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SPECIFICATION

ESPON Applied Research Project [2013/3/3]

ESPON DATABASE AND DATA DEVELOPMENT – Phase II
(2011-2014)

(o) Territorial challenges relevant for ESPON 2013 projects

The development of the European territory is facing several ongoing mega trends and impacts of policies:

- The integration of the EU in global economic competition is accelerating, offering more options for regions and larger territories in deciding on their development path as development is no longer a zero sum game for Europe.
- Interaction is growing between the EU territory and the surrounding neighbour countries as well as the other parts of the world, becoming apparent by e.g. migration pressure on more developed countries, which are themselves confronted with population decline and by access to and investment in new markets.
- Market forces and the evolution of society in general are supporting a geographical concentration of activities.
- The ongoing demographic change with an ageing European population and migration is affecting the regions differently and boosts the competition for skilled labour.
- The occurrence of hazards is increasing due to climate change while different parts of Europe experience different types of hazards.
- Increasing energy prices and the emergence of a new energy paradigm have significant territorial impacts, some regions being more affected than others, some of which have particular potential for production of renewable energy sources.
- The enlargement of the EU to 27 Member States, and at a later stage maybe to more, presents an unprecedented challenge for the competitiveness and internal cohesion of the Union.

ESPON results have revealed that territorial capital and opportunities for development are inherent in the regional diversity that is a characteristic of Europe. Consequently, different types of territories are endowed with diverse combinations of resources, putting them into different positions for contributing to the achievement of the Lisbon and Gothenburg Agendas, the Europe 2020 Strategy as well as to EU Cohesion Policy. Territorial diversity, particularly in the economic base, implies that strategies other than opting for a knowledge-based economy might be more appropriate and viable for some regions.

The ESPON 2006 Programme provided integrated analysis and long term spatial scenarios which enriched the European policy debate and knowledge base. The results and observations produced by ESPON on territorial structures, trends, perspectives and assessment of EU policy impacts had not been fully evident before and supported a better understanding of the European dimension of territorial dynamics. Therefore, interest is growing among policy makers and practitioners for the information, knowledge and understanding ESPON can offer.

The ESPON 2013 Programme shall bring this knowledge base one step further by carrying out applied research and targeted analysis, indicator development and data collection, capitalisation events presenting results, etc. All these actions will be related to an improved understanding of territorial structures, development trends, perspectives and policy impacts.

The European-wide evidence provided by the ESPON 2007-2013 Programme will potentially benefit stakeholders all over Europe at all levels. Policy makers dealing with territorial development require sound evidence and comparable regionalised information as well as medium and long-term development perspectives in order to draw up sustainable and efficient integrated policy responses for their territories.

All in all, the European process moves towards a more integrated approach to policy making which makes the territorial dimension important for policy makers. The aim of territorial cohesion included in the Treaty supports this approach by taking the territory as an element in the framework for policy making. Due to its provision of evidence based on analyses of territorial units the ESPON 2013 Programme is of strategic importance for the European policy development and cooperation.

By further extending and deepening the existing knowledge and indicators, the ESPON 2013 Programme will play a strategic role in supporting the policy process of the current period 2007-2013 and contributing to the development of Cohesion Policy beyond 2013.

(i) General objectives of applied research projects under Priority 3

The general objectives of applied research projects within the ESPON 2013 Programme are the following:

- Contribute to the consolidation of the scientific platform of the ESPON 2013 Programme and to the territorial knowledge base needed for informed policy formulation and application
- Ensure data, territorial indicators and tools that are usable for policy makers and practitioners at all administrative levels
- Respond to needs for public access to the ESPON data and tools
- Ensure availability of comparable and robust regional (and urban) data at as detailed geographical scale as possible as well as statistical quality control and data validation

- Ensure that European standards for spatial referencing and storage of data are respected (such as applying the ETRS1989 standard and the Inspire Directive).
- Support a concrete application and use of data for policy, strategy and planning processes, including tools and techniques for forecasting and modelling
- Continuously provide an updated basis for monitoring and assessing territorial development trends in relation to territorial policy objectives at European level based on relevant territorial indicators/indices.

This project shall contribute to these general objectives during its implementation, and in doing so make best use of existing ESPON results, new results in other ESPON projects as well as other research results and relevant studies.

(ii) Relation of this project to the ESPON 2013 Programme

The priorities describing the work-programme of the ESPON 2013 Programme are structured in four strands:

1. **Applied research on territorial development, competitiveness and cohesion: Evidence on European territorial trends, perspectives and policy impacts**
   The applied research projects will opt for information and evidence on territorial potentials and challenges focusing on opportunities for success for the development of regions. Cross thematic applied research will be a major activity integrating existing thematic analysis and adding future analysis of new themes. Territorial impact studies of EU policies will be another focus under this priority.

2. **Targeted analysis based on user demand: European perspective to development of different types of territories**
   This priority responds to a clear demand of practitioners for user and demand driven actions within the ESPON 2013 Programme. By convening an analytical process where ESPON findings are integrated with more detailed information and practical know-how, new understanding of future development potentials and challenges may arise, which could be transformed into projects and actions.

3. **Scientific platform and tools: Territorial indicators and data, analytical tools and scientific support**
   The scientific platform and analytical tools built up within the ESPON 2006 Programme will be maintained and further expanded. New actions shall be undertaken to develop current achievements and make use of the indicators, data and tools.

4. **Capitalisation, ownership and participation: Capacity building, dialogue and networking**
   Under this priority, actions are foreseen that will be aiming at making the evidence and knowledge developed operational through measures raising awareness and involving stakeholders in the results and their practical use.

This project belongs to the third priority and holds a key position in the ESPON 2013 Programme as the scientific platform and analytical tools represent core elements of the ESPON knowledge base.

This project will cover the implementation for the period 2011-2014.

The project is considered as a follow up of the Project "ESPON Database and Data Development" aimed at further designing, structuring and building the ESPON 2013 Database. Comparable data and indicators for regions and cities throughout Europe is one of the particular challenges for European applied territorial research. Collection, harmonisation and estimation of robust data is therefore an essential part of all ESPON projects conducted within the ESPON 2013 Programme. This means that a strong and continuous coordination between this ESPON project and the other actions under Priority 1, 2 and 3 is needed, as well as a close contact with the ESPON Coordination Unit.

The aim of this project is to make available multiple updated versions of the ESPON Database during the timeline of the project and a solid and comprehensive ESPON Database by the end of ESPON 2013, including inputs provided by all ESPON projects.

iii) Thematic scope and context

The main aim of the ESPON 2013 Programme is to increase the general body of knowledge about territorial structures, trends, perspectives and policy impacts in an enlarging European Union. In this context, the relevance of being able to deal with and to produce comparable and reliable datasets at different geographical levels is of highest importance. Furthermore, the process of building a European research community in territorial development and planning, in which the ESPON Programme is fully engaged, calls for the development of comparable and reliable European datasets that can support (applied) research projects and policy decisions at a European level.

For ESPON, the database is considered a central element in the scientific platform and a tool providing input for analysis based on territorial indicators as well as for a continuous territorial monitoring. In fact, on the one hand, the majority of projects within the ESPON Programme cannot be conducted without a sound database with comparable information. And on the other hand, the scientific platform cannot improve without input of new European wide information on regions and cities and on different aggregated territories including case study areas approached in other ESPON projects.

The ESPON Database Project (Phase II) is a central element in the triad of the ESPON actions under the Scientific Platform, i.e. Data, Indicators and Monitoring. In this context it should continue working on the integration of data from ESPON 2013 projects under Priority 1 and 2 but at the same time establish a close link with ESPON projects under Priority 3 in order to create mutual support within the projects in this ESPON triad and give the necessary inputs for an ESPON project on Territorial Monitoring System envisaged to start late 2011.

Taking as starting point the achievements of the Project "ESPON Database and Data Development" (Phase I) and the results and discussions from the ongoing ESPON Project on "Territorial Indicators and Indices" (INTERCO), this project shall maintain, update, develop and further expand the ESPON 2013 Database. The current ESPON

2013 Database Application, which can be found on the ESPON website[1], is based on PostgreSQL and contains 2 databases: the ESPON database itself and a back office. The ESPON database itself has a simple structure to be able to answer queries fast. The back office is more complex and is created to achieve long term data integration. More information on this can be found in the Draft Technical Report "ESPON Database Application: Towards a web interface for the ESPON 2013 Database" [2].

The EC Initiative, the INSPIRE Directive[3] which "aims at making available relevant, harmonised and quality geographic information for the purpose of formulation, implementation, monitoring and evaluation of Community policy-making"[4], should be fully respected.

The further development of the ESPON Database shall respect European data standards and ensure comparability of the ESPON Database with other geo-referenced European datasets. There is a need for further development of the work done within ESPON 2006 and ESPON 2013 on the database in relation to these issues.

iv) General objectives

In general, the ESPON 2013 Database shall supply different users (ESPON community and general public), including researchers, policy makers and stakeholders at regional and local level, with data, indicators and (visualisation) tools in the field of European territorial development and cohesion needed for policy formulation, application and monitoring at different geographical levels. By doing this, the ESPON 2013 Database shall contribute to better understanding the territorial structures and the situation and trends (past, present and if possible future) of different types of European territories in relation to the various geographical contexts (from local to global) and within a large variety of themes.

The ESPON Database Project Phase I has put substantial emphasis on the database design and structure. This ESPON project (Phase II) should mainly focus on the delivery of operational results and outputs during the project timeline, based on the research activities and findings from the ESPON Database Project (Phase I). In particular it should be able to provide different users, from stakeholders to researchers, a comprehensive, accurate, reliable and updated database (and related tools) for territorial analysis.

This ESPON project shall build on the results of the ESPON Database Project (Phase I) and maintain, improve and manage a geo-referenced information system within the ESPON 2013 Programme. This database is meant to be accessible to researchers, policy makers and practitioners from all administrative levels as well as the general public via the ESPON website.

[1] See: http://www.espon.eu/main/Menu_ScientificTools/ESPON2013Database/

[2] See: http://www.espon.eu/main/Menu_Projects/Menu_ScientificPlatform/espondatabase2013.html

[3] Directive2007/2/EC.

[4] http://www.ec-gis.org/inspire/

To achieve the general objectives described above the following main domains are to be considered:

1. Data storage: Database design following the four basic dimensions; Ensuring a continuous updated database; Data quality control; Integration of data and metadata delivered by all ESPON projects, including local data and data from other sources.
2. Data diffusion: A user-friendly interface via the ESPON website; Easy accessibility of data via various types of queries; Development of a visualisation tool; Data accessibility in compliance with the INSPIRE recommendations; Enlarging visibility of the Database itself.
3. Time series: Reconstruction of time series of the most important indicators and data and estimation of missing values; Presentation of time series data via various types of visualisation techniques.
4. Various geographical objects: Integration of data for various geographical objects, such as grids, NUTS, cities, functional areas at different scales and networks; Conversion from grid to NUTS data and vice-versa.
5. Support: Efficient data and information flow within the ESPON 2013 network; Cooperation with the ESPON web service provider; Updating of the Map Kit tool; Supporting the ESPON CU; External networking.

Within these domains the aims of the ESPON 2013 Programme, the ESPON themes and the covering of different geographies (5 level approach: from local to global) should always be taken into consideration.

As part of the ESPON triad under the Scientific Platform, this ESPON project should be developed in close cooperation with the ongoing project on "Territorial Indicators and Indices" (INTERCO) by providing the necessary inputs and by integrating its results. It is in particular important to ensure the integration and maintenance of the indicators and indices developed by the INTERCO Project in the ESPON 2013 Database, and in addition, to support the development of a future ESPON project on "Territorial Monitoring" by providing an updated, accurate and reliable database.

v) Main activities during project implementation

This ESPON project, to be implemented during 20011-2014, shall be based on a clear planning with relation to its objectives and actions for the maintenance of the current ESPON 2013 database and future updates and improvements. In practical terms this means that the project should focus in first instance on the integration of high quality data and indicators for regional analysis into the ESPON 2013 Database. Research activities for refining the architecture and structure of the Database itself should be only a second focus.

In addition, the project should foresee networking activities within the ESPON Programme (in particular with projects from Priority 1, 2 and 3) and with other key players at European and international level producing regional data in the field of territorial development. In this context it is relevant to consider ESPON as an integrated actor of the European statistical system.

To achieve the aims and objectives described above, the project should plan various types of activities to be implemented for the period 2011-2014. The following main categories are being identified for the implementation of this project and described in more detail in the remainder of this section:

1. Data storage
2. Data diffusion
3. Time series
4. Geographical objects
5. Supporting activities
6. Research on selected topics
7. Overall time planning
8. Operational delivery of outputs

1. Data storage

The following issues concerning data storage should be addressed within the overall planning and description of activities:

a) How to ensure a continuous updated, accurate and reliable ESPON 2013 Database? It is important that the ESPON 2013 Database will integrate quickly and continuously data from all ESPON projects (Priority 1, 2 and 3) and harmonized datasets from different sources relevant for the analysis of the territorial trends and dynamics in European regions and its cities. Regarding the integration of data from other sources, the project should try to avoid duplicating information already available in other sources. Special attention should be given to procedures to respect copyright and intellectual property rights in relation to data and databases included in the ESPON database.[5]

b) How can the automation of quality control and outlier detection be integrated in the ESPON Database? Based on the work developed in the ESPON Database Project (Phase I), this project should implement an outlier handling approach to decide how outliers are handled – removed, edited, imputed, and methods for dealing with exceptional values.

c) How to ensure that local data from different sources and in particular from ESPON projects under Priority 2 are integrated into the ESPON Database even though they may not cover the entire ESPON territory? Shall a selection be made of relevant indicators/datasets covering the entire ESPON territory at local level (LAU 1 and LAU 2)? Regarding this issue, it should be taken into consideration that a LAU 2 database only with factual information about the LAU spatial units was made available by the ESPON Database project (Phase I). This database should be considered as a frame for integrating the results of the Priority 2 Projects. At the same time, this database could be one of the necessary steps taken in order to enlarge geographic knowledge at local scales of analysis.

d) How to enlarge the data collection for the European neighbourhood? For this activity the project should consider to update and collect basic indicators for

[5] During ESPON 2006 Programme a *database license agreement* was developed which can be provided under request to info.espon@espon.eu

Eastern and Southern Neighborhood and also to develop a data collection in other geographical dimensions (cities and flows).

e) How can samples of individual data (such as the labour force survey from ESTAT) be integrated for in depth analysis of certain phenomena at European level?

f) How to ensure the four basic dimensions? The current ESPON Database design is developed using the following four basic dimensions: spatial scale, different data sources, time series and thematic fields. These four dimensions should also be taken into consideration in the database development during this project.

2. Data diffusion

The following issues concerning data diffusion should be addressed within the overall planning and description of activities:

a) How to ensure a user friendly interface? The project should keep in mind that the ESPON database is aimed at different types of users (policy makers, practitioners at different levels, policy makers, researchers ...) and includes different geographical objects, time frames and geographical scales.

b) How to ensure a simple way of querying data for various types of end users? It is important to provide to different users the discovery, visualization and access of ESPON data on cross-cutting topics. This interdisciplinary approach to applied research is driven by policy demand and therefore it represents a major opportunity to underline the importance of defining appropriate themes, subthemes and potential keywords that could improve search engine rankings. Considering that ESPON data will expand considerably it is important to organise concepts that could be used as keywords to refine search queries. Regarding this issue, the methodology developed by the ESPON Database Project (Phase I) could be further developed. Moreover, data query should also be possible by different objects (cities, regions), by themes and by years of reference. It is important to provide the user with qualitative information on the quality of the data and possible weaknesses of the ESPON Database (e.g. by introducing a system with flags from different colours).

c) How can visualisation tools be integrated in the ESPON database? Inspired by open source software available and used by European institutions and international organisations, such as the OECD eXplorer, this project should offer the ESPON database users the possibility to create, visualise and save maps and graphs from selected datasets available in the ESPON 2013 database. The integration of grid data with socio-economic data, as well as time series should be considered. The visualisation tool should be integrated in the ESPON database or directly linked to the ESPON database. The tool should also include basic operations of spatial analysis providing the users the possibility to analyse datasets, analyse possible relations between datasets and to observe time developments. The interface of the tool should be simple and easy to use by the different type of users: policy makers, practitioners, stakeholders and researchers working at different geographical levels.

d) How to ensure compliance with European and international standards for spatial referencing and storage of data? This holds in particular with the INSPIRE

recommendations for Network Services supporting View, Discovery and Download functions. In practical terms this means that the public access of the ESPON 2013 Database should be prepared for several ways of interaction: discovery service, view service and download service, in accordance with the aforementioned specification principles.

e) How can the visibility and accessibility of the ESPON Database itself be improved? Access to the ESPON Database should not only be considered through a Web query interface, but also via direct integration of the data into third party applications, including spatial data portals. This would allow the content of the ESPON database to be directly integrated into third party applications, including spatial data portals. First a SWOT analysis should clarify this aspect and provide the ESPON CU with the pros and cons of the different possibilities. After that, in consultation with the ESPON CU, one of these possibilities should be implemented.

3. Time series

The following issues concerning time series should be addressed within the overall planning and description of activities:

a) How to implement the automation of time series data harmonization? This requires the integration of a dictionary of changes in a data model. A conceptual approach is required to accomplish this task. Besides the dictionary of changes, the model has to integrate estimation methods able to complete missing values. The main objective of this automation is to enable the user, via the query interface, to retrieve datasets with complete temporal series by choosing/selecting a version of nuts and one or more dates. This functionality should allow the user to have a prospective or a retrospective vision of a given phenomena. Regarding this issue, the methodology developed by the ESPON Database Project (Phase I) implemented on the NUTS could be extended to other spatial scales and other geographic objects. In particular the extension to cities and land use should be considered.

b) How to visualise time series data? Various visualisation techniques, integrated in the database, should give the user the possibility to better observe time developments of time series data.

4. Geographical objects

The following issues concerning geographical objects should be addressed within the overall planning and description of activities:

a) How to ensure the seamless integration of different types of data? At the moment the ESPON Database only contains data at NUTS levels ranging from 0 to 3. The most important issues to consider from the data management point of view are:

- integration of raster data in the ESPON database,
- integration of local data in the ESPON database,
- integration of urban data in the ESPON database, and
- integration of data on flows and networks.

b) How to develop the use of grid/raster data in ESPON research for a better integration of social and environmental dimensions with socio-economic indicators?

c) How to develop an integrated ESPON urban database that could for instance allow the delineation of functional areas in Europe?

5. Supporting activities

The following activities concerning networking and support of ESPON projects and the ESPON CU should be addressed within the overall planning and description of activities:

a) How to ensure an efficient data and information flow within ESPON 2013? How can the ESPON Database Project continue giving guidance and recommendations to ongoing ESPON projects in relation to data and metadata issues, building up indicators, data quality control and integration of data into the ESPON database? How to ensure that updates of the database are timely available to ESPON projects? The project shall also continue and facilitate the integration of relevant datasets into ESPON tools being developed within the ESPON Programme, such as the ESPON HyperAtlas. Furthermore, as part of the ESPON Triad under the Scientific Platform the project should develop a close relation with the ongoing INTERCO project and the future project on "Territorial Monitoring".

b) How to ensure an efficient updating of the ESPON 2013 Database at the ESPON website? The project should develop a close cooperation with the ESPON website service provider to be able to efficiently integrate new versions of the database in the ESPON website.

c) How to ensure that updates of the Map Kit tool are timely available for ESPON projects? The so called ESPON Map Kit tool includes the latest information in relation to administrative boundaries and respective codes aimed at producing European maps conform the ESPON Corporate Identity. The ESPON Map Kit tool should be compatible with the ESPON 2013 Database and consider not only the specificity and diversity of the ESPON territory (EU 27 plus Switzerland, Iceland, Liechtenstein and Norway) but also Europe and the candidate countries, Europe and its neighbouring countries and Europe in the world (including the smallest territorial units and according to ESPON MC decisions on this respect). The project should, during its time-line, provide ESPON projects (priority 1, 2 and 3 projects) with updated versions of the ESPON Map Kit tool.

d) How can the ESPON Database Project contribute to make ESPON an integrated actor of the European statistical system? Regarding this issue, it is important to continue and enhance the cooperation and dialogue with European and international organisations and to ensure that ESPON metadata is freely visible to the general public, even if some datasets may be subject to restrictions. Sharing metadata is necessary according to INSPIRE directive and it is clearly a crucial way for a better awareness of ESPON work toward external organisations. The TPG is expected, in coordination with the ESPON CU, to exchange experiences with the INSPIRE team. Travel budget for participating in at least two INSPIRE meetings should be included.

e) How to support the ESPON CU in promoting the use and visibility of ESPON data. This can include specific questions related to ESPON reports, ESPON

publications, press releases, presentations, etc. But also on how to secure the possibility of updating and completing the ESPON 2013 Database in the future (beyond 2014)? Addressing this latter issue should support the ESPON CU to ensure continuity in providing the ESPON stakeholders with a sound database with comparable information on regions and cities.

6. Research on selected topics with practical application for the ESPON 2013 Database

In line with the activities presented under the categories 1, 3 and 4, and based on the results achieved so far, this ESPON project should further investigate and implement concrete actions on the ESPON 2013 Database in the short term on the following topics:

a) Integration and management of local data into the ESPON 2013 Database

b) Automation of data quality control and exceptional values

c) Applicability of samples of individual data for an in depth analysis of selected phenomena.

d) Automation of times series data harmonisation

e) Integration of grid data with socio-economic indicators

f) Integration of urban databases and networking/accessibility data

g) Combination of data of different types and sources

These topics should be applied as much as possible by considering a wide range of themes and covering at least the entire ESPON territory. On the basis of the research carried out on the topics above the project should strive to integrate and deliver operational results that could be integrated in the ESPON 2013 Database. Moreover, the topics should also be covered in technical reports describing the research done and the integration made.

7. Overall time planning

Considering as starting point the current ESPON 2013 Database, the overall time planning needs to integrate the following elements:

a) Definition of activities taking into account the issues, activities and questions raised above, the geography covered by the ESPON 2013 Programme, the specificities of the territory, the main topics in relation to territorial development analysis and the latest policy developments in this field.

b) Identification and selection of priorities, resolution of problems and definition of delimitations together with the ESPON CU.

c) Presentation of a proposal for maintenance and continuous updating of the ESPON 2013 Database, taking into account the outputs delivered by all ESPON 2013 Projects (see activity (*v*)5.b).

d) Presentation of a proposal for maintenance and continuous updating of the ESPON Map Kit tool for Priority 1 and 2 projects (see activity (*v*)5.c).

e) Internal networking: Presentation of a proposal for management of the data flow within ESPON, for support of the Transnational Project Groups and for ensuring strong cooperation with the ESPON Coordination Unit (see activity (*v*)5.a).

f) External networking: cooperation and dialogue with European and international organisations such as EUROSTAT, EEA, JRC, OECD and the UN should lead to increased exchange of data and experiences (see activity (*v*)5.d).

8. Operational delivery of outputs

Throughout the time-line of the project, the project will have to perform statistical validation of data sets delivered by other ESPON projects, update the database with data and indicators, deliver data and maps for ESPON publications, provide database related support to the ESPON CU and integrate selected harmonised datasets from various sources relevant for the ESPON programme (such as EUROSTAT, ...) in the ESPON 2013 Database.

This recurrent task is presumed to demand a substantial allocation of resources throughout the project implementation and should comprehend the following activities:

a) Regular delivery of an updated version of the ESPON 2013 Database to the ESPON CU and the ESPON website service provider according to the agreed proposal for maintenance and continuous updating of the ESPON 2013 Database (at least 2 updates per year to be delivered before each ESPON Seminar).

b) Regular delivery of an updated inventory of available data (statistical and geographical) for the ESPON programme should be made and provided to the ESPON CU (at least 2 times per year to be delivered before each ESPON Seminar).

c) Continued guidance and recommendations to ongoing ESPON projects in relation to data and metadata issues, building up indicators, data quality control, outlier detection and integration of data into the ESPON database.

d) Implementation of regular updating procedures in relation to maintenance and continuous updating of the ESPON Map Kit tool for Priority 1 and 2 projects according to the agreed proposal.

e) Special support upon request from the ESPON CU related to ESPON reports, ESPON publications, press releases, presentations, etc.

f) SWOT analysis of the various possibilities to improve the visibility and accessibility of the ESPON Database and as a second step the implementation of one of these options.

g) Proposal on how to ensure the updating and maintenance of the ESPON 2013 Database in the future (beyond 2014).

(vi) Expected results and timetable

This project is envisaged to last until 2014. The implementation of the project for 2011-2014 shall include a flexible approach to the individual work packages proposed where frequent contact meetings (mainly by phone) jointly with the ESPON CU will define

short term deliveries, clarify open questions and adjust the work plan according to the development the ESPON 2013 programme implementation and timetable.

The project is supposed to follow, as far as possible, a timetable and specifications of outputs as presented below:

Continuous/ongoing outputs:
The project should deliver, as described in more detail in category (*v*)8, the following ongoing outputs:

- Regular delivery of an updated version of the ESPON 2013 Database (cf. activity (*v*)8.a).
- Regular delivery of an updated inventory of available data (cf. activity (*v*)8.b).
- Continued guidance and recommendations to ongoing ESPON Projects (cf. activity (*v*)8.c).
- Regular delivery of an updated version of the ESPON Map Kit tool (cf. activity (*v*)8.d).
- Special support upon request from the ESPON CU related to ESPON reports, publications, press releases, presentations, etc. (cf. activity (*v*)8.e).

June 2011 (Inception Report):

- Detailed description of the project, taking into account the objectives envisaged, the ESPON space and the geography to be covered by the ESPON 2013 Database and including the identification of priorities, resolution of problems and definition of delimitations (see activity (*v*)7.b).
- Presentation of a strategic overview of all activities and an overall time planning as described in category (*v*)7.
- Presentation of a separate table including a detailed timetable of the various project deliveries listed under (*v*)8.
- Proposal for a visualisation tool to be integrated in the ESPON 2013 Database (see activity (*v*)2.c)
- Description of a procedure with a time table to keep the database in the ESPON 2013 website up to date.
- Work plan until the 1st Interim Report.

June 2012 (1st Interim Report):

- Delivery and implementation of the visualisation tool proposed incorporated or directly linked to the ESPON 2013 Database
- Results and proposals for the activities on data storage, data diffusion, time series and geographical objects (see categories (*v*)1 to (*v*)4)
- Results and proposals for practical application in the ESPON 2013 Database of the research activities developed (cf. category (*v*)6)
- SWOT analysis on the possibility to develop geographic Web services for publication of the ESPON data (cf. category (*v*)8.f).
- Short reporting of the networking activities, both planned and realised, at internal (with ESPON 2013 projects) and external level (with European and international organisations with relevant data for ESPON) (cf. category (*v*)5).
- Work plan until 2nd Interim Report.

June 2013 (2nd Interim Report)

- Reporting on the experiences and improvements implemented in the ESPON 2013 Database, including the reporting on the data flow within ESPON and the networking and cooperation activities with other European and international organisations relevant for the ESPON context.
- Experiences and improvements implemented in the visualisation tool incorporated or directly linked to the ESPON 2013 Database,
- Implementation of the proposals presented on all activities mentioned in the 1st Interim Report (and cf. category (*v*)1 to (*v*)4 and (*v*)6)
- Implementation of one of the possibilities resulting from the SWOT analysis and in consultation with the ESPON CU improve the visibility and accessibility of the ESPON Database (cf. activity (*v*)8.f)
- Draft technical reports on the activities listed in category (*v*)6.
- Proposal on how to ensure the updating and maintenance of the ESPON 2013 Database in the future (beyond 2014) (cf. activity (*v*)8.g).
- Work plan until Final report

June 2014 (Draft Final Report):

- Experiences and improvements implemented in the ESPON 2013 Database, including the reporting on the data flow within ESPON and the networking and cooperation activities with other European and international organisations relevant for the ESPON context.
- Draft final documentation of the evolution of the ESPON 2013 Database during 2011-2014, including the source coding related to the ESPON 2013 Database. It is the obligation of the Lead Partner to transfer the source coding of the ESPON 2013 Database (and its property rights) to the ESPON 2013 Programme[6].

December 2014 (Final Report)

- Final documentation of all aspects of the evolution of the ESPON 2013 Database and the visualisation tools developed
- Final delivery of the ESPON 2013 Database and respective documentation

(vii) Budget

The maximum budget foreseen for this project amounts to € 1.300.000 including VAT, if applicable. Proposals exceeding this value will not be considered.

All real eligible costs incurred for carrying out the approved project will be refunded 100% by the ESPON 2013 Programme.

(viii) Existing access points

The access points listed below can serve the purpose of providing the TPG useful information for preparing a proposal. It is by no means meant to be exhaustive, but

[6] In case of termination of the contract (cf. § 10 of the subsidy contract), the Lead Partner is immediately obliged to transfer the source coding of the ESPON 2013 Database to the ESPON Coordination Unit in order to ensure the future development and maintenance of the afore-mentioned database.

should be considered as information that can be helpful in tracing additional useful background information.

- ESPON 2013 Project 2013/3/1 “ESPON Database and Data development” (2008-2011)
  - Current ESPON 2013 Database: http://www.espon.eu/main/Menu_ScientificTools/ESPON2013Database
  - Results of the project so far: http://www.espon.eu/main/Menu_Projects/Menu_ScientificPlatform/espondatabase2013.html
- ESPON Project 2013/3/2 “Territorial Indicators and Indices” (2010-2012)
- ESPON 2013 Typology Compilation (2008-2009)
- ESPON Project 3.1 “Integrated tools for European Spatial Development”, Part C on New tools and instruments for European spatial analysis
- ESPON Project 3.2 “Spatial Scenarios and Orientations in relation to the ESDP and Cohesion Policy”, volume 6 on General scientific coordination of ESPON and Handbook for data collection, harmonisation and quality control
- ESPON 3.4.1 “The Modifiable Areas Unit Problem”
- EUROSTAT - http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1090,30070682,1090_33076576&_dad=portal&_schema=PORTAL
- GMES – Global Monitoring for Environment and Security - http://www.gmes.info
- INSPIRE Directive - http://www.ec-gis.org/inspire/
- International Organisation for Standardisation (ISO) - http://www.iso.org/iso/home.htm