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CONCEPT PAPER

Scientific Support to the Danube Strategy

The Joint Research Centre (JRC) of the European Commission is coordinating an initiative aiming to provide scientific support to the European Union Strategy for the Danube Region (EUSDR) focusing on four vertical priorities: environment protection, irrigation and agricultural development, navigability and energy production. As a transversal priority, the initiative also aims to support the development of Smart Specialisation strategies for innovation in the Danube Region.

The initiative was launched in close cooperation with key scientific partners of the Danube Region. Through an integrated approach relying on different flagship clusters, the JRC and its scientific partners will gather essential scientific expertise and data to help decision-makers and other stakeholders of the Danube Region to identify the policy measures and actions needed for the implementation of the EU Strategy of the Danube Region.

1. CONTEXT

The Danube Region covers parts of eight EU countries (Germany, Austria, Hungary, Czech Republic, Slovak Republic, Slovenia, Bulgaria and Romania) and six non-EU countries (Croatia, Serbia, Bosnia and Herzegovina, Montenegro, Ukraine and Moldova).

The region is facing several challenges, such as environmental threats, insufficient energy and transport connections, uneven socio-economic development as well as shortcomings in safety and security. Better coordination and cooperation between the countries and key players are needed to address these challenges.

It is to build and capitalise on potential synergies that the European Commission - at the request of the European Council - proposed a European Union Strategy for the Danube Region¹ in December 2010. The Strategy was developed jointly with the Danube Region countries and stakeholders.

The objective of this macroregional strategy is to tackle the challenges and priorities of the Danube Region in an integrated manner, leading to concrete results and a better future for the

¹ Communication of the European Commission (COM(2010)715) and Action Plan (SEC(2010)1489) of 8 December 2011.



region and its citizens. It aims to develop into a durable cooperation framework, allowing policy makers to improve their cooperation and thus increase the effectiveness of policies, at EU, national and local level.

The European Council endorsed the EU Strategy for the Danube Region in June 2011, calling on all relevant actors to implement it without delay. The JRC responded to this call of the Council by launching the 'Scientific Support to the Danube Strategy' initiative.

2. RATIONALE AND OBJECTIVES

The JRC's Scientific Support initiative contributes to the implementation of the EU Strategy for the Danube Region (EUSDR) in two different ways. Firstly, it addresses the scientific needs related to the implementation of the EUSDR and thereby helps decision-makers and other stakeholders to identify the policy needs and actions needed for the implementation of the Strategy. Secondly, it contributes to the reinforcement of ties and cooperation amongst the scientific community of the Danube Region.

2.1. Addressing the scientific needs related to the implementation of the EUSDR

As the scientific arm of the European Commission, the JRC's association to the EUSDR comes natural because many of the challenges identified in the Strategy relate to areas where scientific support is crucial to ensure sound policy implementation.

The JRC already has a strong scientific expertise on the Danube Region, acquired throughout different actions. For example, the JRC has developed the European Flood Awareness System (EFAS) in order to provide the national institutes and the European Commission with information on possible river flooding to occur within three or more days. The JRC also maintains the Danube Soil Information System through which it collects soil data from the countries that intersect the Danube river basin and provides valuable information on the status of soils and the evolution of soil erosion. Moreover, the JRC has extensive expertise when it comes to monitoring the quality of waters and emerging pollutants in surface and ground waters.

Out of the eleven Priority Areas identified in the Strategy, seven are areas where the Joint Research Centre already has acquired scientific expertise and can provide an active scientific support. The Scientific Support to the Danube Strategy will directly or indirectly contribute to the Priority Areas (PAs) on Waterways (PA1a), Energy (PA2), Water Quality (PA4), Environmental Risks (PA5), Biodiversity, landscapes, quality of air and soils (PA6), Knowledge Society and ICT (PA7) and Competitiveness (PA8).

Moreover, the JRC can promote a cross-cutting approach to tackling the scientific challenges related to the implementation of the above-mentioned Priority Areas of the EUSDR. The JRC has indeed a board overview on different scientific fields of expertise related to the Danube Region. It can therefore provide the expertise needed to ensure that the interdependencies between different Priority Areas are duly assessed and taken into account when implementing the EUSDR. It will also contribute to reinforcing the consistency of the overall EUSDR approach in scientific-related matters by preventing the duplication of efforts and investments across different projects.

2.2. Strengthening the scientific cooperation in the Danube Region

The EUSDR is anchored in the Europe 2020 Strategy and aims to help achieve the long-term objectives of the EU, namely smart, sustainable and inclusive growth. By 2020, the Strategy aims to make the Danube Region one of the most attractive in Europe.

To achieve this challenging goal, the important socio-economic disparities across the different countries of the Region have to be reduced. In the field of research and innovation, the Danube Region counts a few countries - like Germany and Austria - whose performance indicators in the field of R&D intensity and participation in the Seventh Framework Programme (FP7) are amongst the highest in the Europe, but many of the other countries of the Region rank amongst the lowest performing countries in this regard². As recommended by the EUSDR, to overcome such disparities and to stimulate excellence in research and development, cooperation between scientific actors should be enhanced and incentives for stronger cooperation should be developed.

The JRC's Scientific Support to the Danube Region was launched and will be implemented in close cooperation with the key scientific actors of the Danube Region. In this sense, it will help to build scientific networks contributing to enhance the collaboration between the scientific communities of the different countries of the Danube Region. This process will eventually facilitate the increased exchange of knowledge between the highest and lowest performing countries in the fields of research and innovation and the catching up process of the latter countries - some of which are currently on the path to EU accession. It will also stimulate scientific excellence, which will improve scientific performance and thereby the innovation capacity and competitiveness of the Region.

3. APPROACH

The Scientific Support to the Danube Strategy initiative was launched in three different main phases.

3.1. First phase: Launch of the initiative and consultation of stakeholders

Following the endorsement of the EUSDR by the European Council in June 2012 and its call on all actors to implement the strategy without delay, the JRC made an internal assessment of its existing expertise on the Danube Region acquired through past and on-going actions.

Contacts were then made with different stakeholders of the Danube Region at scientific and political level in order to discuss the scientific needs related to the Danube Strategy and the opportuneness for the JRC to launch and coordinate an initiative to support the Strategy. Between June 2011 and June 2012, the JRC – represented by its Director-General or one of its Director(s) – visited all EU Member States that are riparian of the Danube River. During these visits, the JRC initiative to support the Danube Strategy was presented to various representatives of the national governments and industry and usually received strong support from these stakeholders.

At scientific level, contacts were made with the Sciences Academies and some universities of the Danube Region. In November 2011, the JRC signed a Letter of Intent for cooperation on the

² See Innovation Union Competitiveness Report and Innovation Union Scoreboard 2011 and FP7 Country Fiches.

scientific support to the Danube Strategy with four Sciences Academies of the Danube Region. This cooperation was later joined by other Sciences Academies of the Region - currently including nine Academies. The cooperation initiative with Sciences Academies was also then complemented by a Letter of Intent on the cooperation with the Danube Rectors' Conference which is a network representing 54 universities of the Region.

3.2. Second phase: Definition and validation of scientific priorities

In a second phase, the JRC in cooperation with its scientific partners defined a set of limited priorities for the scientific support to the Danube Strategy, namely environment protection, irrigation and agricultural development, navigability and energy production.

The priorities were defined following the Smart Specialisation approach and methodologies which aim to maximise the use of resources by concentrating on investment and efforts a few key priorities rather than diluting efforts too thinly. Strategic intelligence was gathered and analysed on the strengths and weaknesses of the Danube Region, also taking into account the targets highlighted in the EUSDR Action Plan and the feedback provided by different stakeholders.

The identified priorities were presented at a high-level event on the Scientific Support to the Danube Strategy organised by the JRC in Brussels on 24 April 2012. At this event, the key stakeholders from the Danube Region at the political, scientific and industry level confirmed their support for the scientific priorities identified.

3.3. Third phase: Identification and validation of flagship clusters

Following the identification of the priorities, the JRC and its scientific partners made a diagnosis of the scientific expertise needed to tackle the specific challenges related to these priorities. This exercise revealed that the main gaps in the current scientific landscape concern the cross-cutting study of the interdependencies between the different priorities. The evidence-based analysis of the interactions between different policy areas is indeed essential to design consistent, integrated and sustainable policy mixes for the Danube Region.

On the basis of the above-mentioned priorities, the JRC then elaborated some concrete proposals for flagship clusters aiming to provide policy makers with the appropriate scientific support to tackle interlinked policy issues. These clusters will address some of the main scientific challenges faced by the Danube Region from an integrated and cross-cutting perspective taking into account the interdependencies between various policy priorities.

Information on the different flagship clusters proposals will be sent to the Coordinators of the relevant EUSDR Priority Areas and various stakeholders of the Danube Region in order to identify potentially interested scientific partners in the Region.

These scientific partners will be invited to participate in a scientific meeting at the JRC site in Ispra (Italy) in March 2013. The aim of the meeting is to discuss the possible scientific collaboration in the framework of the identified flagship clusters.

Finally, all flagship clusters will be presented at a high-level event which will take place in the spring 2013 in Bratislava.

4. PRIORITIES

The Scientific Support to the Danube Strategy initiative focuses on four vertical priorities which are considered to be of vital importance for the Danube region:

- **Environmental protection:** The Danube Region and the Danube River are very rich in ecological terms. However, they are suffering from climate change which was one of the causes of the major floods that the Region recently had to face. The degradation of biodiversity and deforestation are also key issues to tackle.
- **Irrigation and agriculture development:** Tackling pressures on water caused by agriculture represents important challenges in Europe and in the Danube Region. In 2003, the reform of the EU Common Agricultural Policy (CAP) increased the opportunities for assisting in the implementation of water protection policies through an efficient use of Cross Compliance and of Agri-Environmental measures in the CAP. Therefore, there is a pressing need to develop models of integrated landscape management of the river basin and sustainable land use balancing socio-economic development and protection of nature. Actions should be developed to establish a water abstraction management concept with special attention to water demand management. In the agriculture sector, more efficient and sustainable water saving irrigation techniques will have to be developed.
- **Navigability:** The Danube River is flowing across Europe, from Germany to Romania. It is a major inland waterway, but it is under-exploited. Navigation is a safe and environmental-friendly transportation mode, which should be promoted. Therefore, new and more sustainable waterway management policies should be developed.
- **Energy production:** Energy is one of the key challenges faced by the Danube Region. The Region mainly suffers from the absence of a common energy market and from insufficient domestic energy production. The Region has, however, a huge natural potential to develop renewable energies, including bioenergy in the form of biomass or biogas.

In addition to these vertical priorities, the JRC initiative also addresses one transversal priority, which consists in supporting decision-makers of the Danube Region in designing and implementing **research and innovation strategies for Smart Specialisation**.

5. IMPLEMENTATION

5.1. Flagship clusters and activities

The Scientific Support to the Danube Strategy will be sub-divided into different flagship clusters and activities. Each of them will contribute to several of the scientific priorities listed in section 4 and will address the challenges related to these priorities from a holistic and cross-cutting perspective.

5.1.1. Thematic flagship clusters

Four thematic clusters will focus on some of the key resources of the Danube Region, namely water, land and soils, air, and bioenergy.

- **The Danube Water Nexus (DWN):** This flagship cluster will cover various water-related issues such as water availability, water quality, water-related risks and the preservation

and restoration of ecosystems and biodiversity. It will also analyse the interdependencies of between different water-intensive economic sectors such as agriculture and energy.

- **The Danube Land and Soil Nexus (DLSN):** This flagship cluster will study various issues related to the state and use of land and soils in the Danube Region, including land and soil availability and quality, land and soil-related risks and the preservation and restoration of above- and belowground ecosystems and biodiversity.
- **The Danube Air Nexus (DAN):** This flagship cluster will cover various issues related to air, such as air quality and the assessment of the impacts of air pollution on ecosystems, on climate change and on public health.
- **The Danube Bio-energy Nexus (DBN):** This flagship cluster will address the challenges related to energy in the Danube Region. It will focus on the high potential of the Danube Region for developing renewable energy from materials derived from biological sources.

5.1.2. Horizontal activities

The four thematic clusters are complemented by two horizontal activities – in which the JRC has already started concrete work:

- **The Danube Reference Data and Service Infrastructure (DRDSI):** This pilot project aims to establish a Reference Data and Service Infrastructure for the Danube Region (DRDSI). The DRDSI will offer a satellite view on harmonised data sets on various issues related to the Danube Region (such as water and soil quality, population, landscapes...etc.). Thereby, it will provide policy-makers and other stakeholders with comparable data to support evidence-based decision-making in the Danube Region.
- **Smart Specialisation:** Due to its unique experience, the JRC – via its Smart Specialisation Platform – will support the designing and implementation of Research and Innovation Strategies for Smart Specialisation in the Danube Region, taking into consideration the regional assets and opportunities but also the broader macro-regional dimension.

5.2. Scientific work organisation

In each cluster, work will be sub-divided into different work packages. The JRC will coordinate the activities undertaken in the framework of the different clusters. Some of the work packages will be implemented directly by the JRC, while additional activities could be carried out by external partners.

It has to be underlined that - with the exception of the two horizontal activities described in section 5.1.2 where work has already started - activities carried out under the different flagship clusters will most likely produce their first results only within one or two years of the beginning of their implementation.

5.3. Channelling scientific results to decision-makers and other stakeholders

In order to ensure that the scientific results obtained are properly channelled to the decision-makers and stakeholders who can use them to develop policy measures and actions in the Danube Region, the JRC will establish structured communication channels with the Directorate-General for Regional Policy of the European Commission through which links will

be established with the relevant EUSDR Priority Area Coordinators and National Contacts Points, as well as other stakeholders interested in the results of the scientific work carried out.

In addition, the JRC in cooperation with its partners will organise high-level events to report on the implementation of the flagship clusters and findings obtained. The first of such kinds of events is likely to take place in Budapest in autumn 2013 and to focus on the theme of Water.

List of Annexes:

Annex I: Roadmap

Annex II: Fiches on the different flagship clusters

Annex III: Concept paper of the high-level event in Bratislava

ANNEX I:

Roadmap for the implementation of the Scientific Support to the Danube Strategy

Target date	Action
December 2012	Consultation of DG REGIO on the present draft concept paper
January 2013	Sending the present concept paper and draft flagship clusters proposals to the JRC's scientific partners, as well as to the relevant EUSDR Priority Area Coordinators and National Contacts Points
February 2013	Deadline for consulted stakeholders to communicate the names of potential partners interested in cooperating with the JRC and relevant information
March 2012	Scientific meeting at the JRC site in Ispra gathering interested scientific partners and aiming to discuss and fine-tune the proposed flagship clusters
April 2013	Finalisation of the flagship clusters proposals, including detailed work packages descriptions, milestones and work allocation
May 2013	Presentation of the flagship clusters at a high-level event on the Scientific Support to the Danube Strategy in Bratislava