

Institute for Nuclear Research and Nuclear Energy  
Bulgarian Academy of Sciences

# BEOBAL FP6 Project Conference

Gyuletschitsa, 21-25 March, 2007

## Regional Research Driven Cluster

**J. Stamenov, B. Vachev (INRNE, BAS),  
M. Shishmanova (SWU)**

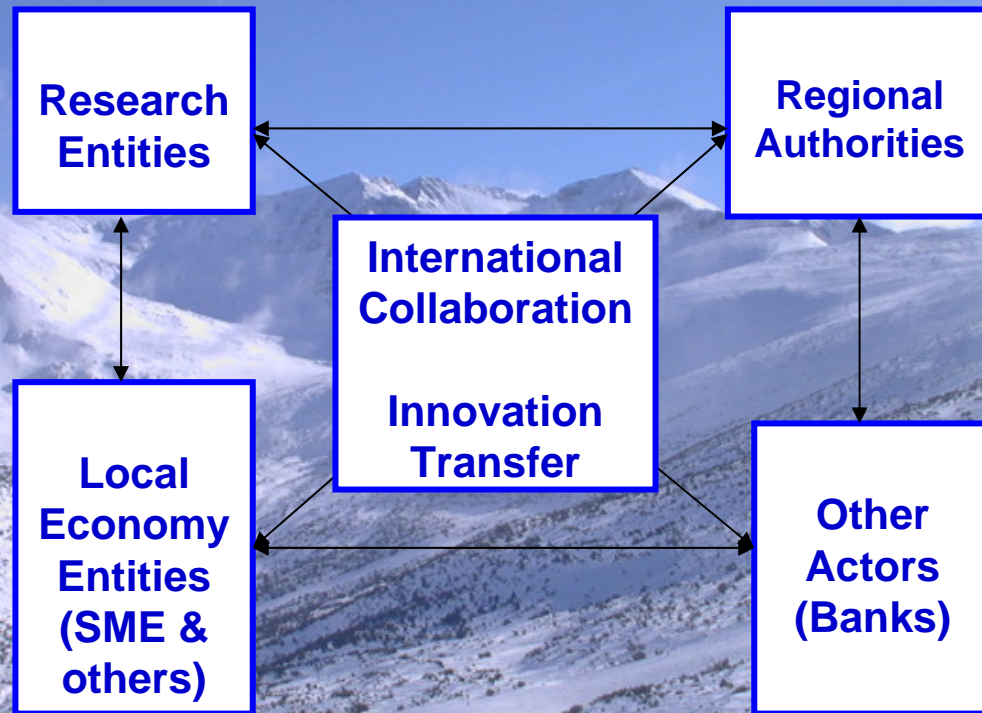




# Regional Research - Driven Cluster

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graph TD; RE[Research Entities] <--> RA[Regional Authorities]; RE <--> ICE[Local Economy Entities (SME & others)]; RE <--> OA[Other Actors (Banks)]; RA <--> ICE; RA <--> OA; ICE <--> OA; IC[International Collaboration] --- IT[Innovation Transfer];
```

The diagram illustrates a Regional Research - Driven Cluster. It features four main entities in blue boxes: Research Entities, Regional Authorities, Local Economy Entities (SME & others), and Other Actors (Banks). These entities are interconnected by double-headed arrows, forming a complete graph. In the center, a white box contains the text "International Collaboration" and "Innovation Transfer".



# BEOBAL

## 3 Main INRNE Conceptual Pillars

1. System approach to  
Nuclear Science, Environment and Society
2. Long – Term Development of  
Strategic Cooperation and Integration
3. Enhancement and Development of  
New Organisational Structures in  
European Context with  
Regional Accent



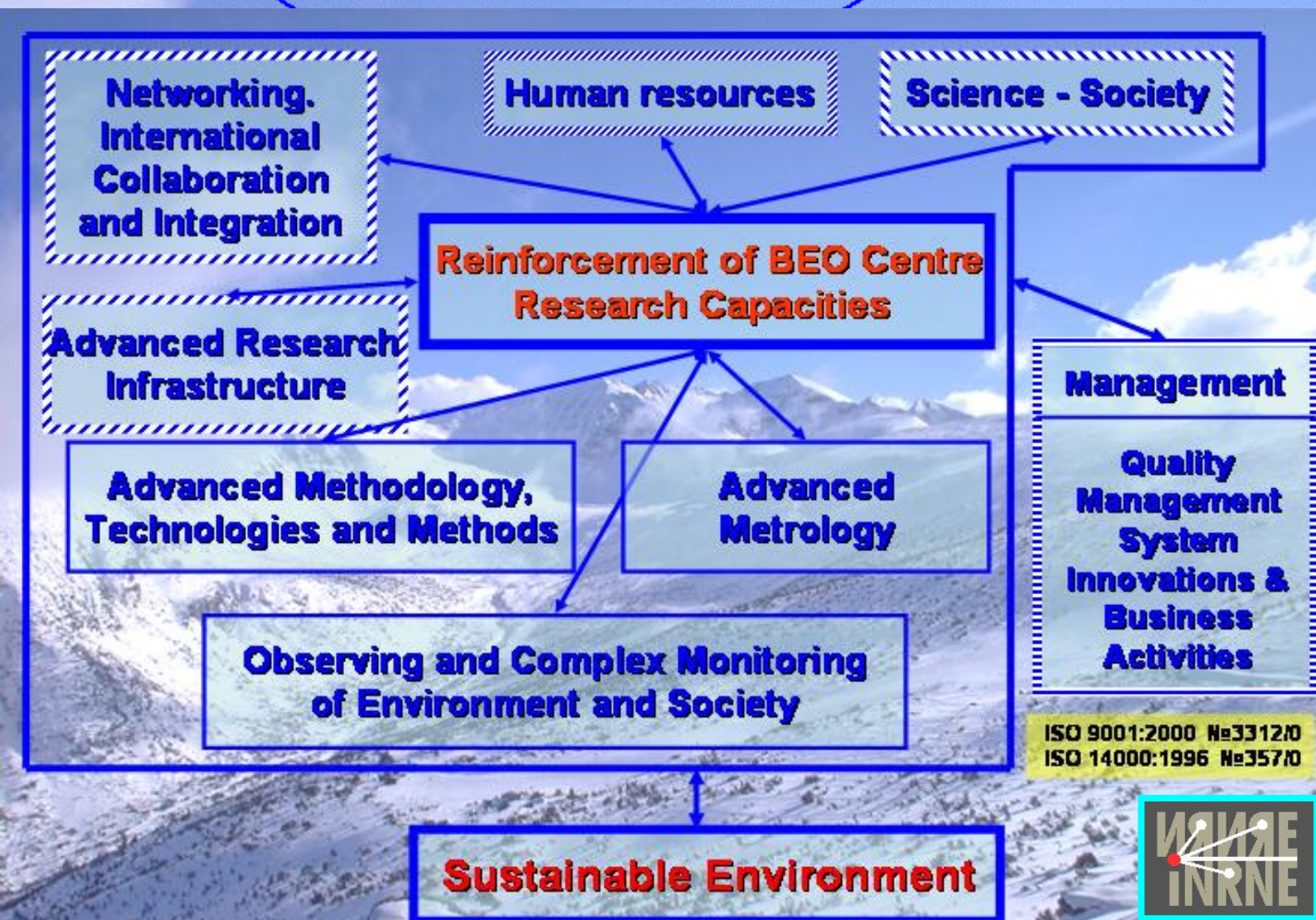


# BEOBAL – 1st Pillar

Advanced Technologies  
and Methods

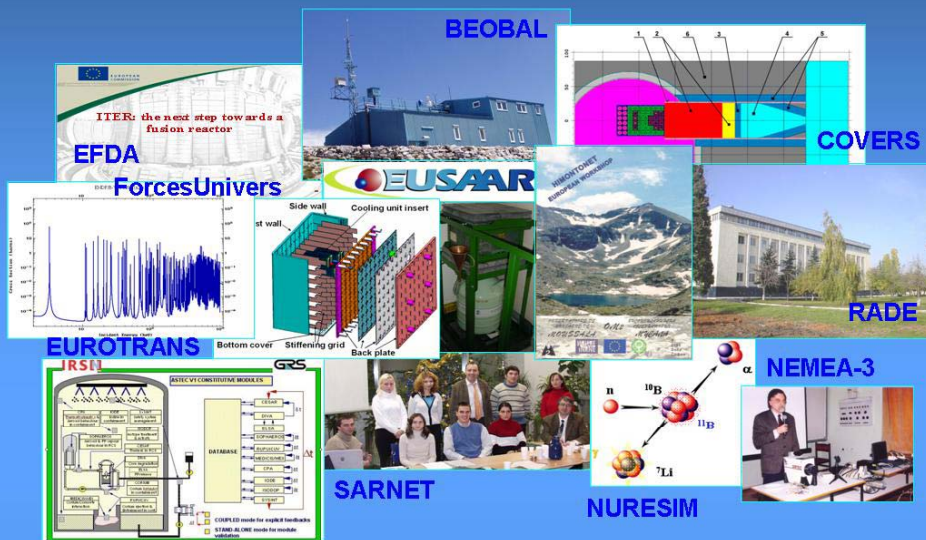
International Collaboration  
and Cooperation

Advanced  
Metrology





# Европейският проект на European project



Проекти на ИЯИЯЕ по  
Шеста рамкова програма на ЕК и ЕВРАТОМ

INRNE Sixth Framework Programme of EC  
and EURATOM Projects

4 – 15 декември 2006

4 – 15 Dec 2006

Информационен център на Европейския съюз  
ул. „Московска“ 9, София

Information Centre of the European Union  
9, Moskovska St., Sofia  
Monday: 11 - 18h., Tuesday - Friday: 9 - 18h.

понеделник - 11-18 ч., вторник - петък, 9-18 ч.

Проект и реализация



Project and realisation

Jordan Stamenov, Boyko Vachev, Nataliya Janewa, Nikola Vasilev,  
Pavlin Grudev, Krasimira Ilieva, Mladen Mitev, Jordanka  
Jordanova, Troyo Troev, Nikola Kolev, Maria Manolova,  
Emil Nissimov, INRNE, Sofia  
Ingrid Shikova, Maria Gerganova, Ventsislav Dimitrov,  
Diana Dimova, IC of the EU, Sofia

Йордан Стаменов, Бойко Вачев, Наталия Янева, Никола  
Василев, Павел Грудев, Красимира Илиева, Младен  
Митев, Йорданка Йорданова, Троя Троев, Никола Колев,  
Мария Манолова, Емил Нисимов, ИЯИЯЕ, София  
Ингрид Шикова, Мария Герганова, Венцислав Димитров,  
Диана Димова, ИЦ на ЕС, София

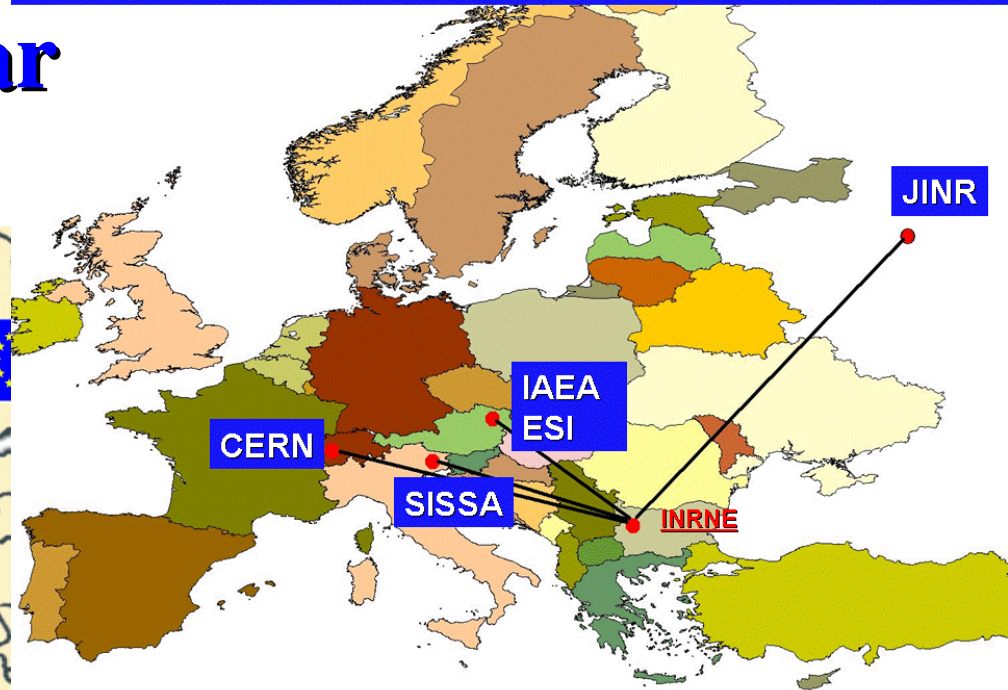
## Activities Science Communication



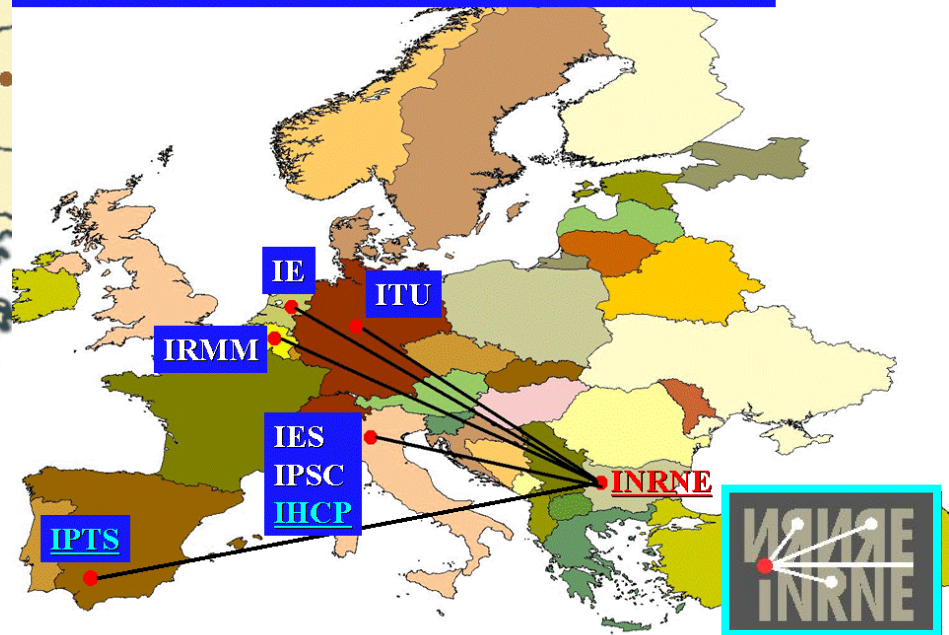
# BEOBAL – 2nd Pillar

## European HMO

Global Change &  
Climate Research  
Natural Hazards &  
Technological Risks  
Aerospace &  
Terrestrial Environment  
Management Aspects &  
Future Projects Discussion



## INRNE – JRC Scientific Connections





# INRNE - JRC Conference - Informational Days



NPP KOZLODUY



BULGARIAN NUCLEAR SOCIETY



NATIONAL SCIENCE FUND

## NUSES Nuclear Science for Sustainable Environment and Security

19-22 Feb 2003, *Prater Hotel Moscow, Hall Kiev*  
*Sofia, BULGARIA*

### Programme

#### Environmental Research

- Radionuclides, heavy metals and toxic elements transport
- Air, Soil and Water quality control
- Global Change and Sustainable Development

#### Nuclear Fuel, Waste Management and Safety

#### Nuclear Technologies and Safeguard

#### Neutron Investigations and Data Measurement

#### Nuclear Medicine

#### Harmonisation of measurements

#### Information and Knowledge management

#### International Scientific Committee

Roland Schenkel  
Klaus Lassmann  
Maria Betti  
Peter Rullhuser  
Jordan Stamenov

#### Local Organising Committee

Jordan Stamenov  
Boyko Vachev  
Alexander Strezov  
Chavdar Stoyanov  
Dancho Elenkov  
Krassimira Ilieva  
Metodi Guelev  
Natalia Janeva  
Petio Petkov

#### Public Lectures

*Bulgarian Nuclear Science and  
JRC for ERA Development*

Organised in co-operation with and supported by Joint Research Centre of European Commission, Nuclear Regulation Agency of Bulgaria, Bulgarian Nuclear Society and NPP Kozloduy and supported by Ministry of Education and Science

Institute for Nuclear research and Nuclear Energy (INRNE), Sofia, Bulgaria  
Joint Research Centre (JRC) - Directorate General, Science Strategy (DSS), Brussels, Belgium

Institute for Energy (IE), Peten, Holland

Institute for Environment and Sustainability (IES), Ispra, Italy

Institute for Health and Consumer Protection (IHCP), Ispra, Italy

Institute for Protection and Security of Citizen (IPSC), Ispra, Italy

Institute for Prospective and Technological Studies (IPTS), Seville, Spain

Institute for Reference Materials and Measurements (IRMM), Geel, Belgium

Institute for Transuranium Elements (ITU), Karlsruhe, Germany



## Activities

## Science Communication



# BEOBAL – 3rd Pillar



BEO Moussala and  
BEO INRNE

Radio Analytical Methods

Radio Chemistry &  
Pharmacy

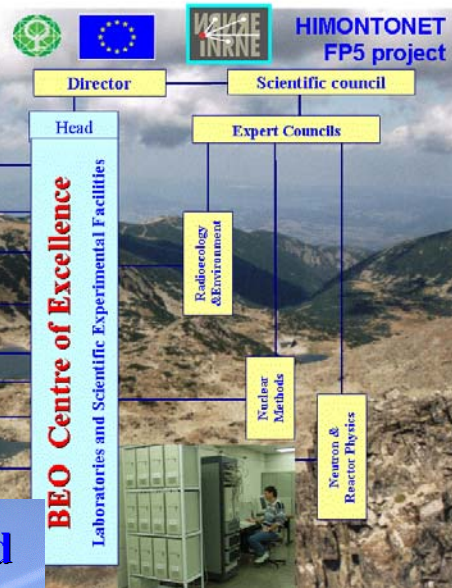
Radioecology

X-ray - Fluorescent Analysis

Neutron Generator

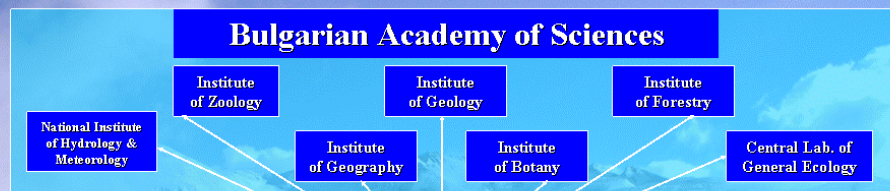
Neutron Data

Control Laboratory of  
Radiation Protection



**BEO IEC**

**BEO Integrated  
Environmental Centre**



**South-West University  
Blagoevgrad**

**Sofia University**

Faculties of  
Chemistry,  
Physics, Biology

**American University  
Blagoevgrad**

**Plovdiv University**

**Schoumen University**

**Reference Points**

BEO Moussala  
Almiza  
Parangalitsa  
Hotovo  
Kallakra  
Chernomoriec

**JRC**

**Balkans**

**BG**

**INRNE**

**ERA**

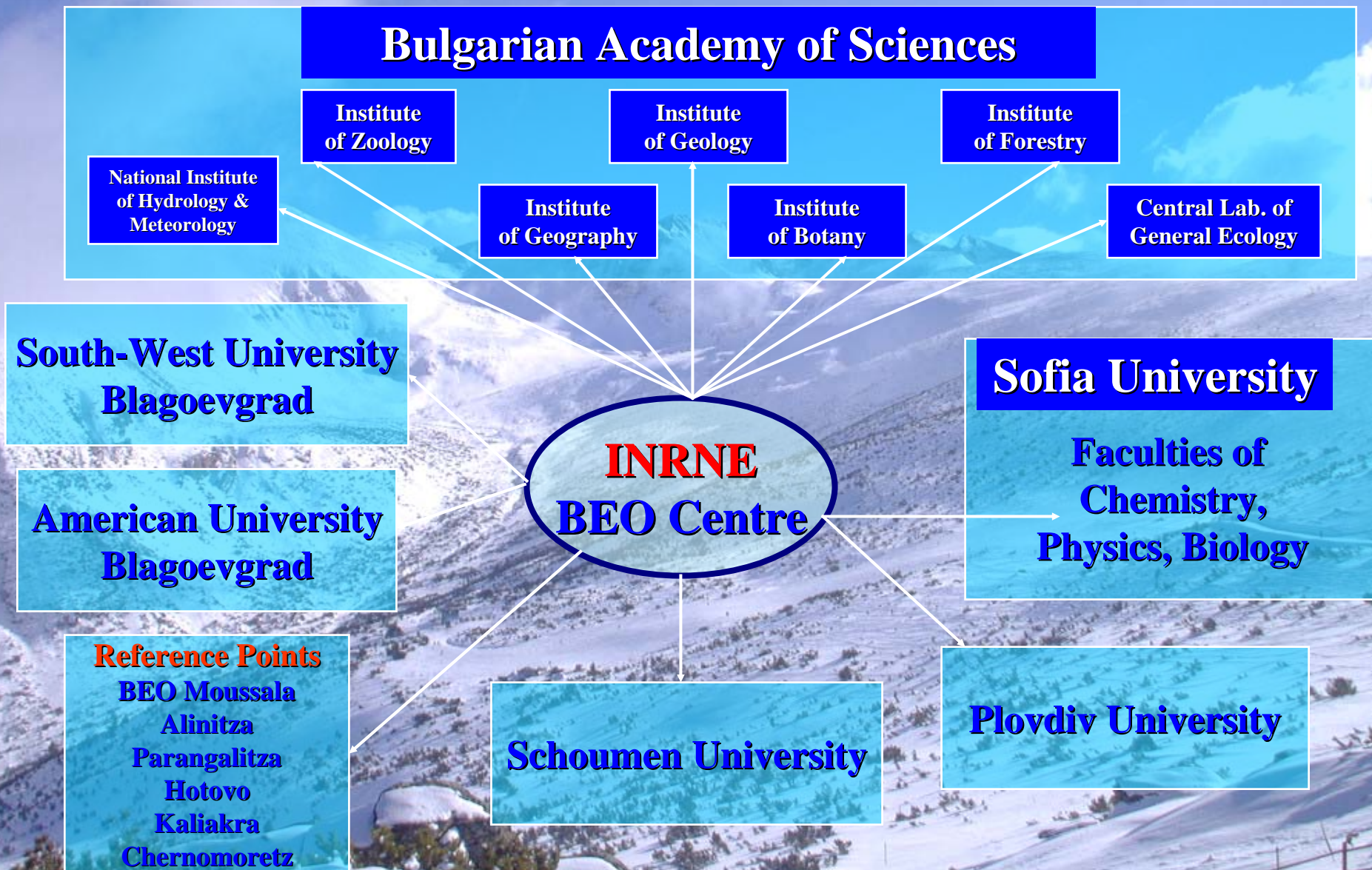




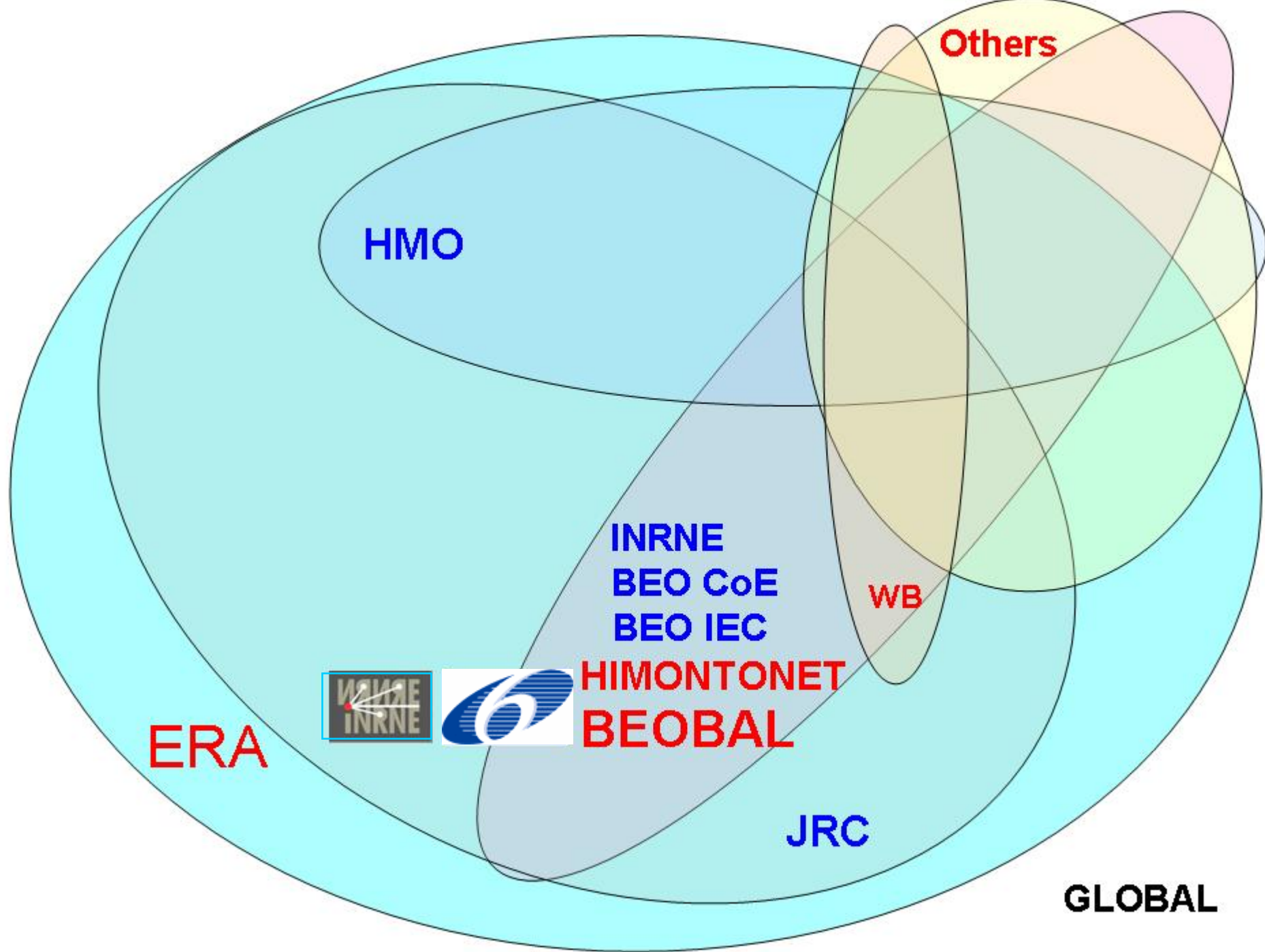
**BEO IEC**

**OM2**

**BEO Integrated  
Environmental Centre**









# Main Strategic and Operational Objectives and Expected Results of BEO CoE

**1. Scientific:** Climate change observing and research. Influence of cosmic factors on atmosphere processes. Complex environmental monitoring

**BEO “Moussala” - GAW Regional Station**

**Twinning with some BEO CoE European partners teams**

**Interhemispherical Laboratory – BEO and other HMO partners**

**2. Sustainable development**

***Mountain Tourism and Environment***

***Water resources***

***Joint laboratories with BEO IEC partners***

**3. Technological and Innovation**

***Regional + European (International) Innovation Transfer***

**Development of Environmental Sound (Friendly)**

**Environmental Observing**

**Telecommunications + Information (GRID) Technologies**

**Mountain (Extreme) Renewable Energy Technologies**



# BEO Centre of Excellence Advantages

1. Presence of basic Research infrastructure
2. Presence of basic Technical Infrastructure supporting Research infrastructure
3. National (Regional) and European importance
4. Presence (Participation in) National, Regional, European and World Networks
5. Organizational and Management structures – BEO CoE, BEO IEC, Q&E M – ISO standards
6. Sustainable development – from 1993 OM2 project – 1999 BEO Moussala renovation by BG funding – 2002 – 1st CoE project, 2005 2nd CoE Project – Series of International (national) and EU projects: OM2, HIMONTONET, NUSES, BEOBAL, EUSAAR, ACCENT
7. Advanced science communication strategy and practice
8. Institutional support and suitable International Environment
9. Existing of reserves for research potential improvement (human, organisational, technical, ...)
10. Flexible forms of partnership





# What are some new challenges for BEO Centre of Excellence?



**to improve its regional research capacity**

**by reinforcing S&T potential,**

**by supporting and mobilising the human and material resources,**

**by developing strategic partnerships (including twinning) with well established research groups elsewhere in the Union,**

**by disseminating scientific information as well as the results of research,**

**by facilitating communication between the centres having similar scientific interest and**

**by improving its responses to socio-economic needs of the country and improved economic and social cohesion**





*Mountains rose  
from Oceans  
Ideas and Observatories arise  
from the profundity of Scientists' Spirit*

**For contacts**

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**<http://www.inrne.bas.bg>**

**<http://www.beo.inrne.bas.bg>**

**<http://beo-db.inrne.bas.bg>**