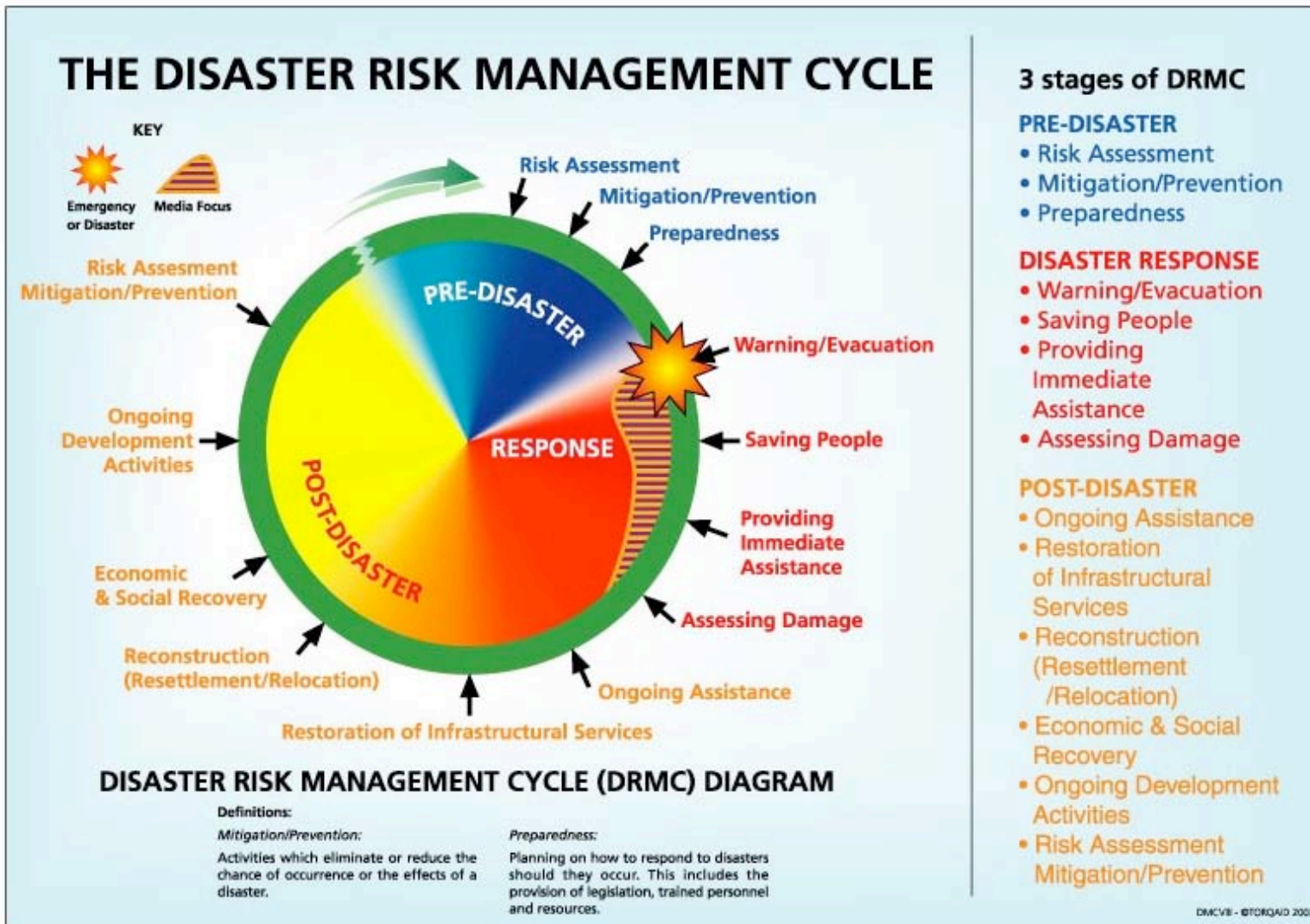
- Multiple (systemic) risks
 - Domino and indirect effects
 - Bridge the gap between science and real life disaster prevention and management requirements

Efforts will be required:

- Harmonization of assessment techniques
- Integration and standardization of geo-spatial data and analytical tools
- Integration of sensors (in-situ, airborne, satellite)
- Secure and dependable public safety communication, including ad-hoc broadband networks for emergency operations and alert network

Future:

- Better integration of public safety communications
- Network centric crisis management framework



Australian Development Gateway

