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Mineral Industry Research Organisation





Pan-European Underground Drainage Water Management Research Centre – A Contribution to Sustainable Water Management in Europe

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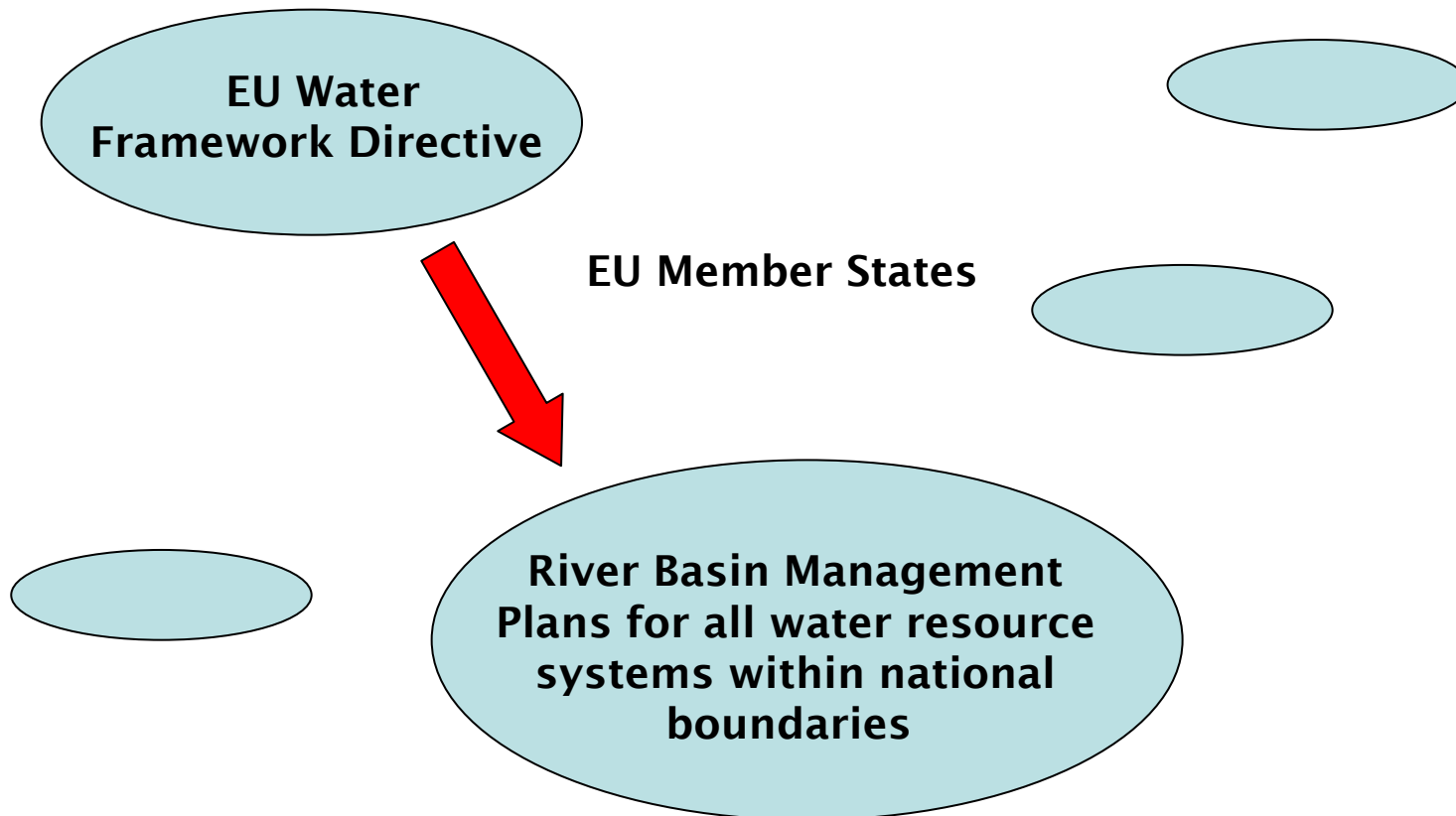


Presentation Overview

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Introduction





Objectives

- ❖ Construct and operate a pan-European underground drainage and minewater management research centre
- ❖ Provide data gathering and dissemination capabilities in real time of new data to users for analysis and interpretation
- ❖ Provide access for researchers all over Europe to a unique research and testing facility
- ❖ Provide great variety of possibilities to study numerous aspects of minewater management issues
- ❖ Ability to control experiments remotely from their home laboratories

The centre will be a significant contribution to sustainable water management in Europe



Reasons for the Approach (1)



- ❖ Large scale underground drainage systems have the potential to affect significantly the outcome of strategic water resource planning
- ❖ Hydrological influence on underground structural stability
- ❖ Unmanaged systems are seen as one main additional contributor to the global climate change
- ❖ Mine drainage networks typically act to convey large quantities of water which may have high resource value
- ❖ Development of technologies, tools, procedures, approaches and strategies for full and effective integration of large scale underground systems into strategic resource planning



Reasons for the Approach (2)



- ➊ Improve understanding of karstic drainage systems and associated underground drainage mechanisms
- ➋ Understanding and management of large scale underground drainage systems is becoming an increasingly important matter at a European scale after the enlargement
- ➌ Contribute to the assessment of global climate change at catchment scale by coordination of data collection and dissemination in real time to and from coordinated underground drainage water management centres throughout Europe



Proposed Location (1)

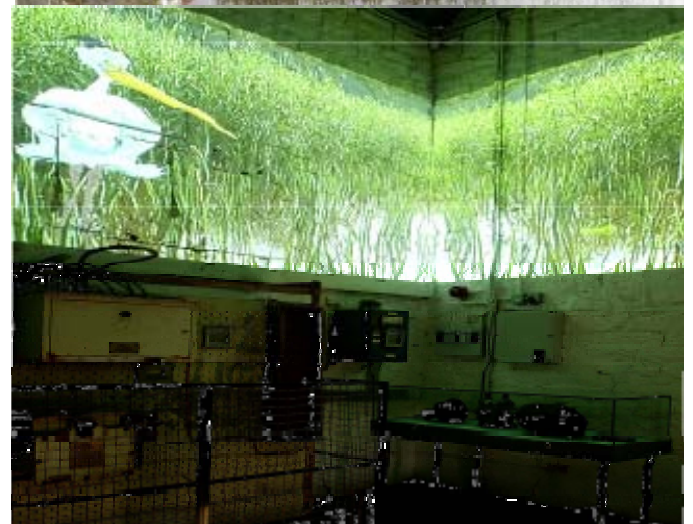
- ❖ National Coal Mining Museum for England
- ❖ Incorporates a number of specific capabilities providing unique opportunities to advance research at an international level
- ❖ Instrumentation, infrastructure and a large number of facilities are already present there
- ❖ Underground access and access to a major minewater abstraction, treatment and discharge system
- ❖ Museum already incorporates extensive educational and conference facilities
- ❖ Existing network of minewater monitoring stations





Proposed Location (2)

- ❖ For approximately ten years a number of research activities have been undertaken, latest EU-LIFE project INWATCO (Integrated Water Management in Former Coalfield Areas)
- ❖ 100 square kilometre minewater drainage system surrounding the museum is one of the most densely instrumented minewater systems in Europe
- ❖ The UK Coal Authority has recently developed a new state-of-the-art minewater management and treatment system at the site (active and passive treatment technologies)





Benefits (1)



- ➊ Real-time data acquisition and management centre
- ➋ Underground hydrogeochemical laboratory
- ➌ Water treatment technologies field research laboratory
- ➍ Educational access and displays for a cross-generational audience
- ➎ Suitable for implementation of both remotely managed R&D activities and on-site co-ordinated programmes, courses and investigations



Benefits (2)

- Approaches to management integration of large scale underground drainage systems into water resource management strategies
- In-situ research into relationships between rainfall recharge, subsurface physical, chemical & biological processes and minewater chemistry
- Relationships between active water management strategies and water quality, treatment options and environmental impact
- Mechanisms of structural evolution in subsurface systems and its influence on fluid flow and hydrochemistry

The scale of the proposed centre will offer a wide range of new opportunities for multi-disciplinary research



Implementation

The first step of the establishment process will be a scoping (feasibility) study

Objectives

- Confirm and develop the conceptual basis for the facility
- Conceptual design
- Preliminary investigation
- Preparation of a financing plan
- Establishment of a development work programme and implementation plan

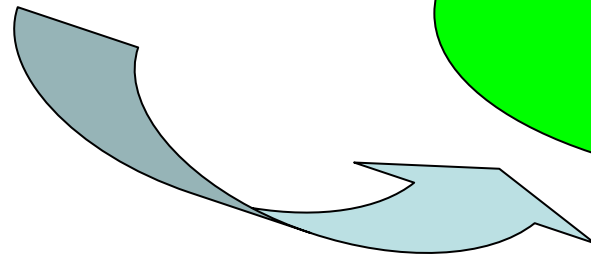


Final Remarks

- An application for public funding at EU level has already been made
- The research centre will provide a major contribution to sustainable water management in Europe

**Pan-European
underground drainage and
minewater management
research centre**

**Sustainable
Development
Indicators**





Ladies and gentlemen
Thank you very much for
your attention

