

# The potential applicability of the PEF methodology for Azerbaijani enterprises

## Background

In 2013, the European Commission (EC) published a recommendation on the use of a common methodology to measure and communicate the environmental performance of products and organizations<sup>1</sup>. This recommendation was part of the 'Single Market for Green Products initiative' (SMGP) and a response to the endless list of 'green or sustainable labels' that may result in confusion for consumers and/or costs for companies wishing to market their products as environmentally friendly<sup>2</sup>. The initiative aimed at a higher uptake of 'green' products and practices for companies operating in the EU market, thereby focusing on products sold and/or consumed in the European Union. Naturally, this also created a further appetite for sustainable products for manufacturing companies exporting to the European Union.

Since 2019, the EU-funded EU4Environment programme has been supporting Azerbaijan, along with other Eastern Partner (EaP) countries, in pursuing the path of green transformation. It helps the EaP countries preserve their natural capital and increase people's environmental well-being by supporting environment-related action, demonstrating and unlocking opportunities for greener growth, and setting mechanisms to better manage environmental risks and impacts. To this end, it integrates into a single strategic framework greener decision-making, circular economy, smart environmental regulations, ecosystem protection and knowledge sharing.

## What is Product Environmental Footprint (PEF)?

Published by the European Commission (EC) in 2013, the Product Environmental Footprint (PEF) is a methodology for calculating the environmental impact of a product over its lifetime.<sup>3</sup> Although PEF has been proposed by the EC as part of the SMGP initiative, PEF is still a methodology and not a piece of legislation in its own right. PEF is based on a product's life cycle assessment.

## What is a life cycle assessment (LCA)?

Life cycle assessment (LCA) is a methodology for calculating a product's environmental impact. LCAs are widely used in the apparel industry, as they provide a clear picture of the materials that make up a product, and how these materials impact the environment at every stage of a product's life — from raw material extraction to manufacturing, distribution, usage, and all the way through to disposal.<sup>4</sup>

## PEF and LCA

Life cycle thinking is a way of thinking of the environmental, economic and social consequences of a product throughout its entire life. Life cycle assessment (LCA)<sup>5</sup> is the steady-state, comprehensive, and quantitative analysis of environmental or social impacts of a product/process/system from its

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<sup>1</sup> EC (2013) European Commission. Commission recommendation on the use of common methods to measure and communicate the life cycle environmental performance of products and organizations (2013/179/EU). Of J Eur Union

<sup>2</sup> European Commission (EC) (2016) Single Market for Green Products Initiative [Internet]. [Cited 2017 July 17]. Available from: <http://ec.europa.eu/environment/eussd/smgp/>

<sup>3</sup> EC (2013) European Commission. Commission recommendation on the use of common methods to measure and communicate the life cycle environmental performance of products and organizations (2013/179/EU). Of J Eur Union

<sup>4</sup> <https://blog.greenstory.io/life-cycle-assessment-in-the-fashion-industry>

<sup>5</sup> <https://eplca.jrc.ec.europa.eu/lifecycleassessment.html>

entire life cycle (which also includes the effects on ecology, resources, and human health). The life cycle stages include all raw materials, resources, and energy consumed through the manufacturing stages including the acquisition stage, processing stage, manufacturing stage, product life phase, and waste management/end-of-life scenario. At the same time, transportation is included in every step. Each manufacturer or supplier is responsible for ensuring sustainability through product stewardship. Hence, Life Cycle Assessment (LCA) represents the practical realization of this concept, aiming to comprehensively analyze the potential environmental implications of a decision-making process. LCA forms the scientific and methodological foundation of the PEF (Product Environmental Footprint) and OEF (Organization Environment Footprint) methods.

PEF is similar to LCA, and the common LCA calculation can be used for the PEF calculations. Just like LCA's, PEF is a science-based, clear method that quantifies all the environmental impacts over the entire life cycle of a product. This includes the product's emissions to water, air, and soil emissions, resource use and depletion, the impact of land and water usage, etc.

However:

- PEF is more stringent in its rules than a 'normal' LCA, due to it being a detailed prescribed method for analysis.
- The PEF method and its database offer consistency, making it suitable for comparing products within the same product groups.

Moreover, the PEF and OEF methods provide guidance for the collection and modelling of inventory data (including allocation rules for recycled materials as well as data quality requirements). In a nutshell, PEF is based on LCA, and both are methodologies for calculating the impact of a product over its lifetime. PEF, however, is more clearly defined than the universal LCA methodology and could become the 'gold standard' for LCAs in Europe.

For example, PEF defines clear system boundaries for a product's lifecycles, whereas LCA boundaries are open to interpretation. PEF also provides rigorous guidance for assessing a product's end-of-life, which LCA does not require. PEF is standardized for comparability between products, whereas the scope of an LCA can differ depending on who is conducting the assessment. This is an important distinction, as comparability is only possible if the results are based on the same rules (the reason for which the Product Environmental Footprint Category Rules (PEFCR) exist). PEFCR are PEF's 'Category Rules' for individual product groups, offering step-by-step guidance on conducting PEF for different kinds of products. These category rules make PEF ideal for achieving consistent and comparable environmental impact reports across industries, ensuring that every product's impact is calculated to the same standards, and that consumers can accurately compare goods within the same category.

### **Life cycle approaches in Azerbaijan**

The academic literature on PEF and LCA in Azerbaijan revealed only a few examples of the application of LCA in the country. One example focused on comparing the environmental impacts of two alternative façade panels used in the construction of Heydar Aliyev Cultural Centre in Baku<sup>6</sup>. While the lack of previous success stories and know-how experiences still poses challenges in kicking

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<sup>6</sup> Goldin, A., Jongeward, A., Scammell, L., Wise, C., Autumn 2009. Architectural façades for the Heydar Aliyev cultural center: a life cycle assessment. CEE 226 - Term Proj.. <http://www.kreysler.com/wp-content/uploads/2013/08/CEE-226-Baku-Facade.pdf>.

off the use of different LCA-based approaches, the multilateral ties and commitments of the country to achieve a transition towards a green economy provide unique opportunities for utilizing LCA. Such an opportunity is the introduction of the Product Environmental Footprint methodology.

### **Challenges and opportunities in the application of LCA in Azerbaijan**

Multinational enterprises have many times pioneered the application of LCA to various products as a means to improve operational efficiency and gain a competitive edge (by manufacturing more sustainable products and communicating efforts via environmental labelling schemes). Naturally, the availability of financial resources and reliable data inventories have also facilitated these efforts. For example, LCA performed by the Midwest Research Institute (MRI) in 1969 for the Coca-Cola Company beverage containers is considered one of the first LCA studies conducted in the country. Today, many large industrial companies have their own LCA specialists and can integrate the methodology into product development and R&D activities. Multinational corporations currently operating in Azerbaijan are prime candidates and potential partners for the development and application of LCA studies in the country. This would be in line with Sustainable Development Goals (SDG) target 12.6<sup>7</sup>(Sustainability reporting - Businesses) which requires states to encourage companies (particularly large and transnational companies) to integrate sustainability information into their reporting cycle. However, Azerbaijan also needs to adopt a national sustainability reporting policy to further support these efforts.

The fact that consumers are especially interested in purchasing a product that is considered ecologically appropriate (acceptable) and therefore willing to pay a higher price, has not been investigated. Poor awareness when it comes to the advantages of buying an "environmentally-friendly label" creates an opportunity for the introduction of Life Cycle Approaches such as PEF into the Azerbaijani market.

Renewable energy companies are also an interesting example for piloting PEF, as they are expanding their operations in Azerbaijan and creating additional opportunities for the application of LCA. For instance, ACWA Power of Saudi Arabia recently signed an implementation agreement with the Ministry of Energy of Azerbaijan for developing and operating a 240 MW wind power project. Its diffusion technology would not only achieve sectoral productivity, but also the transfer of essential knowledge, innovation, and key practices and procedures<sup>8</sup>. In addition, as these companies' value chains encompass direct operations in Azerbaijan, they create the possibility for future LCA and carbon/water footprint studies as part of the companies' efforts to assess their global environmental impacts/footprints. However, these processes must be aligned with the companies' internal policies and dynamics in relation to their suppliers, partners, customers, competitors and other relevant stakeholders. Hence, their decisions and actions are shaped by the macro-environment which also includes education and training systems, science and technology, sectoral dynamics, regulations and development targets.

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<sup>7</sup> GRI, 2016. Global Reporting Initiative, Sustainable development goals, SDG 12.6. Available online: <https://www.globalreporting.org/information/SDGs/Pages/SDGtarget-12.6-.aspx> (Accessed: 25 May 2020)

<sup>8</sup> OECD, 1997. National Innovation Systems. OECD Publishing, Paris Available online: <https://www.oecd.org/science/inno/2101733.pdf>. Accessed: 04 July 2020.

## **Promoting life cycle approaches in Azerbaijan**

PEF and LCA are relevant methodologies that can be adopted by promoting life cycle thinking. This, in turn, can establish a collaborative environment among local and international experts and integrate life cycle approaches into national projects on climate change mitigation, renewable energy, and other key areas of sustainable development.

Recently, new potential drivers and application areas for these methodologies have been emerging (including national environmental and sustainable development commitments). They require holistic, life cycle-based approaches and transboundary partnership projects to incentivize the development of production processes. The widespread use of resource efficiency and life cycle approaches can only be possible through the development of local capacity and by integrating these subjects into the curricula of higher education institutions (that could potentially serve as partners in multilateral development projects and provide technical expertise for industry and government agencies). As well, the establishment of a national collaboration network could bring together relevant stakeholders and provide a discussion and networking environment.

## **Gaps in the application of PEF in Azerbaijan**

### **PEF is a voluntary methodology**

The PEF methodology is still in progress and in the so-called 'transition phase' (pilot phase). As this phase will be completed by the end of 2024, the use of PEF is currently voluntary.

The European Commission is still further developing the details for the PEF Product Category Rules (also PEFCR's or PCR's) in order to finalise the PEF methodology developments. These category rules will define footprint measurement rules specific to industries.

## **The current context of the institutional set-up and legislation in Azerbaijan**

A labelling approach should be integrated into the institutional system. The main challenges in Azerbaijan's environmental labelling legislation include:

- The lack of a definition for the concept of ecologically appropriate (acceptable) products;
- The lack of definition criteria for distinguishing the ecologically appropriate products from ordinary (conventional) products (except in the area of ecological agriculture);
- The lack of rules for informing consumers about the eco-signs or labels on imported products;
- The lack of a regulatory mechanism to assess and balance the emergence of non-certified or obscurely certified products in the country;

The absence of national certification and accreditation bodies in the country also makes it necessary to carry out such certification and accreditation abroad. This leads to high costs related to international accreditation and certification, as local producers are spending more for international certification to mark their products as environmentally friendly.

## **Recommendations for the development of ecological certification or ecological labelling**

In the field of standardization:

- Acceptance of national standards based on general ISO standards
- Adoption of ISO 14000 standards

- Preparation and adoption of standards in the field of national ecology, food safety, health and environmental protection, based on the ISO standards

In the field of accreditation:

- Creation of accreditation laboratories and organizations for determining the conformity of products and services, according to ISO 14000 standards
- Accreditation bodies from other countries (including TURKAK), until Azerbaijan's accreditation system is developed
- Creation of organizations and laboratories in the field of ecologically clean agriculture

In the field of certification:

- labelling should be integrated into the institutional system.
- Implementation of mandatory and voluntary certification for human health and environmental protection.

### **Consequences of the PEF requirements for national enterprises?**

Currently, in the Eastern Partner (EaP) region, the PEF methodology is promoted as an activity led by the United Nations Industrial Development Organization (UNIDO), through the EU-funded programme, EU4Environment Action. Here, the planned work includes mapping existing practices and barriers to introducing PEF, raising awareness and understanding of the opportunities and benefits of the SMGP Initiative and PEF application, and leading the way to pilot and promote PEF in selected industries. This will make the local stakeholders more aware of the potential benefits and impact of applying PEF; create local capacity in the EaP region; help the national industries be better prepared for potential policies involving PEF, and provide learning opportunities for local experts.

In addition, with the support of the EU, UNIDO conducts awareness and capacity-building activities, which contribute to the broader support of "green" efforts and policies. The learnings from this initiative are also used to formulate recommendations for enabling PEF-compliant studies in other Eastern Partnership countries. Currently, within the EU4Environment Action, manufacturing enterprises are invited to take part in awareness events in Azerbaijan, the Republic of Moldova, and Armenia, and the piloting of the PEF methodology in Georgia and Ukraine.

PEF enables enterprises to actively and strategically improve their production (e.g., by rethinking design, closing resource loops, or giving by-products a new purpose). This helps them make production more efficient and transforms production patterns to prevent the generation of waste in the first place. Besides offering databases and calculation methods, PEF also gives general rules to product groups so companies can benchmark their progress on a product within their sector or category. In turn, they better understand their environmental performance against competitors. Benchmarking is also a powerful incentive to build a reputation and to create sustainable and environmentally-friendly goods and services appreciated in the everyday life of consumers.

Hence, being a good environmental performer, especially in a market as dynamic and competitive as the EU Single Market, is in itself an added value that can ensure good business prospects and sound strategies for any company.<sup>9</sup> On the consumers' side, making informed purchasing decisions

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<sup>9</sup> <https://www.eu4environment.org/app/uploads/2022/05/Leaflet-advancing-product-environmental-footprint.pdf>

has become a staple practice, in Europe, and around the globe. Only by comparing the performance of similar products or services, can consumers learn to trust new brands and diversify their spending habits. Next to a calculation method and a database, PEF also focuses on general rules for specific product groups. The PEF Product Category Rules entail specific rules related to different industries. These rules enable PEF studies which are more comparable and verifiable if these studies have all been conducted based on the same PCR. Examples of PCRs have already been developed for Food and Textiles.

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