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COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 29.10.2009  
SEC(2009) 1475 final

**COMMISSION STAFF WORKING DOCUMENT**

**IMPACT ASSESSMENT**

**Accompanying document to the**

**Proposal for a**

**DECISION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**

**on the participation by the Community in a Joint Baltic Sea Research and Development  
Programme (BONUS-169) undertaken by several Member States**

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## **1. PROCEDURAL ISSUES AND CONSULTATION OF INTERESTED PARTIES**

### **1.1. Context and legal basis – Why an Article 169 Initiative for the Baltic Sea Region?**

The Baltic Sea ecosystem is seriously impacted by many natural and human-induced pressures. The sea and coasts are particularly affected by combined and increasing negative impacts from pollution, eutrophication, climate change, acidification, invasive alien species, overexploitation of living resources and biodiversity loss. These threats are reducing the capacity of the Baltic Sea to sustainably provide the goods and services upon which humans depend. This has critical implications for the entire Baltic Region, and the wider European Community.

Knowledge-based solutions and measures are urgently needed to address the environmental problems and ensure a sustainable use of the goods and services of the Baltic Sea System which necessitate new scientific knowledge to understand and predict the behaviour of the extremely complex Baltic Sea System, its interactions and feedbacks with the multiple natural and anthropogenic drivers. Furthermore, the regional and sometimes global nature of these drivers (e.g. climate change) calls for the development and implementation of a sustained and fully-integrated approach, tapping upon the research capacities and resources of all the Baltic Sea States.

However, the current research system in the Baltic region, still being too fragmented, can not respond to these great challenges. Urgent actions are needed to enhance the coordination, cooperation and synergies among all relevant national research programmes and activities funded by the bordering Baltic States in order to improve the overall coherence and efficiency of the Baltic research system and capacitate it to address the complex and pressing environmental problems at hand.. To this effect, there has been long-standing political support for an improved coordination of research activities in Europe and for the BONUS Article 169.

In 2001, the Competitiveness Council considered that the use of Article 169 of the EC Treaty could lead to greater coherence and integration of national and Community programmes and research policies, and invited the Member States to identify possible specific topics for pilot programmes where the use of Article 169 would be appropriate. The Commission was requested to come forward by early 2002 with proposals to the Council and European Parliament for participation by the Community in any such pilot programmes<sup>1</sup>

In 2002, the Competitiveness Council recognised the importance of the mutual opening of national research programmes and the need for more coordination between national research programmes, as well as between national and Community programmes, and indicated its support for the use of Article 169<sup>2</sup>

In 2005, the Presidency invited Member States to set priorities and define which national programmes should be co-ordinated.

In 2006, the European Parliament reporting on the Commission Proposal for the Seventh Framework Programme (FP7), recognised that "...it is vital that the Seventh Framework Programme should support the coordination of national and regional research policies and

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<sup>1</sup> 2380<sup>th</sup> Competitiveness Council Meeting, Luxembourg, 30 October 2001.

<sup>2</sup> Informal ministerial meeting of Industry and Research Ministers in Girona (Spain) in February 2002 and conclusions from the 2467<sup>th</sup> Council meeting (Competitiveness), Brussels, 26 November 2002

programmes" and that in order "to avoid fragmentation and overlapping competencies, there should be more cooperation between national and European research programmes, and between economic actors in the long-term research agenda.". Four potential Article 169 initiatives were included under the FP7 Cooperation Specific Programme and Capacities Specific Programme<sup>3</sup> with an indicative roadmap for their implementation. Whilst BONUS ERA-Net (2004-2006) had made a good progress in initiating communication between research funding institutions in the region, analysing the landscape and developing the preconditions for further integration by elaborating a series of Analytic Papers, a Science Plan, Legal basis for a Decentralised Implementation Structure (DIS), the BONUS-169 initiative was not considered mature enough to be included in the 'first train' of Article 169 initiatives. Instead, an ERA-Net Plus (2007-2011) was offered as a bridging measure to further develop and test the identified mechanisms in practice through a joint call before adopting a fully-fledged BONUS-169 initiative.

During the BONUS ERA-Net Plus, the BONUS participating States have clearly recognised that irreversible and true integration can only be achieved through durable cooperation and to this end they have clearly demonstrated their willingness and their intention to act together in implementing a Joint Research Programme under an Article 169 initiative. Furthermore, the BONUS EEIG<sup>4</sup> (the BONUS consortium), a European Economic Interest Grouping based in Helsinki, consisting of 9 institutions from 8 Participating States, was set-up to serve as the Dedicated Implementation Structure (DIS) for the administration of the joint call under BONUS ERA-Net Plus and as the joint governance structure for the implementation of the BONUS-169 initiative.

The FP7 Cooperation Specific programme refers specifically to an "Article 169 initiative in the field of Baltic Sea Research":

*The aim will be to launch and implement a joint R&D programme integrating a number of national programmes in the field of marine science and sustainable development of the Baltic Sea. In line with a number of international, European and regional conventions dealing with the Baltic Sea, this initiative will enable the creation of a platform for synthesising and disseminating findings in the field and will create the necessary R&D to support sustainable development of the Baltic Sea.*

In March 2008, the European Council pointed out *that the decisions on Article 169 initiatives and additional research initiatives should be taken as soon as possible* and as reported in the minutes of the Competitiveness Council of 5 and 6 March 2009, "The Council invites the Commission to submit in early 2009 to the Council and the European Parliament a proposal to transform the ERA-NET+ "BONUS for the Baltic Sea Science – Network of Funding Agencies" into a joint research programme based on Article 169 of the Treaty."

## **1.2. Organisation and Timing**

On the basis of a thorough scoping exercise, a detailed analysis of the gaps in cooperation of past Baltic Sea System research and extensive consultations with the marine research

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<sup>3</sup> 2006/971/EC, Council Decision of 19 December 2006 concerning the specific programme 'Cooperation' implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013); 2006/974/EC: Council Decision of 19 December 2006 concerning the specific programme 'Capacities' implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

<sup>4</sup> Established in 2007, Hämeentie 33, FI-00500 Helsinki, Finland

community and key stakeholders carried out by BONUS ERA-Net, a Science Plan<sup>5</sup>, a Tentative Action Plan (2008–2016)<sup>6</sup> and Draft Strategic Research Agenda<sup>7</sup> were elaborated. They served as basis for the first joint call in 2008 organised within the framework of the BONUS ERA-Net plus. In addition to these documents, BONUS produced a series of publications on issues such as the baseline situation in the Baltic Sea environmental research, funding, consultation process that were followed, etc. These documents were submitted to the Commission as background documents for the preparation of a BONUS 169 initiative. The scientific content and the overall implementation context described in these documents is being analysed in this report under Section 4 as Policy option 3, through approach A. It formed the basis for the analysis and assessment by a panel of five independent experts – the Impact Assessment Expert Group (IAEG) – that was set up by DG RTD to assist the Commission's services with the preparation of the BONUS 169 Impact Assessment Report (IAR).

Following this analysis, the IAEG identified a number of elements that would need to be taken into account for further optimising BONUS-169 in line with the boundary conditions laid down in the Van Velzen report<sup>8</sup>, and enhancing its impact in supporting sustainable development of the Baltic Sea. This "optimal" Article 169, incorporating the IAEG's recommendations, is being analysed in this report under Section 4 as Policy option 3, through approach B. A report entitled "Operational Conclusions" with the IAEG's recommendations was communicated by the Commission to the BONUS EEIG in December 2008 with a request to revise their documentation accordingly.

In tandem, and following a letter by DG Research Commissioner Potočnik, the Ministers of Research from the BONUS participating countries reaffirmed their political and financial commitment to the initiative and endorsed the need for revision of the original BONUS 169 version in line with the IAEG's recommendations. The services of two additional independent experts (the External Expert Group) were contracted by the Commission and made available to the BONUS EEIG to assist them in the revision.

A revised BONUS 169 Outline Research Agenda was submitted to DG RTD in July 2009<sup>9</sup> by the BONUS consortium taking full account of the input by the IAEG. It was assessed and analyzed by the Commission services with the assistance of the IAEG. This revised BONUS 169 Outline Research Agenda is being analysed in this report under Section 4 as Policy option 3, through approach C. It foresees a two-stage Article 169 Initiative comprising an initial Strategic Phase (2010-2011) to lay the foundations for the subsequent Implementation Phase.

In the context of the preparation of the Impact Assessment and legislative proposal for this Article 169, a formal Inter-Service Steering Group (ISSG) was set up by DG RTD (Directorate I), in May 2008. Representatives from 14 Directorates General were formally invited to form part of the group<sup>10</sup>. The group has been kept regularly informed on the

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<sup>5</sup> BONUS Publications Nr. 5 BONUS–169 Baltic Sea Science Plan and Implementation Strategy [http://www.bonusportal.org/files/40/Publication\\_Nr.\\_5.pdf](http://www.bonusportal.org/files/40/Publication_Nr._5.pdf)

<sup>6</sup> Annex I Bonus EEIG Action Plan 2008 – 2016 Part I Scientific goals and activities and Annex II Bonus EEIG Action Plan Part II Governance, Administration and Management

<sup>7</sup> Annex III Draft BONUS 169 Strategic Research Agenda

<sup>8</sup> Independent External Review Report, 12 July 2007, EDCTP Programme, [http://ec.europa.eu/research/health/povertydiseases/doc/final\\_ier\\_report\\_12july2007\\_en.pdf](http://ec.europa.eu/research/health/povertydiseases/doc/final_ier_report_12july2007_en.pdf)

<sup>9</sup> Annex IV BONUS 169 Outline Research Agenda

<sup>10</sup> DG Energy and Transport, DG Enlargement, DG Enterprise and Industry, DG Environment, DG External Relations, DG Health and Consumers, DG Information Society and Media, DG Maritime Affairs and Fisheries, DG Regional policy, DG Trade, DG Budget, DG Agriculture and Rural Development, the Legal Service and the Secretariat-General

progress, and its views and recommendations were systematically taken on board. By the time of the present Report, the ISSG met six times<sup>11</sup> during the course of the preparation of the initiative. The Joint Research Centre was not involved in the ISSG since it would be eligible to participate in future BONUS-169 calls for proposals.

### **1.3. Consultation and expertise**

#### **External scientific expertise**

The IAEG has held eight meetings<sup>12</sup>. The role of the External Expert Group in advising the BONUS consortium during the revision process has also been greatly appreciated and acknowledged by the consortium.

#### **Consultation of relevant stakeholders carried out by the Commission**

##### *Consultation within the context of the elaboration, adoption and implementation of the 7<sup>th</sup> EU RTD Framework Programme*

BONUS 169 has formed integral part of the specific programme ‘Cooperation’, and has been subject to and benefited from the very broad consultation process organised within the context of FP7. Furthermore, falling under the remit of the thematic area Environment (including climate change), it is subject to regular consultations with the corresponding Programme Committee and Programme Advisory Group.

##### *Consultation on a European Strategy for Marine and Maritime Research*

BONUS 169 has formed an integral part of the European Strategy for Marine and Maritime Research and has thus benefited from the consultation process undergone in the framework of the Strategy.

##### *Consultation with Ministers of the EU Baltic Member States regarding political engagement in a future BONUS 169 (see section 1.2)*

##### *Stakeholder consultation within the framework of the EU Strategy for the Baltic Sea Region*<sup>13</sup>

The EU Strategy for the Baltic Sea Region (EUSBR) in its very broad scope and coverage makes explicit reference to the BONUS 169 initiative both under the policy oriented action and the detailed action plan. In this context, it has largely benefitted from the public and stakeholders consultation carried out within this framework in 2008/2009<sup>14</sup>.

#### **Consultation of Stakeholders carried out by the BONUS Consortium**

As mentioned above, the original BONUS 169 scientific framework (BONUS-169 Science Plan and Implementation Strategy) was based on a thorough analysis of the gaps in cooperation of past Baltic Sea System research, and extensive consultations with the marine research community and relevant stakeholders and served as a basis for the first joint call under BONUS ERA-NET Plus that was published in 2008.

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<sup>11</sup> 29 May 2008, 12 December 2008, 11 February 2009, 18 June 2009, 23 July 2009, 18 September 2009

<sup>12</sup> 17 July, 8 - 10 September, 6 - 7 and 20-21 November 2008, 26-27 February 2009, 15 April, 3-4 June and 11-12 June 2009

<sup>13</sup> COM 2009, 248/3

<sup>14</sup> Consultation on the EU Baltic Sea Strategy  
[http://ec.europa.eu/regional\\_policy/consultation/baltic/consultation\\_en.htm](http://ec.europa.eu/regional_policy/consultation/baltic/consultation_en.htm).



In developing them, the BONUS consortium engaged with many groups of stakeholders between the period of June 2005 and November 2006. The process, as presented in the BONUS Publication No. 10<sup>15</sup>, included a variety of consultation mechanisms and feedback procedures in all nine Baltic Sea countries (i.e. 8 EU countries and Russia) with a broad range of academic and governmental scientists in all relevant disciplines and spheres of marine science, the BONUS consortium funding agencies, relevant ministries and their associated specialised institutes, intergovernmental and international organisations with major interests and influence in science and the provision of scientific advice for management, as well as management and regulatory decision makers.

Furthermore, extensive consultations took place with the Advisory Board (set up by the BONUS PLUS Steering Committee for the implementation of the BONUS PLUS Call for proposals) for the preparation of the BONUS-169 Science Plan and Implementation Strategy. The Advisory Board comprises a broad spectrum of stakeholders (HELCOM, ICES, DG MARE, WWF, and Finnish Farmers Association).

The more recent communication activities of the BONUS-169 initiative include the organisation of a seminar on ‘Marine Science Contribution to Regional Seas Strategies, held in Brussels in December 2008. This was a culmination of a series of workshops between BONUS and other relevant research communities knowledgeable of European regional seas (Black Sea, Mediterranean and North Atlantic).

In the spring of 2009, four presentations were given to a wide range of European stakeholders:

- HELCOM’s 4<sup>th</sup> Stakeholder Conference,
- European Maritime Day: Stakeholder Conference in Rome
- Baltic Marine Innovation Forum in Klaipeda
- Baltic Operational Oceanographic System Annual meeting in Sopot

Furthermore, the revised BONUS 169 Outline Research Agenda (see Section 1.2) has its beginning in the former work, building on the 2006 plan which, as mentioned above, has been the subject of a broad consultation.

Its draft version was presented in Warsaw in June 2009 at the Conference on the EU Strategy for the Baltic Sea Region entitled “Building Partnership for Entrepreneurship, Innovation and Competitiveness” and at the 7-th Baltic Sea Science Congress (BSSC) that took place in Tallinn in August 2009. On the occasion of this latter Congress, several organisations invited BONUS-169 to join them for the organisation of the next BSSC which will take place in Russia in 2011. It will be presented again, this time in a more international context, in October 2009 at the Atlanta Conference on Science and Innovation Policy.

This Outline is intended to serve as a first basis for the elaboration of the full-scale BONUS-169 Strategic Research Agenda (SRA) during the two years Strategic Phase of the initiative (under policy option 3 through approach C). Under this policy option and in line with the new strategic and policy-driven orientation of the BONUS programme, the SRA will constitute the subject of an extensive consultation with a much broadened stakeholders community

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<sup>15</sup> BONUS publication No 10, Consultation Process for the BONUS-169 Baltic Sea Science Plan and Implementation Strategy, [http://www.bonusportal.org/files/68/Bonus\\_10\\_VerkkoPDF.pdf](http://www.bonusportal.org/files/68/Bonus_10_VerkkoPDF.pdf)

engaging all sectors with potential interactions with the Baltic Sea System and its wide range of goods and services.

To summarise, it is considered that the general principles and standards for consultation have so far been respected and that the proposed BONUS-169 initiative enjoys a very large consensus among the scientific, institutional and governmental instances as to its importance for furthering Baltic Sea region research.

However, it is quite clear that the Science Plan for an initiative like BONUS-169 must be kept a 'living' document, evolving along with the development of knowledge and scientific thinking and responsive to emerging stakeholder's needs and associated knowledge gaps. In this sense, the stakeholder consultation has been conceived and is planned as a dynamic process to be actively pursued throughout the life of the initiative. The Commission will make sure that the right mechanisms and provisions will be put in place following the implementation of the Strategic phase that would guarantee that the consultation process will be continued throughout the life of the initiative.

#### **1.4. Opinion of the Impact Assessment Board**

On 9 September 2009 the draft impact assessment report was presented to the Impact Assessment Board, a body made of high-level Commission's officials with a mandate to ensure high quality impact assessments of the Commission's most significant initiatives. In its first opinion of 11 September 2009, in addition to some "technical" comments, the Board made several substantial suggestions for improvement. In the revised version that was submitted to the Board on 21 September 2009, these comments were taken into account in the following way:

- Clearer evidence has been provided for the fragmentation of research on the Baltic Sea and to substantiate the claim that this fragmentation is an important obstacle to filling the identified knowledge gaps.
- The value added of EU action has been detailed more clearly
- The differences between this initiative compared to previous attempts to overcome research fragmentation has been further clarified.
- The ways by which this initiative will change the financing of Baltic Sea research and mobilise additional funds as a result of addressing existing duplication have been explained more clearly.
- The objectives and monitoring indicators have been revised with a view to making them more operational and to ensure their relevance with regard to monitoring needs.
- The potential impact of the preferred option on capacity building in the Member States with lower research capacities, and in particular how it would bridge the capability gap in Baltic Sea research, has been further detailed.

In its final opinion of 29 September 2009, the Board acknowledged the efforts made during the revision and gave a positive opinion. It did however make some recommendations for further improvement. In the current version of the Impact Assessment Report and in line with the recommendations of the Board the following modifications have been made:

- additional specific objectives (page 17) and indicators (page 37) have been added referring to the research integration and the reduction of the gap in research capacity between Member States
- further evidence for the research fragmentation was provided on page 11 and 12

In the absence of a similar initiative in the past by the Baltic Sea Member States to address fragmentation and enhance co-ordination in research, there has been not attempt to "scope" and "map" the baseline of the Baltic Sea System research. The first attempt to establish a baseline was undertaken by the BONUS ERA-NET through a comprehensive survey on funding of the Baltic Sea research for the year 2004<sup>16</sup>. This study being the only reference available, it has been used as such in the current IAR and this inevitably has led to comparisons of "amounts referring to different timescales" (see point 1 of the Board's opinion).

The authors of this Impact Assessment have systematically tried to provide "evidence" only when based on factual information publicly available. They have abstained from references to hypothetical figures that can not be easily defensible.

In this context, the authors find themselves unable to properly address the Board's recommendations referring to:

- "what percentage would allow for the conclusion that this research is sufficiently integrated, and further strengthen the evidence for the research fragmentation by providing concrete examples of poor coordination, duplication or insufficient capacity and of their link to the identified knowledge gaps".
- "assess the order of magnitude of additional funds, including from the EU, which would be mobilised as a result of removing existing duplication. In the absence of aggregated data/indicators, this could be illustrated by examples"

For the same reasons, the authors of the report are not in a position to "assess the order of magnitude of additional funds, including from the EU, which would be mobilised as a result of removing existing duplication", nor to predict the attitude by the Participating States regarding funding in the presence of an article 169 and hence provide any credible explanation as "to what extent providing additional (centrally coordinated) funding for Baltic Sea research could result in a reduction in the level of financing outside the joint programme".

## **2. PROBLEM DEFINITION**

### **2.1. What is the issue or problem that the initiative must address?**

The Baltic Sea is bordered by 8 EU Member States (Sweden, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, and Poland) and the Russian Federation. Moreover, Belarus, Ukraine, the Czech Republic, Slovakia and Norway are partly within the drainage basin of the Baltic Sea.

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<sup>16</sup> BONUS Publications Nr. 3, Baltic Sea Research And R&D Funding In 2004, where NCM is the Nordic Council of Ministers.

The Baltic Sea Region (BSR) represents 23% of the EU population (106 million inhabitants), whereas its aggregated GDP is 16%.<sup>17</sup>

As mentioned under section 1.1, the Baltic Sea ecosystem is seriously impacted by a combination of multiple natural and human-induced pressures which have significantly reduced the capacity of the Baltic Sea to sustainably provide the goods and services upon which humans depend, and with negative consequences for the region and for the wider European Community<sup>18</sup>. Furthermore, the poor state of the Baltic Sea environment has serious effects on the health of citizen's and ecosystems. This already critical situation risks to further deteriorate in the years to come endangering the sustainable development of the entire Baltic region and therefore sound management measures must be put in place to mitigate the impacts – both direct and indirect – of many human activities at sea and in the catchment area.

Furthermore, legislative regulations directly or indirectly related to the European waters (e.g. fish, drinking and groundwater, bathing waters, dangerous substances, shellfish, birds, habitats, sewage, nitrate, urban waste) have, since the 1990s, seen a shift towards integrated management approaches, such as the Water Framework Directive and the Marine Strategy Framework Directive.

The 2005 European Thematic Strategy on the Protection and Conservation of the Marine Environment<sup>19</sup> and the Marine Strategy Directive<sup>20</sup> – which forms the environmental pillar of the emerging integrated Maritime Policy for the European Union<sup>21</sup> – stress the importance of an ecosystem-based approach as a means to achieve the full economic potential of oceans and seas, through their sustainable use whilst conserving marine ecosystems and aims at achieving a good environmental status of the Community's marine waters by 2021. It requires Members States to cooperate wherever possible at the level of existing Regional Seas Conventions. Furthermore, the EU Maritime Policy must be based on excellence in marine research, technology and innovation.<sup>22</sup> In the 2007 Action Plan for the Baltic Sea, HELCOM Parties agreed to jointly develop, in cooperation with other relevant international bodies, large-scale, cross-sectoral, marine spatial planning principles based on the Ecosystem Approach.<sup>23</sup>

Additionally, the renewed EU Sustainable Development Strategy<sup>24</sup> aims at improving synergies and reduce trade-offs, and proposes a more integrated approach to policy making, based on better regulation and on the guiding principles for sustainable development.

The development and implementation of an ecosystem approach in the Baltic Sea necessitates a research strategy striving for a holistic, integrated, inter-disciplinary scientific approach addressing both the natural and socio-economic systems. Furthermore, such an approach must

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<sup>17</sup> IP/08/1430, Brussels, 30 September 2008

<sup>18</sup> A more extensive analysis of the State of the Baltic Sea environment as well as a list of EU Policies of key relevance to Baltic Sea can be found in Annex V and VI respectively.

<sup>19</sup> Thematic Strategy on the Protection and Conservation of the Marine Environment, COM(2005) 504 final.

<sup>20</sup> Marine Strategy Framework Directive, OJ L 164, 25.6.2008, p. 19–40.

<sup>21</sup> Communication from the Commission – An Integrated Maritime Policy for the European Union COM(2007) 575 final

<sup>22</sup> Communication from the Commission – An Integrated Maritime Policy for the European Union, COM(2007) 575 final.

<sup>23</sup> HELCOM. Baltic Sea Action Plan. HELCOM Ministerial Meeting, Krakow, Poland, 15 November, 2007.

<sup>24</sup> COM/2009/0400, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Mainstreaming sustainable development into EU policies, 2009 Review of the European Union Strategy for Sustainable Development.

strive to effectively foster the close collaboration of research communities across different geographical and disciplinary borders, including highly trained researchers (of current and future generations) and well-functioning interfaces between science and policy that allow for genuine dialogues between scientists, policy-makers and other stakeholders in order to ensure policy-relevance of the research and the rapid translation of research into policy advice at different levels (from local to regional).

Whilst there is a long tradition in Baltic Sea research cooperation with countries both within and outside the Baltic Sea area, collaborative efforts so far have lacked adequate financial resources for the optimal exploitation of the research potential due to the unequal economical and development situation in the countries as well as highly diverse national research agendas, research themes and priorities. Furthermore, international research projects and programmes implemented so far in the region have not been able to actually restructure the research fabric in the region in a more durable manner and extending beyond their life cycle, nor there has been a structured attempt to provide an effective science policy interface.

The spectrum of different forms of funding Baltic Sea research by the various countries surrounding the sea is quite broad. How the R&D funding is organised in each country is a result of each country's own historical development. Some of the Baltic Sea scientists work in governmental institutes, some in universities. Some scientists have a permanent position and a fixed monthly salary, others work for shorter periods with project based funding. In some countries, a major part of the research funding goes directly from the respective ministry budget to the research institute, and the amount of funding based on competition and peer review is small, while in other countries the situation is the opposite. The funding periods vary from one year to longer periods.

This mosaic of research funding and implementation modalities has as a result that research and development programmes, or activities undertaken by Member States individually at national level to support R&D in the Baltic Sea region, are not sufficiently coordinated at European level and do not allow for the critical mass required in strategic research and development areas to be achieved. Furthermore, the existing sector-specific research structures, which have evolved through a long history of national policies, are deeply rooted in the national governance systems and prevent the development and funding of the multi, inter and trans-disciplinary environmental research. This situation has hindered the potential to achieve research outputs of significant impact to policy making.

A comprehensive survey on funding of the Baltic Sea research for the year 2004<sup>25</sup> showed that, as shown in the figures below, out of the total funding of about EUR 52 million, around 18 million (35%) was national funding going directly and without competition to various sectorally oriented institutions and research groups; 18 million (35%) was national funding distributed nationally through competition and peer-review, and EUR 16 million (30%) originated from EU and Nordic Council of Ministers was distributed through international calls. The amount of national competition-based funding in relation to other funding forms/sources varied between 13 – 44 % in MS and was 75% in the Russian Federation. In conclusion, the survey demonstrates that only 30% of the total funding on Baltic Sea research can have an impact to trans-national integration through international calls.

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<sup>25</sup> BONUS Publications Nr. 3, Baltic Sea Research And R&D Funding In 2004, where NCM is the Nordic Council of Ministers.

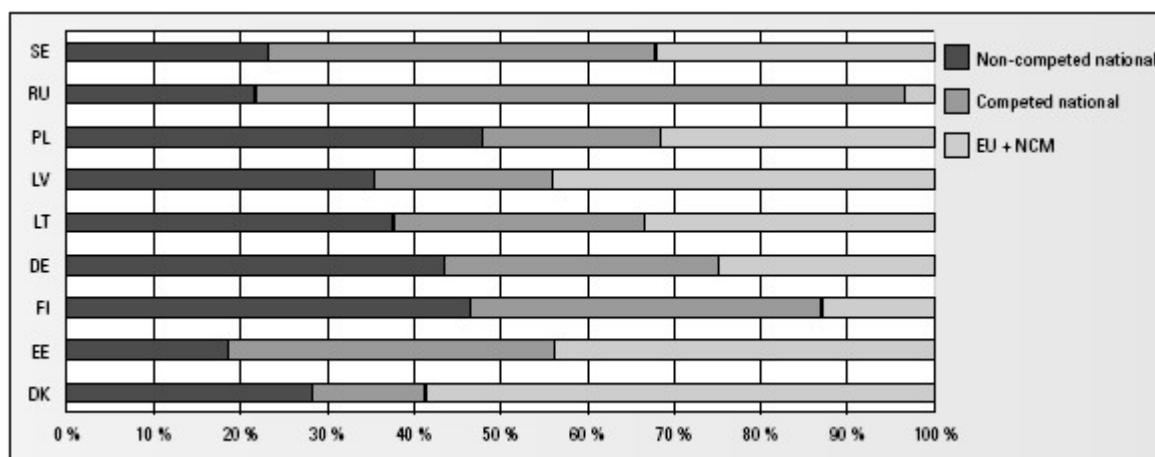


Figure: The share of Baltic Sea research funding sources in 2004, NCM= Nordic Council of Ministers

Mainly in the area of marine research, which only represents a sub-set of the Sustainable Development research, 882 research projects were carried out in 2004 in the countries surrounding the Baltic Sea. A majority, of these were funded by national sources. The two countries having most of the national projects were Poland and Finland. Regarding the EU funding in Baltic Sea research the most went to Swedish projects (4.9 M€ and 32%). In Denmark, EU funding was EUR 4.6 million and highest in percentage (about 57%) of the total funding. Of the new Member States, Latvia, Lithuania and Estonia had only a few EU-funded projects whereas the number of EU-funded projects in Poland was close to that of the old Member States.

The different economies of the countries are reflected in their funding allocation for Baltic Sea research. For the new EU Member States, a relatively high percentage of the funds is used for carrying out the monitoring and observation obligations rather than research.

Also the existing lack of co-ordination is demonstrated by the considerable variety in the priority fields. Sweden, Poland and Latvia had the largest financial input to the 'Fish biology and fisheries' research projects, whereas in Finland most of the funding was for 'Eutrophication'. In Germany, 'Climate change' was the most funded field. In Estonia, Lithuania and Russia most of the funding went to 'Basic Research'.

In line with the FP7 approach and as acknowledged in the stakeholder consultations undertaken during the BONUS ERA-NET, there is a need for policy-driven integrated research programmes in the Baltic region.

## 2.2. Drivers of the poor State of the Baltic Sea environment

The drivers of the environmental degradation in the Baltic Sea are the same as for global environmental change. Drivers can be of a social, technological, environmental, economic or technological nature.

These human drivers result in pressures due to<sup>26, 27</sup>

- Changes in land-use and cover

<sup>26</sup> Millennium Ecosystem Assessment, 2005. Ecosystems and Human Well-being: Synthesis. Island Press, Washington, DC.

<sup>27</sup> Europe's Environment. The Fourth Assessment. European Environment Agency, Copenhagen. 2007

- Industrial and infrastructure developments (including urbanisation ,tourism and transport infrastructures)
- Unsustainable harvest and resource consumption, including agriculture, fishing and fish farming
- Emissions of pollutants from industrial production, households and transport
- Climate change and acidification; Introduction and removal of species

One of the key pillars of sustainability governance is good quality scientific knowledge of the environment. Research fragmentation can be considered as an additional driver (see section 2.4), in that it weakens approaches to address the environmental challenges, and in consequence to inform policy making with high relevance to the drivers identified above. Remedying this may constitute a necessary factor for improving sustainability governance in the Baltic Sea area.

The barriers to combat fragmentation and enhance integration between the relevant national research institutions that BONUS ERA-Net identified (publication no 2<sup>28</sup>) were the following:

- lack of a durable mechanism for integration of national research funding (ca. 70% of funds are distributed through purely national sources);
- motivation level of cooperation between the funding agencies is too low to boost removing of the existing legal barriers and eliminating their internal procedural obstacles;
- no mechanism of regional integration of marine research infrastructures;
- lack of a joint Strategic Research Agenda supported by the stakeholders;
- imbalance of research capacity and available resources between the developed EU, MS, new MS and Russian Federation;
- fragmentation of Baltic Sea research funding sources at national level;

Numerous efforts have been made to address this fragmentation:

- Since the 1990s, several projects funded by the Nordic Council of Ministers have provided new platforms for the networking of scientists within and outside the Baltic Sea region.<sup>29</sup>
- An important existing regional networking forum is the Baltic Sea Science Congress which has taken place regularly since 1997 and brings together the disciplines of biology, oceanography and geology. At the Congress, "marine scientists from different disciplines can exchange the ideas and knowledge, enhance the cooperation and integrate the marine science community".<sup>30</sup>

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<sup>28</sup> BONUS Publications Nr. 2, The joint Baltic sea research programme- best practice, possibilities and barriers [http://www.bonusportal.org/files/26/Publication\\_Nr\\_2.pdf](http://www.bonusportal.org/files/26/Publication_Nr_2.pdf)

<sup>29</sup> For more information, see BONUS Publications Nr.3: Baltic Sea Research and R&D Funding in 2004, at: <http://www.bonusportal.org/modules/system/stdreq.aspx?P=663&VID=default&SID=251931988345479&S=1&A=closeall&C=27397>.

<sup>30</sup> 7th Baltic Sea Science Congress 2009, first announcement, at: [http://www.msi.ttu.ee/files/0/7th\\_Baltic\\_Sea\\_Science\\_Congress\\_First\\_Announcement.pdf](http://www.msi.ttu.ee/files/0/7th_Baltic_Sea_Science_Congress_First_Announcement.pdf)

- The "Baltic Sea System Study (BASYS)", a large targeted research project funded under the Marine Science & Technology (MAST III) programme of the 3rd EU Framework Programme, as well as other RTD marine science projects funded under successive EU Framework Programmes, though not explicitly focusing on the Baltic Sea
- The BONUS ERA-Net funded under FP6 was launched in December 2003 to strengthen the cooperation between environmental research funding agencies in the Baltic region.
- The BONUS ERA-Net+ funded under FP7 from May 2007 to January 2012 to organise and implement a joint call for research proposals.

BONUS ERA-Net was particularly successful in initiating a first communication between research funding institutions, analysing and scoping the research landscape, and developing preconditions for further integration (Series of Analytic Papers, Science Plan, Legal basis of the DIS). BONUS ERA-Net Plus, in turn, has served as a bridging measure to test these mechanisms in practice through the implementation of a EUR 22 million call, and launch some horizontal capacity-building and dissemination activities as well as preparation of BONUS-169 proposal. Following a detailed analysis by BONUS ERA-NET, the following observations were made regarding the baseline situation of the current Baltic Sea research (publication 5, 2007)<sup>31</sup>:

- (1) "Although the Baltic Sea is one of the most scientifically investigated sea areas in the world, research traditions and capability vary substantially among coastal States, and also with respect to the breadth and depth, as well as degree of development, of the various relevant science disciplines."
  1. *"The amount of data and literature concerning the chemistry, hydrography, fauna and flora of the Baltic Sea is abundant but often nationally scattered in numerous languages. Thus, studies synthesizing and combining the data and information sources across and between sub-regions of the Baltic Sea are generally scarce. A thorough exploitation of the existing knowledge is the foundation of new research."*
  2. *"Each State has tended to develop its own particular funding priorities and activities in basic and applied research independently of the other States. Thus, at an overarching level, there is a limited awareness of each other's research portfolio and how and why it is deployed. In turn, there is a lack of Baltic-wide trans-boundary research consultation, planning, coordination and concerted action necessary to provide the scientific knowledge and predictive capacity to effectively tackle the environmental challenges facing the Baltic Sea ecosystem."*
  3. *"An obvious gap in the Baltic Sea science networking is the lack of a platform for wider interdisciplinary communication which would give scientists from the natural, social, economic and other fields an opportunity to learn from each other and consider Baltic Sea environmental issues in multi-, inter- and trans-disciplinary ways."*

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<sup>31</sup> BONUS Publication No. 5, BONUS-169 Baltic Sea Science Plan and Implementation Strategy. BONUS Publications Nr. 9, [http://www.bonusportal.org/files/69/Bonus\\_9\\_VerkkoPDF.pdf](http://www.bonusportal.org/files/69/Bonus_9_VerkkoPDF.pdf) BONUS Publications Nr. 6, Identification of cooperation areas and Gaps in existing programmes, [http://www.bonusportal.org/files/29/Publication\\_Nr\\_6.pdf](http://www.bonusportal.org/files/29/Publication_Nr_6.pdf) International Publication Of Baltic Sea Science 2002-2006



Unlike efforts undertaken in the past, a new initiative must be launched aiming to address, in addition to science, also the structural deficit in the regional research system, but equally science policy and science management which hitherto has not been addressed.

### **2.3. Who is affected, in what ways?**

In view of the fact that this initiative aims to reverse the poor environmental state of the Baltic Sea region, and to enhance its "governance", integration and co-ordination in Baltic Sea research, it is mainly the science policy community, the research funding agencies and the scientific community that will be mostly affected by this initiative. The area concerned is primarily the Baltic basin, but also the rest of the European Union and neighbouring countries through sharing of existing expertise and possible exemplary value. The socio-economic impact will mostly be felt at the level of research orientation and research volume.

However, in view of the positive contribution that this initiative is expected to make to promote better environmental management and sustainable development in the Baltic Sea, it will have important consequences for the quality of life, health of citizens in Baltic States and economic consequences in neighbouring countries. Several categories of actors are effectively and potentially affected by the poor environmental state of the Sea, including in particular:

- Rural and urban populations living in the area
- Businesses and industries directly depending on the resources provided by the Sea (e.g. small and big-scale fishing industry, aquaculture industry, tourism industry)
- The businesses that indirectly depend on these resources through their connection with the former
- Citizens from other areas of the EU who place value on the sustainability of the European Union as a whole
- Ecosystems and species

### **2.4. Does the EU have the right to act – Subsidiarity, proportionality ('necessity test'), Treaty base**

As explained in section 2.1, all efforts undertaken so far were not designed to address the causes of fragmentation of research, nor the barriers to integration between the relevant national research institutions and programmes identified under section 2.2, although the need for the integration of the national Baltic Sea environmental research programmes of the surrounding States to address urgent environmental problems in the Baltic Sea and underpin sustainable development in the region is as present as ever. Furthermore, collaborative efforts so far have lacked adequate financial resources for the optimal exploitation of the research potential for better informed, knowledge-based policy making due to the unequal economical and development situation in the countries as well as highly diverse national research agendas.

The causes leading to the fragmentation and the barriers to the trans-national integration cannot be addressed by Member States acting in isolation and in the framework of their national constitutional system. Only a co-ordinated approach pooling together each country's research efforts and resources under a unified management structure would encourage the integration of National Research systems and would create the critical mass needed to address the challenges. It will also, through the publication of joint calls for proposals, the

development of shared training and educational programmes and the sharing of research infrastructure, assist in capacity building in the Member States with lower research capacities, and bridge the gap in Baltic Sea research. Finally, it would offer a constructive platform to support cross-thematic funding including, for example, projects combining natural/social/humanitarian/science.

This has been also acknowledged by the very strong political support and endorsement by the national governments of the Baltic States, the various European Councils and the European Parliament.

The rationale for EU action is to provide incentives, in the face of the trans-national environmental challenges to be addressed, for the Member States to act together to properly tackle the environmental challenges faced effectively, economically and efficiently.

Whilst alternative solutions may exist, through the setting up of inter-governmental agreements for example, as already mentioned, the administrative and legal processes which typically have to be followed under such intergovernmental schemes, would be lengthy, difficult and cumbersome and as such are not appropriate in view of the urgent environmental problems of the Baltic sea losing the right momentum for action. Furthermore, inter-governmental actions aimed at the coordination of public environmental funding in the Baltic Sea have not expanded in recent years and have not, as yet, been able to address successfully the Environmental challenges faced.

Last but not least, further to the Baltic-specific expected added-value, the initiative will inspire other European seas for development of similar research governance models.

Article 165 stipulates that "the Community and the Member States shall coordinate their research and technological development activities so as to ensure that national policies and Community policy are mutually consistent". It also allows the Commission, in close cooperation with the Member States, to "take any useful initiative" to promote such coordination.

In addition, Article 169 of the Treaty stipulates that "in implementing the multiannual Framework programme, the Community may make provision, in agreement with the Member States concerned, for participation in research and development programmes undertaken by several Member States, including participation in the structures created for the execution of those programmes."

### **3. OBJECTIVES**

#### **3.1. General policy objective**

The **general policy objective** of the current initiative is to enhance the Baltic Sea Region's research capacity to underpin the development and implementation of 'fit-for-purpose' regulations, policies and management practices, to respond effectively to the major environmental and key societal challenges the region faces and will face in the coming years and to improve the efficiency and effectiveness of the Baltic Sea Region's fragmented environmental research programming and approach by integrating the research activities in the Baltic Sea System into a durable, cooperative, interdisciplinary well integrated and focussed multi-national programme.

### 3.2. Specific objectives

The **specific objectives** of the initiative are to:

- Establish a policy-driven Strategic Research Agendas
  - Increase sustainable cross-border and cross-sectoral public research programme coordination and integration
  - Raise the research capacity level of the new EU Baltic States
  - Mobilise additional financial resources from enhanced cross-sectoral Baltic Sea system research collaboration

### 3.3. Operational objectives

The **operational objectives** of the initiative are to:

- Establish appropriate Stakeholder Consultation Platforms including representation from all relevant sectors
- Establish appropriate Implementation Modalities enabling an effective implementation of the programme through a joint management legal entity and governance structure
- Launch at least three cross-thematic, strategically focussed and multi-partner joint calls for proposals

## 4. POLICY OPTIONS

Three Policy Options are considered for meeting the general, specific and operational objectives outlined in Section 3. They are:

- Policy option 1: The continuation of policies so far developed under FP 7 (“business as usual”)
- Policy option 2: The recourse to regionally-oriented trans-thematic call(s) under the Framework Programme (FP)
- Policy option 3 - Recourse to Article 169 with three alternative approaches (A, B and C) varying in the extent and depth of the strategic orientation and the stakeholder involvement in the streamlining and implementation of the calls for proposals.
  - - Policy option 3 through approach A – Recourse to an Article 169 with a focus limited to marine research and with the immediate launching of science-driven calls for proposals
  - - Policy option 3 through approach B – Recourse to an Article 169 with a focus broadened to include the Baltic Sea drainage basin and with a Strategic vision and roadmap to be developed prior to the start of the initiative and Commission proposal

- - Policy option 3 through approach C – Recourse to an Article 169 with a focus broadened to include the Baltic Sea drainage basin and with a strategic vision and roadmap developed during the first phase of the initiative.

The difference between the three options considered lies in the way in which the Community intervention is set up, as an indirect action or a direct one, in the way underlying strategies are developed and implemented, and in the scope of the research field, exclusively marine or encompassing a basin approach. The main characteristics of each policy option are discussed in detail in the following sub-sections.

### **Policy Option 1 - The continuation of policies so far developed under FP 7 "Business as usual"**

This policy option has been considered as the baseline. It assumes that EU support for Baltic-basin oriented research will, once the currently ongoing BONUS ERA-NET PLUS project is terminated, be stopped. Continuing funding a new phase of the presently ongoing BONUS ERA-Net PLUS<sup>32</sup> would have meant a thematic re-orientation towards themes that are currently not addressed through the joint call. Such an approach would have been utterly counter-productive in as far as promotion of a holistic, integrated, inter-disciplinary scientific approach to underpin ecosystem-based management. Any EU research related support will from there on be channelled through FP 7 ecosystem-based management relevant thematic calls. These calls will address research topics of interest to all European regional seas with no explicit focus to Baltic Sea. It would be left to the Baltic Member States to decide upon further actions, if any, to further pursue and follow up achievements from the two BONUS ERA-NETs, engage appropriate financial resources to fund them and put in place appropriate governance scheme to implement them, with or without further involvement of the EEIG.

### **Policy Option 2 - The recourse to regionally-oriented trans-thematic call(s) under FP7**

For reasons of inter-comparison, this policy option is assumed to mobilise an EU contribution of the order of 50 Mio €, an amount equal to the one expected to be mobilised by policy options 3 through approaches B and C.

This policy option explores the full use of targeted Baltic Sea multi-thematic call(s) or succession of calls under FP7. The challenge presented by the complexity of the environmental degradation of the Baltic, with marine as well as catchment-basin related components, intersects several thematic priorities in FP7, in particular “Environment (including climate change)” and “Food, Agriculture and Fisheries, Biotechnology”, but also “Socio-economic sciences and Humanities”, “Energy” and “Transport”. This makes the Baltic Sea region appropriate for a regionally-oriented Trans-thematic call<sup>33</sup>. The call(s) could make use of large as well as small and medium Collaborative Research Projects in addition to Coordination and Support Actions.

### **Policy Option 3 - Recourse to Article 169**

Policy option 3 (through approaches A, B and C), supposes application of Article 169 to enable the Community to support the integration of national research programmes and it implies that the participating Member States integrate their research efforts by defining and committing themselves to a joint research programme, and that the Community goes beyond coordination of research programmes by participating actively in a voluntary integration process (scientific, management and financial).

The differences between the approaches 3A, B and C mentioned below mainly concern the extent to which the initiative addresses right from its onset a strategic vision, is policy-orientated, responsive to policy needs, embodies a basin approach and foresees clear mechanisms for a continuous and active involvement of all key stakeholders in the formulation and prioritisation of the research themes, the identification of critical gaps and the streamlining, synthesis, dissemination and uptake of the research outputs.

**Policy option 3 through approach A<sup>34</sup> - The use of Article 169 with a focus on marine science, with a strategic vision and a roadmap developed in parallel with the launching of substantive open-field calls**

This approach is based upon the original BONUS 169 Science Plan, Tentative Action Plan and Draft Strategic Research Agenda, as described in section 1.2. This Article 169 initiative would build upon progress already achieved by the previous ERA-Nets and its implementation relies entirely on calls for proposals. As it was, it met many of the objectives and boundary conditions, in particular common definition and implementation of scientific and technological activities under a joint programme, a dedicated management structure and some financial integration by centrally administering, through a virtual common pot, the cash and in kind infrastructure contributions from the Participating States (PS) amounting to a total of 36 million € to be matched by an equivalent EU contribution. However, it does not include a strategic vision and clear roadmap about how to achieve the stated goal, aims and objectives, neither it foresees pre-established mechanisms to fill any gaps in the responses. It derives from a science plan which is predominantly driven by sectoral interests of the marine scientific community rather than responsive to the needs of policy formulation and implementation in a sustainable development context. Although the initiative aimed at being a comprehensive environmental research programme, its focus was exclusively on the marine ecosystem and did not sufficiently encompass the river basins and catchments surrounding the Baltic and their influence on water quality, materials and energy inputs into the Baltic Sea System or preoccupations with the terrestrial coastal and near-coastal areas.

**Policy option 3 through approach B - The use of Article 169 with a focus broadened to the Baltic drainage basin, with a strategic vision and a roadmap developed prior to the launching of the initiative**

For reasons of inter-comparison, this policy option is assumed to mobilise an EU contribution of the order of 50 Mio € as it is assumed to be the case for policy options 2 and 3 through approaches C.

This approach would adhere to the overall scheme of Policy option 3 through approach A, but in addition it would embed, right from its onset, the following "strategic" elements:

- Include a more explicit strategic vision with clear mechanisms to develop an effective, targeted, joint research programme, achieve planned outcomes and address critical gaps
- Strengthen the involvement of stakeholders such as industry, agriculture, fisheries and certain user groups to ensure that the research is relevant to policy and management that will influence the quality, functional integrity and sustainability of the Baltic Sea ecosystem and that prioritisation of research themes is driven by implementation needs and fill gaps in current information and to develop integrated approaches to the research programme.

- A 'baseline' has been established along with measures for the effective assessment of progress of the initiative in meeting its goal and specific objectives.
- Broaden the research focus beyond the strict marine ecosystem, to embody a basin approach that addresses the key issues affecting the quality and productivity of the Baltic Sea Region ecosystems and to include research fields of crucial importance for the improvement of the state of these ecosystems and the support of sustainable development in the area<sup>35</sup>, whilst mobilising additional financial resources of approximately 14 million € (to be matched by an equivalent EU contribution), as compared to policy option 3 through approach A, from enhanced cross-sectoral Baltic Sea system research collaboration. The financial arrangements allow the development of a strong EEIG that provides dynamic leadership in developing a truly integrated, interdisciplinary research programme for the Baltic Sea, including the river basins and catchments where natural and man-induced change will affect the Baltic Sea ecosystem and the sustainable use of its resources.
- Demonstrate long-term commitment to full and durable integration of national schemes.
- Strengthen inter-basin collaboration

This Policy Option would have enabled the implementation of policy-driven calls for proposals right from the onset of the initiative. However, in the present Baltic Sea environmental research landscape the critical issues mentioned above are not in place. Establishing them and having them in place before the launching of the initiative would necessitate additional preparation time and resources. This would mean delaying the launching of the initiative until these conditions are in place which could lead to a loss of momentum due to discontinuity in the efforts made under BONUS ERA-NETS and the uncertainties regarding the future of the EEIG during this preparation period.

**Policy option 3 through approach C - The use of Article 169 with a focus broadened to the Baltic drainage basin, with a strategic vision and roadmap developed in a first phase of the programme, prior to the launching of the calls**

For reasons of inter-comparison, this policy option is assumed to mobilise an EU contribution of the order of 50 Mio € as it is assumed to be the case for policy options 2 and 3 through approaches B.

This approach adopts the main thrust of Option 3B in terms of vision, ambition and financial resources and is based on the revised BONUS 169 Outline Research Agenda (see section 1.2). It is developed to reconcile the objectives of 3B with the constraints currently present in the Baltic Sea research landscape. It takes account of the fact that under present circumstances, additional preparation and resources are needed to establish the "strategic" elements identified under 3B (and completely missing under 3A). To this end, this approach envisages two phases, namely a first strategic phase<sup>36</sup> during which all these "critical" elements mentioned under 3B would be established and put in place (as opposed to policy option 3 through

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<sup>35</sup> Article 169 initiative in the field of Baltic Sea Research. Council Decision of 19 December 2006 concerning the Specific Programme "Cooperation" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013) (2006/971/EC)

<sup>36</sup> To be closely monitored and reviewed by the Commission's services

approach B where they are supposed to be all present right from the onset), and a second phase referring to the implementation of the calls. Broadening and deepening of the stakeholder consultation will be further pursued during the strategic phase of the initiative when the detailed Science Plan and the content of the calls will be defined (as opposed to policy option 3 through approach B where the detailed Science Plan and the content of the calls has been defined from the onset). This will further enhance the strategic focus of the initiative. It supposes however, that progress from the initial, strategic, phase to the second, implementation, phase, in which the calls are formulated, relies upon and is conditional to the successful completion of the first phase. The Commission's services with the assistance of an Independent Expert Review Panel will verify whether the goals and objectives set out in the initial Strategic phase have been achieved according to the criteria spelled out in section 6.

#### **4.1. Lessons from the Van Velzen report**

In setting up the possible action under an Article 169 and providing for proper monitoring and evaluation, the lessons from the Van Velzen report have to be taken into account. One major condition for success is the existence of a true cross-European ownership, with joint programmes between the interested Member States and autonomous and well functioning pre-existing structures. More generally, Van Velzen's prerequisites set standards for any forthcoming initiative. The report sums up "Suggestions to the European Commission for new Article 169 initiatives". The most relevant van Velzen recommendations are listed below in bold and the BONUS status in italic:

##### ***Assess the performance and suitability of pre-existing common structures***

The structures are established and have been successfully tested in the BONUS-Plus ERA-NET Plus.

##### ***Require a clear joint ownership statement, a pact with long-term obligations and sanctions***

The BONUS EEIG was jointly established under BONUS ERA-NET plus and the Article 169 has been fully endorsed by the ministries from 8 Member States. Whilst all countries are somewhat limited in making long-term budget commitments due to national law, the initiative effectively switches part of the budgets already existing nationally.

##### ***Define general rules for the common funding pot or other possible national contributions***

Whilst policy options 3 through approach B and C would follow a model concerning its financial integration with a centrally-administered, real common pot with pre-defined financial commitments from each of the participating States, policy option 3 through approach A would follow a virtual common pot where contributions from PS are to be matched up by EU contribution to reimburse national participations in the projects selected for funding.

##### ***There must be pre-existing national programmes***

Pre-existing Environmental R&D programmes have existed for many years in each participating State and have been further developed and coordinated during the course of BONUS-Plus in preparation for an Article 169.

##### ***There must be available budgets, or a strong commitment to make them available***

A budget of the order of EUR 26 millions fresh money has been pledged by the participating States for all policy options 3 through approach A, B and C. An additional 14 millions Euros

will be sought by engaging additional national Funding Agencies under policy option 3 through approach B and C.

***There must be a common work-plan, objectives, milestones, sound governance;***

The basic common work plan - the BONUS-169 Action Plan and Science Plan - is in place already, and will be implemented as such under policy option 3 through approach A. A more strategically driven and policy-orientated work plan is assumed to be in place right from the onset under policy option 3 through approach B. It is assumed to be sought through active Stakeholder consultation during the initial 2-year strategic phase of the initiative under policy option 3 through approach C. To this end, the consortium has submitted informally an outline time plan for the Article 169 which foresees a two-stage approach, namely an initial strategic phase (2010-2011) and an implementation phase (2012-2016). Sound governance is already in place under all Article 169 (policy option 3 approaches A, B and C) and demonstrably working stakeholders consultation has been described in detail in section 1.3. The Commission will be formally consulted on a call-by-call basis during the implementation phase of the initiative under all article 169 policy options and will follow very closely and review the progress made during the strategic phase of the initiative under policy option 3C.

***The Article 169 entity has full control on how to spend the money***

The BONUS EEIG was already established in 2007 in order to look after the administrative activities and the implementation of the joint call of BONUS-Plus. Under the BONUS-169 initiative the BONUS EEIG will expand its role to concluding all funding contracts following the joint calls for proposals.

***There is adequate representation at a level where individuals can take decisions***

The decision-making structures have been extremely well planned (see Annex IV) and have demonstrated already that they place appropriate representation at the right levels.

***There is a clear evaluation procedure; the overall criterion is one of excellence***

This was indeed the case for the ERA-NET Plus. Independent Observer(s) that have followed the BONUS ERA-NET Plus evaluation have shown an overall satisfaction with the process. During the negotiations, the Commission's services will make sure that all comments and recommendations made by the observers will be fully incorporated into the evaluation procedures and practices for the Article 169. The Commission's negotiation position will be that the evaluation procedures should adhere as closely as possible to the approach and criteria of FP7.

## **5. LIKELY ECONOMIC, SOCIAL AND ENVIRONMENTAL IMPACTS**

The impact of Policy option 1 can not be predicted since the attitude by the PS to further pursue objectives and achievements by ERA-Nets in the absence of any EU FP funding can not be anticipated. However, it is highly unlikely that without a EU's catalysing action, a considerable action towards improving the status of the Baltic Sea research system will be undertaken through a proper initiative by the Participating States.

Policy options 2 and 3A, B and C, by simply adding a considerable and centrally co-ordinated amount of "fresh" money into research in the Baltic Region are expected to have a positive contribution to:



- The creation of new jobs for researchers, post-docs and PhD scholars through the implementation of new projects. creation of a strong and well consolidated Baltic Sea System scientific community with an enhanced international "visibility" and recognition and internationally competitive should world-wide;
- Enhancing expertise and capacity through training activities for all PS
- Assisting other economic sectors such as maritime infrastructure, mining, and windmill parks, transport, fishing, oil, gas and telecommunication companies to adopt more environmentally friendly, ecosystem based, operations
- Assisting Member States to implement knowledge-based and science-informed environmental policies
- Assisting SMEs and private companies to become more competitive and raise their "in-house" knowledge and expertise by being part of the research efforts

Policy option 3 through approaches A, B and C are expected to have major positive impact in improving the efficacy of the Baltic Sea Region's and reducing fragmentation in the Baltic Sea Region's environmental research system through enhanced co-operation at the scientific as well institutional (national funding agencies) level.

Policy options 2 and 3 through approaches A, B and C will provide a significant (and durable) means to increase involvement of the "transition" countries (Poland, Estonia, Latvia, Lithuania) in international projects thus assist these countries in raising their overall quality of research, since according to a bibliometric analysis of publications on Baltic Sea Science<sup>37</sup>, there is a strong correlation between the level of international collaboration and quality of research, the "transition" countries currently having weaker involvement in international research projects as compared to the 'developed' countries of the Region (Germany, Finland, Sweden, Denmark)<sup>38</sup>. It is to be noted that the current BONUS+ projects involve in average five different countries and out of the 16 currently funded projects, 13 of them involve participations from 'transition' countries.

Policy option 3 through approaches B and C would allow for a re-distribution of EU-funds being pooled together with national funds in a 'common pot' to be administered by a joint management structure (EEIG), entirely on the basis of scientific excellence and without any national concerns and biases. This will also enhance the alignment of national and Community funding for development of research programmes in a more coordinated manner.

On the basis of the experience with the joint call organised under BONUS ERA-Net+, 'transition countries' (and particularly Estonia and Poland) received significant additional funding on top of what was committed by their national sources. One can therefore assume that through policy option 2 and 3 A, B and C, there will be greater benefits for the transition countries in the Baltic region as compared to their national contributions to the initiative. Under policy option 2 such possibilities will be smaller due to the smaller national

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<sup>37</sup> BONUS Publications Nr. 9, International Publication Of Baltic Sea Science 2002-2006 [http://www.bonusportal.org/files/69/Bonus\\_9\\_VerkkoPDF.pdf](http://www.bonusportal.org/files/69/Bonus_9_VerkkoPDF.pdf)

<sup>38</sup> BONUS Publications Nr. 6, Identification of cooperation areas and Gaps in existing programmes, [http://www.bonusportal.org/files/29/Publication\\_Nr.\\_6.pdf](http://www.bonusportal.org/files/29/Publication_Nr._6.pdf)

contributions this policy is likely to mobilise in line with the Framework Programme participation rules regarding "own resources" from the project beneficiaries<sup>39</sup>.

Policy option 3 through approaches A, B and C will enhance significantly the visibility of Baltic Sea System research in the Participating States and particularly in the 'transition' countries because of the "ownership" of the initiative by the latter States and the consequent closer interactions with the local and regional actors, unlike policy option 2 which is being run and managed by the European Commission and as such will be more distant from local and regional actors.

Policy option 3 through approaches A, B and C is expected to have strong leverage effects by "injecting" and additional 36 (for option 3A) to 50 million (for policy options B and C) "fresh" money through contributions by all participating States, money that would not have otherwise been mobilised. Such leverage effects can not be expected from policy option 2 due to smaller "own resources" from beneficiaries expected under FP 7 rules.

Policy options 2 and 3 through approaches A, B and C will allow for a better access to scientists to sophisticated and sometimes extremely expensive infrastructures and this represents a significant capacity-building benefit to scientists, particularly from 'transition' countries. Policy option 3 through approaches A, B and C have a much higher probability than policy option 2 that research results will be better streamlined and thus taken up by stakeholders because of the possibility to have large and "institutionalised" through the programme stakeholders platforms managed by the DIS. Such possibility can not be implemented by scientific consortia under FP projects (policy option 2).

Unlike policy option 2, policy option 3 through approaches A, B and C can make a far reaching restructuring in the governance of the Baltic Sea Region's environmental research system due to the pivotal role that the dedicated implementation structure (DIS) will be entrusted to play in administering centrally the Community as well as the national contributions. Such a new governance model once tested and validated following implementation of this policy option, can serve as a new paradigm for implementing similar initiatives in the other regional seas of the European Union.

A detailed description of the likely impact per policy option is presented below.

### **Policy Option 1 – The continuation of policies so far developed under FP 7 (“business as usual”)**

With the collapse of the former Soviet Union, there has been increased cooperation and collaboration between the new Member States, such as Latvia and Lithuania and other Baltic Sea states such as Sweden and Finland in conducting fundamental and applied research on the Baltic ecosystem. Actions undertaken by the EEIG under ERA-NET and the ERA-NET Plus have contributed to strengthening such collaboration and the development of new cooperative research initiatives. One of the obstacles to greater collaboration is however the limited funding available for Baltic Sea research in some of the new Member States, although this situation has improved through the opening of opportunities for new and innovative research under the FP6 and FP 7 programmes to the former Soviet states.

The impact of this policy option, however, is difficult to predict, since the willingness of the PS to engage substantial financial resources to further pursue the integration of national

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<sup>39</sup> In the Framework Programme, own resources from beneficiaries varies from 25 to 50% depending on their status (Universities, SMEs, private companies)

research programmes in the absence of EU funding following the achievements by the two ERA-Nets is questionable.

There would be a danger that advances in promoting more coordinated research among the Baltic Sea states achieved under the EEIG will not evolve, and the EEIG may lose momentum and develop into a loose network of individual research groups with research priorities. This would hamper the development of inter-disciplinary competences and the corresponding ability to integrate natural science and social science outputs into information of direct utility for users, including policy makers and natural resources development agencies.

### **Policy Option 2 - The recourse to regionally-oriented trans-thematic call(s) under FP**

Through Cross Thematic Call(s) and Coordinated Actions targeted to the Baltic Sea, it would be possible to develop and implement a policy driven research agenda and roadmap that would meet the needs of a broad range of stakeholders and end users in the Baltic region. Although this option could build on the ERA-NET, there is no guarantee that the use of the FP research call(s) would secure the active involvement of the EEIG and the further pursuance of the “structural” integration among the funding agencies achieved under the previously funded ERA-NETs. This policy option could indeed promote circumstantial integration of the research partners with no guarantee that this integration will be sustained in the absence of FP. Also, there will be no “ownership” by the Member States and it is not evident that it would tap upon and establish synergies with nationally funded environmental research programmes. This would limit the amount of co-ordinated research that could be conducted. Due to its failure to mobilise financial resources of equivalent size from the PS as the policy option 3 through approach A and even more significantly through approach B and C are expected to do. It would most likely result in a significantly smaller research effort. Hence it would be less likely to address the very significant environmental challenges identified and the stated objectives of the initiative under consideration. This approach would also result in loss of momentum and lack of continuity in the progress achieved through the BONUS ERA-NETs.

### **Policy option 3 through approach A - The use of Article 169 with a focus on marine science, with a strategic vision and a roadmap developed in parallel with the launching of substantive open-field calls**

This option offers the potential for a number of positive benefits that could improve the environment in the Baltic. Under this option, no new institutions would be required as there is a dedicated research programme and network of major national funding agencies with a clear Baltic Sea marine research focus. The role of the EEIG in the network provides opportunities for stronger international cooperation and potential for concerted research efforts and inter-basin exchanges of information and experience. The EEIG and the preparatory work carried out within the frame of the ERA-NET and ERA-NET Plus provide an opportunity to improve the efficiency of allocation and application of available resources to better address emerging environmental issues. However, due to the missing “strategic” elements that are mentioned under section 4, the potential positive impact of this option would be rather limited. Relying primarily on ad-hoc calls for proposals, lacking an overarching research development strategy with no mechanisms to ensure active stakeholder participation, there is no guarantee that the calls for research proposals or at least the ones to be published whilst these mechanisms are still not in place would be responsive to the needs for information to better support policy formulation and implementation in the Baltic Sea and that the research and policy outputs would help to address cross-boundary, trans national issues. Because of these limitations, it would not be possible to develop a more comprehensive understanding of how the Baltic ecosystem responds to natural and anthropogenic pressures and there would be limited

opportunities to attune national research strategies to priority issues affecting the Baltic environment so as to meet the objectives of the Water Framework Directive, Marine and Maritime Research Strategy and Maritime Policy and sustainable development objectives at both a Baltic region scale and at a wider inter-basin and/or regional seas scale. The potential contribution of this option on a Europe-wide level could be limited due to a lack of potential links with other river basins and regional seas within Europe. There is also a serious risk that presenting this option as a comprehensive environmental research programme could lead member States to reduce their national funding under the misconception that the Article 169 initiative would cover all research needs entirely. Expected integration will also have a significant contribution in raising the capacity level of some of the new EU Baltic States in marine science.

**Policy option 3 through approach B - The use of Article 169 with a focus broadened to the Baltic drainage basin, with a strategic vision and a roadmap developed prior to the launching of the initiative**

This Policy Option would build upon progress already achieved through previous ERA-NETs and would provide a major stimulus in developing a truly integrated research programme endowed with substantial additional financial resources and harness the competences within an effective network of scientists, policy makers, development planners, and resources managers for the Baltic Sea Region. It would provide a strong base for developing tighter integration of the research efforts and more efficient use of resources in the Member States in addressing policy issues and strategic environmental, social and economic objectives. It gives a good chance of a policy driven programme with a clear vision and roadmap. The quality and volume of research and its direct applicability to policy implementation are expected to be enhanced due to strengthening of integration. This policy option will be predominantly policy-driven rather than science-driven. Therefore, it foresees channels through which the results of research will be translated into policy formulation and implementation (as policy option 3A). The impact on the Baltic Sea status biological diversity, conservation of the natural and cultural heritage, ecosystem services, environmental quality, human health and quality of life, sustainability of economic activities associated with fisheries, coastal exploitation, agriculture, marine and coastal biotechnologies, tourism, recreation and transport will be considerable. However, it is fair to say that due to absence of similar blueprint of integration at the European, and indeed at the international level, there is no factual evidence to support that the integration of national research schemes will, per se, result in an enhanced environmental impact. The socio-economic impacts will be mostly felt at the level of strengthening the integration of research efforts, which is likely to improve cost effectiveness (see also section 7). The groups most concerned will be the people who live on or near the shores of the Baltic, both in rural and in urban areas, fishermen, farmers, foresters, naturalists, and tourists due to better informed policy making. The region primarily concerned is of course the Baltic. This option carries a potentially very high European added value for the entire Union since it can serve as a new blueprint for organising environmental research to address the environmental problems of the other European regional seas. Expected integration will also have a significant contribution in raising the capacity level of some of the new EU Baltic States. However this option assumes that certain critical issues clearly identified under section 4 have been addressed prior to the launching of the initiative and this is not the case in the present Baltic Sea environmental research landscape. Establishing them and having them in place before the launching of the initiative would necessitate additional time and resources. This would mean delaying the launching of the initiative until these conditions are in place which could lead to a loss of momentum in efforts already made under BONUS ERA-NETS. These uncertainties are thus limiting the potential impact of this option.

### **Policy option 3 through approach C - The use of Article 169 with a focus broadened to the Baltic drainage basin, with a strategic vision and roadmap developed in a first phase of the programme, prior to the launching of the calls**

This option supposes that all conditions underlined under policy option 3 through approach B that are critical for the success of the initiative are addressed via a two-stage approach. As such, in addition to a potential impact identical as for policy option 3 through approach B, it would allow for continuity and maintenance of the momentum developed by the BONUS consortium through the ERA-NETs and as such it has the potential to make full and effective use of the funding that could be provided should an Article 169 be approved. Indeed, the adoption of a two staged approach set out in the revised initiative- “Strategic” and “Implementation” - provides opportunities for developing and implementing appropriate intergovernmental accords, allows for completion of the steps required to ensure full stakeholder participation in identification of research priorities and the formulation of integrated research programmes to be implemented through policy-oriented calls for proposals. With appropriate funding, the EEIG can be strengthened and has the potential to provide dynamic leadership in developing a comprehensive and world class integrated research programme. This can provide a robust basis for examining the environmental, social and economic factors that influence the sustainable use of the natural coastal and marine systems of the Baltic. Through its involvement in the management bodies of the initiative, the Commission will retain a strong orientation and priority setting power through the design of calls. The “Two-Stage” approach also allows the European Commission the opportunity to review and verify whether the goals and objectives set out for the initial Strategic phase and assess readiness of the initiative to pass to the subsequent implementation have been achieved before engaging investments for the implementation phase. A set of Indicators and Measures for assessing progress towards meeting the objectives of the “Strategic” phase under this Policy Option are set in Section 6.

#### **5.1. Effect of changes in parameters on impacts**

Policy option 1 foresees no further Community intervention to address the identified objectives. As said already, the risk is that the EEIG may lose momentum or cease to exist. In this case the efforts and investments made so far through ERA-NETs will no longer continue and the Baltic research governance will return to what it was before.

Policy option 2 would be implemented by the European Commission who would define and implement the research agenda under FP7. Therefore, no changes in the relevant parameters are expected.

Under policy option 3 through approaches A, B and C, there might be changes in the composition of the EEIG with some of the current funding agencies. This will mean that the corresponding research programmes and efforts funded by the withdrawing funding agencies will be taken away and this will inevitably undermine somehow the impact of this initiative in proportion to the withdrawn components. However, policy option 3 through approach C foresees, among others, efforts during the strategic phase to involve additional funding agencies for an equivalent amount of approximately 14 million Euros. This amount, after being matched by the EU contribution, will increase quite significantly the total budget to the initiative and benefits of the integration will touch a much broader institutional structure and scientific community.

Clearly, environmental and socio-economic parameters are likely to evolve over time because of changes in climate, land use, human behaviour, human perceptions and technologies, as well as the development of new environmental hazards. Policy options 3 through approach B

and C will provide the best guarantees and possibilities for adoption, modification or redirection in response to these changes since they will include mechanisms to anticipate and monitor these changes and to adapt to them. Policy options 1, 2 and 3A approach are less adaptive in this respect since they do not foresee such mechanisms.

## **5.2. Potential obstacles and risks**

No potential obstacles and risks are envisaged under policy option 1, the latter having no related Baltic specific financial implications for the EU.

It is assumed that all policy options 3 (through approach A, B and C) would effectively address all recommendations made in the Van Velzen report. This will secure an optimal implementation of an article 169. The only exception is for option 3 through approach A adopting a virtual common pot instead of a real one.

A potential risk, valid for all policy options, is that the outcomes of the research would not be sufficiently taken into account by policy makers and therefore the investments made in the context of this initiative will not be fully valorised. This however is unavoidable, since environmental management is and will always be part of a democratic decision making process that seeks to address in a satisfactory manner the socio-economic interests and stakes with due regard to the environmental issues.

A potential obstacle, common to all wide-ranging regionally-focused research initiatives, and thus to policy options 3A, B and C, is the absence of the required expertise or interest. This could undermine the impact of the initiative in adequately addressing some of the identified problems. However, both policy options 2 and 3 address this issue by providing full openness to participation by research partners from the entire Union, the emphasis being given to the scientific excellence irrespectively of national or regional bias.

In principle the following potential risks could be envisaged as associated to policy options 3A, B and C:

- Failure by the Member States to fulfil the financial and political commitments regarding their participation in the Article 169. This risk however appears not so likely to occur in view of the preparatory work during the BONUS ERA-NET and BONUS ERA-NET-PLUS and the written commitments by the responsible Ministers (see section 1.2).
- Risk linked to the DIS and its capacity to implement an Article 169. This risk is mitigated to a large extent by the fact that the BONUS EEIG has already implemented the BONUS ERA-Net Plus project successfully. In addition, the ex-ante audit of the DIS prior to the launching of the initiative will ensure that all necessary conditions are in place for a successful implementation of the BONUS-169.
- A possible obstacle to an appropriate and justified use of Article 169 is for the integrated part of research to remain a small fraction of the research being conducted in the area and to lack visibility outside the scientific community. The possibility for such a risk to materialise is however very small if one is to compare the 72-100 M that BONUS-169 initiative is expected to mobilise (EU and national contributions pooled together), with the 36 million of total national funding (see section 2.1) allocated to Baltic research in 2004.

More specifically, risks associated to policy option 3 B and C could be related to:

- If efforts to engage additional sectoral funding agencies (currently anticipated of the order of EUR 14 M) would fail. Whilst engaging sectoral funding agencies will be a big achievement of the initiative since it will break long-standing traditions and tap upon national resources (equivalent to 35% of the total national funding in the region-see section 2.1) that are canalised directly and without competition to various sectorally oriented institutions and research group, failing to do so will simply mean that this component of the research system in the Baltic will not be impacted through this initiative and the current status quo in the region for this component will remain whilst the rest of the system will be significantly impacted.

More specifically, risks associated to the strategic phase of policy option 3C could be related to:

- Possible failure by the consortium to put in place the appropriate mechanisms and achieve the set milestones and deliverables during the first "strategic" phase of the implementation. If such a risk is materialised, either the consortium could be provided additional time for addressing satisfactorily the expected milestones through use of "own" resources or the Community will abstain from funding the implementation phase of the initiative. In the latter case the total loss for the Community will only be EUR 1.25 million, i.e. the EU contribution for the funding of the strategic phase of the initiative.
- Political pressure during the review of the strategic phase by government(s) involved in the Article 169 to influence its outcome. However, the Commission should guarantee a fully transparent review process by inviting internationally renowned independent reviewers to make their assessment on the basis of a number of appropriately selected indicators.

## 6. COMPARING THE OPTIONS

### 6.1. Comparing the impacts of the different Options

The table below summarises the analysis above and shows how policy option 2 and policy option 3 through approaches A, B and C compare in terms of positive impact of a Community action in relation to the defined general, specific and operational objectives. An analysis of the potential Impacts of Policy option 1 (Continuation of policies so far developed under FP 7, business as usual) is not included in the table given that this option forms the baseline. These scores are made relating to the baseline scenario (Policy option 1-Continuation of policies so far developed under FP 7, business as usual) which is considered as zero. The comparison illustrates that the impact of policy option 3 through approach C is the most significant.

#### Overview of potential impacts of the Policy Options

Potential Impact of the defined objectives :	Option 2	Option 3 A	Option 3 B	Option 3 C
<b>GENERAL OBJECTIVE</b>				
Enhance the Baltic Sea Region's research capacity to underpin the development and implementation of 'fit-for-purpose' regulations, policies and management practices, to respond effectively to the major environmental and key	Medium	Medium	High	Very High

societal challenges the region faces and will face in the coming years and to improve the efficiency and effectiveness of the Baltic Sea Region's fragmented environmental research programming and approach by integrating the research activities in the Baltic Sea System into a durable, cooperative, interdisciplinary well integrated and focussed multi-national programme.				
<b>SPECIFIC OBJECTIVES</b>				
Establish a policy-driven Strategic Research Agenda	<b>Very Low</b>	<b>Very Low</b>	<b>High</b>	<b>Very High</b>
Increase sustainable cross-border and cross-sectoral public research programme coordination and integration	<b>Medium</b>	<b>High</b>	<b>High</b>	<b>Very High</b>
Raise the research capacity level of the new EU Baltic States	<b>High</b>	<b>High</b>	<b>High</b>	<b>High</b>
Mobilise additional financial resources from enhanced cross-sectoral Baltic Sea system research collaboration	<b>Low</b>	<b>Low</b>	<b>High</b>	<b>Very High</b>
<b>OPERATIONAL OBJECTIVES</b>				
Establish appropriate Stakeholder Consultation Platforms including representation from all relevant sectors	<b>Low</b>	<b>Medium</b>	<b>High</b>	<b>Very High</b>
Establish appropriate Implementation Modalities enabling an effective implementation of the programme through a joint management legal entity and governance structure	<b>Low</b>	<b>Low</b>	<b>High</b>	<b>Very High</b>
Launch at least three cross-thematic, strategically focussed and multi-partner joint calls for proposals	<b>Medium</b>	<b>Medium</b>	<b>High</b>	<b>Very High</b>

## 6.2. Summary of the advantages and disadvantages for each Policy Option

A brief analysis of the advantages and disadvantages of each Policy Option is presented in the table below. Policy Option 1 (Continuation of policies so far developed under FP 7, business as usual) has not been analysed as it forms the baseline scenario.

### Advantages and disadvantages of the Policy Options

Option	Advantages	Disadvantages
<b>Option 2</b>  The recourse to regionally-oriented trans-thematic call(s) under FP	Multiple options for funding.  EU policies and the FP7 research programme would form the basis for developing a vision for stronger coordination of research on priority issues affecting the sustainable development of the Baltic Sea Basin; Reduced need for new research delivery institutions; Effective and targeted use of EU funding; Integration with other research themes	MS role in leading research and hence enhances ownership of the research programme would be reduced; Obstacles that hinder a reduction in research fragmentation would not be addressed in a sustainable way; Openness of system may not increase; In the absence of a coherent, integrated, long-term strategic research approach there is a risk that individual projects may not yield information that can be integrated to support policies and management actions to address critical environmental issues; Reduced opportunities to create a



Option	Advantages	Disadvantages
	of FP7 will be easier; Intrinsic integration with EU policies and stakeholder requirements; Potential European level added value for other regional seas and associated drainage basins.	sustainable critical mass; Risk of duplication due to multiple actions; Lower levels of integration across disciplines. No guarantee that there will be substantive integration of national agencies and therefore sustainability of integration of research among MS in the absence of EU funding is questionable. Momentum and progress achieved through the Bonus initiative may be lost. No guarantee that the gulf between the “new” Baltic States and the more established ones would be reduced.
<b>Policy option 3 through approach A</b>  The use of Article 169 with a focus on marine science, with a strategic vision and a roadmap developed in parallel with the launching of substantive open-field calls	No new institutionalisation; Dedicated programme with clear Baltic Sea thematic focus; Will be more accessible for associated marine research groups; Provides opportunities to focus on emerging environmental issues.  Maintains momentum and builds upon advances achieved under ERA-NET. Rationalisation of research in some countries; improved use of FP resources.	Development of strategic vision in parallel would not ensure effective prioritisation of research effort and resource allocation in respect to Article 169 objectives; with no clear policy-orientation; reduced potential for understanding the Baltic ecosystem and establishing a cause-effect relationship between drivers and impacts to mainstream research findings to other policy domains due to lack of conceptual framework incorporating inputs from catchments surrounding the Baltic. No joining up or coordination of all best potential in Baltic Region to tackle sustainable development issues; Science driven, not policy driven; Reliance on response to call for proposals that do not appear to be linked to vision or priorities; Lower levels of integration; strengthening of institutional capacities and human resources slower and more heterogeneous; Gulf between larger and smaller partners could grow; Lack of emphasis given to inter-basin transfer of knowledge
<b>Policy option 3 through approach B</b>  The use of Article 169 with a focus broadened to the Baltic drainage basin, with a strategic vision and a roadmap developed prior to the launching of the initiative;	Broadened conceptual framework that would allow integration of critical environmental, social and economic factors that influence the health, productivity of marine and coastal systems, and potential sustainable use of resources. Potential strengthening of research efforts to address priority issues; rationalisation of research in some countries; improved use of FP resources.  EU policies would be better taken into account in developing a strategic vision and establishing research priority issues affecting the sustainable development of the Baltic Sea Basin; EU political buy in – support to EU policy making;; Opportunities for new funding institutions to join in and support EU and MS research objectives supporting broader integration of research addressing cross-sectoral end user needs, enhancing ownership of the research programme, and helping ensure effective use and uptake of results Improvements in trans-disciplinary research supports improved policy and resource management arrangements for sustainable use of the Baltic Sea system across a wide array of economic sectors; Long term programming to address policy issues through concerted Baltic Sea and Drainage Basin research; Attuning national research strategies to European strengths and competences; Obstacles that hinder a reduction in research fragmentation would be addressed; Financial leverage by mobilising additional resources from enhanced cross-sectoral Baltic Sea system research collaboration; Enhanced linkages with stakeholders and end user could strengthen uptake of research outputs; Critical mass in research effort; Mainstreaming integrated, interdisciplinary research to other policy domains; Alignment to industries; Ability to deal with trans-boundary issues; Implementation of EU regulations; Reduce duplication of research efforts; Better conditions for cross-fertilisation between people, institutions, countries. A stronger common Baltic Sea System research community voice. High potential for reducing the gaps between larger and smaller partners; New emphasis given to catchment and sea interactions and potential for inter-basin transfer of knowledge.	Will take time and there will be need for additional resources to implement appropriate intergovernmental accords and structures and linkages with industry and other stakeholders and users that would facilitate integrated research programmes The time to “maturity” will break the continuity and hinder the maintenance of momentum and the capitalisation upon the advances achieved under BONUS ERA-NETs
<b>Policy option 3 through approach C:</b>	Idem as policy option 3 through approach B with additional advantages entailed by the two staged approach- “Strategic” and “Implementation” that would allow continuity and maintenance of the momentum	There are no major perceived disadvantages. However, the success of this option will depend to a large degree on the successful implementation of the strategic phase. This will need to be examined carefully by the EC.

Option	Advantages	Disadvantages
The use of Article 169 with a focus broadened to the Baltic drainage basin, with a strategic vision and roadmap developed in a first phase of the programme, prior to the launching of the calls.	developed by the Bonus consortium and further capitalisation on advances achieved under BONUS ERANET. Through the involvement in the management bodies of the initiative, the Commission will retain a strong orientation and priority setting power through the design of calls.	

### 6.3. The Preferred Option

Based on the above review of potential Policy Options, Policy option 3 through approach C could, if fully developed, lead to substantive improvement of the research capacity in the Baltic region to better underpin sustainable development in the area.

Policy option 3 through approach C provides additional time and resources for establishing the necessary mechanisms that would bring the Article 169 initiative more closely in line with the letter and the spirit of Article 169, would create a platform for joint EU and Member State research programming, thus creating a coherent and long term research agenda with critical mass. Through the involvement in the management bodies of the initiative, the active participation of the European Commission can safeguard an emphasis on mobility, openness and a focus on emerging areas. The combination of EU and national funds creates a critical mass in terms of capacity, expertise and resources that would stimulate structural changes in the national Baltic Sea and related river basin research systems and would promote the development and implementation of a durable, cooperative, interdisciplinary well integrated and focussed multi-national programme in support of the region's sustainable development. The linkages with industry and other stakeholders and users would be strengthened at national level. This option would not require substantial institutional change as the EEIG is well established; however, it would open up opportunities for other funding institutions to provide support in financing the Road Map for strategic research that would benefit a wider community of economic and social interests that depend upon resources derived from the Baltic System. It is the most promising policy option in terms of achieving long-lasting and durable integration at the institutional (funding agencies) as well as research community level.

Policy Option 3 through approach C could be effective in the application of the intent and spirit of Article 169 and has strong potential for gaining added value from other complementary research activities funded under FP6 and FP7. Its success, however, relies heavily upon the achievement of the objectives of the strategic phase. To affirm this achievement, a review of the strategic phase will be undertaken by the Commission's services together with an Independent Expert Review Committee in order to verify whether the goals and objectives set out in the initial Strategic phase have been achieved.

The extra amount of resources that this option would mobilise for the Baltic sea research of the order of 100 million (EU and national contributions pooled together) to be channelled through the DIS instead of being distributed randomly through various national calls over the 5-year period (7 year period for policy option 3C) is expected to make a considerable impact in terms of achieving unprecedented "critical mass" in the system. Its sheer size compares very favourably to the 36 million total national contributions in 2004 to fund "competitive" and "no-competitive" research (see section 2.1). This rather large significant increase in resources, complemented by the "qualitative" structural changes that this policy option is

expected to bring to the overall Baltic sea research system, provides some guarantees as to the unquestionable potential of this policy option to achieve the general, specific and operational objectives set out for this initiative.

## **7. EX-ANTE EVALUATION AND COST-EFFECTIVENESS ANALYSIS**

Policy options 2 and 3 B and C assume an EU contribution of the order of EUR 50 million. Policy option 3A assumes an EU contribution of EUR 36 million.

Although there is not an explicit EU contribution under policy option 1, implicitly and in the absence of any Community-driven, Baltic-specific initiative under FP7, the "liberated" 36-50 million will be spent to fund other RTD projects and other regular FP activities.

Under Policy options 1 and 2, own resources to be mobilised from the participating research institutes vary between 25 – 50 % of the EU contribution depending on their status<sup>40</sup>.

Under policy option 3A, B and C a financial commitment of the order of EUR 26M fresh money has been pledged by the Participating States together with additional "in-kind" and "infrastructure" contributions of EUR 10M. Under policy option 3 B and C and unlike policy option 3A, an additional funding of the order of EUR 14M will be sought from the Participating States by engaging further national Funding Agencies during the strategic phase of the initiative. Projects to be implemented under the Article 169 initiative will be funded by a shared financial contribution by both the Community and the Participating States. The EC would match the contributions made to the BONUS-169 by the Participating States and this sharing will be done according to a ceiling to be fixed in the Commission proposal for a co-decision.

Under policy option 3 through approach C and unlike policy options 2, 3A and 3B, a maximum of 1.25 million Euros (to be matched by an equal amount by the PS) out of the total EU contribution will be provided to cover the eligible costs incurred during the strategic phase. This amount will be subtracted from the total EU contribution. This amount will however enhance the cost-effectiveness of this option since the strategic "mechanisms" to be put in place will greatly enhance the added value of the initiative and will strengthen considerably the policy relevance, effectiveness and impact of the research activities envisaged under the implementation phase.

The demand for Commission's staff to ensure the scientific monitoring of the project(s) will be identical for all policy options, namely at least one AD 8-12 full-time Programme Officer, although with the expected EU contribution of 36-50 million Euro, five to ten RTD projects will, most likely, be funded under policy option 1 and 2 as opposed to a single Article 169 under policy option 3 A, B, C. However, experience with other Articles 169 shows that, whilst there will be less workload for the Commission's staff for everyday scientific monitoring of the Article 169, there will be much more demand for the processing of the legal procedures and for tasks related to communication (replies to questions from EP and Council, briefings to Commissionaire, Director General etc) because of the high visibility and political sensitivity inherent in these initiatives.

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<sup>40</sup> Guidance to Financial Issues relating to FP7 Indirect actions  
[ftp://ftp.cordis.europa.eu/pub/fp7/docs/financialguide\\_en.pdf](ftp://ftp.cordis.europa.eu/pub/fp7/docs/financialguide_en.pdf)

Under option 3 A, B and C however, there would be lower demand for Financial Officer to follow up the initiative in view of the fact that the management will mostly be done by the DIS of the Article 169. Therefore, the equivalent of half-time AD 8-12 for a Financial Officer will be required under option 3 A, B and C, instead of one AD 8-12 full-time Financial Officer under policy option 1 and 2.

Instead, an estimated amount of 5 M€ in total is foreseen by the DIS for covering all costs for the programme management. This amount will be shared by EU and Participating States according to a percentage to be fixed in the Commission decision, which will be considered as a ceiling to be respected by the DIS. This figure, approximately 5 % of the total programme cost, represents a very good value for the implementation of such an ambitious international joint research programme<sup>41</sup>.

Unavoidably, the assessment of the expected cost-effectiveness of the various policy options and the quantification of the role of region-wide coordination of marine and maritime research is associated with remarkable uncertainty. In addition there is no similar blueprint in the EU or indeed worldwide to use as a benchmark for inter-comparison. As the ultimate product of such an initiative is new knowledge utilized to achieve sustainable use of the goods and services generated by the marine ecosystem and protecting the quality of the environment in longer perspective, it is anticipated but without any hard evidence to prove it, that co-ordination and integration of national schemes that are envisaged to be addressed (to a varying degree of success) by policy option 3 through approaches A, B and C will be the more cost-effective way to achieve better quality knowledge in terms of reliability, comprehensiveness and relevance to the needs formulated by the users.

Furthermore, building on existing programmes, infrastructures and experiences and taking stock of the achievements made through the previously funded BONUS ERA-NET and BONUS ERA-NET PLUS projects and implementing integrated research activities would promote synergies, optimise the use of new investments, avoid duplication of efforts and facilitate optimal trans-national use by the Baltic Sea scientific community of a large number of, sometimes extremely expensive, environmental research infrastructures, including marine research vessels. This will lead to more integrated, synthesized and robust research "outputs" that would be more readily available to be up-taken by the policy domain. In contrast, whilst policy option 2 might well achieve new knowledge and research quality of an equally high standard as policy option 3 through approaches A, B and C, this policy option would not benefit from the solid basis regarding "institutional" integration that would allow a high level of integration (scientific, management and financial) and synergies that the former ones are likely to yield.

From the above analysis, policy option 3 through approach C also represents the option with the highest impact and cost-effectiveness and efficiency.

Also the role of science in the protection of the Baltic Sea environment and sustainable use of its resources may be generalized as providing knowledge and decision support instruments enabling policy-makers and economic practitioners to find and apply the most cost-efficient solutions and mitigation measures.

### **Financial integration and role of BONUS EEIG**

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<sup>41</sup> To be born in mind that under the 6th Framework programme, the Commission would consider management costs up to 7 % of total project costs as refundable at 100 %

Projects to be implemented under the Article 169 initiative will be funded by a shared financial contribution by both the Community and the Participating States. The administration of the Joint Research Programme will be managed centrally by the DIS according to common implementation and contractual rules. This approach demonstrates the absence of any "re-nationalisation" of Community funds. The Community Contribution will be managed centrally by the DIS and will be directly provided to final research beneficiaries participating in research projects. This *modus operandi* assures full transparency concerning the use of the Community contribution and contributes to the protection of the Community financial interest.

Under Policy Option 2, no formal role would be given to DIS and no scientific, managerial or financial integration would be achieved. Clearly the impact on existing national programmes will be minor and no long term perspective concerning research coordination can be expected.

Other issues illustrating efficiency and cost-effectiveness of the chosen approach are raised in section 4. Many lessons learned from the EDCTP implementation have and will be taken into account during the preparation and the negotiations of the initiative.

## **8. MONITORING AND EVALUATION**

The preferred option (policy option 3 through approach C) foresees a BONUS-169 initiative implemented in two distinct phases - A first, 2-year strategic phase and a second 5-year implementation phase during which a minimum of 3 calls for proposals will be published.

In addition to the ex-ante evaluation of the DIS that will be carried out prior to the beginning of the Implementation Phase according to the Financial Regulation, the evaluation and monitoring of the BONUS initiative will be conducted by the Commission together with the assistance of independent experts. Three reviews will be conducted; a first review at the end of the strategic phase, a mid-term review during the implementation phase and an ex-post review at the end of the implementation phase. The Commission will evaluate the progress made towards each of the general, specific and operational objectives using a list of measurable indicators indicated below. The three planned independent reviews shall be complete and thorough and, with regard to the first review carried out at the end of the strategic phase, enable an informed decision regarding the progress of the initiative into the implementation phase to be taken. The result of these three reviews could be published by the Commission. It should be noted that the main impacts of the initiative are expected to take place mainly towards the end of the BONUS programme.

Each review will consider the relevant indicators detailed below and will comprise a thorough assessment of those objectives that cannot be represented by one or more simple indicators. Such a process will allow the intrinsic complexity of objectives and risks, which span across scientific, societal, economic and environmental dimensions and which are also influenced by factors that are beyond the control of the initiative, to be fully taken into account. This review process will include both recordable integration indicators and qualitative progress indicators. The following indicators could be used for monitoring the initiative and would be assessed in line with the proposed objectives.

### **Indicators at the level of the general objective:**

- The development and implementation of 'fit-for-purpose' regulations and policies and management practices aimed at safeguarding the sustainable use of the ecosystem's goods and services.

- The degree to which the initiative contributes to the establishment and structuring of the ERA in the Baltic Sea Region (e.g. increase in the percentage of the total funding going through the DIS)
- The sustainability potential of the structures, mechanisms and procedures in place for guiding and managing research to underpin a sustainable development in the Baltic Sea region (e.g. decisions made by the PS to prolong the existence of the DIS)
- Active collaboration between the regional environmental research programmes and the relevant science communities in the other European sea basins is taking place

**Indicators at the level of the specific and operational objectives:**

- Strategic Research Agenda (scientific content of the programme focusing on the calls for proposals);
- Setting-up of appropriate Stakeholder Consultation Platforms and mechanisms to promote active involvement of stakeholders
- Establishment of Implementation Modalities: legal and financial rules, appropriateness of human resources of the DIS and communication modalities.
- Number of joint researcher-stakeholder workshops for jointly identifying problems and knowledge gaps and for formulating pertinent research questions. Additional national funding brought in by including new funding agencies
- A list of all infrastructures and their availability potential for use by the funded projects
- Number of international, national and regional stakeholder events organised and number of participants and sectors represented
- Number of BONUS-driven joint events/cooperation activities/partnerships with non-Baltic research actors and other European basins
- Number of working days spent by scientists from other national institutes on research vessels or shared use of other major infrastructures and the number of research infrastructures jointly used in BONUS-funded projects
- Number of peer-reviewed publications arising from the Bonus Initiative and jointly-funded BONUS research projects with authors from, at least, two different participating States
- Number of peer-reviewed publications arising from the Bonus Initiative with authors from the new Baltic Member States
- Number of common databases, merging existing and new data from the entire Baltic Sea System, that are openly accessible and would allow comparative analysis and synthesis

- Number of international, national and regional communication, dissemination and public outreach initiatives to disseminate BONUS-specific research results
- Number of post-graduate courses and students participating in them organised by BONUS-169 projects
- Number of SMEs and private companies per MS participating in BONUS projects
- Number of BONUS-related mobility grants implemented
- Total number of PhDs and post-docs funded by BONUS projects and/or supervised by institutes from other, than native, participating Member States
- Total number of researchers and research organisations involved in BONUS projects by age class, seniority and gender