

Elongated A2Z of DfE

A desktop glossary for designers

Design for Environment (DfE) or EcoDesign is about developing products in a way that reduces their environmental impact. The aim is to design products that are functional, desirable, cost effective, and have no harmful side-effects on the environment. In today's world, good design includes attention to environmental objectives.

Acidification – Acid deposition from emissions - power plants, vehicles etc. causing dead lakes and forest dieback.
Environmental Information for Industrial Designers C Bakker

Avoidance – The first step in the waste hierarchy and indicates practices whereby waste generation is circumvented and eliminated (avoided).

Benign – gentle, mild, kindly. Process or material that is no threat to the health of persons or the environment. OED

Bioplastic – Plastics manufactured from renewable resources such as natural sugars or starch extracted from potato, wheat, corn or tapioca. An additional environmental benefit is the fact that they are biodegradable under certain conditions. Mechanical properties vary depending on the specific polymer, however bioplastics are already in use in the packaging, automotive and consumer electronic sectors.

Biodegradable – capable of being decomposed by bacteria or other living organisms. OED

Biodiversity – diversity of plant and animal life - threatened by environmental degradation. OED

Biosphere – the regions of the earth's crust and atmosphere occupied by living organisms. OED

Carbon Credits – Under Article 3.3 to the Kyoto Protocol a planted forest ... on previously cleared land will count as a carbon sink. The carbon dioxide sequestered in such a forest can be used to create carbon credits. Emissions trading will allow countries and individual companies to buy and sell carbon credits created by activities that reduce the level of GHG emissions. www.forest.nsw.gov.au/publication/forest_facts/growing_trees/default.asp#s

Carbon Sink – The term "sink" is commonly used to describe the carbon taken from the atmosphere by plants and stored in living and dead organic matter, both above and below ground in land-based (or terrestrial) ecosystems. www.greenhouse.crc.org.au/crc/ecarbon/faqs.htm#top

Carbon Trading – trading emission reductions, carbon credit selling and buying i.e. carbon producing company offsets emissions by buying credits from a plantation or renewable energy company.

CFC – chlorofluorocarbon, any of a class of gaseous compounds of carbon, hydrogen, chlorine, and fluorine, used in refrigerants, aerosol propellants (foamed plastics) etc., and harmful to the ozone layer in the earth's atmosphere owing to the release of chlorine on exposure to solar ultraviolet. OED

CFC Free – Product produced without CFC therefore not contributing to ozone depletion.

Churn – cycling / disposal of furniture & products as style or technology changes. While up to 40% of waste going to landfill is from construction and deconstruction activities, a staggering proportion of that is waste from the churn of fit-outs and refurbishments - up to 32% of all waste going to landfill. www.gbcaus.org/gbc.asp?sectionid=6&docid=464

Cleaner Production – Cleaner Production is the continuous application of an integrated preventive environmental strategy to processes, products, and services to increase overall efficiency, and reduce risks to humans and the environment. Cleaner Production can be applied to the processes used in any industry, to products themselves and to various services provided in society. UNEP. This can include for example removing toxic or problematic processes, chemicals and solvents from production thus reducing the factory's (and the goods produced) environmental impact. A component of environmental management systems.

Climate Change – change in global weather patterns due to human activities - global warming, ocean current temperatures, rainfall etc.

Closed Loop – product life cycle where nothing is wasted over its life, components are recycled, remanufactured or composted. The process of introducing waste streams back into the manufacturing process in a continuous cycle without loss of waste from that cycle. ECODESIGN HANDBOOK Faud-Luke

Contamination – pollution, corruption. OED. Foreign matter present in recycled material reducing its physical (engineering) properties. A challenge in dealing with post consumer waste.

Composting – A process of biologically degrading organic materials in the presence of oxygen, yielding carbon dioxide, heat and stabilised organic residues that may be used as a soil additive. Composting can include industrial or post consumer waste if organic materials have been selected.

Cradle to Cradle Design – William McDonough and Michael Braungarts' (MBDC) design paradigm, based on principles and an understanding of the pursuit of value, as well as MBDC's processes for product and material research and development, and for educating and training. At a fundamental level, the new paradigm proposes that human design can learn from nature to be effective, safe, enriching, and delightful. Cradle to Cradle Design models human industry on nature's processes, in which materials are viewed as nutrients circulating in healthy, safe metabolisms. MBDC www.mbdc.com/overview.htm

Cradle to Grave – entire life cycle of a product from raw materials through use, to final disposal.

CSR - Corporate Social Responsibility – corporations responsible to society and the world for the products and outputs from their operations. Includes product stewardship, occupational health, community wellbeing, fair trade, cleaner production and environmental management systems.

Degradable – reduce to a simpler molecular structure. OED. Breaks down in the environment to its natural components.

Dematerialisation – product sold as service - Sustainable Solutions Charter&Tischner. The process of converting products into services. ECODESIGN HANDBOOK Faud-Luke. Dematerialization refers to the absolute or relative reduction in the quantity of materials used and/or the quantity of waste generated in the production of a unit of economic output. A common indicator is the intensity of material use, which is the quantity of material used per unit of economic output. mitpress.mit.edu/catalog/item/default.asp?tid=4078&ttype=6

Design for Disassembly (DfD) – Designed to be easy to disassemble (with minimal, basic tools) at end of life, for repair, remanufacture or recycling.

Design for Durability (DfD) – Designed to last longer thus avoiding multiple products being used for a particular task over time, resulting in less overall environmental impact.

Design for Environment (DfE) or EcoDesign – A way of designing products with a view to eliminating or minimising environmental, social and human health impacts across the entire product life cycle from materials extraction and processing through to production, distribution, operation and end-of-life. Underpinned by a life cycle approach to impact identification and reduction. Focus on 'locking-in' positive environmental features (e.g. renewable and post-consumer recycled materials), and 'locking-out' negative environmental features (e.g. hazardous and toxic substances, premature obsolescence). See also SPD.

Design for Upgradeability – designed with the ability to have components (or covers) changed or upgraded to keep pace with technological (+ style & fashion) change. Reduces premature obsolescence.

Design for Waste Minimisation – designed so as little material is wasted in production and at end of life – reused, recycled, repaired, remanufactured etc.

Design for Recycling (DfR) – Designed to maximise recycling; easy to disassemble, materials are easily separated, labelled and commonly recycled.

Dematerialisation – This term generally refers to a reduction in materials intensity in situations where products nonetheless remain essential. It can refer to production-side initiatives such as light-weighting or use of recovered materials, or more radically, products designed for closed-loop take-back and components or materials reuse. But increasingly it is used to refer to user-side product-service mixes, that is, services designed to enhance the use-life or number of lives of a product, and/or the number of uses or users of products. These are often called Product Services and Systems (PSS). EcoDesign Foundation, www.edf.edu.au

Disposal – what happens to a product at end of life – litter, landfill, incineration, ocean dumping, recycling etc.

Downcycling – recycling to create a new material that has properties inferior to the original. ECODESIGN HANDBOOK Faud-Luke

E Waste - Electronic Waste – Large amount of waste from discarded electronic and electrical consumer goods due to high rate of change (churn) in technology, style etc inducing premature obsolescence. Difficult to manage due to volume and the content of toxic materials, heavy and valuable metals. See WEEE Directive

ECM - Environmentally Conscious Manufacturing – the application of green engineering techniques to manufacturing to encourage greater efficiency and reduction of emissions. ECODESIGN HANDBOOK Faud-Luke

Eco – prefix or short form of ecology, ecological indicating ecological concerns or benefits.

Eco Audit – an audit or reckoning of ecological impacts or benefits of a process, product, or manufacturing facility.

Eco Efficiency – the efficiency of a product or process from an ecological or life cycle point of view. A practical and systematic approach aiming to 'do more with less.' Eco-efficiency focuses on innovation, quality and value, while reducing resource use, waste and pollution.

Eco Indicators – environmental indexing procedure, decision support tool for product development, mainly and indicator for toxic emissions. ENVIRONMENTAL INFORMATION FOR INDUSTRIAL DESIGNERS Bakker

EcoReDesign™ – redesign of existing products to reduce the environmental impacts. ECODESIGN HANDBOOK Faud-Luke. EcoDesign moves towards sustainability in fulfilling our needs with products that have less and less environmental impact, and perhaps even reconsidering the traditional solutions to those needs with a new perception of resources being non abundant and finite.

EcoDesign – the redevelopment and new development of products, systems and services aimed at the attainment of a more sustainable development. ENVIRONMENTAL INFORMATION FOR INDUSTRIAL DESIGNERS Bakker

Ecological Footprints – measure the total land area required to support the production of a service, product or lifestyle. design + environment Lewis & Gertsakis

Ecolabelling – A voluntary method of environmental performance certification and labelling that is practiced around the world. An ecolabel is a label which identifies overall environmental preference of a product or service within a specific product/service category based on life cycle considerations. The International Organization for Standardization (ISO) has identified three broad types of voluntary labels, with ecolabelling fitting under the Type I designation. Global Ecolabelling Network, www.gen.gr.jp/

Ecology – the study of the interaction of people with their environment. OED

Embodied Energy – An indication of the amount of energy used in production and distribution of a material or product; the cost in energy to produce. The total energy stored in a product or material and includes the energy in the raw materials, transport and that consumed in manufacture. Eco-Design Handbook by Alastair Faud-Luke, Thames & Hudson 2002.

Embodied Greenhouse Gas Emissions – an indication of the amount of greenhouse gas emissions produced by the extraction, energy in creating, transport and use of, a material or product.

Emissions – the process or an act of emitting. A thing emitted. OED. Pollution associated with a material (VOC), manufacturing facility or production process.

Environmental Management System (EMS) – An environmental management system (EMS) is a systematic approach to dealing with the environmental aspects of an organization. It is a 'tool' that enables an organization of any size or type to control the impact of its activities, products or services on the natural environment. The ISO 14001 standard "*Environmental management systems--Specification with guidance for use*" is the standard within the ISO 14000 series that specifies the requirements of an environmental management system. ISO, www.iso.org/

EoL - End of Life – the point at which a product is no longer useful or used - lifecycle considerations and responsibilities for what happens after this point.

Energy Labels – consumer oriented label indicating an appliance's energy efficiency. Australia has a star rating system from one to six in half star increments for energy using products.

Environment – the living and non living physical surrounding of the human society. ENVIRONMENTAL INFORMATION FOR INDUSTRIAL DESIGNERS Bakker

Environmental Accounting – efficiency-enhancing opportunities that arise when companies incorporate environmental costs and benefits into mainstream materials and supply chain management decision-making www.epa.gov/opptintr/acctg/resources.htm; A discipline for measuring environmental costs that may be applied to the areas of management accounting, financial accounting and national accounting.

Environmental Impacts – detrimental impacts on, or changes to, the environment - pollution acidification, eutrophication, global warming, reduced biodiversity etc.

Environmental Objectives – setting a goal for design or manufacturing process to reduce environmental impacts - an inclusion amongst all the objectives usually set in these processes.

Eutrophication – (of a lake etc.) rich in nutrients and so supporting a dense plant population, the decomposition of which kills animal life by depriving it of oxygen. OED

Extended Producer Responsibility (EPR) – Designed to reduce the amount of waste from consumer goods and its impact on the environment. It involves producers taking more responsibility for managing the environmental impact of their products throughout their life. Producers can play a role beyond the point of sale or warranty by, for example, designing products that produce less waste, use fewer resources, and contain more recycled and less toxic components. NSW Department of Environment and Conservation www.epa.nsw.gov.au/waste/epr/faq.htm#one

Factor 4 – Doubling Wealth, Halving Resource Use. - Book title, authors: von Weizsäcker, Lovins and Lovins.

Finite – limited, bounded; not infinite. OED - non renewable.

Full Cost Accounting (FCA) – Incorporating into the accounting and business planning systems the practices for tracking and quantifying (in dollar terms) the cost of waste (where waste is defined as any input that does not add value to the company's activities). Considering all costs for a particular activity including internal costs (e.g. Energy, labour, raw materials) and external costs which are often much harder to quantify (e.g. loss of habitat).

Global Warming – increase in average temperatures due to human activities. See greenhouse effect.

Green – concerned with or supporting protection of the environment as a political principle. OED Also anything supporting protection for environment i.e. green design, green buildings etc

Greenhouse Effect – The trapping and build-up of heat in the lower atmosphere near the planet's surface. Some of the heat flowing back towards space from the Earth's surface is absorbed by water vapour, carbon dioxide (CO₂), methane (CH₄), and other gases in the atmosphere. If the atmospheric concentrations of these gases rise, then theory predicts that the average temperature of the lower atmosphere will gradually increase. An increase in the natural greenhouse effect, brought about by human activities, whereby greenhouse gases such as carbon dioxide (CO₂), methane (CH₄), chlorofluorocarbons and nitrous oxide (N₂O) are being released into the atmosphere at a far greater rate than would occur through natural processes and thus their concentration in the atmosphere is increasing www.greenhouse.crc.org.au/crc/ecarbon/faqs.htm#top

Green Building Council Australia – A national property industry initiative with a broad membership base comprising developers, professional associations, universities and research institutions and all levels of government. The Council aims to define and develop an environmentally sustainable property industry in Australia and to promote green building practices, technologies and operations. www.seav.vic.gov.au/buildings/green_building/index.asp

Green Star Rating Tool – a rating tool for homes in Victoria to assist a greater range of energy efficiency and water saving features, improving occupant comfort and reducing the cost of energy bills and indoor air quality. The Green Star environmental rating system for buildings was created to:

- * Establish a common language;
- * Set a standard of measurement for green buildings;
- * Promote integrated, whole-building design;
- * Recognise environmental leadership;
- * Identify building life-cycle impacts;
- * Raise awareness of green building benefits; and
- * Reduce the environmental impact of development.

www.gbcaus.org/greenstar/page.asp?id=117

Green Procurement – is the process of specifying that goods / materials of suppliers meet minimum environmental standards. ECODESIGN HANDBOOK Faud-Luke

Hazardous Substance – A substance which has the potential to harm the health or safety of humans. Types of substances which may be hazardous include solvents, pesticides, paints, adhesives, petroleum products, heavy metals and other industrial chemicals. www.comcare.gov.au/publications/factsheets/fact-sheet-17b.html, www.nohsc.gov.au/

Heavy Metals – Metallic elements mainly of high atomic weight, generally toxic to plant and animal life in low concentrations. These elements are often present in the environment in trace concentrations and exhibit biological accumulation. Examples include mercury, cadmium, arsenic and lead, which are toxic to humans in any form or quantity. Department of the Environment and Heritage (NPI), www.npi.gov.au/epg/npi/contextual_info/glossary.html

Kyoto Protocol – A Protocol to the United Nations Framework Convention on Climate Change was adopted in Kyoto in 1997. This Kyoto Protocol establishes legally binding greenhouse gas (GHG) emission targets for developing countries. www.forest.nsw.gov.au/publication/forest_facts/growing_trees/default.asp#s

ISO 14001 – International Standard Organisation. The international standard for companies seeking to certify their environmental management system.

Landfill – waste disposal method – burying or mixing with earth, waste on a large scale. Many countries no longer have the space for this. Associated problems; non productive land use, pollution, methane and leaching of chemicals and heavy metals.

Leaching – material / liquid percolating through porous material. OED. Associated with heavy metals, chemicals, toxic and persistent substances percolating out of landfill into the surrounding geology and watertable.

LEED – US - Leadership in Energy and Environmental Design, Green Building Rating System is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. www.usgbc.org/DisplayPage.aspx?CategoryID=19

Life Cycle Assessment (LCA) – A process to evaluate the environmental burdens associated with a product, process, or activity by identifying energy and materials used and wastes released to the environment, and to evaluate and implement opportunities to affect environmental improvements.

LCI - Life Cycle Inventory – data collection in LCA. www.pre.nl/life%5Fcycle%5Fassessment/life%5Fcycle%5Finventory.htm#top

LCIA - Life Cycle Impact Assessment – is used for evaluation of the impacts in LCI.

Life Cycle Thinking – The concept of life cycle thinking integrates existing consumption and production strategies, preventing a piece-meal approach. Life cycle approaches avoid problem shifting from one life cycle stage to another, from one geographic area to another and from one environmental medium to another. Human needs should be met by providing functions of products and services, such as food, shelter and mobility, through optimised consumption and production systems that are contained within the capacity of the ecosystem. UNEP www.uneptie.org/pc/sustain/lcinitiative/background.htm

Life Cycle Inventory – analysing the environmental consequences of inputs required and outputs generated during the life of a product. Ecodesign Handbook Faud-Luke

Light Weighting – Reducing the weight of a product so as to have less environmental impact in production and distribution. Less material used and less weight to transport.

Litter – refuse, esp. paper, discarded in an open or public place. OED

Low Impact – less environmental impact – less than standard.

Materials Intensity / Raw Material Intensity – what percentage of raw material is produced from the total amount extracted and what part ends up in the product. Part of the environmental impact of product associated with raw material extraction. Dematerialization refers to the absolute or relative reduction in the quantity of materials used and/or the quantity of waste generated in the production of a unit of economic output. A common indicator is the intensity of material use, which is the quantity of material used per unit of economic output.

mitpress.mit.edu/catalog/item/default.asp?tid=4078&ttype=6

Materials Efficient – 'Achieving more with less' by supplying products and services using fewer resources, and generating less waste, to maintain quality of life.

Materials Labelling / Identification – The labelling of materials in product so as to assist in sorting for recycling. Words, letters, numbers, symbols or a combination can be used to designate composition of components of a product or packaging. Note: a material identification symbol does not indicate whether an item can be recycled.

Modularity – offers the user the possibility of adding modules as needs require. ECODESIGN HANDBOOK Faud-Luke. Allows customisation by user from standard production units.

Micro Factory Retailing – a radically different business model to manufacture, distribute, retail, service and recycle vehicles as a viable alternative to creating a sustainable automobile industry. Wells and Orsato 'The Ecological Modernisation of the Automotive Industry' 2003

Natural Fibre Based Composites – plastics etc with natural or renewable fibre filler used to enhance its physical properties.

Natural Step, (The) – is a non-profit environmental education organization working to build an ecologically and economically sustainable society. The Natural Step offers a framework that is based on science and serves as a compass for businesses, communities, academia, government entities and individuals working to redesign their activities to become more sustainable. <http://au.naturalstep.org/about/aboutform.html>

Non-renewable Resources – those in finite supply that cannot be regenerated or renewed.

Obsolescent – becoming obsolete; going out of use or date. OED

Off Gassing – Emissions of volatile compounds to the air from synthetic or natural polymers... from additives, elastomers, fillers, residual chemicals from manufacture. ECODESIGN HANDBOOK Faud-Luke

Ozone Depletion – Ozone is destroyed by reaction with Nitric acid (from the burning of fossil fuels) or chlorine compounds, e.g. CFC. Ozone is a form of oxygen that forms a layer in the atmosphere. The ozone layer protects us from the harmful effects of the sun's radiation. design + environment Lewis & Gertsakis

Packaging Covenant – The National Packaging Covenant is a voluntary agreement between government and industry aimed at reducing the environmental impact of consumer packaging in Australia. www.envict.org.au/inform.php?item=352

Pollution – contaminate or defile (the environment) OED

Pollution Prevention – a plan to eliminate pollution from a process by opting for or changing to environmentally benign processes.

Post Consumer Waste – Goods or materials discarded after use by consumer. When collected for recycling it needs to be identified and separated to avoid contamination during recycling.

Post Industrial Waste – Waste from industrial processes, usually a known material low in contamination and in the case of plastics reground and reused on site. Also referred to as pre consumer waste.

Product Service System (PSS) – A Product Service System (PSS) can be defined as: 'a marketable set of products and services capable of jointly fulfilling a user's need'. PSS-s will offer powerful concepts towards the marketplace and can contribute to sustainable growth. Basic idea is that a company's commercial value creation goes beyond the spreading of material goods. PSS is about function fulfilment of the needs of clients. PSSI Network, www.pss-info.com

Product Stewardship – Producers and brand owners proactively managing the environmental impacts throughout the life-cycle of their products in partnership with other stakeholders e.g. suppliers, consumers, government. Playing a greater roll in keeping their products out of the waste stream. See EPR and SPR.

Product Life Cycle – the whole life of a product from raw materials extraction to manufacture, distribution, use and disposal. Cradle to grave.

Product Obsolescence – technical and stylistic changes result in product being considered obsolete while they are still perfectly functional. Environmental Information for Industrial Designers Bakker

Products to Services – the potential for a product to be replaced with a service, e.g. leasing, where the need the product fulfils is addressed without the user owning the product. Makes it easier for manufacturers to restore, remanufacture or recycle products in a product stewardship role. Also one product can be used by many people, e.g. car hire or share.

Protocol – the original draft of a diplomatic document, esp. of the terms of a treaty agreed to in conference and signed by the parties. OED

'R's (3 to 5) – a mnemonic device used as a mental checklist in considering the environmental design of products - reduce, reuse, recycle, remanufacture, respect, recover... assembled in different ways and at varying levels of expansion.

Reconditioning – taking back products to refurbish or update – less environmental impact than manufacturing a new product.

Recovery – getting back a material, energy, component or product for reuse, drawing out of the waste stream or from waste energy.

Recovery Rate – The recovery rate is the percentage of materials consumed that is recovered for recycling.

Recyclate – material for recycling, bulk of a specific recycled material. Material that has been made into a new material comprising wholly or partially recycled materials. ECODESIGN HANDBOOK Faud-Luke

Recycle – to reuse a material, component or product, reducing the cost and environmental impact of producing from new.

Recycled Content – proportion of recycled material in a blend, or out of a product's total components, in percentage. Recycled material and freshly mined material are often mixed to meet engineering specifications.

Recycling Rate – rate at which a product or material is recycled, compared to total produced or discarded, indicating some is lost to waste.

Reduce – the first in the mnemonic 'R's. In approaching sustainability the first call is to reduce the need for, or use of, materials, energy and products.

Remanufacturing – technological updating of a product for prolonged or renewed use ENVIRONMENTAL INFORMATION FOR INDUSTRIAL DESIGNERS Bakker

Renewable – material or energy source that can be used indefinitely - not a finite resource i.e. wind energy or natural (grown) fibre.

Resource Depletion – the using up of a finite resource for energy of raw material.

Resource Recovery – recovering a resource (energy, chemical or material) from the waste stream – recycling

Re-use – high on the mnemonic 'R's list, reuse instead of obtaining a new product or material.

Reusable Packaging – packaging that can provide protection on more than one trip. ECODESIGN HANDBOOK Faud-Luke

RoHS Directive (EU) – The Restriction of Hazardous Substances in Electrical and Electronic Equipment Directive. Protect human health and the environment by restricting the use of certain hazardous substances in new equipment. EC Directorate-General, Environment - RoHS and WEEE FAQ

Recycled Content – Proportion of recycled material in a blend, component or product; typically sourced from materials recovered from end-of-life products and components as opposed to the use of 100 per cent virgin materials. See Post Consumer and Post Industrial Waste.

Shared Product Responsibility (SPR) – A variation on EPR i.e. seeks to expand the assignment of responsibility for waste management of packaging and spent consumer goods beyond the producer and consumer to include all participants along the life cycle of a product including designers and manufacturers, as well as consumers and governments. The Commonwealth of Massachusetts www.mass.gov/epp/info/define.htm

Serviceability – designed to be easily serviced and upgraded to increase the life of a product thus reducing its environmental impact. Given the need or task a product fulfils, a serviceable product reduces the need for new products over time and reduces the waste through premature obsolescence.

Self Assembly – final assembly done by consumer, saving energy in fabrication and transportation (i.e. flat pack – more units per load).

Solvent Recovery – methods for cleaning and recycling solvents, usually by batch distillation, reducing costs and the problem of disposal.

Sustainability – A dynamic process which enables all people to realize their potential and to improve their quality of life in ways that simultaneously protect and enhance the Earth's life support systems. Forum for Future, www.forumforthefuture.org.uk/

Sustainable Consumption – Sustainable resource use. A change to society's historical patterns of consumption and behaviour that enables consumers to satisfy their needs with better performing products or services that use fewer resources, cause less pollution and contribute to social progress worldwide.

Sustainable Development – to meet the needs of the present without compromising the ability of future generations to meet their own needs. Bruntland Report WCED

Sustainable Product Design (SPD) – A design philosophy and practice in which products contribute to social and economic well being, have negligible impacts on the environment and can be produced from a sustainable resource base. ECODESIGN HANDBOOK Faud-Luke, Thames & Hudson 2002.

Sustainable Production – The creation of goods and services using processes and systems that are non-polluting; conserving of energy and natural resources; economically viable; safe and healthful for employees, communities, and consumers; and socially and creatively rewarding for all working people. www.sustainableproduction.org/about.what.shtml

Take-back – A concept commonly associated with Product Stewardship, placing responsibility on brand-owners, retailers, manufacturers or other supply chain partners to accept products returned by consumers once they have reached the end of their useful life. Products may then be recycled, treated or disposed to landfill.

Technosphere – synthetic and composite components and materials formed by human intervention in re-ordering and combining materials of the biosphere, geosphere and atmosphere. ECODESIGN HANDBOOK Faud-Luke.

Transport Energy – the energy used in transporting raw materials and distributing products. Energy used in transport is a component of the total environmental impact of a product.

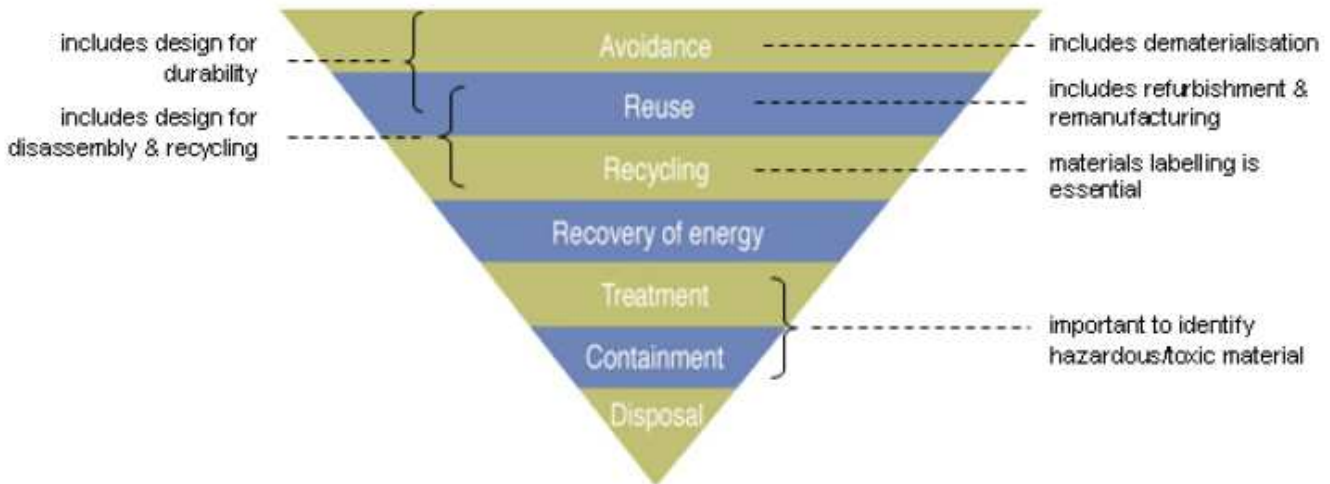
Toxicity – A toxic substance can be defined as one with an inherent ability to cause systemic damage to living organisms. Toxic substances occur in the air, the soil, the water and in other living things, and they can enter the body in various ways. Australia Academy of Science, www.science.org.au/nova/036/036key.htm

Triple Bottom Line – Referring to the notion that organisations are responsible for social and environmental as well as financial outcome.

Unsustainable – a process, resource use or lifestyle (state of mind) based on finite resources, the availability of which will cease at some point. An outcome of the outdated conception of abundance with regards to natural resources.

VOC - Volatile Organic Compound – natural and synthetic organic chemicals that can easily move between the solid/liquid and gaseous phase. ECODESIGN HANDBOOK Faud-Luke. Various processing chemicals which off-gas during the life of a material, polluting air, in particular indoor air.

Waste Management Hierarchy – Also referred to as the Waste Minimisation Hierarchy or Waste Hierarchy. An environment protection principle which states that wastes should be managed in accordance with the following order of preference



WEEE Directive – European Commission Directive on Waste Electrical and Electronic Equipment. The purpose of this directive is, as first priority, the prevention on WEEE and, in addition, to promote the reuse, recycling and other forms of recovery of such wastes so as to reduce their disposal. It also seeks to improve the environmental performance of all operators involved in the life cycle of electrical and electronic equipment, e.g. producers, distributors and consumers and, in particular, those operators directly involved in the treatment of waste electrical and electronic equipment. EC Directorate-General, Environment - RoHS and WEEE FAQ

Useful websites

Industrial Designer Society of America EcoDesign Section
<http://idsa.org/whatsnew/sections/ecosection/index.html>

Envirowise Cleaner Design (UK)
www.envirowise.gov.uk/envirowise3.nsf/key/cleanerdesign

HP Design for Environment (Global)
www.hp.com/hpinfo/globalcitizenship/environment/productdesign/design.html

Minnesota Office of Environment Assistance DfE toolkit (USA)
www.moea.state.mn.us/berc/dfetoolkit.cfm

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For copies of the DfE Quickstarts and additional DfE resources and information visit the ResourceSmart website
www.resourcesmart.vic.gov.au

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