BELGIAN SCIENCE POLICY OFFICE

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BRAIN-BE

BELGIAN RESEARCH ACTION THROUGH INTERDISCIPLINARY NETWORKS

Call for proposals 2012

Axis 2 - Geosystems, universe and climate
Axis 3 - Cultural, historical and scientific heritage
Axis 5 - Major societal challenges

Information file for use by proposal submitters

Closing dates

Expression of interest (obligatory): 21st January 2013

Research proposals: 18th February 2013 at 12:00 a.m.

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1. MULTI-YEAR FRAMEWORK PROGRAMME FOR RESEARCH - BRAIN-BE

On 5th October 2012, the Council of Ministers approved the launch of the first phase (2012-2017) of the recurrent framework programme for research, BRAIN-be (Belgian Research Action through Interdisciplinary Networks).

Through the funding of research projects based on scientific excellence and European and international anchorage, this framework programme allows the federal departments' scientific knowledge needs to be met as well as supporting the scientific potential of the Federal Scientific Institutions[1] (FSI - see annex 2).

The strategic objectives, which have been set, based on the federal visions and priorities (both political and scientific) underlying the BRAIN-be programme, are as follows:

- to promote a coherent scientific policy within the FSI, and to thereby support and reinforce scientific excellence;
- to facilitate access to the scientific potential, infrastructure and collections available within the FSIs;
- to align the research potential with societal needs;
- to supply the scientific knowledge necessary for the preparation, implementation and evaluation of federal policies/strategies, particularly those related to topics involving multiple departments;
- to provide the scientific support necessary for the development of a Belgian position within various international forums for policy development;
- to develop and reach a critical mass for research on topics deemed priority areas in order to reinforce the impact of the federal research;
- to stimulate cooperation within the Belgian scientific community;
- to align with the European and international research agendas and to encourage Belgian participation in transnational and international research activities;
- to provide scientists with a framework allowing them to take up their role in scientific watch and to anticipate issues related to the priority areas of the programme;
- to promote systemic, multi/interdisciplinary and integrative approaches;
- to create added value by strengthening the complementarity and synergies between the activities of BELSPO (including contributions to the international infrastructure and organisations);
- to meet the obligations in terms of research stemming from international agreements;
- to develop interfaces with potential users of research achievements.

The framework programme is structured around six thematic areas

1. Ecosystems, biodiversity, evolution
2. Geosystems, universe and climate
3. Cultural, historical and scientific heritage,
4. Federal public strategies
5. Major societal challenges
6. Management of collections

BRAIN-be is open to the whole Belgian scientific community: universities, public scientific institutions and non-profit research centres.

Bearing in mind the priorities of the thematic areas, the framework programme enables participation in transnational programmes, such as the ERA-NETs and the Joint Programming Initiatives (JPI). The current programmes and actions concerned are:

- JPI Connecting Climate Knowledge for Europe (CliK'EU),

[1] The acronym FSI covers the institutions as defined in the Royal Decree of 30 October 1996 and the Centre for Historical Research and Documentation on War and Contemporary Society (Ceges-Soma)

- JPI More Years, Better Lives,
- JPI Healthy and Productive Seas and Oceans (Oceans),
- JPI Cultural Heritage and Global Change
- ERA-net BiodivERsA
- ERA-net SEAS-ERA.

The framework programme is based on the financing of two types of research project:

- four-year network projects with the possibility of two-year projects and,
- pioneer projects lasting a maximum of two years.

Each year, a call for proposals is launched for these two types of research project. This information file concerns the call related to network projects.

BRAIN-be is implemented under the responsibility of the Belgian Science Policy Office (BELSPO), assisted by an accompanying plenary committee made up of representatives of the federal departments and the FSIs. The plenary committee has appointed six thematic committees open to all of the federal departments and FSIs, whose primary role is to identify the priorities for research to be included in the calls for network projects.

For more information about the programme and the various thematic areas, please see www.belspo.be/BRAIN-be.

CALENDAR OF THE CALLS FOR PROPOSALS

The calendar and the indicative budgets for the calls for proposals are as follows:

Available budget in MEUR	end 2012	begin 2013	end 2013	end 2014	end 2015	end 2016	TOT
Axis 1: Ecosystems, biodiversity, evolution		6.93		7.19		7.36	21.48
Axis 2: Geosystems, universe and climate	6.93		7.19		7.36		21.48
Axis 3: Cultural, historical and scientific heritage,	6.93		7.19		7.36		21.48
Axis 4: Federal public strategies		5.65		5.86		5.99	17.50
Axis 5: Major societal challenges	5.65		5.86		5.99		17.50
Axis 6: Management of collections		3.66		3.80		3.89	11.35
Pioneer Projects	0.94	0.94	0.98	0.98	1.00	1.00	5.84

Based on the calendar shown above, the current call concerns the thematic axis 2, 3 and 5.

The research priorities for the current call for these thematic axes are described in the next three chapters.

2. THEMATIC AREA 2: GEOSYSTEMS, UNIVERS AND CLIMATE

The frame of this thematic axis is described as follows in the note approved by the Council of Ministers:

Axis 2 is geared towards the description and understanding of the various elements that make up planet Earth: the atmosphere, hydrosphere, cryosphere, solid earth - and their interactions.
It is also geared towards the understanding and prediction of its dynamics, and its evolution as well as that of its resources (mineral and hydrogeological) as well as its reactions to the pressures of mankind and climate. This includes the study of natural hazards and those stemming from the use of resources.
It includes the understanding of the climate system and its modelling, geodesy and spatio-temporal reference systems.
It allows the study of various components of the universe and their interactions, including the study of the sun-earth interaction, solar wind, the magnetosphere and atmosphere, as well as space weather effects.
Finally, the research will contribute to the scientific support necessary for national and international policy development related to the topics addressed (particularly international agreements and conventions such as the Climate Convention, the Montréal Protocols, etc.).
This theme will monitoring or surveillance to be established if this proves necessary to fulfil the needs of the research.

Call contents

The projects should take into account the following specific strategic goals**:**

- creating added value by enhancing the complementarity and synergies with other BELSPO activities such as STEREO II, PRODEX, IUAPs, STCE (Solar Terrestrial centre of Excellence);
- valorisation of BELSPO's contributions to infrastructures and organisations such as the Belgica, the Princess Elisabeth Station, the European Marine and Polar Boards, the Integrated Carbon Observation System (ICOS), the European Organisation for Astronomical Research in the Southern Hemisphere (ESO), the JUNGFRAU station, etc ;
- harmonisation of European research agendas for the Joint Programming Initiatives 'Connecting Climate Change Knowledge for Europe' (JPI CLIK) and 'Healthy and Productive Seas and Oceans', SEAS-ERA, etc;
- responding to the evolution of the organisation of research at an international level, in particular, the promotion of an interdisciplinary and integrative approach with the early involvement of stakeholders ('Future Earth: research for global sustainability').

The data and observations that are obtained via monitoring and surveillance need to be fully integrated into models that can predict changes and the responses to these changes.

2.1 RESEARCH ON THE CLIMATE SYSTEM - MOVING TOWARDS RELIABLE DECADAL PREDICTIONS

Until recently, much of the climate research focused on global scales and on decadal to century timescales. Reliable regional climate information on a decadal scale is needed in support of adaptation and mitigation policies. This implies improving the weather predictions and climate projections which requires the further development of models based on observations and the reanalysis of data (including proxies, paleodata, etc.) as well as a better understanding of the climate

system and in particular the mechanisms ruling decadal variability. Therefore, a better understanding and modelling of key processes and feedback mechanisms is important.

The real challenge under this theme is for fundamental climate research to deliver results of practical value in support of planning and decision-making and climate services.

Research under this thematic area shall mainly be a Belgian contribution to the strategic agenda of the Joint Programming Initiative 'Connecting Climate Change Knowledge for Europe' (JPI CLIK'EU) and in particular to the JPI CLIK'EU module 1 'Moving towards reliable decadal climate predictions'. This European initiative focuses on generating knowledge-based information and services to address climate change while responding to the needs of policymakers and society at large. This JPI will serve as a platform for the exchange of information and expertise, to develop a dynamic strategic research agenda, align national programmes and implement the research agenda by organising joint activities such as calls.

Research priorities under this call:

The poor representation of some basic processes as well as the lack of understanding of feedback processes in the climate system limits the ability to simulate climate variability and to provide reliable climate projections. Therefore the first call will focus on **enhancing the understanding of key processes and mechanisms, feedback, and system (in)stability**:

- understanding and modelling key atmospheric and hydrological processes that drive the climate system:
    - the role of clouds, convection, turbulence, and radiation processes and their interactions with general circulation and land surface (vegetation, subsurface hydrology, snow), the simulation of precipitation/the hydrological cycle (including its atmospheric branch), the link to the energy budget through dynamic mechanisms (Madden-Julian Oscillation (MJO), El Niño/La Niña-Southern Oscillation (ENSO), etc.);
    - quantitative process-oriented research on climate forcing agents such as various types of aerosols, CH_4, tropospheric O_3, etc.;
    - stratosphere-troposphere interactions: the role of dynamic coupling with the stratosphere in extended-range tropospheric weather forecasting and long-term climate trends
    - the role of the upper atmosphere and, in particular, of the mesosphere as a proxy for climate changes;
    - the role of natural forcing on decadal variability such as volcanic and solar forcing (earth radiation budget, including solar irradiance);
- the coupling of biogeochemical cycles / carbon-nitrogen cycle ecosystem interactions with a view to improving climate modelling;
- past climate variability (last millennium or comparable warm periods) in view of enhancing process representation in the models;
- mechanisms of internal climate system variability such as North Atlantic Oscillation (NAO), MJO, ENSO, tipping points and how large scale mechanisms affect local extreme events.

As almost all research on the atmosphere (see 2.2.3.B) is directly or indirectly related to climate change, the thematic area 2.2.3.B is very closely linked to some topics under thematic area 2.1. Therefore, proposals may jointly address topics under both thematic areas.

Improvements of climate models for reliable climate projections on crucial time and spatial scales for decision–making processes will be addressed in a future call.

2.2 GEOSCIENCES FOR SUSTAINABILITY

Growing societal and environmental problems demand transformative and sustained solutions. Such solutions must be grounded in a greater understanding of the earth's history and its systems from the

atmosphere to the core. It is essential that we have the scientific tools and evidence to understand and anticipate how and at what rate the earth will be transformed in the future, in response to these growing pressures.

This challenge involves an integrated and interdisciplinary approach in the domain of geosciences, which will lead to a deeper understanding of human interactions with the earth's landscape, oceans, atmosphere, hydrosphere (water and ice), and will enable a prediction of the limits of the earth's capacity to support human activities. To put together a complete picture of the earth's continued evolution, scientists have to study and model processes in the current environment as well as in the past using proxy sources of the earth's history.

2.2.1 SUSTAINABLE MANAGEMENT OF MINERAL AND GEOLOGICAL RESOURCES

Minerals and geologically-based energy resources are regarded as a cornerstone for the development of industrialized economies. Hence, there is a frenzied worldwide competition to explore, procure and manage them, fuelled by the intrinsic exhaustibility of these resources.
Recent trends indicate that demand for raw materials will be driven by the development of emerging economies and by the rapid diffusion of key enabling technologies. Policy targets for critical raw materials are outlined in the Commission's Raw Materials Initiative, launched in 2008 and reinforced in 2011 and 2012. This initiative calls for the fostering of a sustainable supply of raw materials from within and outside the European Union and the boosting of resource efficiency and recycling.
The initiative also refers to developing a bilateral co-operation with African countries in the area of raw materials, based on promoting governance, investment and geological knowledge and skills that should be developed in the frame of the 'Africa Mining Vision'

The Europe 2020 flagship initiative for a resource-efficient Europe supports the shift towards sustainable growth via a resource-efficient, low-carbon economy. The roadmap, one of its main building blocks, sets out a framework for the design and implementation of future actions. It also outlines the structural and technological changes needed by 2050, including milestones to be reached by 2020.

We need scientific support for the sustainable management of resources (gas, oil, methane hydrates...) that can improve decisions addressing issues such as adequate supplies for a sustainable society and economy, land/sea use conflicts, the assessment of the potential consequences of their use on the environment and on human health and as regards resource efficiency.

Research priorities under this call:

- Understanding the geological processes that formed and concentrated the mineral and geological resources, with a focus on continental and marine minerals and geologically-based energy resources in the EU and critical minerals in Africa.
- Documenting the mineral and geological resource potential:
    - scientific mapping/inventory of present and possible future mineral and geologically-based energy resources (e.g. including geothermal energy potential, hydrocarbons in Neoproterozoic units) ;
    - evaluation of the potential of extraction and processing taking into consideration the economic, societal and environmental impacts as well as land/sea use conflicts.
- Providing science-based decision support tools to assess (i) future supplies and demands for mineral and geological resources both locally and globally; (ii) the sustainable thresholds for

extraction and exploitation; (iii) the risk and resilience of society with respect to depletion or lack of resources.

- Understanding the dynamic interactions between natural features and human activities in order to assess environmental and societal (potential) effects of extraction and the use of mineral and geological resources on a large, spatial and temporal scale.

- Providing solutions for safe production and the use of mineral and geological resources with respect to waste disposal throughout the lifecycle of the products; research into the substitution of mineral and geological resources, resource efficiency, eco-innovative recovery and recycling process.

Research related to marine minerals under this thematic area can be related to 2.2.3.A. Projects may jointly address both thematic areas.

2.2.2 DYNAMICS OF THE EARTH AND CONSEQUENTIAL NATURAL HAZARDS, RISKS AND DISASTERS

The earth's dynamics lie at the origin of its topography and its variations at different temporal scales as a result of instantaneous phenomena (earthquakes, volcanic eruptions, landslides, etc.) to phenomena that continue for millions of years (mountain building and erosion). Earthquakes and volcanic eruptions are major manifestations of the dynamics of the earth's interior. These phenomena can lead to important economic, environmental and human losses triggering cascading effects, in particular in developing countries, and make achieving sustainable development difficult.

Africa is amongst the more urgent priorities because the combination of famine and internal conflict and recurring natural disasters prevents or limits relief efforts with regard to low frequency high-consequence natural hazards.

Less spectacular phenomena, like subsidence or uplift on a local or regional scale, can also have a dramatic impact on populations when slope failure happens.
Investigating the earth's dynamics of the changing planet, now and in the past, enables a better understanding with a view towards predicting its future.

Research in relation to this priority should allow us to move to an integrated approach to natural and human-induced environmental hazards through a combination of natural, socio-economic, health and engineering sciences, including socio-economic analysis, understanding the role of communications, and public and political response to reduce the risk, as recommended by the ICSU Science Plan for Integrated Research on Disaster Risks (IRDR Science Plan).

Research priorities under this call:

- the relationships between the current and recent (Holocene and Pleistocene) movements of the earth's surface, the forces acting on the Earth's interior and on its surface (tectonic stress, stress related to glacial isostatic adjustment, etc.), and natural hazards (earthquakes, slope movements, subsidence, sea level changes, etc.);

- the enhancement of the quality of the measurement techniques that are used to determine the structure, shape, and dynamics of the earth;

- optimisation of monitoring and data acquisition for a better understanding and for integration into models in support of effective forecasting tools and alerting systems so as to increase resilience and reduce losses due to volcanic and seismic events and other natural hazards:

    - the structure, composition and dynamics of the earth's interior

- the nature of earthquakes, and the propagation of seismic waves
- the volcanic eruption process, i.e. the composition, transport and dispersion of volcanic plumes, the impacts of eruptions (gases and particles released by the volcano) on climate and society, and the interaction of eruptions with tectonics.

- assessment of hazard and risk impact, exposure and (physical and social) vulnerability.

2.2.3 GOOD ENVIRONMENTAL STATUS OF THE ATMOSPHERE AND THE OCEANS AND SEAS (PHYSICAL AND CHEMICAL ASPECTS)

A. Science for healthier oceans and seas

Oceans and seas form one of the most valuable natural resources of our biosphere and regulate the earth's climate. The marine environment is also under huge pressure from human activities and climate change. The consequences can be particularly significant in shallow coastal seas adjacent to highly industrialized countries, such as the North Sea, and affect the sustainability of activities depending strongly or solely on the sea such as transportation, exploitation of the resources (water, fossil fuels, minerals), recreation, etc.

To protect the marine environment more effectively, the European Union adopted the Marine Strategy Framework Directive (MSFD) in 2008, aiming to achieve the Good Environmental Status (GES) of the EU's marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend.

GES means that the overall state of the environment in marine waters provides ecologically diverse and dynamic oceans and seas that are clean, healthy and productive. Use of the marine environment must be kept at a sustainable level that safeguards potential uses and activities by current and future generations.

By 2020, Member States have to develop marine strategies that serve as action plans for applying an ecosystem-based approach to the management of human activities, and GES must be determined at the level of marine regions or sub-regions, on the basis of 11 qualitative descriptors of the marine environment, specified in the MSFD and described in the Commission's Decision of 1 September 2010 on the criteria and methodological standards of the good environmental status of marine waters.

A major challenge in the implementation of the MSFD is to attain the necessary scientific knowledge on the marine environment and its processes. At a European level, the Joint Programming Initiative 'Healthy and Productive Seas and Oceans' acts as the coordinating and integrating platform for marine and maritime research.

Research priorities under this call:

This call will focus on the 'descriptors' to achieve the GES related to the chemical and physical characteristics of the North Sea:

- Development of tools and methods to support the monitoring of MSFD descriptors 6 'Sea-floor integrity' and 7 'Hydrographical conditions': sediments dynamics, suspended matter dynamics and physicochemical interactions, impact of human activities (validated models of bottom shear stress);

- Development of tools and methods to support the monitoring of MSFD descriptor 8 'Contaminants': methodological and practical developments that aim to overcome the current difficulties in implementing the GES criteria: determination of current harmful levels, measurements and assessments independent of the matrix (e.g. by cumulative passive sampling),

harmful concentrations under detection levels, cumulative and synergetic effects of mixed contaminants.

- Development of tools and methods to support the monitoring of MSFD descriptor 11 'Introduction of energy, including underwater noise': spatial and temporal modelling of anthropogenic sound waves, i.e. pulses or long-lasting/continuous sounds, in the current conditions of the Belgian continental plate.

For the aforementioned research priorities, it is highly recommended to take into account trans–boundary effects, where applicable.

This call will not fund monitoring as such.

B. Science for a healthier atmosphere

The atmosphere is a complicated system, linked to land surface, biosphere, hydrosphere and space. The atmosphere's composition, temperature and dynamics are changing on a local and a global scale, both naturally and because of the influence of human activities. These changes have an impact on the global and regional climate and air quality, with a negative impact on human health and ecosystems. Control strategies are clearly a priority for reducing disease and mortality.

In the last decade, there have been significant advances in the understanding and monitoring of atmospheric processes but observations indicate a larger complexity of atmospheric chemistry and physics than presently captured by models; hence, more detailed research on key atmospheric processes are needed.

Research priorities under this call:

Clearly, air pollution and climate change can no longer be considered as separate issues in the scientific and policy communities. This thematic area will however focus on science in support of policies that will increase the health of the atmosphere by assessing the current and projected impact of policies on the atmosphere, and by providing support for combined policies (e.g. climate change - air pollution- environmental and human health):

- Quantifying, understanding and modelling past, current, and future changes in the troposphere.
- Quantifying, understanding and modelling changes in the stratosphere, including the recovery and future evolution of stratospheric ozone, the role of stratospheric aerosols and other constituents, the radiative impact of these species, and the attribution of these changes (natural or anthropogenic).
- Understanding the coupling between the troposphere and the stratosphere, in particular the relationship between changes in stratospheric ozone, solar UV radiation, and tropospheric chemistry.
- Understanding the coupling between land/ biosphere /ocean and the lower atmosphere
- Understanding the coupling between the lower atmosphere (troposphere/stratosphere) and the upper atmosphere (mesosphere/thermosphere).

This call will not fund systematic observations as such. Monitoring and surveillance can only be funded when it is needed to implement the research project, and if not covered by other BELSPO activities.

This thematic area is very closely linked to theme 2.1. Therefore, proposals may jointly address topics under both thematic areas, in particular, in view of the development of the new international research initiatives on air quality and climate change.

3. THEMATIC AREA 3: CULTURAL, HISTORICAL AND SCIENTIFIC HERITAGE

The frame of this thematic axis is described as follows in the note approved by the Council of Ministers:

> The Federal State - and particularly the FSIs - acquires, conserves, restores, manages and valorises collections as well as archives that are composed of – or relate to – tangible and intangible cultural and scientific heritage, of an origin and scope that is either national or international. Through its expertise, it also contributes to the valorisation of non-federal heritage.
>
> It is important to make the most of this heritage and the associated expertise through (inter)disciplinary research that involves putting it into context - social, artistic, historic, geographical, environmental, scientific, technical, political, archaeological, linguistic, literary, musical, economic or cultural – from a synchronic or diachronic point of view.
>
> In particular, the research will include scientific inventories, monographic studies, work in the field, the examination of materials and techniques as well as the ongoing analyses involving methods specific to the various disciplines concerned.
>
> It will lead to the production of work acknowledged on a national and international level in the form of publications, conferences, exhibitions, etc., designed to make the knowledge and heritage available in diverse contexts within our societies.

Call contents

In order to define the research proposals in light of the budgets available every year, the current 2012 call for proposals identifies

- a *general common approach* which all of the research projects must fulfil,
- *thematic priorities* to which this joint approach must be applied.

General common approach

The research projects need to make a scientific contribution in the form of a **cross- and interdisciplinary exploitation/of relevant federal heritage sub-groupings.** This joint approach will be applied to specific themes.

The objective is to federate the expertise in the scientific community – in the scientific establishments, universities and research centres - around topics which present an issue of scientific knowledge that is important for the promotion of federal heritage.

On this basis, the research projects will be forced to demonstrate their capacity to allow the various methodological approaches currently applied in the disciplines concerned to collaborate and to converge in a way that will lead to a broader and more diversified understanding of the topics considered.

This joint approach will be encouraged by the organization of common research in networks, as is the intention throughout the entire programme: this will allow a reinforcement of the collaboration between the different scientific actors, particularly with and between the institutions responsible for the heritage concerned, as these institutions are on the front lines of the exploitation and valorisation of their heritage.

The research projects will take advantage of international research activities in the fields concerned, as necessary, notably within the framework of the "Cultural heritage"JPI.

Thematic priorities

For the 2012 call for proposals , the thematic priorities chosen are as follows:

Cross- and interdisciplinary exploitation/valorisation of federal heritage...
- ... resulting from scientific expeditions
- ... relating to the Golden Age of cultural, intellectual and economic influence of the Netherlands (15th-17th centuries)
- ... relating to the First World War
- ... applied to raw materials (exploitation, innovation, exchanges)
- ... applied to health issues
- ... applied to phenomena of human and cultural migrations

3.1 CROSS- AND INTERDISCIPLINARY EXPLOITATION/VALORISATION OF FEDERAL HERITAGE RESULTING FROM SCIENTIFIC EXPEDITIONS

A significant part of Belgian federal heritage is the result of major expeditions/explorations carried out on Belgian territory or abroad. The initial motivation of these expeditions has varied over time but has led to the enrichment of the federal scientific and cultural collections.

The contribution of these expeditions will be tapped into by means of thematic scientific studies and/or annotated catalogues covering:
- the determinants regarding the constitution of the collections (objects, archives and databases),
- the background of the expeditions drawing from the various documentary supports including documentation collections, personal archives, press clippings, audio and visual documents,
- the potential value of this heritage for addressing contemporary issues in the areas of fundamental and applied scientific research.

The results of the research will reveal the societal relevance of this heritage and will lead to a better knowledge of its roots. This latter point could form a meaningful contribution in the development of a coherent institutional policy regarding collection management.

3.2 CROSS- AND INTERDISCIPLINARY EXPLOITATION/ VALORISATION OF FEDERAL HERITAGE RELATING TO THE GOLDEN AGE OF CULTURAL, INTELLECTUAL AND ECONOMIC INFLUENCE OF THE NETHERLANDS (15TH-17TH CENTURIES)

The periods of Burgundian and Spanish rule unquestionably form the crucial era of creative innovation and economic expansion in the Southern Netherlands in mediaeval times, as has been universally acknowledged throughout the Western world since then, particularly due to the wide diffusion of works from a variety of disciplines. In particular, this international recognition is currently expressed through the wide range of university programmes offered on the subject around the world, and through the prominent position held by works from this age within federal collections.

The research projects would focus on:
- the interactions between the different artistic and intellectual disciplines, an area that has been very little explored as yet,
- the reciprocal influences that allowed the masters of this era to be inspired by innovative external movements or that facilitated the impact of our leading centres,
- the creators and intellectuals working in the wake of the great masters whose production has not yet been fully assessed,

- the socioeconomic approach of the cultural and intellectual production in association with the corporatist structure of the burgeoning cities,
- the application of interventions for restoration and scientific imaging to gain knowledge of the artistic production.

3.3. CROSS- AND INTERDISCIPLINARY EXPLOITATION/VALORISATION OF FEDERAL HERITAGE RELATING TO THE FIRST WORLD WAR

The First World War constitutes one of the key periods in the history of Belgium, Europe and the world. As the first complete, global war, which resulted in millions of deaths and the destruction of a large part of the architectural, artistic and scientific heritage, it lies at the root of major political, economic, social, cultural and environmental transformations that have had a lasting impact on the history of the 20th century.

The upcoming centenary commemoration offers an opportunity and an important moment to place the war in perspective.

The research will particularly focus on:
- topics such as the displacement of civilians and military populations, technological and medical advances, the transformations of relationships and the traumas suffered by families and communities, the development of the media and its instrumentalisation, emphasising the significant production of objects, photographs, films, posters, testimonies, studies, etc.
- the worldview the First World War gave rise to within artistic and intellectual output and which significantly contributed to its renewal,
- the role of this conflict with regard to the constitution and/or disappearance of collections: destruction, theft, confiscation, reparations, etc.
- moving beyond the war, with the establishment of new types of commemoration by the state and keeping alive the memory and visibility of the war in the public space (monuments to the fallen, cenotaphs, etc.)

3.4. CROSS- AND INTERDISCIPLINARY EXPLOITATION/VALORISATION OF FEDERAL HERITAGE APPLIED TO RAW MATERIALS: EXPLOITATION, INNOVATION, EXCHANGES

From prehistory up to modern times, access, processing, trade and use of raw materials has formed one of the fundamental issues in the development of human societies. The key issues in this thematic area are the strategies for the exploitation of raw materials, the technological innovations and the mastery of production and exchange.

The research projects would form part of a synchronic and/or diachronic perspective and, in particular, would make it possible to:
- determine the physical, mechanical, geological or taxonomical nature of raw materials by means of analytical methods that are low-impact and/or non-destructive,
- document their nature by making use of the objects in collections, written sources and artistic representations,
- to shed light on the importance and the choice of components in the realisation of the object as well as the tangible and intangible constraints that have come into play,
- determine the production sites and document the local and/or cross-border locations of exchange.

The results of these interdisciplinary research projects will make it possible to characterise certain mechanisms involved in these complex processes and to develop new analytical methods that are non-destructive or relatively non-invasive to the collections, at the same time as promoting the federal collections.

3.5. CROSS- AND INTERDISCIPLINARY EXPLOITATION/VALORISATION OF THE FEDERAL SCIENTIFIC COLLECTIONS APPLIED TO HEALTH ISSUES

The scientific collections of strains of pathogens or living organisms, medical databases, epidemiological, demographic and sociological inventories, and series of observations on the climate and air quality represent a tangible and intangible scientific heritage of great value for studying the determinants of health, through an interdisciplinary approach and the comparison of aggregated data. The development of new cross-analytical techniques should allow this heritage to be put to increasingly meaningful use.

The research projects are geared towards:

- the relations between climatological factors, air pollution and health hazards, notably by means of spatio-temporal modelling,
- new methods for analysis, diagnosis or classification of pathogens responsible for illnesses in mankind or animals,
- analytical approaches allowing the screening, extraction of information or the comparison of the 'content' of collections or databases,
- methods for statistical or epidemiological analysis which valorise or allow the use of databases, inventories, or administrative registers,
- the effects of socio and economic factors on exposure to air pollution and the associated health effects.

The results of this research will make it possible to shed light on the usefulness and relevance of this federal heritage in establishing a policy for scientific research, public health, animal welfare, and food and environmental safety, based on scientific evidence.

3.6. CROSS- AND INTERDISCIPLINARY EXPLOITATION/VALORISATION OF FEDERAL HERITAGE APPLIED TO PHENOMENA OF HUMAN AND CULTURAL MIGRATIONS

Migration is a universal phenomenon that underlies the whole of geological, biological and cultural systems. Applied to mankind, migration is one of the phenomena which have determined the geographical spread of culture throughout the whole of evolution.

Moreover, the term "migration" is also used in numerous disciplines with an impact on culture and technology. It can also be applied to various supports and media.

Through their richness and diversity, the federal cultural, historical and scientific collections, as well as the databases of the federal institutions, provide exceptional documentary support for addressing this universal issue.

The research would be geared towards the issues, forms and mechanisms of migrations and their impact on cultural diversity. It would be carried out from a synchronic and/or diachronic perspective, making use of objects, archival sources and databases, and by creating scientific inventories with particular attention to comparative research whether it be stylistic, iconographical, technical or materials-related.

The results of this interdisciplinary research could provide a significant aid to developing expertise in this field and a coherent institutional policy in the area of cultural diversity.

3. THEMATIC AREA 5: MAJOR SOCIETAL CHALLENGES

The frame of this thematic axis is described as follows in the note approved by the Council of Ministers:

> Established to support the competences of the Federal Authorities, this thematic axis is based on major societal challenges and relates to an array of important concerns for individuals and society such as demographic changes, democracy, migration, safety, poverty, sustainable development, health and environment, globalisation, and multiculturalism.
>
> In an increasingly globalised society, the analysis of these challenges must take the international context into account. These challenges not only concern the problems that arise and for which a response is needed, but also the opportunities that can be seized to ensure the well-being of individuals and of society in general.
>
> The research financed within the context of axis 5, is based upon these societal challenges and takes the individual and/or society as the primary unit of analysis.

Call contents

This thematic axis offers the possibility of conducting research on the social issues with which Belgium is confronted. This area is not about societal problems but rather about the challenges, thus inviting researchers to go further than the stage of comprehension and putting issues in perspective by means of scientific research. The analysis required should result in recommendations that can support federal policies which may have a partial or full impact on these societal challenges.

Researchers are expected to submit proposals that transcend the sectorial or disciplinary boundaries and also encompass the issues described below (to avoid dispersal and multiplicity of sectorial approaches), insofar as this is possible, by addressing these subjects in an interdisciplinary/transdisciplinary manner (in order to encourage cross analyses and multiply the angles of approach), enhanced by the enriched dimensions of analyses (integration of the dimension of gender in particular) and scientific innovation. Use should be made of the appropriate international insights, at the same time as being capable of encouraging dialogues between departments and providing efficient support for the federal policies concerned. Researchers are also invited to make maximum use of the existing research infrastructures, particularly the statistical, scientific, artistic and cultural apparatus that the federal state possesses.

4.1. THE CHALLENGE OF A COHESIVE AND INCLUSIVE SOCIETY

At a time when solidarity is under fire, the challenge of a (more) inclusive and participative society consists of using the tools available to the federal state to understand and fight the numerous **forms of precariousness** (persistent and new) that threaten the rights of individuals and social groups and make their participation in society problematic. The 2010 charter of fundamental rights of the European Union (doc. 2010/C 83/02) forms the reference framework for human dignity and fundamental rights. It needs to be constantly adapted to the reality and evolutions within our society.

According to this text, precariousness is defined as the absence of securities (employment, health, housing, living conditions, etc.) allowing individuals to fully enjoy their fundamental rights. It is conducive to poverty when it affects multiple areas of life.

Precariousness needs firstly to be considered in its classical socioeconomic dimension (poverty and at risk of poverty rate as measured at European level). Although the poverty rate has remained stable in recent years, it nevertheless affects far too many Belgians. This has led the federal government to establish ambitious targets for poverty reduction, in the spirit of the European resolutions and those

of the United Nations (Millennium Goals). Researchers shall obviously not ignore this crucial dimension of precariousness and will contribute through their analyses to supporting the efforts of the government in this area. In particular, a general analysis of the structural causes that hinder a significant reduction in poverty (see Europe 2020 targets) is necessary.

However, precariousness – which also needs to be studied from a historical perspective – cannot simply be reduced to a strictly monetary dimension, which is highly reductive of the multidimensional reality underpinning it. Therefore, the individual and social costs must logically be added to those more commonly calculated within the institutional poverty indicators. The following dimensions shall also be considered by applicants (in part or in full):

- Mobility: Mobility, not only from a physical point of view, but also in terms of employment, training, social, family and personal relations, in the use of technology etc. is socially valorised today. Nomadism has become a new social norm. The absence of mobility is therefore closely related to the issue of precariousness. The "mobility gap" induces precarity when one finds it impossible to be mobile as required by the social norm. It could also eventually lead to uprooting of populations causing deviant or offending behaviour. Furthermore, some forms of mobility can find themselves criminalised;

- Education and knowledge: our society is marked by the acceleration and proliferation of information, stumbling against each individual's cultural and technical barriers. Studying precariousness therefore also means understanding and contributing to an increase in the ability of every individual to find, identify and qualify information and 'manage' knowledge in order to redesign cultural participation; in short, to play an active part in the construction and transmission of (new) knowledge. This dimension also encompasses rejection and criminalisation of exogenous cultures;

- Public power: precariousness also results from the isolation – or the feeling of isolation – of individuals or groups facing public authorities, a situation that can result in the rejection of politics and a mistrust of institutions (welfare, justice, healthcare infrastructure...). The challenge of cohesion and inclusion is therefore also a question of studying the factors that can improve:
    *The quality of relations between a population and its public authorities and, therefore, the feeling and the reality of belonging to society
    *The ability of the State to translate the reality of the diversity of communities forming our society into its public bodies;

- Identities: beyond the relationship with the State, the relationship of the individual with himself/herself and with others is a factor in inclusion or, on the contrary, of rejection and withdrawal. Individuals are at the crossroads of multiple identities in which the balance between one's own and that of others is constantly being redefined. Understanding the way in which these identities evolve, coming to terms with the diversity of Belgium in the past and in the present, constitutes an important area for research in relation to precarity;

- Growing de-structuration and individualisation: women are often the first victims of family deconstructions and the rise of mono-parental families as they land, despite them, in precarious situations. In this sense, precarity is gender-oriented. Secondly, the growing individualism also affects intergenerational relations. The question of how we take care of our elderly people is far from being serenely addressed nor resolved in our society. Older people are neglected in families with mononuclear structure, amenities are missing, and exchange between generations is therefore sorely lacking. An analysis of family structures and the de-structuring effects of individualism would contribute to a better understanding of the growing precarity within target groups such as women and older people;

- Work:
  - In the sphere of work and labour, firms are faced with the need to constantly adapt to sociological evolutions, globalisation and increasing internationalisation, technological (r)evolutions, ecological constraints, needs for knowledge, new competences and efficient human resources etc. One needs also to consider the efficient and optimal management of resources - in particular human resources- and of space, in a context in which the economic and societal pressures are constantly demanding greater immediacy and flexibility in the satisfaction of needs. As a result, it is necessary to fundamentally rethink work and the way it is organized, and the integration of people and their skills into jobs that are increasingly heterogeneous and precarious;

  - Precarity and work can also be approached by the study of the underground economy. Pertinent research questions mainly focus on the scope of the underground economy (supply and demand, with reference to the SUBLEC study funded by Belspo and focusing on the supply), on the impact of public policies (e.g. by modelling their impact on public revenues, income repartition and hence precarity, etc.);

The various dimensions of precarity depicted here are undoubtedly interconnected, but scientific knowledge is lacking on these interactions. It is important to study them and draw the necessary lessons for federal policies. Researchers could for example look at target groups that could be identified on the basis of these dimensions. Relevant research questions could be: what are the interactions between the identified dimensions? How can one measure these dimensions with relevant indicators? And how to integrate these new indicators in a broader set of indicators aimed at measuring the overall adequacy of our social policy (both from an academic and decision-making perspective).

Researchers are invited to address this theme by integrating all or a combination of the suggested aspects, at the same time as integrating other aspects deemed relevant in order to contribute to the comprehension of the multifaceted concept of precariousness. This will contribute to a global evaluation of the efficacy of the Belgian social policy. Efforts are being made by the relevant authorities to enrich indicators and connect them, but these are still ad hoc and fragmented. Contributions of scientists will help shaping a new *integral social policy* (one that includes the traditional elements of social protection, and employment, but also those that are less obvious such as health, mobility, the cultural policy of our federal institutions, etc.), an innovation similar to the ones brought to the indicators on the quality of work in which Belgium largely contributed (European council of Laeken, December 2001).

4.2. THE CHALLENGE OF HEALTH, WELL-BEING AND AGING

Health and inequality

The precariousness mentioned in the previous theme becomes clear in the condition of the population's health and is expressed in the inequalities that cut across the entire social gradient. While the official statistics certainly indicate increased life expectancy and expectancy of a life in good health in all social groups combined, the greatest beneficiaries are those at the top of the social gradient compared to those lower on the social ladder. The inequalities in health are not confined to poverty alone and also affect the entire population.

If the fact is currently as well-documented in Belgium as elsewhere (see particularly the work of the OECD), the underlying causes influencing the health of the population are less well understood as they are multiple, are complex in terms of interaction and only show effects in the long run.

Researchers are invited to explore the question of the determinants of social and health inequality and to shed light on the corollaries of these inequalities throughout all social domains. The goal

would be to promote a multisectoral approach to health (*health in all policies*) and to allow this to provide citizens with the necessary resources for encouraging a healthy lifestyle (*healthy choices for the individual and for society*).

4.3. SYSTEMIC TRANSITION TOWARDS A LOW-CARBON AND RESOURCE-EFFICIENT SOCIETY

Research under this thematic area shall mainly be a Belgian contribution to the strategic agenda of the Joint Programming Initiative 'Connecting Climate Change Knowledge for Europe' (JPI CLIK'EU) and in particular to the module 3 of this JPI : 'Sustainable Transformation of Society'.

The growing body of knowledge on climate change and resource depletion, its causes and consequences is not matched by an equivalent understanding of the societal challenges these pose. This encompasses the societal transformations necessary to confront global change and develop sustainable and equitable production and consumption patterns and lifestyles, while at the same time maintaining or raising the quality of life within Belgium and its regions, in Europe and on a global scale.

The multiple interrelations between climate change, resource depletion, global energy trends and societal responses to these changes, other societal and environmental megatrends and the normative underpinnings of the needed sustainable transformations and paradigm shift, require research which is inherently interdisciplinary and transdisciplinary.

In this call, these realities ask for a coordinated approach that focuses on solutions for policy-makers (and other stakeholders) by developing a consistent landscape of socio-technical and socioeconomic scenarios, integrated assessments and transformation strategies, including possible approaches to transition management.

The proposals should reflect the above interactions and encompass the integrated identification of various types of societal barriers, and their solution and (windows of) opportunities, as well as the structural requirements and value, cultural, behavioral and lifestyle changes specifically related to the transformation towards sustainable low-carbon, climate resilient and resource-efficient energy systems, mobility systems, and production and consumption systems and patterns.

The implications of these socio-technical and socioeconomic scenarios, integrated assessments and transformation strategies for the policy and political context (in terms of the detailed design and implementation of adequate policy mixes, transition management and governance) and the financing of such transformations, are also the subject of this call.

This is, on the one hand, all potentially available policy instruments such as coordination and facilitation, market instruments, legislation, norms and regulations, fiscal measures, stimulation of R&D, and education.

On the other hand, the call covers research topics such as new public financing sources, investment requirements, public-private partnerships, the role of the banking sector (including central banks), supporting and mobilising private investments, access to credit, poverty, public insurance, financing large infrastructures, financial system reform, and new business models to reduce investment barriers, etc.

This research could usefully build on mapping and integrated analyses of existing international, national and regional low-carbon development strategies. It can also be beneficial to include interaction with stakeholders as knowledge partners in the research methods.

Given the required (very) long-term perspective from which to adequately assess and implement (pathways to) such societal transformations, backcasting should also be a guiding research principle. Such an approach would also include the development of integrated socio-ecological evaluation criteria and indicators for sustainable transformation scenarios, pathways and processes.

5. PROFILE OF THE PROPOSALS

The current call concerns four-year research projects.

The projects selected within the context of the current call will begin in 2013.

5.1 NETWORKS AND COORDINATION

5.1.1 NETWORKS

Each proposal is submitted by an **interdisciplinary network**, belonging to at least two separate Belgian scientific institutions.

The network partners must conduct complementary activities related to a common issue and the integration of achieved results.

All funded teams will jointly share all obligations and responsibilities during the implementation of the project. The contributions of the different network partners may differ according to the content. Accordingly, different partners may receive different shares of the total budget and devote different numbers of man-months to the research, provided they all bear in mind the principles of a network project. In order to ensure a balanced participation between the various partners, the budget of each Belgian partner must be between 15% and 60% of the total budget of the project.

The call is intended for Belgian university institutions, public scientific institutions, non-profit research centres.

The project may require specific expertise, which can be delivered in the form of **subcontracting**. Such subcontracting may under no circumstances amount to more than 25% of the total budget of the partner funding it.

The participation of **Federal Scientific Institutions** and the cooperation between partners from **different Communities** is encouraged. To ensure coherence in scientific quality between the proposals submitted, preference will be given to consortiums participating with Federal Scientific Institutions or with partners from different communities.

If it would offer added value to the project and to the development of Belgian expertise, submitters may propose a cooperation with **non-Belgian universities or public research institutes** (except for international institutions such as the Joint Research Centre). This participation will take place on a **co-funding** basis. The funding of non-Belgian partners by BELSPO will not, under any circumstances, amount to more than 20% of the total budget requested by the network. The non-Belgian partner is responsible for the co-funding, from other sources, for at least the same amount as that requested from BELSPO.

The programme wants to promote equality between men and women in research, therefore, the projects should take this into account in the choice of the researchers and, where relevant, by integrating the gender aspect into their research.

5.1.2 COORDINATION

A **coordinator** (belonging to a Belgian research institute) must be designated in each proposal. In addition to his/her scientific and management qualifications, the project coordinator must be able to synthesise and integrate the research results in order to promote applications and support for decision-making. The specific role of the coordinator is:

- to coordinate all activities to be carried out in the framework of the project;
- to coordinate the internal meetings between the network members;
- to coordinate the meetings with the Follow-up Committee and write the reports of these meetings;
- to coordinate the production of the interim and final project reports intended for BELSPO;
- to inform BELSPO of any problems that might interfere with the correct implementation of the project;
- to coordinate the synthesis and translation of the research results, with a view to applications and support for decision-making;
- to coordinate the publication and dissemination of the research results;
- meetings related to the project's progress between the network and BELSPO.

5.2 BUDGET OF THE CALL AND THE PROJECTS

The total available budget for this call is as follows:
- EUR 6.93 M for Axis 2, "Geosystems, universe and climate"
- EUR 6.93 M for Axis 3, "Cultural, historical and scientific"
- EUR 5.65 M for Axis 5, "Major societal challenges".

The present call offers room for four-year research projects. There is no budgetary limit per project. Within a project, the budget of each Belgian partner is between 15% and 60% of the total budget of the project in order to guarantee a balanced participation among the various partners.

The project budget is reserved exclusively for the project activities.

The different categories of expenditure financed by BELSPO are:

Staff: Pre-tax wages associated with increases in the cost of living, employers' social security and statutory insurance contributions, as well as any other compensation or allowance due by law and secondary to the salary itself and tax-free scholarships. Tax-free scholarships refer to a grant subject to a tax exemption under the tax laws. BELSPO prefers staff to be hired under a labour contract.

At least 60% of the total proposal's budget has to be devoted to staff.

General operating costs: this includes all current expenditures related to the project's implementation such as usual supplies and products for the laboratory, workshop and office, documentation, travel and accommodation, use of IT facilities, software, etc. The total amount of these operational costs is set at a flat rate of 15% maximum of the staff budget for the coordinator and 10% maximum of the staff budget for the other partners.

Specific operating costs (invoices will be required): this includes all specific operating costs directly linked to the execution of the project such as costs for analysis, organisation of workshops, maintenance and repair of specific equipment purchased by the project, surveys, etc.

Equipment (***only for the Belgian partners***): Purchase and installation of scientific and technical apparatus and instruments, including computer hardware. Equipment needs to be purchased in the first half of the project.

Overheads (***only for the Belgian partners***): Institutions' general overheads that cover, in one lump sum, administration, telephone, postal, maintenance, heating, lighting, electricity, rent, machine depreciation, and insurance costs. The total amount of this item may not exceed 5% of the total staff and operating costs.

Subcontracting (***only for the Belgian partners***): Expenses incurred by a third party to carry out tasks or provide services that require special scientific or technical competences outside the institution's normal area of activity. The amount may not exceed 25% of the total budget allocated to the Belgian partner concerned.

The total requested budget for **international partners** may **not exceed 20% of the total proposal's budget** and only covers staff and operating costs.

In addition to the financing of the project, BELSPO will cover the actual expenses for taking part in field work campaigns in Antarctica. Expenses which are reimbursed by the State within the context of these campaigns cover: (i) travel and living expenses and (ii) transportation and insurance of scientific equipment. All other costs should be included in the overall project budget.

5.3 FOLLOW-UP COMMITTEE, VALORISATION AND DATA

5.3.1 FOLLOW-UP COMMITTEE

Each selected project is accompanied by a Follow-up Committee. The objective of this committee is to provide **active follow-up** of the project and to **valorisation of the research**. It will carry out this role through the exchange and provision of data and information, giving advice, suggesting possibilities to valorise the research, etc. The Follow-up Committee is composed of **potential users of the results**, such as representatives of public authorities at national, regional, European, or international level, social actors, scientists, industrial actors, etc. The members of the Follow-up Committee are non-funded partners.

It is up to the candidates to specify in their proposal the functioning and specific goals of the committee (number of meetings, method of information exchange, etc.), and the role and profiles of its members. The actual composition of the steering committee will be defined in collaboration with the Belgian Science Policy Office.

5.3.2 VALORISATION

Each research proposal must include **concrete proposals for valorising** the research and the research results, and the required budgets must be foreseen. This might involve, for example, the organisation of thematic debates and meetings, proposals for disseminating and popularising the results, proposals to integrate data into computerised databases on national and international levels, the elaboration of targeted messages intended for experts, policy-makers or managers regarding the content of specific results, including its limitations, the related uncertainties, the hypotheses and methods used, etc. The target groups of these valorisation proposals must be explicitly described.

5.3.3 USE AND MANAGEMENT OF DATA

Concerning the use of existing data or the collection of new data, proposal submitters should take the following guidelines into account:

- Whenever possible, the partners should make use of existing (administrative or non-administrative) databases to meet the needs of their research. For this, they must check beforehand whether the data are accessible, at what cost, and how much time it will take to acquire the data. If, after the start of the research, it appears that due to partner negligence or

insufficient knowledge of the field, the data files will not be available in time, this may constitute a reason for BELSPO to cancel the contract.

- If the proposal requires collecting new data (e.g. via a survey), the team must justify with **clear and convincing arguments** its choice of methodology, referring to the objectives of the study and specifying why this particular form of data collection is required and preferable to other approaches. This means the proposers must provide sound and detailed argumentation in support of the chosen methodology (sampling, etc.) and highlight its added value in comparison to existing databases. In addition, the partners must provide the budget required for this data collection.
- As the data collected within the framework of the proposed research must be available to other users for other purposes, the proposal must clearly indicate when and in what format the data are made accessible, specifying which categories of users are likely to benefit from access to the data.
- If the project needs earth observation data, BELSPO's the space research and applications service can provide them on the basis of a justified request (see http://eo.belspo.be)

6. PROCEDURES

This paragraph describes the procedures for submitting a proposal, the project selection procedures, and the principal contractual obligations applying to selected projects.

6.1 INFORMATION MEETING

An information and networking meeting will be organised on 13th December 2012 at BELSPO, avenue Louise - Louizalaan 231, 1050 Brussels.

To participate, please register beforehand on the website: www.belspo.be/BRAIN-be.

6.2 HOW TO ANSWER THIS CALL FOR PROPOSALS?

The submission takes place in two steps, first by filing an expression of interest and then by filing a research proposal.

6.2.1 EXPRESSIONS OF INTEREST

Interested parties must submit an expression of interest, using the form intended for this purpose. These expressions of interest will be used by BELSPO **only** in order to seek **foreign experts for the evaluation of the research proposals**.

Expressions of interest are submitted in **English**.

Interested parties are asked to **only** use the form available on the BELSPO website:

http://www.belspo.be/

The expression of interest must be sent **in electronic form** to the following address:

BRAIN_call2012@belspo.be

The expression of interest must reach BELSPO no later than:

21st January 2013

A receipt will be sent by e-mail.

BELSPO will disregard expressions of interest submitted after the closing date.

6.2.2 PROPOSAL SUBMISSION

GENERAL GUIDELINES

Only proposals for which an expression of interest have been submitted on time will be taken into account.

The submitter is asked to **only** use the forms that are downloadable from the BELSPO's website (http://www.belspo.be/). Only the research proposals that fulfil all the eligibility criteria will be considered (see annex 1).

No annexes to the submission file will be taken into consideration during the evaluation and selection procedure.

The proposal must be sent in English and only electronically (Word and signed copy in pdf format) to the following address:

BRAIN_call2012 @belspo.be

The original signed documents must be kept and can be requested during the procedure.

The proposal must reach BELSPO no later than:

18th February 2013 at 12:00.

BELSPO will disregard proposals submitted after the above-mentioned closing date and time.

A receipt will be sent by email at the latest by 20th February 2013.

FORMS

Each proposal form includes four separate sections.

Section 1 - Administrative data
Section 2 - Technical, scientific, organisational and financial description of the proposal
Section 3 - Qualification and experience of the participants
Section 4 - Experts

The forms can be obtained from the BELSPO website at the following address: **http://www.belspo.be**

6.3 EVALUATION AND SELECTION

6.3.1 SELECTION PROCEDURE

The selection process of the research proposals is done in two steps: a scientific evaluation, followed by a strategic choice. The scientific evaluation is conducted by foreign experts who are specialized in the fields of the call for research proposals. The selection decision is made by the Minister of Science Policy among the highest ranked proposals on the basis of the strategic advice of the programme's plenary committee.

6.3.2 BASES FOR THE EVALUATION

The eligible proposals (see point 6.1.2) will be evaluated externally by foreign scientific experts qualified in the research field involved.

The text of the call for proposals serves as the basis for evaluating and selecting the proposals.

6.3.3 EVALUATION CRITERIA

The general evaluation criteria to be taken into consideration by the experts are the following:

Compliance with the aims of the programme and content of the present call

Scientific quality

- clarity of the objectives and tasks; relevance of the methodology; coherence of the objectives, the tasks and the methodologies; alignment of the proposal with the state of the art in the proposed field;
- scientific originality of the proposed research, taking into account the innovative character of the potential results, value of the research in light of other research underway in the field in question.

Potential impact of the project on science, society in general and on decision-making in particular

- positioning/relevance of the research with regard to the orientations of the call;
- potential use or integration of the project results by the scientific community, society and decision-makers;
- relevance of the proposals for distributing the results and making them available;
- profile of the members, role and functioning of the follow-up committee;
- integration of relevant societal themes such as sustainability, the gender aspect, etc.

Quality of the network

- level of scientific excellence or expertise of the candidates;
- complementarity of the competences among the partners;
- interdisciplinary nature of the network;
- distribution of tasks between partners;
- added value of the foreign partner's contribution;
- scientific quality, management, synthesis and communication skills of the coordinator.

Compliance of project/resources

- balance of the distribution of resources between partners;
- realism of the means deployed (duration, budget, personnel);
- gathering, use and accessibility of the data necessary for the project;

International anchoring

- positioning of the project in relation to international activities (existing or in preparation)

6.4 CONTRACTUAL OBLIGATIONS

6.4.1 CONTRACTS

For the proposals selected, a contract is drawn up between BELSPO and the network of funded teams.

For this purpose, the submitters of the proposal will be asked at the end of the evaluation and selection procedure to concisely formulate the specifications on the basis of which the contract is to be drawn up. This **technical annex** to the contract will be drawn up in consultation with BELSPO and will take into account the recommendations formulated by the foreign experts and the Programme Committee. Adaptations to the original proposal may relate to the content of the research, the composition of the network or Follow-up Committee, the budget, the choice of the coordinator, the proposals for valorising the research, etc.

BELSPO grants the selected projects the **funds** required for their implementation. BELSPO shall reimburse at most, and up to the amount specified in the granted budget, the actual costs proven by the partners providing these costs are directly related to the implementation of the project.

6.4.2 EXTERNAL EVALUATION

All research projects are subject to one or more external evaluations. These evaluations, conducted by foreign experts, concern the project's scientific quality (methodology and interim results) and strategic impact, in the light of its initial objectives.

6.4.3 REPORTS AND PROGRESS MEETINGS

The contract will define the various reports to be submitted to BELSPO. These reports are to be included in the project work plan and the cost of preparing them (including translations) must be covered by the project budget.
As well as the reports, meetings on the project's progress will be organised between the network and BELSPO.

6.4.4 DATA, RESULTS, INTELLECTUAL OWNERSHIP AND OPEN ACCESS

Foreground shall be the property of the institution carrying out the work generating this foreground, as mentioned in article 11 of the general conditions of the contract (annex 2). As regards existing information and data, ownership remains the same.

Each institution shall ensure that the foreground of which it has ownership, is disseminated as fast as possible.

Furthermore, each institution undertakes to make the foreground available in a freely accessible institutional deposit (institutional open access repository), immediately and free of charge, in order to be able to read, download, copy, print, or distribute it or to carry out a search within it.

For research areas concerning the marine environment, biodiversity and the Antarctic, researchers must bear in mind that a copy of the analysis and measurement data and/or metadata will nevertheless be transferred to specific databases such as:

- IDOD/BMDC (http://www.mumm.ac.be/datacentre),
- AMD (Antarctic Master Directory) (http://gcmd.gsfc.nasa.gov/KeywordSearch/Home.do?Portal=amd&MetadataType=0),

- GBIF (Global Biodiversity Information Facility) (http://www.gbif.org/) with possibly the help of the biodiversity platform (http://www.biodiversity.be)

The promoters of projects that include tasks in which biological materials are used, must ensure the preservation of this biological material by depositing it in a culture collection (Biological Resource Centre), and preferably one in Belgium. This does not apply to material that promoters can prove has already been deposited in a culture collection or for which existing agreements (Material Transfer Agreement) do not allow it to be deposited. Biological material includes cultivable organisms such as microorganisms, viruses, plant, animal and human cells as well as the replicable parts of these organisms, such as non-modified and recombinant plasmids (including those with DNAc inserts).

6.4.5 RESEARCH ETHICS

The first code of ethics for scientific research in Belgium was drawn up in 2009 (see http://www.belspo.be/belspo/organisation/publ/pub_ostc/Eth_code/ethcode_en.pdf).

The "Code of Ethics for Scientific Research in Belgium" is a joint initiative of the Académie Royale des Sciences, des Lettres and des Beaux-Arts de Belgique, the Académie Royale de Médecine de Belgique, the Koninklijke Vlaamse Academie van België voor Wetenschappen en Kunsten and the Koninklijke Academie voor Geneeskunde van België, with the support of the Belgian Science Policy Office.

All projects must take this code of ethics into account in their research.

7. COMPLAINTS

BELSPO places great importance on the quality of its service and on improving the way it operates. A special form to handle complaints has been created.

The complaint form is available at the following address:
http://www.belspo.be/belspo/organisation/complaints_en.stm

Complaints submitted anonymously or which are offensive or not related to our organisation will not be processed.

A complaint is handled as follows:

- once your complaint has been filed, a notification of receipt will be sent.
- the complaint will be forwarded to the relevant departments and individuals and will be processed within one month.
- an answer will be sent by e-mail or letter;
- the complaint will be treated with strict confidentiality.

If you are dissatisfied by the initial response to a complaint, you can always contact the Médiateur Fédéral/Federal Ombudsman, rue Ducale 43, 1000 Brussels. (email contact@mediateurfederal.be).

8. CONTACTS

Further information can be obtained by contacting the secretariat:

BRAIN-BE@belspo.be

02/238 34 80 (FR)
02/238 34 65 (NL)

"BRAIN-be" Programme
Call 2012 - Network Projects
Eligibility of Proposals

The Belgian Science Policy Office (BELSPO) ensures that proposals meet all the eligibility criteria listed below. Proposals that do not meet one or more eligibility criteria will not be evaluated. Coordinators of ineligible proposals will be informed by BELSPO. The eligibility of each proposal is verified on the basis of information provided by the submitters in the submission file.

List of criteria

For all proposals submitted, the following criteria are examined. Only those that meet ALL these criteria are used for evaluation.

➢ The submission was preceded by an expression of interest for the same research topic	☐
➢ The submission file is complete (all required forms have been completed)	☐
➢ The submission file was submitted in electronic format (in Word and pdf)	☐
➢ The submission file was submitted no later than 18th February 2013, 12:00	☐
➢ The proposal concerns a 4-year project	☐
➢ The proposal concerns a network of at least two different Belgian institutions	☐
➢ The proposal coordinator is employed by a Belgian research institution	☐
➢ The network consists of participants from universities and/or public scientific institutions, and/or non-profit research centers	☐
➢ Budgetary aspects:	
- the budget of each Belgian partner is between 15% and 60% of the project budget	☐
- at least 60% of the project budget is spent on personnel	☐
- the budget for subcontracting does not exceed 25% of the total budget allocated to the concerned partner	☐
- the budget of the foreign partners does not exceed 20% of the total budget requested by the network	☐

ANNEX 2: LIST OF FEDERAL SCIENTIFIC INSTITUTIONS (FSI)

1. National Archives and State Archives in the Provinces (ARA-AGR)
2. Royal Library of Belgium (KBR)
3. Belgian Institute for Space Aeronomy ((BIRA-IASB)
4. Royal Belgian Institute of Natural Sciences (RBINS)
5. Royal Institute for Cultural Heritage (KIK-IRPA)
6. Royal Meteorological Institute of Belgium (RMI)
7. Royal Museum for Central Africa (RMCA)
8. Royal Museums of Art and History (RMAH)
9. Royal Museums of Fine Arts of Belgium (RMFAB)
10. Royal Observatory of Belgium (ROB)
11. Scientific Institute of Public Health (IPH)
12. Veterinary and Agrochemical Research Centre (VAR)
13. National Institute of Criminalistics and Criminology (NCIC)
14. Royal Museum of the Armed Forces and Military History (MRA)
15. The Centre for Historical Research and Documentation on War and Contemporary Society (Ceges-Soma)