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COVER NOTE

Subject:	Satellites solutions for the benefit of society: best practices and hands-on examples - Powerpoint presentation (Space WP meeting 25.06.2024)

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ACTING COLLECTIVELY TO
BRIDGE SPACE AND SOCIETY
Satellite solutions for the benefits of society.
Best practices and hands-on examples
Annalisa Donati
Secretary General
COMPET meeting
25/06/2024

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Mission & Members

EUSPA
esa European Space Agency
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MTU
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DLR
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Ministry of Foreign Affairs and Trade of Hungary
IEEC
Netherlands Space Office
PLSA Polska Agencja Kosmiczna
rosa
RST
SLOVAK SPACE OFFICE
TUA
UK SPACE AGENCY
BEYOND
PORTUGUESE SPACE AGENCY

Approach

Facilitator → EXPLORE

Raise awareness of satellite applications to help professional communities in many sectors: from transport to risk management, from habitat protection to energy, from climate change to the IoT.

Matchmaker → CONNECT

Support potential end users of satellite applications by leveraging its vast network among space and non-space communities; understanding patterns and links and/or creating them for mutual benefits.

Adviser → INFORM

Provide feedback to decision-makers on possible measures to overcome obstacles in diffusing space-derived innovation in society.

Climate challenges

Human cost of disasters: an overview of the last 20 years – UNDRR Report

	145	1389	44	263	163
	204	3254	552	338	238
	47% $1.39 trillion	22% $651 billion	21% $636 billion	4% $636 billion	3% $93 billion

US$ Economic losses

1980 1999	1.63 trillion
2000 2019	2.97 trillion

Disaster risk management

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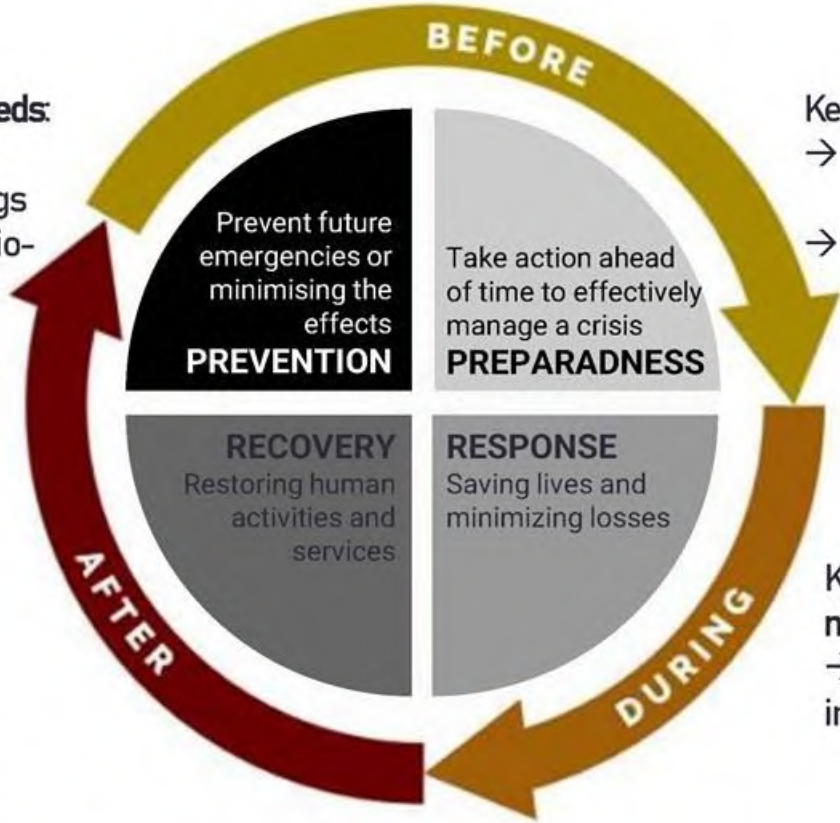
Key **information & observation needs**:
→ Hazards: Past events; adverse phenomena; geographic settings
→ Vulnerability: physical and socio-economic vulnerability assessment
→ Exposure: inventory of assets



Key **information & observation needs**:
→ Forecasts & early warnings: pre-disaster information
→ Need for assistance: post-disaster maps; human displacement

Key **information & observation needs**:
→ Losses and damages: post-disaster maps
→ Recovery and risk: changes of risks and hazards

Key **information & observation needs**:
→ Disaster scenarios: pre-disaster information

Satellite-based Services for DRM

Satellite-based Services for DRM

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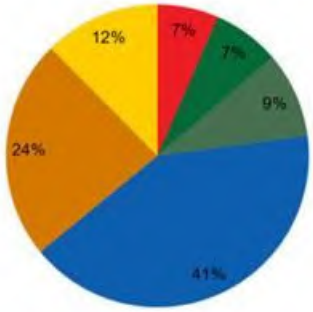
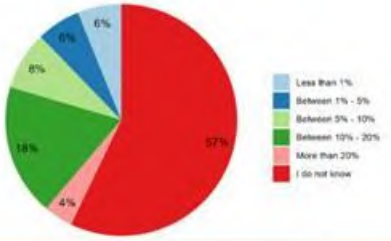
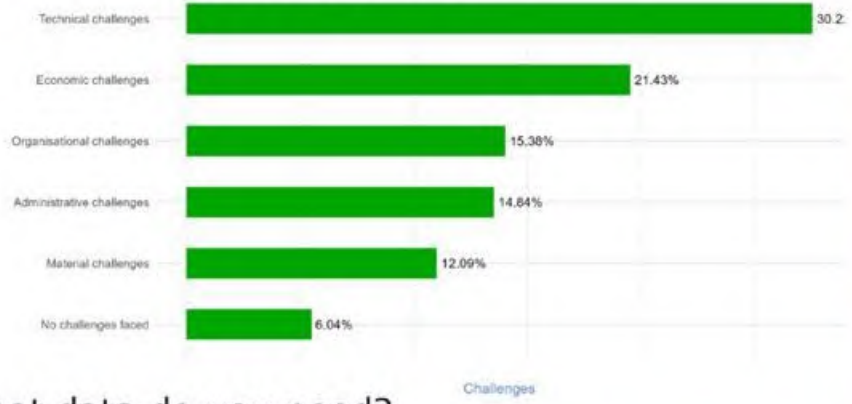
DRM Workshop Country Responses from:
Belgium (63), Cyprus (36), Greece (63),
Hungary (14) , Portugal (10) , Slovakia (10)



How much money did you save?



What challenges did you face?



What data do you need?


SAFE & RESILIENT CITY
DISASTERS & SECURITY
• Management of natural disasters
• Coordinated emergency and rescue services
• Critical infrastructure monitoring
• Oil spills detection and removal
• Monitoring of hazardous goods' transportation
• Analysis of crime incident patterns
• Infringements' reporting
SOIL & WATER
• Soil morphology and moisture
• Soil cover and use
• Inland and sea water quality and temperature
• Remote control of water reservoirs
• Hazardous materials management
• Sustainable urban agriculture
CLEAN CITY
AIR
• Air quality and temperature
• Traffic, industry and airport emissions
• Air quality modelling and management
ENERGY
• Solar energy systems' assessment
• Wind maps for wind power stations
• Remote monitoring of hydropower stations
• Synchronised power grid systems
• Remote detection of power outages
GREEN AREAS
• Urban forest and biosphere maps
• Balanced green and built-in spaces
• Vegetation cover monitoring and management
WASTE
• Optimised bin collection
• Detection of illegal dump sites
• Hazardous waste tracking
HEALTHY & INCLUSIVE CITY
HEALTH
• Coordinated emergency medical services
• Remote health check-ups
• Pollution peaks alerts
• First aid apps
ENGAGEMENT
• Apps enhancing civic e-participation
• City management based on mobile behavioural data
• Apps fostering sustainable lifestyles
• City open data
CULTURE
• Monitoring of historical buildings
• Augmented reality and historical city maps
• Tourism and city guides
• Geolocated outdoor serious games
EFFICIENT CITY
URBAN PLANNING
• Land cover classification
• Land use monitoring and management
• Cadastral maps
• Urban sprawl monitoring
• Property tax evaluation
• Identification of illegal buildings
• Urban 3D planning
TRANSPORT & MOBILITY
• Real-time transport information
• Bike and car sharing
• Intermodal transport
• Urban traffic modelling and analysis
• Optimisation of public transport and traffic lights
• Mobility support for persons with impaired mobility
• Parking apps
BUILDINGS & INFRASTRUCTURE
• Monitoring of pavements, buildings and critical infrastructure
• Planning of constructions and transport infrastructure
• Adapt construction materials to climate changes
• Road condition and traffic safety improvements
• Mapping of buried optic fibre, gas and electric lines
• Soil subsidence maps to prioritise maintenance works

Sardinia Region: Monitoring the water transport and distribution network remotely with satcom

The user:

ENTE ACQUE DELLA SARDEGNA

ENAS

Ente acque della Sardegna

The challenge:

ENAS manages installations spread over 25000km², in addition to the time and workforce needed to visit the water installations, the region's landscape features mean that terrestrial telecommunications infrastructure is unavailable or unreliable outside urban and industrial areas.

The solution:

Thanks to the satcom receivers installed near dams, hydroelectric power stations, pumping stations and aqueducts, ENAS is able to receive information about and control flow rates, volumes, levels and status of pumps in real time and remotely.

The benefit:

The current network for communication and data transmission between the periphery and the central office ensures the continuity and quality of the service, while reducing the costs and efforts necessary for monitoring the water infrastructure.

The Public Service of Wallonia (Belgium) relies on satellite imagery for a comprehensive view of land cover and use

The user:

The Public Service of Wallonia

Wallonie service public SPW

The challenge:

Acquisition of precise, accurate and easily updatable information, on land cover (LC) and land use (LU) to comply with EU INSPIRE Legislation

The solution:

WALOUS maps' integrate the latest georeferenced data on the whole Walloon territory

The benefit:

The Department of Agriculture, Natural Resources and Environment of the PSW uses the map to support farmers in making their declarations

COPERNICUS AND ME

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Success stories database

Success stories will favour the dissemination of case studies and help connecting service providers and end users.

The **Success Stories** aim at addressing communities outside the space sector to express their needs and to present their challenges.

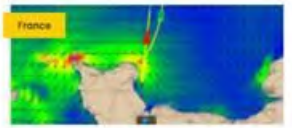
Objective is to favour the integration of satellite-based solutions in their workflow.

- Communication and digital society
- Energy, infrastructure and utilities
- Environment, climate and health
- Maritime
- Risk management and emergencies
- Smart cities
- Tourism, culture and leisure
- Transport and logistics

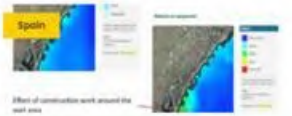
Montenegro: Protecting marine habitats thanks to a map based on satellite information

Lazio Region: supporting coastal zone management with geo-information services

Finland: All-year-round open ports due to efficient ice-breaking services



Weather4D: smooth seas and fair winds ahead with satellite technology



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