

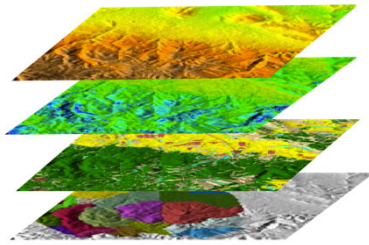
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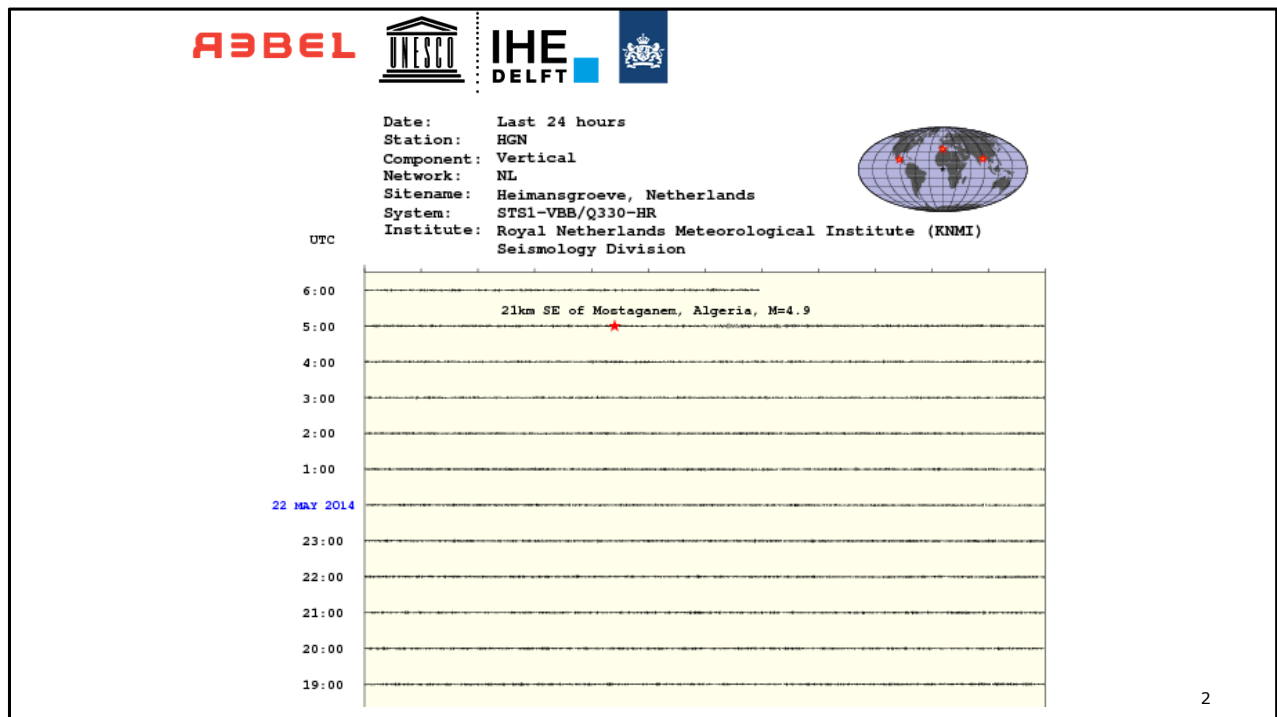


Sharing Environmental Data

Management Information System (MIS)

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In this video, we'll introduce you to concepts of sharing environmental data. This is part of a series of several videos related to spatial data infrastructures for management information systems that can be used in performance-based contracting.



In 2014, I was invited by the University of Mostaganem in Algeria to give a lecture on spatial data infrastructures for sharing spatial data on the environment. It was a big coincidence that that morning, I woke up by an earthquake. And the first thing I do then is go to the website of our royal Netherlands Meteorological Institute, KNMI, to look for information about the earthquake. The instruments that they have at that institute measure earthquakes around the world, and I could easily access a page where it showed this graph that you see here on the slide. And it gave me all the information about this earthquake: that it was very close to where I was and it gives the magnitude. I decided to include this slide in the presentation and to show it to the participants. They were surprised that I had so much information about the earthquake. While they felt it, of course in the morning, but they didn't have any information about it. So it was a bit striking that a foreigner could easily access that information while locally that information was not available. And that's exactly the point of the topic of this lecture.

Learning objectives

After this lecture you are able to:

- Define open data
- Describe the benefits of open data for environmental management
- Explain why sharing data is often challenging

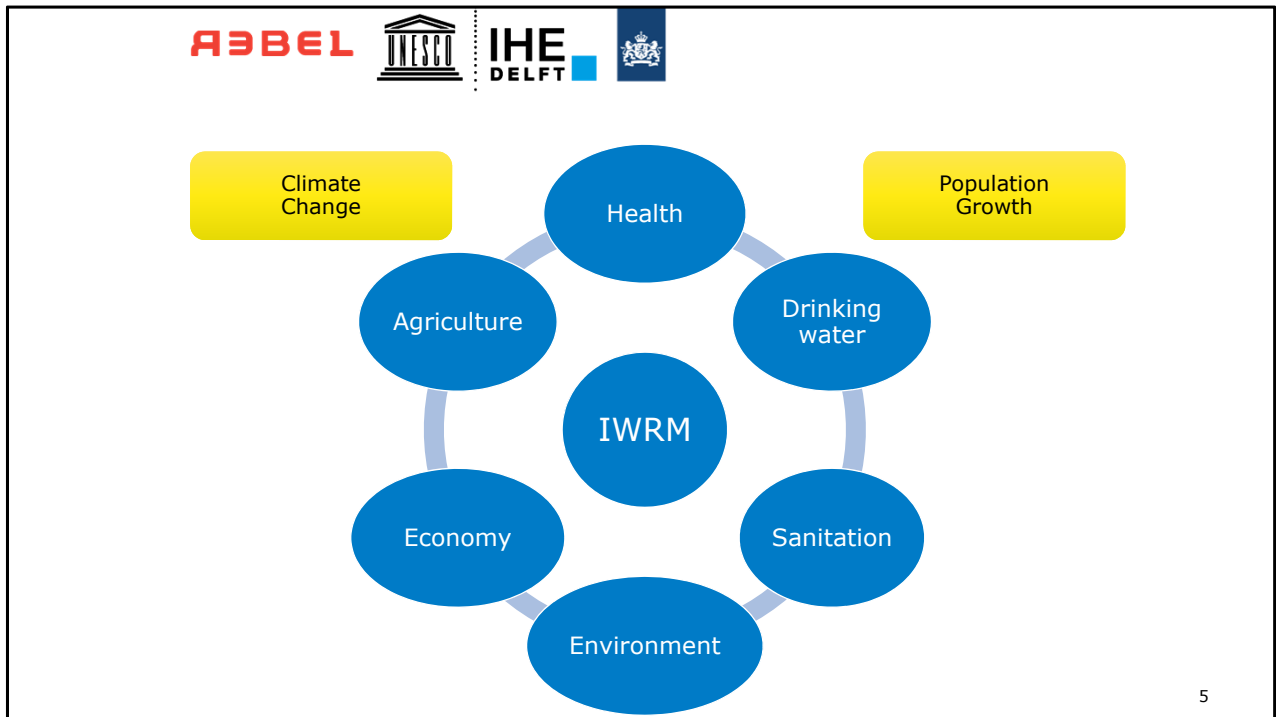
That brings me to the learning objectives of this lecture. After this lecture, you're able to define open data, describe the benefits of open data for environmental management, and explain why sharing data is often challenging.

Introduction

- There is a need to organize and share diverse water-related data sets provided by the local organizations, international organizations and projects
- Uncoordinated use of different tools in most projects leads to a situation of lack of homogeneity and unsearchable data
- When both spatial and temporal data are accessible in a standardized way, many models and tools can make use of these data.
- Besides technical challenges, the biggest challenge is to engage end users.
- It is important to build capacity on both technical and management aspects.

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It's obvious that for our work we need data, but there is a huge need to organize and share all this data provided by local organizations, international organizations, and by projects. The uncoordinated use of different tools in most projects leads to a situation where there's a lack of homogeneity and unsearchable data, which makes it difficult to make it available for other projects. So reuse of data is important and when both spatial temporal data are accessible in a standardized way, many models and tools can make use of these data. The problem, however, is not only technical. The biggest challenge is to engage end users but also stakeholders, and we are going to address these issues in this series of videos. Finally, it is important to build capacity on both the technical and the management aspects, which we'll also address in this series of videos.



In the concept of integrated water resources management (IWRM), we acknowledge that the different sectors are connected. That's not only for management and policy making, but also the need to share data across these different sectors to benefit all of these sectors. We are facing great challenges because of climate change and population growth, and even in the short term, we have the corona pandemic. And we know that for all these challenges, we need to link these different sectors. We know that health is related to economy and we know that health is also related to drinking water. But also environment and agriculture and sanitation are linked. So it is very important that we share the data among these different sectors instead of looking at them as silos. And also to promote sharing between the different sectors in the government.

Open Data

A piece of data/information or source code is **open** if anyone is free to **use, reuse, and redistribute** it — subject only, at most, to the requirement to **attribute** and/or **share-alike**

Publicly funded data are a public good, produced in the public interest and thus **should be freely available** to the maximum extent possible.



One way of sharing data is sharing it as open data. You can define open data as a piece of data or information or even source code that is open to everyone and everybody is free to use reuse and redistribute it. You can only put two restrictions on it: the need to attribute to the original source, like a reference, and to share a like, which means you put a license on it that says that the data will remain open also for others who share it again.

Sharing data as open data is especially important for publicly funded data, where the taxpayer already paid for the data. And the data should be freely available to the maximum extent possible.

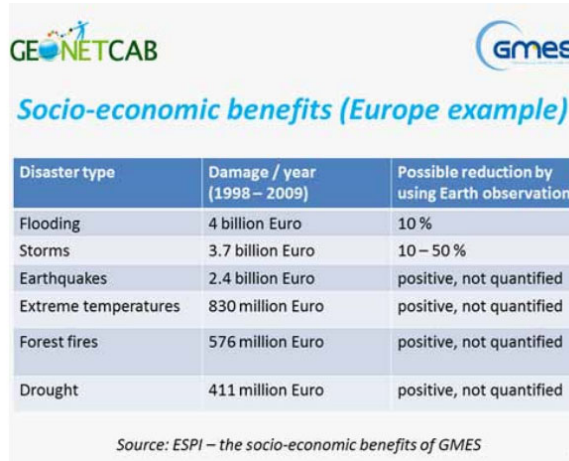
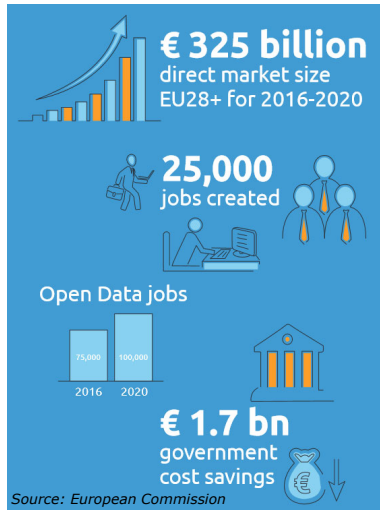


Benefits of open data

- to organizations by more efficient data collection and processing and **reduce duplicate efforts**
- to scientists through better research when **more data and information** is available and can be **linked with models and tools**
- to public administration, citizens, and businesses through **better services**
- through **innovation** for new services and business
- greater **democratic accountability**
- to society through **better management** of the common environment

So let's have a look at the benefits of open data. For organizations that can be more efficient in the collection and processing of data and reduced duplicate efforts, we know that field data collection is much more expensive than data processing at a desk. If scientists have access to open data, then this data can be more and more used with models and tools that scientists develop. And that can also benefit society and can be used in policy making. This will also result in benefits to public administration, citizens, and businesses through better services. Open data will also be a driver for innovation to develop new services and businesses. And when more data is available, we also have greater democratic accountability where we can see the results of policy making and even citizens can be involved. So it will eventually lead to better management of the common environment, which is our goal.

Economic benefits of open data



Opening up data from the government also has huge economic benefits, as we can see here in this study from the European Commission on the left side of the slide. It creates a lot of jobs, and in a later video, we are going to look at the value chain of data. And you can also see that there's a lot of cost savings in the government, especially in transactional costs from government to government. On the right side of the slide, you can see also a possible reduction of damage by using open data from remote sensing for different disasters. When data is easily accessible, we can prevent disasters but we can also assess the damage and take action after the disaster.

Why is sharing data difficult?

- a priori **suspicion** of the quality of third party data is common.
- a priori presumption that the institutions' own data (generally deemed of high quality by the latter) may be **"wrongly" used if shared** with a third party, or even that ownership thereof may be lost.
- **fear** that other users discover the **poor quality** of their data by sharing them.

We see that there are so many benefits, but why is sharing data then so difficult? One of the arguments is that data from others cannot be as good as your own collected data. There's always a suspicion of the quality of data from others. Related to this, organizations that are collecting data, which they promote as being of very high quality, are afraid that people who use their data will wrongly use that and that they will even lose face or ownership when the data is wrongly used. Often, the real reason behind this is the fear that other users will discover that their data is in fact of poor quality and therefore they don't want to really share it.

How to improve data sharing

- Spatial Data Infrastructures
- Interoperable Standards
- Metadata and quality assurance
- Value chain, business models and data policy

In the next videos, we will look at solutions for this by looking at spatial data infrastructures, interoperable standards, metadata and quality assurance, and the value chain, business models, and data policy for data sharing.