



## EDITORIAL

## APPLYING SUSTAINABILITY PRINCIPLES IN THE ECONOMY

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The interaction between a *manufacturing operation* and the *environment* is changing. Before, you would go to the end of a project and look at the regulations, then put in whatever control systems you need to reduce the pollution, lower power consumption, or whatever met the code. The people doing that typically have no interaction with people designing or operating the process. In industrial ecology, we say: *go to the beginning of the pipe and design the systems so we can accomplish our corporate goals and minimize the impact on the environment at the end of the pipe.*

Sustainability does not limit itself to the *micro-economic* level, though being the most important in the pipeline of environmental management and control (Fig. 1).

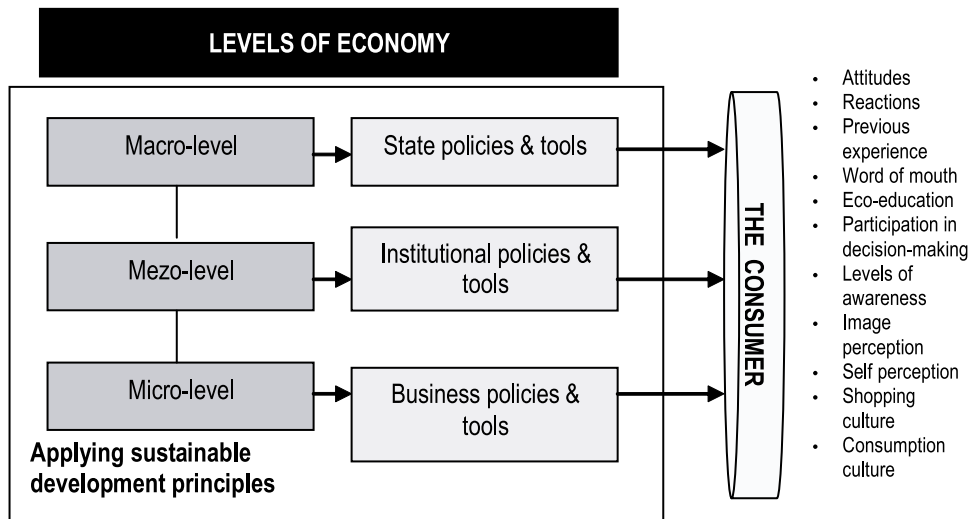


Fig. 1. Levels of applying sustainable development principles in the economy

Let's consider the interaction among the three levels of economy – macro-, mezo- and micro- – on equal grounds, as they administer tools and policies, which could directly influence the final consumer through his/her *spectrum of sustainability*, including attitudes; positive, negative or neutral reactions; previous experiences; the power of word of mouth; eco-education; participatory activities in decision-making on community or individual levels; levels of sustainability awareness on local or regional scale; country/government/town/company's image perception; self-perception within the framework of social responsibility and being a good citizen; shopping and consumption culture in the sense of buying, consuming and disposing *environmentally friendly* products and services (Fig. 1).

Sustainable planning presents important advantages relative to the *tools* and traditional concepts of planning development, especially for the formulation, practice and evaluation of public decisions and *policies*:

- It makes up a strategic process that permits the decision maker to center his attention on those issues that are crucial for sustainability such as ensuring the water demand (Fig. 2).
- It lets rural poverty to be eradicated when establishing ecological and cultural corridors with multiple objectives, among which we see the promotion of regional and national integration of local communities.
- It permits one to formulate policies simultaneously using different geographic and institutional scales.

It must be emphasized, still referring to the environmental sustainability, the importance of utilising the *marketing mechanisms*, such as estimates and tariffs that incorporate in the private expenditure the costs of environmental preservation, through means of mechanisms that satisfy principles such as “precautary” or “polluter-pays”. Among many mechanisms, it can be also mentioned the “markets of wastes”, where industries of an specific area accommodate the wastes of their activities, most of the time converted in inputs for other industries; and the “negotiable rights of contamination”.

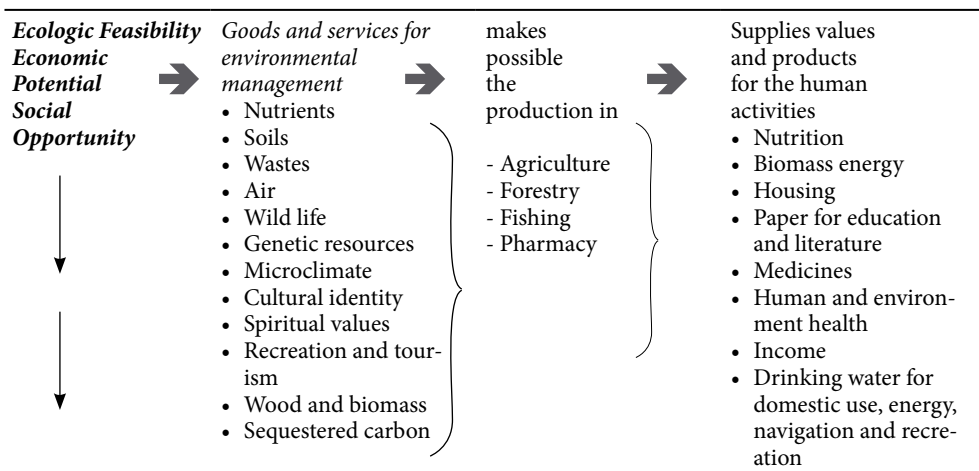


Fig. 2. Relations between consumers' basic needs and environmental services through the prism of ecological feasibility, economic potential and social opportunity

Even though there are important constraints in many market instruments, proposed nowadays – among which we can mention, *the uncertain future externalities, and the difficulty of being awarded the ownership of some environmental resources and services*. Mainly, when a generalized character is ascribed to them, such a solution of all environmental unsustainability problems, the rights of pollution have the advantage of allowing, through intra-industry transfer, that the State decreases enforceable regulation by establishing emission limits per production unit, and that it regulates regional borders, based on the ecosystem recovery ability (Fig. 3).

Thus, a significant part of the preservation of the *environmental quality* would go to the market, to the extent that the marketing of such rights stimulate *technological modernization* and stop penalizing the industries that at the present technological level do not have the conditions to reduce their levels of emissions (Fig. 4).

	<b>Legal</b>	<b>Economic</b>	<b>Information</b>
<i>Type of effect</i>	Coercion	Positive motivation	Awareness
<i>Techniques</i>	Prohibition, norms, legislation	Tax, subsidies, etc.	Education, publication, mass media
<i>Aims of techniques</i>	Material disincentives, social pressure, legal mandates	Material incentives	Creating social norms
<i>Duration of effect</i>	Short	Medium	Long
<i>Speed of change</i>	Medium	Quick	Slow
<i>Cost of implementation</i>	High	Medium	Low
<i>Durability of change for environment</i>	Weak	Relatively weak	Strong

**Fig. 3.** Selection of legal, economic and information tools to change sustainable/environmental behaviours

<b>Analytical decision-making tool</b>	<b>Decision object</b>
Life Cycle Assessment (LCA)	Products (goods and services)
Material Input per Unit of Service	Material input of service systems
Environmental Risk Assessment (ERA)	Single activities or processes at a single location
Single substances	
Material Flow Accounting (MFA)	Societal metabolism: materials, energy, mass
Substance Flow Analysis (SFA)	Metabolism of single (groups of) substances
Cumulative Energy Requirements Analysis (CERA)	Energy analysis of products
Eco-design	Products or processes
Environmental Input/Output Analysis (IOA)	Monetary flows
Life Cycle Costing (LCC), Total Cost Accounting (TCA), Cost Benefit Analysis (CBA)	Cost aspects of products, processes or activities

**Fig. 4.** Analytical decision-making tools and objects for sustainable practices in business

In the current system, where the inspection per productive unit and the application of fines unit is privileged, in addition to making degradation of the environment costs difficult to enforce, enterprises are penalized when even if using the state of the art technology on the market, still exceed the limits established, while those that are still operating within them and refrain from improving their productive processes are rewarded.

Furthermore, a constructive solution should be offered instead. Fig. 5 indicates that each selected target audience on the market could raise awareness in environmental issues, envisaging from the *government's* efforts right to the *academia*. A huge impact of academic research has been produced on economy and business on the whole, by assisting in conducting national and international studies on environmental and sustainable issues; in preparing guidelines and policies on macro-, mezo- and micro-economic levels; in validating the monitoring of the implementation and the quality of results in sustainability-related programmes, projects and strategies. As outlined in Fig. 5, the academia could apply all mentioned analytical tools to tackle environmental performance of a company or a product.

There could ways proposed for influencing the marketplace on various levels of *sustainable decision-making and policy formation*, such as a) governmental, b) institutional, c) organisational (business) and d) consumers and other stakeholders. Therefore, it could be useful to run through all levels in detail.

1. *How to influence the market on the governmental level?* It is advisable to work with government (to level the playing field, encourage investment, and gain government recognition), e.g. remove distortions and subsidies for unsustainable practices; form alliances to shift policy (e.g. Green Movement); participate in voluntary programs; educate government representatives about sustainable business issues; support government investment in new technologies; encourage proactive government role in educating about environmental issues; encourage green procurement initiatives.

Target audience	Issues	Procedural tools	Analytical tools
Government	Environmental performance of company or product	Environmental reporting	LCA, MIPS, MFA, ERA, CERA
Stockholders	Company-related liability issues	Environmental reporting, Environmental Performance Indicators	TCA, LCC, MIPS, MFA, CBA
Supply chain	Environmental performance of product	Product declarations, Environmental Performance Indicators	LCA, check-lists, MIPS, ERA, CERA
General public	Environmental performance of product or company	Environmental labelling, Environmental Performance Indicators	LCA, MIPS, MFA, ERA, CERA
Academia	Environmental performance of product or company	–	all

Fig. 5. Procedural and analytical tools to tackle environmental performance issues in selected target audiences

2. *How to influence the market on the institutional level?* It would be reasonable to set the standard for measurement of “green” – for example, to introduce an environmental product declaration for products and services; to shift thinking on acquisition costs (de-emphasize piece price; to emphasize life cycle costs; to use hazardous materials index combined with other info to measure potential for financial gain.

3. *How to influence the market on the organizational (business) level?* One of the steps could be the innovation processes in business operations and creation of environmentally-friendly new products and businesses; working with suppliers and testing the sustainability indicators and measure quality requirements; facilitating market transformation (introducing environmentally-friendly and safe products, or substitute their parts/whole product with renewable and safe materials; educating company’s employees and employers on environmental issues, e.g. ISO14001; aligning with consumer associations and NGOs activities for technical support, third party credibility.

The rationale for adopting environmental (green) marketing philosophy in an organisation lies in the organisational ability to implement this philosophy as a part of existing organizational values; to timely respond to consumer demand; to increase sales/market share; to develop a competitive advantage; to improve company’s image; to reach environmental market segment; to be mandated by government regulations. A recent Gallup poll concluded that  $\frac{3}{4}$  of Americans include a consideration of “*environmentalism*” in their purchase-decision-making process. In addition, the poll found that:

- 69 % have boycotted or avoided buying a product due to environmental concerns,
- 82 % reported that they would be willing to pay “a little more” for environmentally friendly products,
- 75 % reported that they would be willing to pay up to 5 % more for environmentally-friendly products.

4. *How to the market on the consumers’ and other stakeholders’ level?* Sustainable business and governmental policies could reach consumers and other stakeholders through *education practices* on legal, purchasing and consumption issues and *marketing and advertising techniques*, emphasizing the greening strategies and policies taken into action and their direct benefits and value building for consumers and stakeholders. An intensive work should be carried out with media operators in order to foster education/behavior change in the public; to proclaim visibility for specific efforts and to ensure third party credibility. It also provides a perfect opportunity to enhance the interrelationship with other stakeholders, e.g., educators.

One of the ways to educate and advertise environmental products and services is through labeling and packaging the goods. Therefore, companies enjoy a vast variety of *environmental claims*, e.g. naturally derived; environmentally-friendly; EvironEffective; EcoSafe; EarthSmart; green; nature’s friend; no additives; no chemicals; non-polluting; ozone-friendly; forest-friendly; EcoAdvantages; garden safe, etc. Furthermore, an extensive survey, performed by the author, disclosed that eco-labeling could be grouped and classified into 6 meaningful *clusters*, namely:

- 1) *raw materials-related*: sustainably harvested, petroleum free, all natural, plant based;

- 2) *manufacturing-related*: non-polluting, unbleached, pesticide free, organic, not tested on animals;
- 3) *packaging-related*: recycled content, recyclable, aerosol free, biodegradable, reusable;
- 4) *in use*: low fume, energy efficient, no CFC;
- 5) *after use*: recyclable, bio-degradable;
- 6) *manufacturer-related*: socially responsible, ISO 14K certified, CERES signator.

Various stakeholders could work in unity towards eco-labeling policy and programme formation as indicated in Fig. 6, especially from the national perspective.

This issue of the journal is dedicated to all economic levels starting from institutional level (Prof. J. Platje) and working towards the community level (Prof. R. Čiegis and D. Gineitienė); from the macro-level of sustainable tourism in Lithuania (Prof. D. Grundey) towards the micro-level of cooperating in sustainable tourism market in Latvia (Prof. B. Švariņa, Prof. D. Grundey, K. Bērziņa); from EU pollution reduction strategies (Prof. D. Štreimikienė and Dr. B. Esekina) to greening strategies in sustainable eco-labeling (Prof. D. Grundey and Prof. R. M. Zaharia).

Type of body	Possible advantages	Challenges
A body specifically created for this purpose	Completely dedicated to the scheme: total identification of the body with the scheme.	It has been tried – but is unlikely to be financially viable until participation in the scheme is much greater.
A body which already runs a national eco-label scheme	Probably the most popular option where there is a national scheme: likely to know about the European Flower eco-label (established in 1992 in Europe) and to have experience of the issues.	The need to present relevant distinctions between the national scheme and the European scheme, and to be fair to both.
A body running other labeling schemes	Good knowledge of the wider labeling scene, experience of relevant issues, and ability to present the label in context.	–
A standard body	Professionalism, experience in the issues, and certified status.	–
A government department	Complete integration with Member state's policy interests and policy issues such as integrated product policy (IPP).	Possibly less used to providing a professional customer-focused service; national views on eco-label criteria do not necessarily represent national policy on environmental aspects.
A national agency responsible for the environment	Normally well placed to balance stakeholder interests and environmental knowledge alongside a policy remit to improve the environment.	–
A professional body in the environmental field (e.g. an association for environmental auditors)	Good professional service and environmental knowledge.	Not necessarily a strong public profile, and likely to need frequent consultation with government to ensure it is on track.

Fig. 6. Eco-labeling policy formation on various economic levels