Abstract

Adoption of Integrated Product Policy by SMEs: the eLCA Project

R. Buonamici, P. Buttol, P. Masoni, M. Misceo, L. Naldesi, C. Rinaldi, B. Sára°, F. Taraborrelli

ENEA, via Martiri di Monte Sole, 4 I -40129 Bologna
° FEBE EcoLogic, Via Tombesi dall'Ova, 52 I - 48100 Ravenna

Corresponding Author: P. Masoni masoni@bologna.enea.it ph: +39 051 6098 424

Integrated Product Policy, IPP, is a priority for the European Union and to be effective and recognised by consumers, it should be applied to a very large number of products and services. The acceptance of IPP by Small and Medium sized Enterprises, SMEs, is therefore a crucial issue for the entire policy.

The **eLCA Projec**t, coordinated by ENEA in cooperation with other national and European partners (EA, AUTh, ECIPAR, ifeu and RANDA Group), has the general objective to realise "*Databases and Web site for the adoption of Integrated Product Policy by SMEs"*, through the following phases:

- implementation of a Web site for the adoption of IPP by SMEs, provided with specialised databases, information/training packages and specific tools;
- testing of the Web site on two industrial sectors to verify both functionality and the business/management model (based on an innovative public-private partnership).

eLCA is a cross sectorial project between IPP, SMEs and Information Society (IS)**,** involving two aspects: Public Sector Information (PSI) and Information and Communication Technologies (ICT). SMEs have specific barriers towards both IPP and ICT: to be accepted and implemented by SMEs, ICT solutions and IPP need to be adapted to the characteristics of their economic model, in particular their knowledge of production and management and their relationships with innovation and the environment.

The information content of products and the exchange of information among the stakeholders of the product life cycle phases are key aspects of IPP: Life Cycle Assessment (LCA) is the basic tool to evaluate a sound scientific environmental information of products. This methodology will be gradually adopted for design and production of products, with close integration with innovative design methods (Quality Function Deployment –QFD, Concurrent Engineering, etc.).

These issues have been analysed and *integrated* in ***"eLCA Preparatory Action",*** aimed at defining the context and the technical and economic aspects of the Web site.

The main results of "eLCA PA" concern:

- ***Technical aspects***: market survey, ICT and IPP context analysis, databases review (availability and structure of public information and private LCA data sources) and development of a simplified LCA methodology (as tool on the Web site);
- ***Managerial and economical feasibility analysis:*** definition of a business and partnership model. A business case was carried out to examine the economical sustainability of eLCA Web site on the first year of activity.

The main objective of the Market Survey, carried out on eLCA PA, has been the analysis of SMEs' needs and behaviours in order to understand the sector specific drivers and barriers to the adoption of LCA and IPP and to identify the type and conditions of service required by SMEs for the application of LCA, using the Web site.

Results of the market analysis have shown that a Web site to support the adoption of IPP is considered very useful and appropriate by both enterprises and service providers, if it is:

- *A "place" where SMEs can find all the elements useful to think about and start IPP interventions;*
- *A "gate" to access more sophisticated (also commercial) services for the IPP implementation phase;*
- *Connected with service providers and inside the typical relationship networks of SMEs (strong attention to create new market-players starting from existing mediators, such as consultants, associations, service centers);*
- *Providing structured and pre elaborated PSI, DBs and meta DBs with general and sector specific data, connected to specialised tools (data availability is fundamental but SMEs will adopt IPP only if data are pre-elaborated, related to their sectors and to their typical product chains, provided and integrated with customised services);*
- *Providing well localised and specialised data, guidelines, case studies, etc., resulting from sector and product chain analyses;*
- *Provided with a series of different paths for information, training and self use tools;*
- *Adapted to country/local conditions.*

eLCA PA has developed the functional and technical specifications for the design of the Web site and a model for its management. The complete Web site structure includes five service's classes:

1. ***General services:*** including access to on and off-line consultancy, a self assessment system for "non expert" users to suggest different paths in the Web site according to their characteristics, "Ecoproducts Showroom" about the products designed by the tools available in the Web site and other general services.
2. ***General support information***: for example about IPP & SMEs, Design Methods (LCA, Ecodesign, Environmental Benchmarking), Market tools (Ecolabel, EPD, Eco taxes), Environmental Management Systems (EMAS, ISO14000, Environmental Reporting), Supportive Instruments (Incentives, Standards & Regulations), Databases of Supportive Instruments (such as European, National and Local regulations), etc… A great part of the "Information" has national or local characteristics and needs country adaptation and continuous upgrading (an expert team will guarantee the scientific quality of the content).
3. ***Training packages***: including on-line packages for self-training introductory courses on Market tools, Environmental management systems, analysis and design methods and supports for off-line training. Downloadable materials for trainers such as presentations, texts, examples, valuation tests, bibliography will be available.
4. ***General and sector specialised Life Cycle Inventory (LCI) databases and guidelines****:* General LCI databases (by agreements and synergy with other initiatives in progress: CASCADE, UNEP/SETAC, I-LCA, etc.) and sector specific DBs and meta DB (processes, materials, components and subsystems) for specific industrial sectors chosen for their economical and environmental relevance: Hotels, Wood/metal/textile products, construction, EEE (with guidelines and case studies).
5. ***Specialised IPP software tools for SMEs****:* including eVerdEE, a tool for Ecodesign (integrated with QFD system) and a system to integrate different softwares actually used by SMEs to manage environmental relevant data.

LCA requires a massive amount of validated data about materials, processes, energy, transportation, waste treatments, etc... The availability and the cost of structured, general and sector specific data for LCA can be an insurmountable barrier for SMEs and this requires pre-elaborated data/meta-data, use of standards and low cost solutions. Since the knowledge and the use of LCA by SMEs is a strategic "step" to introduce IPP policy; ENEA, in cooperation with

FEBE EcoLogic, has developed a LCA software – eVerdEE – based on a simplified methodology and specialised for SMEs. The impact assessment is calculated automatically by the software using the quantities implemented by the user and the characterisation values of the database. The results have different levels of visualization in order to identify the life cycle critical points and the improvement solutions. The results of the “improved” life cycle can be compared with those of the base study by the use of a target plot.
This methodology has been tested on a sample of SMEs operating in the Furniture and Wood sector, to identify aspects that need further development and to create a sector specific database.