

GREECE

**Methodology and Data Quality Assurance Framework
for Socio-Economic Variables on
Aquaculture and
Fisheries Processing**

National Data Collection Programme

2019

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1. Collection of economic and social data for aquaculture

1.1 Methodologies used to choose the different sources of data

Fish and shellfish have been produced using aquaculture techniques in Greece since early 1960s. The strengthening of the aquaculture industry with the implementation of new techniques and the rapid increase of production commenced in late 1990s, when the amount of captured fish reached a plateau while the demand for aquatic products continued to rise.

The main segments of the Hellenic aquaculture industry are: (a) sea bass and sea bream culture, (b) other marine fish culture, (c) shellfish culture, (d) carp culture, (e) trout culture, (f) eel culture, (g) extensive farming - estuaries & lagoons.

Basic source for the collection of economic data during 2017-19 will be the Integrated Monitoring System of Fisheries Activities (OSPA) and a survey will be used for the confirmation and supplementation of the collected aquaculture data. The majority of the required economic data can be derived from the processing of the balance sheets and financial statements of the companies, however, the socio-economic data needed (employment by gender etc.) will be provided by on-site visits, interviews, financial records and balance sheets.

1.2 Methodologies used to choose the different types of data collection

The first stage of the data collection methodology shall consist of the mailing and completion of a questionnaire based on the previous years' data collection experience and updated with any new prerequisite values. The duration of the first stage will be 60 days.

The questionnaire will include topics of both social and economic data, requesting employment, production and revenue values along with the company's cost structure and a short enumeration of the company's main problems and predictions.

The second stage will include on-site visits to the companies that completed the questionnaire along with data processing of published balance sheets and financial statements. The duration of the second stage will be 90 days.

The questionnaire will include the following 3 topics:

- (1) Cost and profit: value of total sales, personnel costs, energy related costs, value of purchased raw material (fry) and other material necessary for the production, production costs and value of the final product, capital costs, special costs, investments, and debt.
- (2) Aquaculture techniques: freshwater, marine fish, cold or warm-water marine fish, shellfish, cages, land based farms, hatcheries and nurseries, rafts or long line mussel production, extensive farming in estuaries and lagoons
- (3) The socio-economic criteria of the sector are attributed to: employment per sector, gender employment statistics, number and location of enterprises, and the problems of the enterprises.

The collected data from all sources will be uploaded regularly on the aquaculture sector database (OSPA) in order to update the topic values and the list of companies to be interviewed.

1.3 Methodologies used to choose sampling frame and allocation scheme

The questionnaires will be sent to all the operating aquaculture enterprises. The processing of balance sheets will cover more than 85% of the total number of SA and LTD enterprises obliged to publish their financial statements.

Due to the fact that these companies hold more than 85% of the aquaculture sector's total sales, the census method will be applied to most of their economic variables.

The variables are:

- Techniques
- Species group
- Gross sales per species
- Other income
- Personnel costs
- Value of unpaid labour
- Energy costs
- Livestock costs
- Feed costs
- Repair and maintenance
- Other operating costs
- Operating subsidies
- Subsidies on investments
- Consumption of fixed capital
- Total value of assets
- Financial income
- Financial expenditures
- Net Investments
- Debt
- Livestock used
- Fish Feed used
- Weight of sales per species
- Number of persons employed
- Unpaid labour
- Number of hours worked by employees and unpaid workers
- FTE National
- Employment by age
- Employment by education level
- Employment by nationality

1.4 Methodologies used for estimation procedures

Based on the last survey's data collection experience, few of the companies (specifically the large ones), provided values segmented by aquaculture techniques and species. Companies generally are reluctant to apply segments by species or techniques to the provided economic and social data. Only a few of those operating under the International Financial Reporting Standards (IFRS) are able to provide the extra information, including production cost structure. For those variables that need further segmentation, both social and economic, a non-probability sample survey will be applied based on the information provided by the large enterprises that cover adequately the species and the techniques.

Since in all cases the total production cost value is known, the estimation procedure will be applied in order to segment the total cost into the desired segments (energy cost, other

operational costs), for the companies that were unable to provide the segmentation. As this is the case for smaller companies, the estimation procedure uses the cost segmentation data of similar companies with criteria such as production equipment, production volume and proportionality will be used to divide the total known cost into the smaller cost segments.

For those variables that need further segmentation, both social and economic, a non-probability sample survey will be applied based on the information provided by the large enterprises that cover adequately the species and the techniques.

1.5 Methodologies used on data quality

The collected data provided by financial records and questionnaires as well as segmented values provided by non-probability sample survey, will be supplemented with and cross checked by data from the following sources: (a) Prefectural Chambers of Commerce, Industry and Trade (e.g. brand name, location, VAT number, phone and fax numbers) (b) Prefectural Directorates of Fisheries and Veterinary Services, as well as the National Food Control Agency (EFET) and the Hellenic Ministry of Rural Development and Food (e.g. purchase of raw material, production per species, total sales in quantity and value, employment, functioning regulations), (c) Integrated Monitoring System of Fisheries Activities (OSPA), and (d) business and professional online data bases (e.g. location, phones, projected investments, sales, general economic data).

2. Collection of economic and social data for the processing industry

2.1 Methodologies used to choose the different sources of data

The Greek fisheries processing industry sector includes activities like freezing, processing (filleting, salting, drying, smoking, marinating, cooking, canning) of fish, and the de-shelling of mussels.

The majority of the required economic data can be derived from the published annual balance sheets and the yearly financial statements of the companies, However, only a few, operating under the International Financial Reporting Standards (IFRS), provide the additional social data and the detailed production cost structure, while smaller companies provide little or no data for values such as assets and capital depreciation.

An additional problem that has to be addressed is the complicated distinction between equivalent parallel activities, a case common in the country's fisheries processing sector.

It also should be noted that there is a number of companies for which the processing is not their main activity, considering the added value or the employed personnel attributed to that activity. Nonetheless it is important for their economic operation.

Questionnaires completed by companies, combined with onsite visits and interviews, provide the remaining information needed.

The collected data provided by financial records and questionnaires will be supplemented and cross checked by data from the following sources: (a) Prefectural Chambers of Commerce,

Industry and Trade (e.g. brand name, location, VAT number, phone and fax numbers) (b) Prefectural Directorates of Fisheries and Veterinary Services, as well as the National Food Control Agency (EFET) and the Hellenic Ministry of Rural Development and Food (e.g. purchase of raw material, production per species, total sales in quantity and value, employment, functioning regulations) and (c) business and professional online data bases (e.g. location, phones, projected investments, sales, general economic data).

2.2 Methodologies used to choose the different types of data collection

The first stage of the data collection methodology shall consist of the mailing and completion of a questionnaire based on the previous years' data collection experience and updated with any new prerequisite values.

The questionnaire will include topics of both social and economic data, requesting employment, production and revenue values along with the company's cost structure and a short enumeration of the company's main problems and predictions.

The second stage will include onsite visits to the companies that completed the questionnaire along with data processing of published balance sheets and financial statements.

The questionnaire will include the following topics: (1) value of total sales per processed products, (2) personnel costs, (3) energy related costs, (4) quantity and value of purchased processed raw material and other material necessary for the production, (5) production costs and value of the final product, (6) capital costs, (7) special costs, (8) investments, and (9) debt. The socio-economic criteria of the sector are attributed to: (1) employment per sector, (2) employment statistics including gender, age, education level and nationality, (3) number and location of enterprises, and (4) the problems of the enterprises.

The collected data from both sources will be uploaded regularly on the processing industry database in order to update the topic values and the list of companies to be interviewed.

The Variables are:

- Turnover
- Other income
- Personnel costs
- Value of unpaid labour
- Energy costs
- Purchase of fish and other raw material for production
- Other operational costs
- Operating subsidies
- Subsidies on investments
- Consumption of fixed capital
- Total value of assets
- Financial income
- Financial expenditures
- Net investments
- Debt
- Weight of raw material per species and origin (optional)
- Number of persons employed
- Unpaid labour
- Number of hours worked by employees and unpaid workers

- FTE National
- Employment by age
- Employment by education level
- Employment by nationality

2.3 Methodologies used to choose sampling frame and allocation scheme

The data collection scheme that will be used for the majority of values will be the census. The questionnaire will be sent to all the listed companies and the onsite interviews will be scheduled as follows: to all enterprises with ≥ 11 employees and to 80% of the enterprises with ≤ 10 employees (stratified random sampling strategy) in the sector.

During the last 5 years of fisheries processing data collection, the enterprises that received the aforementioned questionnaire, were generally positive in providing the required data. The completed questionnaires produced a significantly high percentage of sample (>85 %), thus ensuring reliability of the estimations and conclusions.

The estimated number of enterprises not responding and/or fail to obtain sufficient data from all other available sources is very small (<10-15% according to previous studies).

2.4 Methodologies used for estimation procedures

As it was mentioned above, the census method will be used for the majority of values. Therefore, the estimation procedure will be applied for certain values (e.g. energy cost and unpaid labor) due to inadequate input or company's reluctance to answer, using the non-probability sample survey method.

Since in all cases the total production cost value is known, the estimation procedure will be applied in order to segment the total cost into the desired segments (energy cost, other operational costs), for the companies that were unable to provide the segmentation. Since that is the case in smaller companies, the estimation procedure uses the cost segmentation data of similar companies with criteria such as production equipment, production volume, using the proportionality to divide the total known cost into the smaller cost segments.

2.5 Methodologies used on data quality

Provided the main methodology for the data collection is census, estimation is limited to only a few variables.

All variables gathered from different sources will be compared and cross-checked for their credibility. The questionnaire data, especially for the small companies with no published balance sheets, will be crosschecked with the corresponding Prefectural National Authorities records to verify volumes and values as well as with previous years' surveys.