PREFER- Product Environmental Footprint Enhanced by Regions. PROJECT IMPACT MONITORING

INTRODUCTION

The PREFER project provides two monitoring tasks:
- The monitoring of the project environmental impacts, whose activities are planned in the action C1;
- The monitoring of the socio-economic aspects in order to assess the project also on the basis of other aspects in addition to the environmental one (action C2) .

The following paragraphs describe the methodological framework to be followed by all partners to carry out the monitoring of the project impact in the 8 clusters involved.

The monitoring will be developed operationally by the project partners and will be focused on the measurement of the environmental and socio-economic impacts of the project actions carried out in the sample cluster on which the PEF will be tested.
The methodological references for the monitoring development are the requirements for the development of a system of environmental performance indicators required by EN ISO 14031 : 2013 (Environmental Management - Assessment of the environmental performances - Guidelines). With this methodology it is intended to provide all the references and the operational tools to implement the C actions of the LIFE + PREFER project.

The document is divided into two sections: the first one dedicated to the environmental monitoring, the second one to the socio-economic monitoring.

ACTION C1 ENVIRONMENTAL MONITORING

The objective of the action C1 is to assess the project impact on the environmental performances that characterize the territories involved in the PREFER project. The activities of this action intended in particular to assess the improvement of the environmental performance achieved by SMEs (Small and Medium Enterprises) participating in the project.

METHODOLOGICAL SUMMARY

Environmental impact: any **environmental**[1] modification, negative or positive, due totally or partially from the **environmental aspects**[2] of an **Organization**[3] (3.7 UNI EN ISO 14001:2004)

Environmental performance: measurable results of the management of the environmental aspects of an **Organization** (3.10 UNI EN ISO 14001:2004)

Let's start with these two definitions.
For the PREFER project, we have a problem of environmental impact, the modification of the environment, and a performance problem, related to the environmental aspects[4] of the organizations, in particular to their products and services.
For the PREFER project we have decided to maintain the two issues separate and consequential.
Before the environmental company performance, which would come from the project implementation, where for company performance we refer to the product environmental performance; after, the project environmental impact.
For the project environmental performance, therefore, we refer to the effects induced by the implementation of the project activities on the environmental performance of the actions beneficiaries: companies and in particular the environmental performance of their products assessed according to the methodology of the environmental footprint of EU 152/2013 Recommendation.

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[1] **Environment**: the context in which an organization operates, including air, water, land, natural resources, flora, fauna, humans and their interrelations (3.5 UNI EN ISO 14001:2004)

[2] **Environmental aspect:** element of the activities or products or services of an organization that can interact with the environment (UNI EN ISO 14001:2004 3.6)

[3] **Organization**: group, company, corporation, firm, corporation or institution, or part or combination thereof, whether incorporated or not, public or private, that has its own functions and administration (3.16 UNI EN ISO 14001:2004)

[4] *A deepening of the definition of the environmental aspect . The definition describes the environmental aspect that element of an activity that may interact with the environment. As part of an activity, or of a product or service of an organization , cannot be attributed simply to the impact factor .*
On the contrary, the environmental aspects produces factors of potential impact such as solid, liquid or gaseous emissions and the consumption of the resources.
Environmental aspects of a product are parts of those phases of the product life that can interact with the environment.
The design of a new product is an environmental aspect .
The removal of non-renewable resources, such as a quarry, is an environmental aspect .
The purification of waste water is an environmental aspect .
The production of heat is an environmental aspect .
The transport of the products is an environmental aspect .
All these aspects then produce disturbances which interact with the environment , ranging from atmospheric emissions, energy consumption , water discharges , the release of waste into the environment , etc.
In the definition of the indicators, then ,you will need to first identify the monitored environmental aspects and then the perturbation factors on which we expect an improvement change. On these, then, we will establish the environmental performance and its improvement potential.
With reference to the PEF, perturbation factors correspond to the components of the category indicators of the environmental footprint impact.

For the project environmental impact we refer to the measurement of parameters representative of the environment components (air, water, etc.) and / or impact factors at the product level in the cluster (products selected as being representative of a production context).
In any case, for the definition of the environmental indicators, we refer to the category indicators of the environmental impact as indicated in the EU Recommendation on PEF.

THE COMPANY PRODUCT ENVIRONMENTAL PERFORMANCE

The first task to be done is to identify ex ante and ex post the Product Environmental Performance Indicators characterizing the environmental aspects related to the products subject to experimentation.
Characterizing (the product) indicators will be identified through which measuring the environmental improvements pursued and prosecuted in relation to:
• emissions into the atmosphere;
• waste production;
• water resources consumption;
• water discharges;
• consumption of non-renewable energy resources.
For each product category, it will be identified at least 4 selected indicators among the aspects listed above and considered most significant.

It is up to the individual pilot groups / experimental clusters identify the indicators within the execution of the LCA study on the basis of the PEF average product.
The indicators should be defined on those phases in the product life cycle that have the greatest impact on the impact extent, or rather on the impact factor, on which improvement actions may be provided for.

Each indicator will be populated at the beginning of the PEF experimental path within the companies and at the end of the project, where we will find two situations:
1. The measurement of an achieved improvement following an action carried out;
2. The measurement of a theoretical improvement, because the action was planned but it has not come to fruition.
In both cases the indicator will be developed, which will bring a difference in the degree of uncertainty (real or hypothetical).

The project environmental impact

The second phase of the activity will focus on simulating the effects on the environment (impact) that could lead to the application on a scale of clusters of PEF experimentation and in particular the modification of the environment which might arise from the implementation of the environment performance improvement that has been reached or that you intend to pursue at the corporate level

on the entire group of companies members of the supply chain / clusters of the selected product .
This assessment will not be performed directly on the environmental components, but on the perturbation factors (impact factors) associated with the environmental aspects which have been the object of the improvement: for instance, we will discuss the waste reduction into the environment (in the broadest sense) and the reduction of the resources consumption.
The assessment will be performed ex-post to the project completion.
The indicator will provide information on the potential no entry into the environment by the product if the improvement was applied to the cluster.

DEFINITION OF CATEGORIES OF PRODUCT ENVIRONMENTAL PERFORMANCE INDICATORS

According to what was said in the methodological summary, they will be identified:

- INDICATORS PEF-ORIENTED (IPO)

These are indicators that, in the approach, play a strategic role when associated with the environmental performance measured by the LCA study of the product, focusing on the characteristic parameters of the environmental aspects cause of the impact.

DEFINITION OF THE PROJECT ENVIRONMENTAL IMPACT INDICATORS

Completed the population ex post of the product environmental performance indicators, we will proceed to the monitoring and assessment of the project environmental impact.
As mentioned in the methodological summary, such monitoring will measure the potential outcome of reducing the environmental impact that could be achieved through the application of the PREFER experience to the product, or better to sample products coming from the sample cluster.
In substance, the environmental performance indicators PEF-Oriented (IPO) will be estimated in terms of real / potential reduction thanks to the improvements achieved as a result of the product environmental assessment and its subsequent improvement plans.
The indicators will be processed as absolute value.

HOW TO CHOOSE THE PRODUCT ENVIRONMENTAL PERFORMANCE INDICATORS

You must choose at least 4 indicators, with particular attention to select indicators that are and will be filled at least 2 times throughout the project: at the conclusion of the LCA studies and at the end of the project.

PRESENTATION OF THE PRODUCT ENVIRONMENTAL PERFORMANCE INDICATOR

The indicators will be described in verbal form then presented in tabular form. The verbal description must include adequate information to explain the table. The table will be structured as follows:

Type of Ind.	IA Impact Category	LCA phase	Indicator Parameters	Environmental aspects object of improvement	Ex Ante			Ex Post		
					Reference period	Indicator value	Information quality	Reference period	Indicator value	Information quality

- **Type of indicator**
  - IPO
- **Environmental footprint impact category**

In this field we find a category of the environmental impact (for ex. Climate Change), including those listed as additional environmental information to be included in the PEF from the EU recommendation.

- **LCA phase**

Indicate the phase or the phases which refer to the indicator.

- **Indicator parameters**

In this field we find the equation that expresses the indicator (CO_2 equivalent / functional product unit)

- **Environmental aspects object of improvement**

Environmental aspect object of the improvement action that is expected to affect the indicator value, a brief description of the improvement action

- **Reference period**

In this field it is necessary to bring the period which the value taken by the indicator refers to

- **Indicator value**

Enter the value taken by the indicator

- **Information quality**

On the basis of the LCA data quality conducted for the PEF realization

PROCESSING AND REPRESENTATION OF THE PROJECT ENVIRONMENTAL IMPACT INDICATORS

The corporate environmental performance indicators will be subject to further processing, which will assess the environmental impact of the PREFER project.
This means an assessment of the forecast improvement of the environmental performance of a

product, and then a reduction of the environmental impact, if the project testing was extended to all the companies in the pilot cluster which produces that product.
This is clearly an indicative forecast improvement. In order to perform this last process and represent the environmental impact of the project actions, it's needed to know the " companies families within the cluster" that produce the product on which it was drawn the PEF (if any).
Therefore, representing, as absolute value, the hypothetical improvement of the impact category indicator of the environmental footprint, that is to say, the result of the sum of the improvements obtained if the whole " companies family ", falling in the cluster, implemented the improving actions of the environmental aspects that produce the perturbation factor or the environmental impact.
This processing will be carried out upon the completion of the project B actions.
The representation of these project impact indicators will be then represented by clusters in a summary sheet where the information about the product will be represented:
example
• Bag of durum wheat dried pasta of 500 gr.
• Quantity of the product (or entities of functional unit) carried out by the enterprises in a time interval (year)
• multiplication of the improvement of the single environmental performance for the totality of the functional unit produced per annum.
The value thus calculated represents the project potential environmental impact on the single cluster.
The summary table will report finally the set of all clusters and all products subject to experimentation:

- 8 clusters
- At least 8 products
- Indicators of the project environmental impact: greater than or equal to 20 and less than or equal to 40.

C2 MONITORING OF SOCIAL ECONOMIC IMPACT OF PROJECT

The aim of the C2 action is to assess the socio-economic impact of the project actions at company and cluster level (analyzed both in aggregate both as an individual) and on local stakeholders.
The aim is therefore punishable by performing in the initial phase of the project a "photograph" of economic and productive environment of the 8 clusters involved in the PREFER drawing upon sources and data processed by institutions and organizations that, in their statutory mission, have the task of preparing the analyzes that can be used by the users concerned.

The monitoring of socio-economic impacts will then focus on areas that realistically can be quantified and monitored over time. You will have to take care indicators readily available. The indicators shall evaluate the expected results and the implications arising from the different actions both for enterprises and, more generally, on the different local contexts involved in the project PREFER.

FIRST TASK OF ACTION C2: Analysis of the economic and production context

In order to investigate the socio-economic context, it is proposed to draw on primary sources from:

- Studies and Statistics Office network of Chambers of Commerce that prepare studies and economic analyzes of regional and provincial context. It should be noted in particular the document of '"Osservatorio Distretti". http://www.starnet.unioncamere.it/4-Rapporto-dellOsservatorio-Distretti_1A9857 (i.e. http://www.osservatoriodistretti.org/node/381/distretto-cartario-di-capannori or http://www.osservatoriodistretti.org/node/365/distretto-industriale-agro-alimentare-di-nocera-inferiore-gragnano) and the documents published by provincial Chambers of Commerce (i.e.: Rapporto 2012 Province of Asti http://www.starnet.unioncamere.it/Rapporto-2012--Provincia-di-Asti_7A8348B199C993)
- Census of Industry and Services 2011; the Data Warehouse http://censimentoindustriaeservizi.istat.it/istatcens/dati/ allows to describe the situation of specific business areas and industrial districts

SECOND TASK OF ACTION C2: Collection of data for the enterprise level and cluster level

It is proposed, as already said, to identify the indicators that have a real or at least realistic correlation with the effects that can be generated from the project PREFER and that on the contrary do not investigate areas or aspects heavily dependent on exogenous variables, such as the contingent socio-economic situation.

It is proposed a definition of the set of indicators that, since its methodological approach, differentiates the monitoring of economic and social impacts resulting from the implementation of PREFER, on the target of the project, namely:

1. The individual enterprises
2. Cluster (all the firms involved as a representative sample of the production context
3. The local context

The following indicators are suggested to monitor the performances of companies and clusters; other indicators are in the deliverable "Set of socio-economic indicators to assess the improvement":

- Investment in training activities on environmental issues (€ / year)
- Investment in training activities on environmental issues (man hours / year)
- Number of staff with environmental responsibilities and tasks (units / year)
- Number of employees with less than 30 years (units / year)
- Investment focused on "innovation / sustainability of the production process" (€ / year) (may be covered, for example, investments in energy efficiency, the rationalization of water consumption, ...)
- Expenditure carried forward to the "green purchasing" (€ / year)
- Value of production (sustainable) (€ / year)

With regard to the indicators for the cluster will be projected indicators developed for the individual firm to the cluster considered as a set of the firms involved.

With regard to the indicators for the target "local context" is considered important to include the following indicator:
• Number of expressions of interest on PREFER explained by relevant third parties (commercial intermediaries, mass retailers, consumers, ...) aimed at the partners of the project
Other indicator could be suggested by partners concerning their cluster.

The information needed to develop and monitor indicators previously proposed, along with others proposed by the partners in relation to their own territories and products will be requested through the questionnaire for the LCA which will be circulated among enterprises for the construction of PEF cluster.

Filling out the questionnaire to a sample of firms is proposed in Action B2. The questionnaire will also contain qualitative questions on socio-economic aspects related to the sensitivity of the enterprise and of the supply chain on sustainability issues. Some questions that might be made are as follows:

1. Is the production (even partial) of your firm sustainable? (the question should obviously be declined depending on the sector, for example in the food industry may be related to organic production, to integrated fight, ...)
2. Does the enterprise adopt a policy of sustainable procurement (eg, eco products, recycled materials, raw materials from certified supply chains,)?
3. Has the enterprise received, over the past years, stress (by end customers, intermediate customers, as traders,) to qualify the environmental production of its goods?

It is still too early to identify the contents of the survey on-line foreseen by the project that will be prepared in the last months of the project PREFER.

METHODS OF DATA COLLECTION REQUIRED FOR THE ELABORATION OF ENTERPRISES INDICATORS AND CLUSTER INDICATORS

The clusters analysis will be completed by drawing on the sources mentioned above obviously integrable by the individual partners where there is the availability of more data.

The analysis should include the following information:

- Description (specialization, characteristics of the district, market areas)
- Number of enterprises
- % Change in number of enterprises in recent years
- Structure of enterprises (micro, small, medium, large)
- Number of employees
- % Change in number of employees in recent years
- Production value (M €)
- Export (M €)
- % Change in exports in recent years

The indicators relating to individual enterprise and to the cluster will be populated at the beginning of the experimental path of PEF in enterprises (through the collection of data and information for the realization of PEF Product characterizing each cluster) and at the conclusion of the project. Each partner will be able to insert socio-economic indicators that are particularly representative of their cluster in the questionnaires.

The indicators for the target "local context" should be monitored annually by the individual partners of the project on the basis of the information held.

The presentation of the socio-economic indicators follow the same rules and schemas of environmental indicators.