



Earth Observation for Disaster Management

International trends & developments

How to promote earth observation
applications?

How to get funding?

Capacity building



0. Introduction

Mark Noort, consultant, project manager

HCP international:
consulting, marketing of earth observation

Coordinator GEONetCab:
project for promotion & capacity building of
earth observation applications



Disaster management - categories

Risk assessment / simulation models

Forecasting / early warning

Monitoring

Damage assessment

Prevention / planning

General





(Natural) disaster types

Volcanic eruptions

Earthquakes

Landslides

Floods

Tsunamis

Droughts

Fires, etc.





Earth observation applications

- On the verge of reaching new user communities
- These new user communities need to be involved
- Weakest link / last mile aspects are important
- Marketing needed: promotion & capacity building



Life cycle of products & services

Initialization

System analysis & design

Rapid prototyping

System development

Implementation

Post-implementation



MARKETING EARTH OBSERVATION
PRODUCTS AND SERVICES

PART # 1





Assessment of business & funding opportunities

- Categories of environmental management products & services
- Life cycle phase of product or service
- Regional context, level of technological & economic development
- Optimum marketing mix



1. International trends & developments in disaster management



Climate change

Climate change becomes more and more important,
local adaptation focuses on disaster management and food
security

References:



The World Bank

**Mainstreaming Adaptation to Climate Change in
Agriculture and Natural Resources Management Projects**
(increased risk)

**Climate Change Adaptation and Natural Disasters
Preparedness in the Coastal Cities of North Africa**

Phase 1 : *Risk Assessment for the Present Situation and Horizon 2030 –
Alexandria Area*

Phase 2 : *Adaptation and Resilience Action Plan – Alexandria Area
(practical example, cost – benefit analysis)*



Other references:

- <http://reliefweb.int/briefingkit> *search or make your own portfolio / case study*
- **global disaster alert and coordination system**
www.gdacs.org *information network for alert & response*
- **Provention** *consortium of important international organizations.*

Example of information material:

Tools for Mainstreaming Disaster Risk Reduction: Guidance Notes for Development Organisations

outline of integrated strategic approach to disaster management



Increased use of open-source software

Open-source software is not necessarily free

Look for: GEO, GEOSS, OGC, Terralook, Google Earth, etc. at

- www.earthobservations.org (*GEO website*)
- geonode.org

or become a member of The Earth Observation Network at LinkedIn



From post-disaster intervention to prevention

Examples:

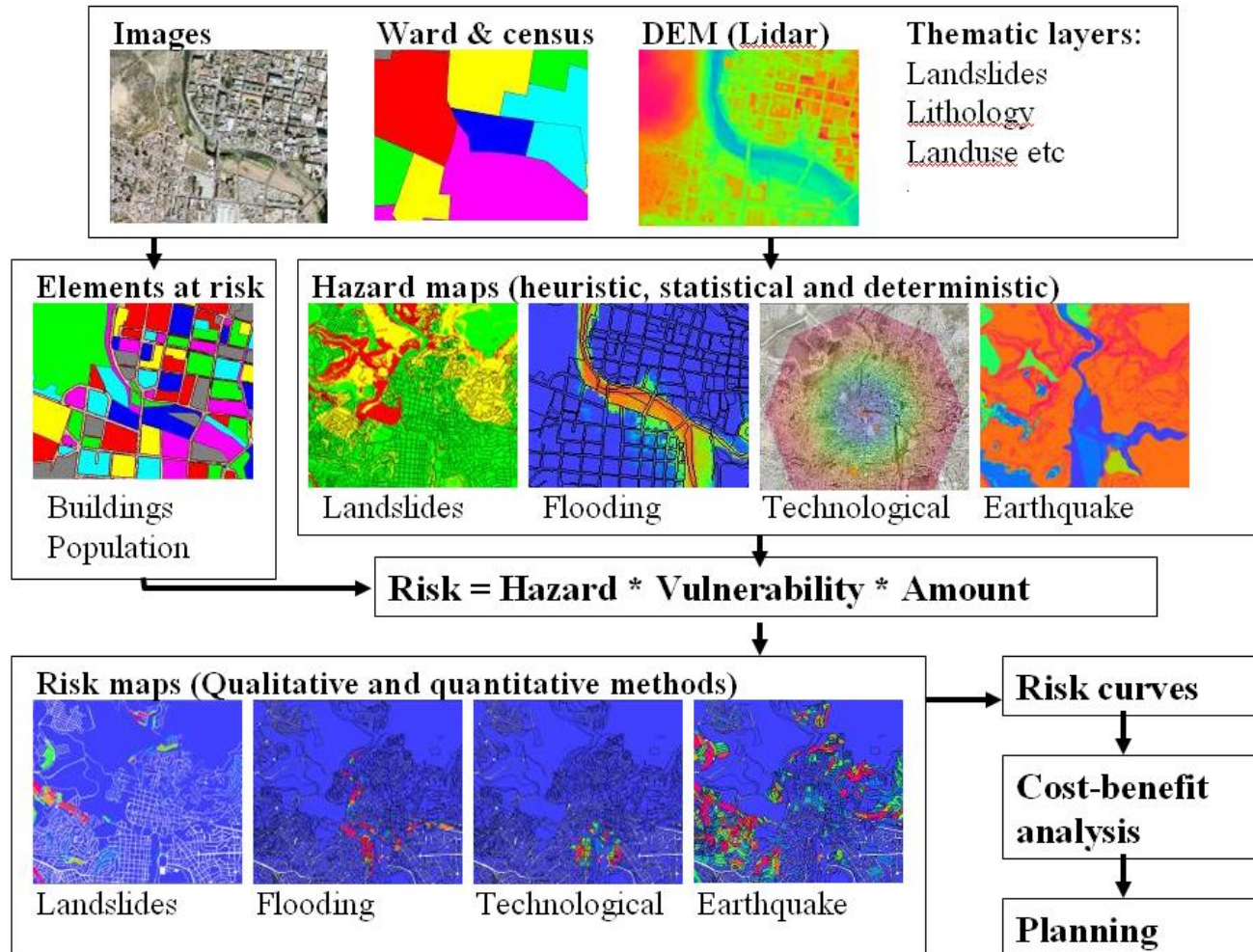
SERVIR (USAID):

www.servir.net (Central America) www.servirglobal.net (global)

UN-SPIDER: www.un-spider.org earth observation for disaster reduction

CAPRA (World Bank, IDB): *probabilistic risk assessment in Central America*

Importance of capacity building, example **RiskCity**



Risk City presentation:

GIS based training package for multi hazard risk assessment for risk reduction & management.

Article RiskCity:

a training package on the use of GIS for urban multi-hazard risk assessment.

www.itc.nl Cees van Westen



Articles

Adapting a quantitative risk assessment based method to guide land use planning decisions in India &

Bridging risk management deficits in India using a geo-ICT based tool

shows spatial approach towards all kinds of hazards, including industrial: Environmental Risk Reporting and Information System (ERRIS) & Risk Management Information System (RMIS)

ICT for disaster management *Asia-Pacific Development Information Programme UNDP / ESCAP overview of options of ICT use*

Empowerment of local communities

Community mapping initiatives: Google (H2O) and World Bank

Mapping & visualization in general:
importance of knowing what is where

Example: World Bank 'mapping for results' @
maps.worldbank.org & aiddata.org (*tracking development finance*)

Growing WB Global Facility for Disaster Risk Reduction lab
www.gfdrr.org/gfdrr/labs

References:

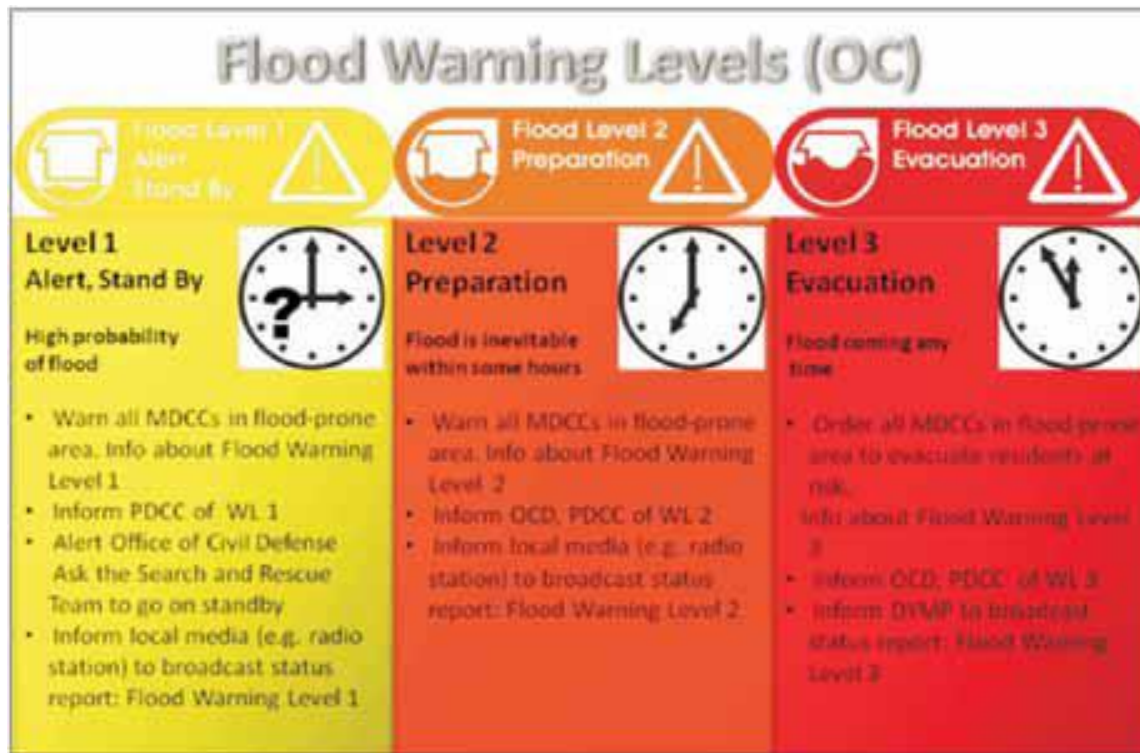


New technologies & communities

Importance of improved early warning & communication

Last mile: reaching communities with sensor webs, web mapping, mobile phones, satellite communication (GEONETCast)

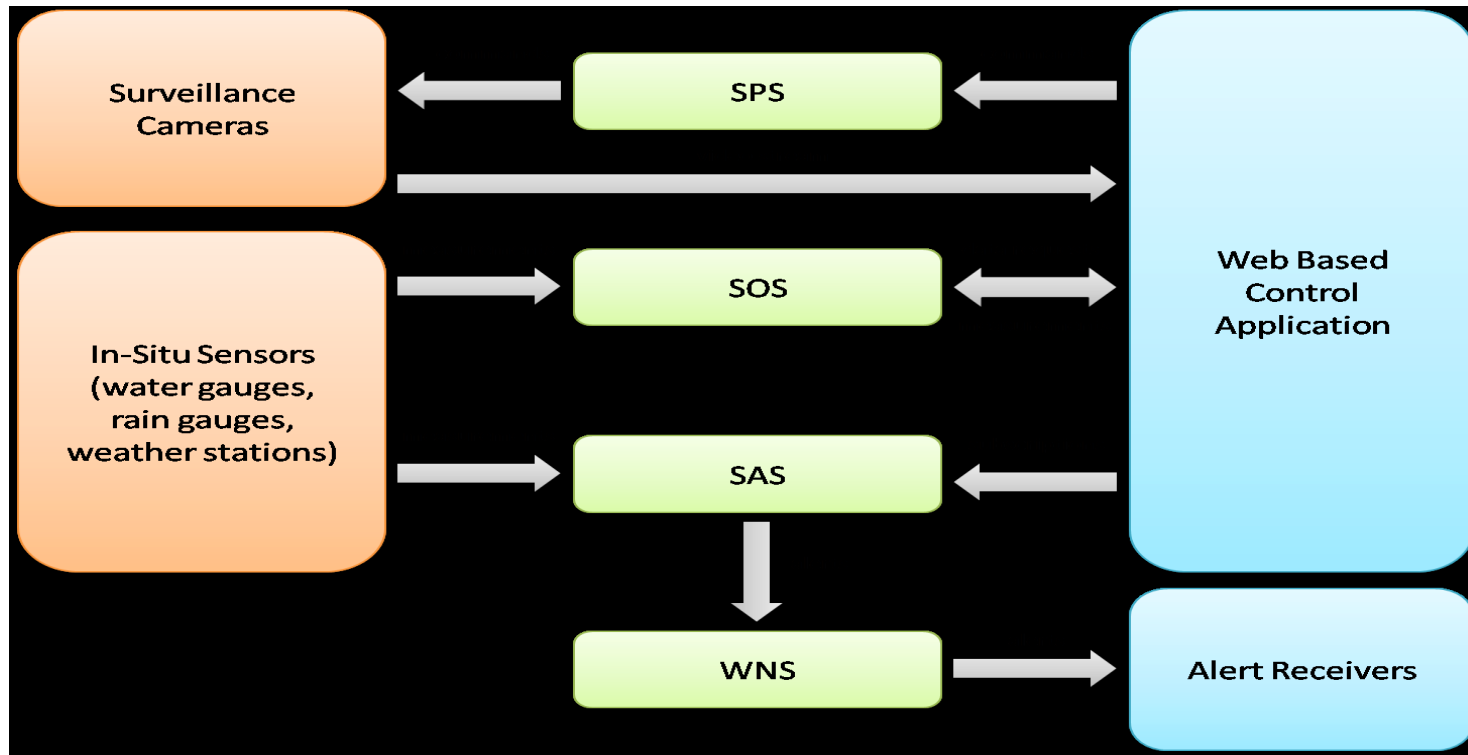
References:



Participatory Approach for Integrated Basin Planning with Focus on Disaster Risk Reduction: The Case of the Limpopo River *article on living with floods in Africa, shows community approach, includes a to-do list for participatory GIS (PGIS)*

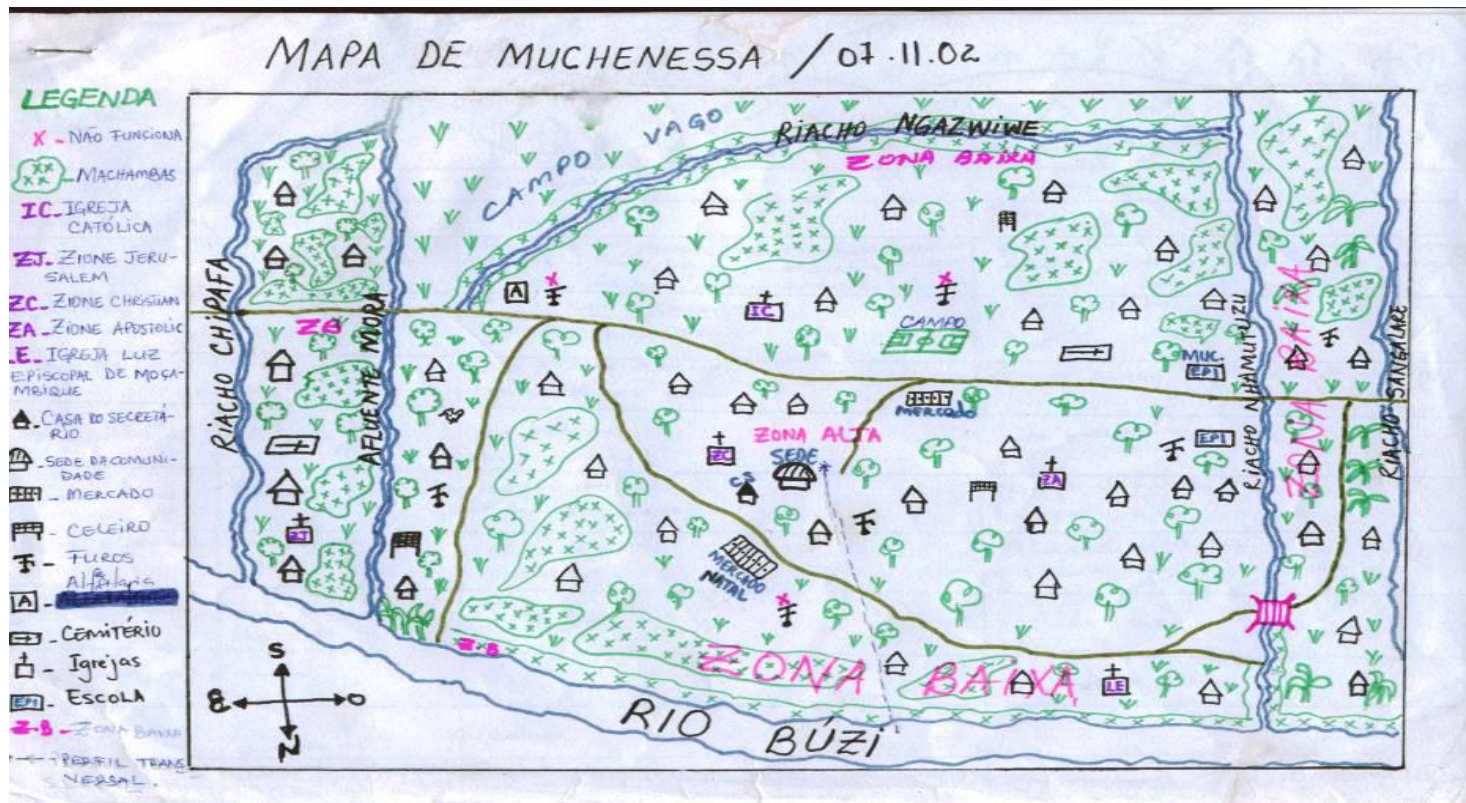
Coping strategies and risk manageability: using participatory geographical information systems to represent local knowledge *article on coping with floods in the Philippines*

Local Flood Early Warning Based on Low-Tech Geoinformatics Approaches and Community Involvement A Solution For Rural Areas in The Philippines *idem*



Sensor Web Infrastructures 52°North

Applying OGC Sensor Web Enablement to Risk Monitoring and Disaster Management



Toolbox & manual - mapping the vulnerability of communities, example from Buzi, Mozambique
involvement of insurance company, example of capacity building



2. Steps to promote earth observation for disaster management



State-of-the-art

Earth observation is new technology.

Learn technical skills, but when back in professional practice, it has to be put to good use.

That involves 'selling' it.

How to do that?

To whom? Could be your own boss, local authorities, communities, etc.



References

- **Atlas de las dinamicas del territorio Andino: poblacion y bienes expuestos a amenazas naturales (Bolivia, Colombia, Ecuador, Peru)** www.youtube.com/watch?v=HCSAIZPM4NE
- **EUGENE disasters status quo report** *analysis of state of the art of earth observation for disasters in Europe*
- **Natural catastrophes and reinsurance (Swiss Re)** *shows interest and point of view of insurance companies*



References (continued)

- **Promoting risk-wise behavior: an integrated strategy for reducing vulnerability and improving resilience (United States)** *inspiration for showing importance of disaster management*
- **GEO capacity building showcase:**
www.youtube.com/watch?v=bhjfSeiKiGk
- join www.understandrisk.org to stay informed about developments



Marketing of earth observation

Marketing of earth observation is difficult.

New technology, few big companies, lots of small ones.

Lots of reports describing the bottlenecks, like reliability, data access, data continuity, etc.

Means that relatively a lot of effort is needed to promote EO.

Points to keep in mind:

- Look for opportunities, where can you have most success in a short time: quick-wins.
- Target the right audience to start with: who would be interested and listen to you? For disaster management: paradigm shift from civil protection to NGO's, local structures.
- Identify the problem that they are trying to solve: is it the same as yours?
- Learn to speak the same language. Example 'food security'. Translate to something the client (or your partner) understands.
- Look for examples from elsewhere (success stories): solutions that work and are affordable.



Examples & references

**GEO Task US-09-01a: Critical Earth Observations Priorities
*Disasters Societal Benefit Area (part 1 & 2)*** *global overview of
available observations and what is needed*

**Geoinformation for Disaster and Risk Management
*Examples and Best Practices*** **(United Nations Office for Outer
Space Affairs)** *different articles on what works in practice and promising
developments*

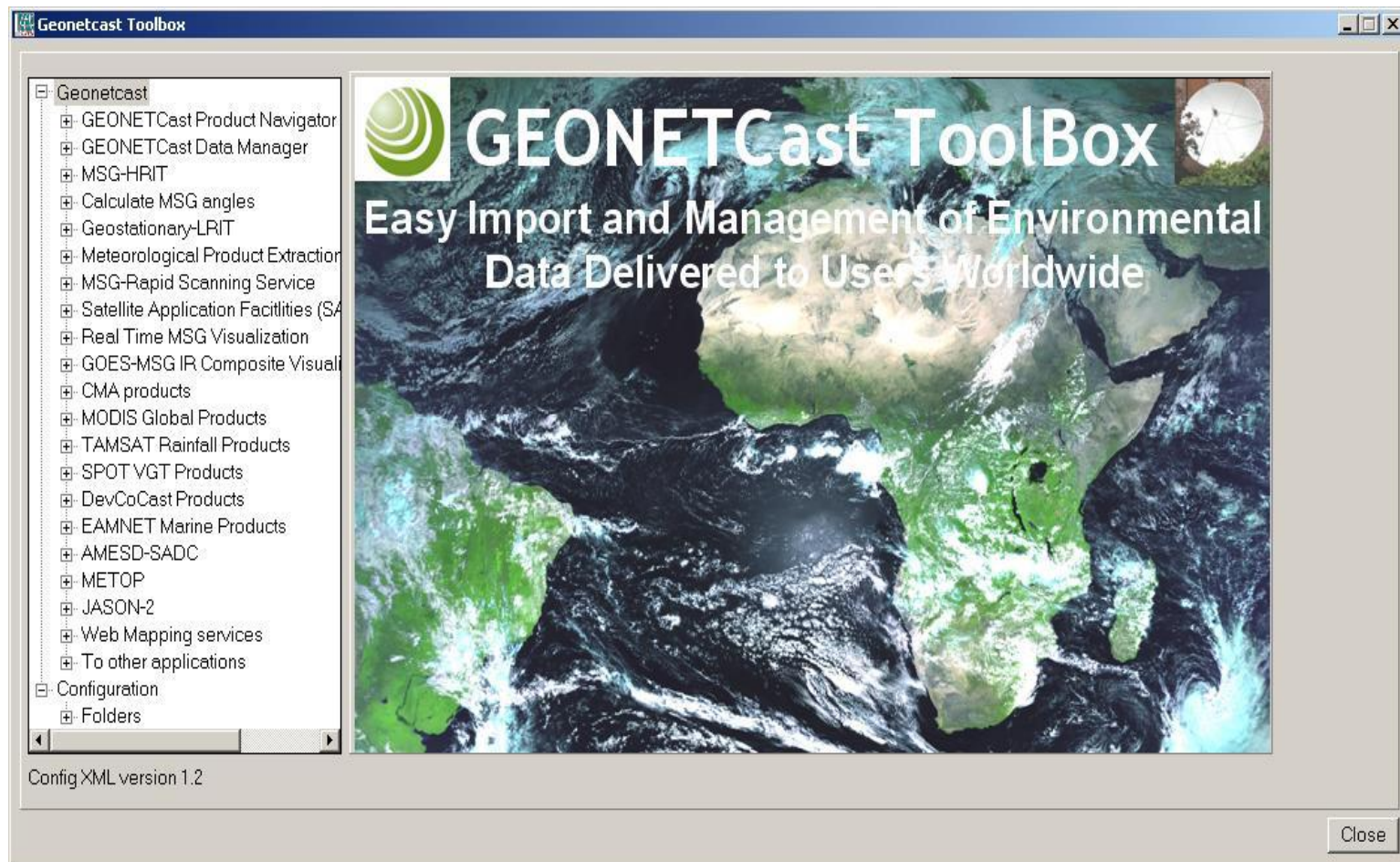
GEONetCab success stories on disasters: www.geonetcab.eu
floods (Poland, Czech Republic), wild fires (South Africa)

GEONETCast:

- *Worldwide information dissemination system by which satellite and in situ data, products and services are transmitted to users through communications satellites.*
- *Receiving stations use low-cost, off the shelf technology.*
- *Information includes climate, weather, agriculture, air quality, disasters, and more.*
- *No internet connection required.*

DevCoCast:

- *Share products & data freely via GEONetCast with communities in developing countries.*
- *Promote use of earth observation products through training & networking.*
- *Agricultural & environmental monitoring: biomass, land degradation, water cycle (floods), pest control, etc.*



www.devcocast.eu



*Be patient:
introduction of new technology
and / or applications takes time*



3. How to get funding for your activities



Approach

- Share information on your subject (a thing you are doing) and think that is interesting for your contact, then look for the link. Could this solve a problem for your partner? Are adjustments necessary? Need other parties be involved? Take it from there.
- LEADS, LEADS, LEADS



How?

- Establish your network.
- Look for opportunities.
- Write a good proposal.
- Promise much, but not too much.



Proposal outline

(more detailed version in separate document, see also www.geonetcab.eu)

- | | |
|-----------------------------|--------------------|
| 1. Introduction / relevance | 6. Risk assessment |
| 2. Objective(s) | 7. Time schedule |
| 3. Activities | 8. Budget |
| 4. Output | Annexes |
| 5. Management & evaluation | |



THE REGIONAL ENVIRONMENTAL CENTER
for Central and Eastern Europe



Other references

- Civicus: writing a funding proposal
- Michigan State University: guide for writing a funding proposal
- ESRI: writing a competitive GRANT application
- REC: project proposal writing



Again:

- *SHARED PROBLEM*
- *SHARED LANGUAGE*
- *SHARED SOLUTION*

If all else fails, try to link with a more popular (and easy to understand) topic.



4. Capacity Building



General

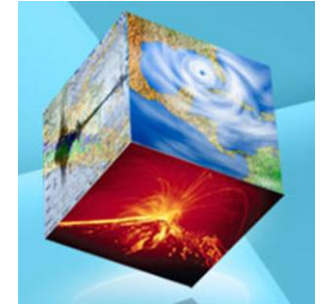
Marketing is promotion + capacity building.

Especially for the introduction of new technologies capacity building is important at all levels.

Capacity building is the instrument to increase self-sufficiency and make solutions work.

Think of:

- Different instruments for different levels: workshops for decision makers and awareness raising, detailed technical training for professionals.
- Provide follow-up. Getting funding for good capacity building is difficult: everybody agrees that it is important, but nobody has time.
- Training is usually part of funding of big projects that are managed by big companies or ministries, as a consequence capacity building is forgotten (in the end).
- Aim at small budgets that are available without having to tender.



Examples & references

CAPRA Training Needs and Recommendation Report (Central America) *example of approach to assessing training needs for disaster management*

GEONetCab capacity building web www.geonetcab.eu
compilation of tutorials, references, open-source software, etc.

GEO Portal: www.earthobservations.org

Handbook of Research on Developments and Trends in Wireless Sensor Networks: From Principle to Practice



More references

A Rough Google Earth Guide

**MEASURE Evaluation Global Positioning System Toolkit
(USAID)**

Field Guide to Humanitarian Mapping (MapAction)



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www.geonetcab.eu