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**INDICATORS FOR INTEGRATED COASTAL ZONE MANAGEMENT (ICZM) : *Methodological Factsheets in support of comparable measurements and an integrated assessment in coastal zones***

The **ICZM Protocol for the Mediterranean Sea** (the 'ICZM Protocol'), signed in Madrid on 21 January 2008 and ratified on 24 March 2011, represents a milestone for the implementation of ICZM in the Region and can serve as a blueprint for the implementation of ICZM in other Regional Seas. The **PEGASO project** builds on existing capacities and develops common approaches to support integrated policies for the Mediterranean and Black Sea Basins in ways that are consistent with the ICZM Protocol.

The PEGASO project has developed **a core set of indicators** that are instrumental in measuring the implementation of ICZM policies and programmes. The core set of ICZM indicators addresses the specific requirement of Article 27 of the Protocol to '*define coastal management indicators*' and '*establish and maintain up-to-date assessments of the use and management of coastal zones*'. In doing so, the PEGASO project has widely built on previous and existing indicator sets developed by different institutions and projects, and which are duly acknowledged (see '[Methodological paper for the selection and application of PEGASO ICZM indicators](#)' for further reading and background material)

The present Methodological Factsheet is part of a set of 15 factsheets that are made available to end-users. This set of factsheets is conceived to support a harmonized approach to calculate ICZM indicators at different spatial scales in the Mediterranean and Black Sea regions.

### Name of the Indicator

Added Value per sector

### Objective of the indicator

The Protocol states that priority should be given to “public services and activities requiring the proximity to the sea”. Economic activities are impacting the environment through the use and consumption of resources, pollution (both diffuse and from point sources), land use etc. But economic activities can also contribute to the social and economic development of a coastal zone by providing jobs and wealth creation. Thus it is important to elucidate to what extent each economic activity, taking place within the coastal zone, really contributes to the entire coastal economy. This will provide more insight in the dependence of the regional economy on the marine environment.

This indicator provides information about the wealth generated by the enterprises and sectors.

It is important to use this indicator together with the 3 other economic indicators in the PEGASO set of indicators (Turnover, Pattern of Sectorial employment and Number of enterprises). See section on “Example of integrated assessment”.

### Policy context

ICZM Policy Objective	To give priority to public services and activities requiring the proximity to the sea, and to take into account the specific characteristics of the coastal zones when deciding about coastal uses
ICZM Protocol Article	Article 9: <i>Economic activities</i>
UNEP-MAP Ecological Objective	No reference to the UNEP-MAP Ecological Objective
INSPIRE ANNEX I-III Data Theme (34)	Annex III 8 Production and Industrial Facilities (Annex III – 8)

### CALCULATION OF THE INDICATOR

#### Spatial consideration

Coverage	Resolution – Reporting unit(s)
Coastal zone of the Mediterranean Sea Coastal zone of the Black Sea	<ul style="list-style-type: none"> <li>Coastal zone of the Mediterranean and Black Seas at NUTS2 level</li> <li>Coastal zone of the Mediterranean and Black Seas at NUTS3 level</li> <li>EEZ of countries in the Mediterranean and Black Seas</li> </ul> Note: the spatial reporting unit, or scale, may be defined by the issue or sector under consideration (see below)

#### Temporal consideration

Period	Resolution (time interval or unit)
Time series should be as long as possible	Annual data. Measurements should be consistent in reflecting the situation for comparable reference points i.e. 1st of January or 31st of December every year.
Select a baseline, followed by reference points e.g. 2012, 2007, 2002 ...	
From 1992 for tourism	Monthly data

*Note: the idea is to have time series as long as possible but also to have reference points every 5 years to depict trends. For seasonal activities, such as tourism, it is important to have monthly data for the most recent years.*

### Parameter(s)

*Note: for each parameter, the economic activities considered are the following:*

Added value for the following sectors (if relevant for the area under consideration!) at national level (national accounting), regional and local level, expressed as US\$ billion and percentage, as a share of the global added value.

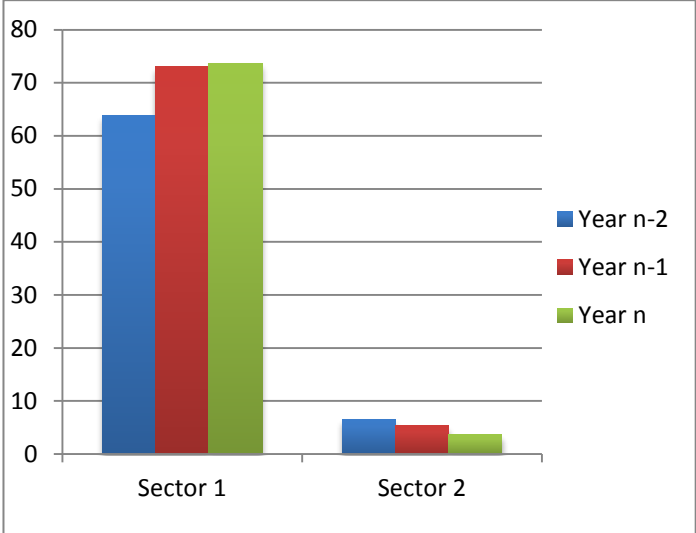
- Submarine cables
- Shipbuilding and repair, scraping...
- Extraction (marine aggregates)
- Recreational Activities (Expenditures instead of turnover)
  - Bathing
  - Yachting and Sport
  - Recreational fisheries (including shellfish)
- Offshore oil and gas-related industry
- Electricity power production interacting with marine environment (Marine renewable energy, Nuclear plants...)
- Living resources based activities
  - Aquaculture
  - Professional Fisheries (including algae)
  - Seafood processing and marketing
- Maritime financial services (insurance, banks, supports...)
- Transport activity
  - Harbors and supports
  - Transport (people and goods)
- Maritime civil engineering (harbors, dams, dikes...)
- Other sectors and activities depending on or impacting coastal and marine environment (Agro industry, Food Processing, Chemistry...)
  - Agriculture
  - Other industries
  - Urban sprawl
  - Coastal tourism (hotels, camping, restaurants, cafes)

- (i) Added value per sector, for sectors that are relevant in relation to the ICZM issue  
 Note: 'relevant' sectors are to be identified and selected according to a causal chain analysis (impacting sectors and impacted sectors). The number of enterprises is defined at the scale of a reporting unit which is relevant for the issue: e.g. river basin, coastal NUTS5/LAU2 etc.

If data at regional and local level are not available, the payroll employment (%) in each sector is to be used as an allocation key: the multiplier to be used is the average added value/employment.

### Calculation method

Steps		Products			
1	For each geographical scale, use the most recent time series to identify the contribution of each relevant sector of the marine/coastal economy to the total local/regional economy. Compare impacting and impacted sectors.	Build the following table comparing national turnover to regional turnover:			
		Sector	Local Added Value	Regional Added Value	National Added Value
		Sector n°1(S <sub>1</sub> )			
		Sector n°2(S <sub>2</sub> )			

		<table border="1"> <tr> <td>...</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td></td> <td>100%</td> <td>100%</td> </tr> <tr> <td>Total (US\$ billion)</td> <td></td> <td></td> <td></td> </tr> </table> <p>A table comparing national added value to local added value can be constructed (if data are available in national databases)</p>	...				Total		100%	100%	Total (US\$ billion)			
...														
Total		100%	100%											
Total (US\$ billion)														
2	<p>For each time series available, establish a bar chart (one for regional scale and one for local scale) comparing national Added Value to regional or local Added Value for different years.</p> <p>Bar charts can also be built for each sector and for the most recent time series to compare different areas (communes, sub-river basins...).</p>	<p>Bar chart comparing Added Value (US\$ billion) per sector at different time scale</p>  <table border="1"> <caption>Bar Chart Data: Added Value (US\$ billion) per sector</caption> <thead> <tr> <th>Sector</th> <th>Year n-2</th> <th>Year n-1</th> <th>Year n</th> </tr> </thead> <tbody> <tr> <td>Sector 1</td> <td>~65</td> <td>~75</td> <td>~75</td> </tr> <tr> <td>Sector 2</td> <td>~7</td> <td>~5</td> <td>~4</td> </tr> </tbody> </table>	Sector	Year n-2	Year n-1	Year n	Sector 1	~65	~75	~75	Sector 2	~7	~5	~4
Sector	Year n-2	Year n-1	Year n											
Sector 1	~65	~75	~75											
Sector 2	~7	~5	~4											
3	<p>If regional and local data are not available, the payroll employment (%) in each sector can be used as an allocation key.</p> <p>Example of calculation:  <math>S_{1E}\%</math> is the share of sector <math>S_1</math> in the regional payroll employment</p>	<p>Allocation Key (in percentage) for each sector at regional scale</p>												
4	<p>These keys (on per sector) should be applied to the national AV (per sector) to give regional value. Example of calculation:  <math>S_{1AV}</math> is the AV of Sector 1 (in US\$ billion) at national level.            Calculation of sectorial AV at regional scale:  <math>S_{1AV} * S_{1E}\%</math></p>	<p>Regional (and/or Local) Added Value per sector</p>												
<b>Current monitoring</b>		<b>Data sources</b>												
		National Database, Multipliers from surveys or National Accounts												
<b>Assessment context</b>														
Use of the indicator in previous assessments/initiatives	The DEDUCE project included this indicator in its set of 27 indicators and 45 measurements for sustainable development in coastal zones (no methodological factsheets available for this indicator from the DEDUCE website).													
DPSIR framework	Driver													
Link to anthropogenic pressure														

Sustainability target or threshold	
Link with other assessment tools	
Example of integrated assessment	<p>To get a full overview of the economic activity within the coastal zone, it is necessary to use this indicator together with the 3 other economic indicators included in the PEGASO set of ICZM indicators.</p> <p>The ratio Added Value/Turnover *100 gives the added value rate, that is, the profitability of the sector under consideration.</p>

### Scope for future improvements

Field survey could be conducted to get a better estimation (when data are not available).

#### Data Harmonization

In order to build a common, regional view for a particular indicator, it is crucial to harmonize the data in terms of e.g. concepts, definitions, reporting units, colour codes, value class boundaries and scoring methods. For this purpose, the PEGASO consortium has developed 'Guidelines for Data Harmonization' which are available from the 'Products' section on the PEGASO project website [www.pegasoproject.eu](http://www.pegasoproject.eu). Although agreements may exist related to the presentation of certain indicators that are legally embedded, this may be less evident for indicators which are not (yet) used as an instrument within a policy context or within a region where the policy is not applicable. The PEGASO consortium encourages contributing partners, stakeholders and end-users to consult the 'Guidelines for Data Harmonization' document, and to actively engage in this process.

### Indicator references (i.e. UNEP, EEA, ...)

Note: factsheet content drawn by the PEGASO partner University of Brest.