



MARITIME FORUM

Approach towards an Integrated Maritime Policy Database

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Study for Eurostat Contract Reference 2007/S 179-218229 - Lot 1

full report [2] and *appendices* [3]

Executive Summary

With the publication of the Blue Book "An Integrated Maritime Policy for the European Union" in October 2007, the Commission proposed a policy combining measures aimed at enhancing competitiveness and sustainable development, following the Lisbon and Gothenburg strategies. The IMP is confronted with having to deal with very different policy areas involving a range of the EU institutions and stakeholders, in a range of maritime sectors and regions.

Given its complexity, this objective requires a solid set of information to document policy areas, including information on maritime activities and regions. In this purpose, the Blue Book and its Action Plan proposed the development of database on economic and social data for maritime sectors and coastal regions (Action 6.5 of the Action Plan). EC / Eurostat launched a study for the development of the database. The present report presents and analyses the results of this study which started in January 2008 and was achieved in January 2009.

Structure of the database

The structure of the database includes:

- A geographical dimension, under which coastal regions are defined and documented in terms of local maritime activities and employment. The standard statistical classification of the EU - the NUTS - was used to identify coastal regions and islands, and more generally, to have a geographical breakdown of maritime activities.
- A sector / activity dimension, whereby maritime activities and employment are defined and characterized through a set of key economic and social indicators. The standard statistical classification of EU's economic sectors - the NACE - was used to identify the sectors by codes. These sectors include: a) the exploitation of marine resources: living, energy and non-energy resources; b) transport and related services; c) equipment manufacturing, incl. shipbuilding; d) maritime services; e) tourism industry and related services.
- The key variables which were selected to be documented are: Number of enterprises, Value Added

(at basic prices and factor cost), Purchases of goods and services, Personnel costs, Number of persons employed (jobs and full-time equivalents), Purchases of energy products, Turnover, Production Value, Growth Rate of Value Added. In addition, External Trade data were collected.

- Additional indicators were selected to complement the database (see below).

IT design of the database

A determining aspect of the structure of the IMP database is its IT design. It is based on the Reference Database approach. This database is very well known and introduced at Eurostat. The tool which is used by Eurostat as an interface between the users and the database is the MDT System for the Management of Multidimensional Objects and is used by the Eurostat statisticians who work with the Reference Database. So the IMP database fits smoothly into the general Eurostat way of working and is ready for use by the authorised working team in the future.

The database stores multidimensional objects. The multidimensional model is based on the concepts of dimensions, observation values, flags, footnotes and constraints. The major dimensions mapped in the IMP database are basically “time”, “geo”, “NACE”, “Indicators”. The “time” dimension in all datasets actually covers the period from year 2000 to year 2007, but can be easily extended for the future years. The “geo” dimension is the standard geographical dimension used by Eurostat in the Reference Database based on the NUTS nomenclature. This dimension has been extended by additional dimensions mapping Maritime Basins which group the NUTS 3 regions by the maritime basin and as well islands and ports. The “NACE” dimension is the standard Eurostat dimension for the classification of economic activities - (NACE Rev 1.1). A subset describing the defined maritime sectors has been used (“Sectoral dimension”). Suitable groupings of single NACE indicators have been implemented in order to map the different maritime sectors accordingly. The “indicator” dimension is based on a subset of the Eurostat’s list of economical indicators for structural business statistics. However, additional indicators, beyond those available from the SBS system, for special evaluation of the coastal sustainable development have been proposed.

To summarize, the IMP database is to accommodate the following ten main datasets:

- Maritime Policy NACE related data for all NUTS units
- Maritime Policy NACE related data for coastal NUTS units
- Maritime Policy NACE related data for NUTS units with available data
- Maritime Policy NACE related data for islands
- Maritime Policy CPA and Prodcom related data
- Maritime Policy Interregional Trade Data
- Maritime Policy External Trade Data
- Maritime Policy Environmental Data
- Fishery Data (as of the Reference database)
- Maritime Transport Data of Goods and Passengers (as of the Reference database) extended by the Maritime Basin Approach

Physically implemented in the described way, the IMP database represents a total of 36 dimensions and 150 datasets. This all together add up to a theoretical content of 4,3 bn data. However, actual coverage of collected data for the NACE dimension only is about 27% on NUTS 0 (Member States) level and <1% on NUTS 3 level.

Strengths and weaknesses of the IMP database structure

So described, the structure of the IMP database presents strengths and weaknesses.

Its strengths consist of:

- The systematic classification of maritime affairs, their split per economic sector and per maritime region, and their measurement in terms of key indicators: this structure permits to analyse maritime activities and regions, their development over the recent past, their economic significance, and the dependence of coastal regions on specific maritime activities. It also permits to have a clear understanding of the relative significance of maritime activities at national and regional levels, these two visions possibly differing and explaining differences between national and local policy objectives.
- An important feature of the database is linked to competitiveness objectives. The production intensiveness of maritime regions can be assessed, which permits to identify areas and regions with a strong maritime industry and/or a range of diverse maritime services. EC's objective to promote maritime clusters would require such information.
- Another important strength of the database – of social dimension – is its ability to identify maritime employment areas, and to analyse the nature of the jobs concerned (full time or seasonal).

It is obvious that these “potential” strengths depend on the relevant content of the database.

However, the database as it stands has weaknesses that must be analysed.

- Indirect sector coverage. A number of sectors as identified through the standard classification – the NACE – include both maritime and non-maritime components. This is typically the case of a number of activities involved in the marine equipment industry, inter alia (although, on the other hand, typical sectors such as fishing, shipping or shipbuilding, etc., can be seen as purely maritime). This lack of accuracy is explained by the general fact that the standard classification does not discriminate sea-related activities and businesses. As a result, the database, in its present shape, is not yet an accurate description of EU Maritime Affairs.
- The geographical dimension of the database – namely the identification of maritime regions – rests on a statistical breakdown which is not based on any maritime criterion. This difficulty led Eurostat to define coastal regions as including both coastal NUTS 3 units, and non-coastal NUTS 3 units with 50% of their population or more located at 50 km or less from the coastline. This is a practicable convention – though debatable as the extent of coastal zones varies depending on maritime sectors – which can be relevant for certain sectors, e.g. for the definition of coastal tourism in spatial terms.
- Interactions between maritime sectors and between maritime regions are important to analyse as the objective of having an integrated maritime policy requires a good knowledge of its impacts on maritime affairs. But they are also extremely diverse and, given the difficulty in collecting relevant indicators, the database architecture will be of limited help in this respect.
- Interactions between R&D and industry would also be an area for which detailed information is required for informing the IMP, to analyse maritime clusters' innovation power and capability of attracting companies.
- Finally, the database has been purposefully limited in terms of the valuation of coastal natural assets. This is a topic of growing interest for coastal management, but which requires sophisticated, and still much debated tools. In addition, the environment dimension comes in addition to the economic and social dimension, the latter being central in the database, as its initial target.

Data collection, and assessment of the results

Data collection was carried out per Member State. As a first step, relevant data were extracted from the Eurostat New Cronos database. Then additional data were acquired from the National Statistical Offices (NSOs), when it was possible; contacts were taken with each NSO in this purpose. This source was

prioritised in order to secure a satisfactory quality level. However, NSOs' responsiveness was diverse; few of them proved actively co-operative and provided data; most of them referred the project team to their online sources.

Data collection process and main difficulties

The main difficulties encountered in collecting data, though not typical of Maritime Affairs, were amplified in this particular context, as the maritime economy is of modest size:

- Important difficulties in collecting NUTS 3 data;
- Trade-off between NACE and NUTS resolution, principally for confidentiality reasons. Data for NACE 4-digit codes (the finest sector level for this database) were available for NUTS 0 (country level) but very seldom for a higher geographical resolution. At NUTS 3 level, except for some countries, only NACE 2-digit data were available.
- Trade-off between coverage and data quality, as a result of indirect coverage of many maritime activities by statistical sectors, which may also include non maritime activities; in these cases, direct coverage requires estimates which would not meet ESS quality standards.
- Branch-based data, based on the split of businesses into the different economic activities they are involved in, were generally unavailable, except for few member states. They have not been used in the data collection phase.

Assessment of the IMP database coverage

The unbalanced clarity and resolution of the maritime sector coverage does not allow using the IMP database in its full scope, unless considerable effort is made to improve it. The coverage must be assessed in terms of sector, key indicators and space.

a) Maritime Affairs can be classified into four categories of sectors:

- sectors fully identifiable in the statistical classification (e.g. shipbuilding and shipping);
- sectors partly identifiable in the classification (fishing and seaports);
- sectors only indirectly identifiable, i.e. whose outlets are partly maritime, partly non maritime (e.g. marine equipment and a range of services);
- coastal tourism, which includes a diversity of small local businesses and sectors, certain of which are identifiable on the basis of their coastal location, and certain others (e.g. travel agencies) are indirectly identifiable.

Many sectors are therefore only indirectly covered, and this is a major limitation in the use of the database.

b) In terms of key indicators, the coverage is satisfactory (turnover, value added, employment).

c) In spatial terms, the quality of coverage widely varies among Member States, many of them having no NUTS 3 coverage of Maritime Affairs. These gaps in the spatial coverage are another important limitation in the use of the database.

However, some Member States (AT, FI, FR, DE, LV, LT, UK) give good practice examples. On this basis and through targeted benchmarking of NSOs' on coverage quality of Maritime Affairs, in terms of sectors, indicators and geographical units the situation may be improved in the future.

Improvement of the database

Improving coverage and resolution

The above remarks show that it is critical to improve the database in terms of coverage, resolution and periodicity. In this area, the main remarks are the following:

- Experience of data collection for certain countries (e.g. UK, France) shows that it is possible to find relevant NUTS 3 / NACE 4-digit data, subject to the usual confidentiality clause. Overcoming the difficulties in having detailed enough business inquiries will be a matter of NSOs' effort and of selecting relevant economic indicators which can remain accurate at such resolution level.
- However, having accounting data of high NACE and NUTS resolution may lead to the risk of inaccuracy: if reported for the spatial units where head offices are located, business data do not necessarily reflect the real economic activity in NUTS 3 units where production units reside. This apparent paradox leads to accept some limits in spatial resolution, and to check the level of accuracy of high resolution data.
- The problem remains that, for certain sectors which are critical for EU's maritime competitiveness (e.g. Marine Equipment), the lack of data is general throughout the EU. For such sectors, a possible step forward would consist: 1) in analysing best practice solutions as applied e.g. for Marine Equipment by Member States' industry associations and may be also by external countries (e.g. Norway and Japan); 2) in defining and carrying out specific business inquiries; this would suppose a cost. The exercise could be tested on certain maritime sectors to be identified.

A range of maritime and coastal services have a low coverage. Again, information cannot be improved without considering business inquiries. As regards coastal tourism – a specific case among coastal services –, experience shows that visitor surveys produce interesting information. A relevant option to fill data gaps is to consider coastal visitor surveys on an EU harmonised basis. As usual, the risk is an "over-survey" of visitors, leading to their growing unwillingness to respond. Test surveys could be carried out in co-operation with national and regional authorities. Another option is to extend business inquiries up to NUTS 3 level in countries where the spatial coverage is not sufficient. Again, this supposes a cost.

Database Improvements Costs

Given the required improvements in the sector and geographical fields, a tentative assessment of the costs which would be incurred – rather their order of magnitude – is proposed. Unfortunately, too little information has been provided by NSOs, and the assumptions presented in the report are very fragile. They tend to suggest however that the cost of improving the spatial resolution would be substantially higher than that of improving the sector resolution. This attempt highlights the needs for in-depth discussions between Eurostat and NSOs on data collection and processing costs. A major issue is the cost incurred by respondents.

Additional indicators

The report proposes a list of additional indicators in two categories: a) Sustainable Development; b) the Maritime Basin Approach.

- Sustainable Development indicators are essential to develop for coastal zones, which are narrow areas with rich ecosystems, and especially sensitive to pollution risks and damages. The approach consists in the definition of indicators describing the pressure on coastal zones and polluting emissions: e.g. pressure for road travel near the coast, pressure for coastal and marine leisure, bathing water quality. This data set would require an assessment in terms of quality standards.
- The objective of the Maritime Basin Approach is to analyse the wealth yielded by each sea region of the EU zone, i.e. by its marine resources (energy, non-energy, living) and by the diversity of

industries located and operating in this sea region. A set of indicators is proposed in the report, including non-monetary indicators such as port traffic, beach visits and aggregate extraction, and monetary indicators such as tourism expenditures and value added in sectors specific to each sea region. The data set would only aggregate existing indicators, and not require generating additional variables.

Geospatial tools

Far from being technical instruments only for a local survey of coastal problems, geospatial tools have a major policy dimension. If appropriately managed by regional authorities, they can constitute a relevant extension of the IMP database, provided effort is made in this direction.

The INSPIRE Directive will improve the accessibility and interoperability of spatial data by laying down general rules applying to data and services held by or on behalf of public authorities and by private operators who choose to make their data available through the INSPIRE infrastructure. Spatial data and services will be accompanied by "metadata" facilitating search, quality assessment and potential use. Detailed technical rules are under development to facilitate the combination of different data sets.

Detailed information on Germany is useful to provide as North Germany is generally considered as an advanced stage of what can be done and pursued in terms of geospatial data on coastal areas. Another interesting example is that of the South-East France region of Provence-Alpes-Côte d'Azur (PACA), which has implemented an efficient portal / geospatial data exchange system at regional level.

These best practice examples show that regional complements to the IMP database can be elaborated, based on a different architecture, with different categories of data. For example, geospatial tools are efficient at locating coastal activities – not enterprises – and thereby coastal employment; they can also locate coastal activities exposed to specific risks (e.g. water pollution, sea level rise). Local maritime policies and coastal zone management initiatives require operational geospatial tools which are too detailed for EC's level of analysis. The IMP database cannot include relevant information for local maritime policies. It should be acknowledged that the architecture of datasets can change according to the resolution level of information required and to the geographical scope of maritime policies.

List of recommended actions

The IMP database as developed in this project phase, necessitates significant improvements before being operational. This will require time and effort, and also co-ordination at EU level. The following list of actions is proposed for the future improvement of the IMP database. They refer to the recommendations and the Road Map as proposed in the last chapter of the report.

Action 1: improve data collection and the resolution of the database

This set of recommendations is based on the findings of the report in terms of missing data and on comments from stakeholders as reported in the "sector description". As addressed in the Road Map, a correct knowledge of the maritime economy requires more detailed data on: a) NACE 4-digit sectors involved in the maritime economy; b) the content of coastal regions in terms of maritime sectors; c) the maritime components of maritime-related sectors. This necessitates improving business inquiries. The following steps are recommended:

- 1) Co-operation between Eurostat and NSOs, in order to:
 - a) systematically identify the NACE sectors for which information is required on their maritime

components;

b) analyse the feasibility of business inquiries focused on those maritime components, so as to deal with the present indirect identification of a range of activities in the present classification;

c) agree on a harmonized and practicable definition of coastal regions; the definition proposed by Eurostat – referred to in this report – is an option to be considered;

d) discuss the feasibility of reporting data from business inquiries, on coastal regions specifically^[1] [4].

2) Co-operation between Eurostat and stakeholder associations in order to:

a) Draw up a list of relevant economic indicators per sector, used and / or generated by associations;

b) have stakeholders' views on which sectors and sub-sectors to prioritise for the definition of business inquiries, and on which relevant indicators to select for the description of their businesses;

c) involve NSOs in discussions on such selection, with a view to compliance with ESS quality standards.

d) **Remark:** there are ongoing discussions between Eurostat and certain stakeholders (e.g. shipping, shipbuilding); for the sectors involved, if necessary, it would be relevant to focus the discussions on the aspects mentioned above.

3) Address the specific case of coastal tourism:

a) Address sectors with maritime components indirectly described in the database (e.g. travel agencies, sporting clubs and certain leisure businesses), on the basis of item 1) of Recommendation 1;

b) for sectors and businesses potentially directly described per NUTS 3 area (e.g. hotels and catering), discuss and check with NSOs the need for business inquiries with this geographical resolution if not yet performed by Member States;

c) discuss with NSOs the cost of having a better NUTS3 coverage of business inquiries, for NSOs and respondents, and discuss the feasibility of a regulatory instrument for harmonised reporting in this area;

d) discuss with NSOs the feasibility of harmonised coastal visitor surveys to collect spending data per main tourism consumption categories, bearing in mind that much is done in this area under Directive 95/57/EC and its subsequent amendments, but not necessarily in a harmonised way at EU level.

Action 2: adapt the architecture of the database

Further progress in line with Recommendation 1 would possibly result in new components to be incorporated into the architecture of the database: the definition of maritime sub-sectors and of new relevant indicators would not necessarily correspond to the standard NACE components and to the standard key variables. Likewise, the definition of coastal regions, if it is in line with Eurostat's definition, will lead to the selection of parts of NUTS 3 areas, based on a demographical criterion. Subsets of NUTS 3 areas would then have to be included in the geographical dimension. A step toward the adjustment of the database architecture is therefore recommended, the feasibility of which is secured by the flexibility of the IT design of the database:

1) adapt the "sector", "key variable" and "geographical" dimensions of the database to the new components. This may require adding new dimensions.

Action 3: additional indicators

The list of additional indicators as proposed in the report will have to be discussed with the relevant DGs of the EC. They concern: a) the Maritime Basin approach, which would consist in gathering existing data per sea regions in order to better characterize these entities in terms of wealth, maritime value added and employment; b) sustainable development indicators, in order to have a synthetic view of a selection of environmental aspects of maritime activities, through available indicators; the objective is also to avoid redoing with a lower resolution what is performed locally by geospatial tools.

- 1) Discuss with relevant DGs the list of indicators to be included in the framework of:
 - a) a Maritime Basin approach,
 - b) sustainable development of maritime activities.

Action 4: bridge with geospatial tools

For a higher resolution than NUTS 3 – and probably also for NUTS 3 units, with regard to certain activities – most of the limitations of the IMP database must be accepted. A search for finer economic and social data runs the risk of losing accuracy for reasons mentioned in the report: high resolution economic data for certain businesses may assign the data to geographical areas from those where jobs are located, mainly for accounting reasons. It is suggested that the best option for the IMP database is to find solutions as to how it can be complemented by external data sets. A good option is offered by geospatial data which include a considerable amount of information on coastal zone and their uses: this would be especially relevant as far as environment and the location of many coastal activities are concerned.

The question, as addressed in the last chapter, as to how to establish links between the database and geospatial data, has to be considered on the basis of the potential impacts of the INSPIRE Directive and the standardisation of metadata it permits. If the resolution level of geospatial data is very high, the appropriate level to follow their development is the NUTS 2 regions, which have the potential for both developing geospatial data and co-ordinating local initiatives in terms of information exchange.

- 1) follow the implementation of INSPIRE, especially in terms of metadata to be developed;
- 2) consider including coastal geospatial metadata information into the database (under a new dimension);
- 3) to do this, put in place a working group involving coastal NUTS 2 region representatives and experts, to discuss practical issues relating to the development of metadata and information exchange.

Concluding remarks

The recommended set of actions is highly conditioned by a wide consultation process to be launched on a permanent basis, between Eurostat, the DGs and a range of stakeholders, including NSOs. This does not mean that nothing was done in the past. But the project simply want to insist that improving the IMP database will require an intense co-ordination, much motivation among stakeholders, and a comprehensive vision of the issues raised at different levels, i.e. for very different economic sectors and national and local authorities, each of them having a specific way of thinking and of addressing IMP issues.

[1] [5] Though the maritime economy is not only located on the coast, as largely illustrated in the report.

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