Introduction to Zero Waste.

Zero Waste is a goal, a process, a way of thinking that profoundly changes our approach to resources and production. Not only is Zero Waste about recycling and diversion from landfill, it restructures production and distribution systems to prevent waste from being produced in the first place.

- Zero Waste requires preventing rather than managing waste.
- Zero Waste turns discarded resources into jobs instead of trash.
- Zero Waste supports sustainable economic development.
- Zero Waste emulates nature's vibrant flow of energy.

Zero Waste is an philosophy that encompasses this challenge. It focuses on the restructuring of production and distribution systems to prevent waste from being manufactured in the first place. Recycling and landfill diversion must no longer be options for "waste", as this implies failure. It is possible to design nearly all products, processes and services so that they do not make waste in the first place, and where waste is created, it is easily re-integrated back into products and process, in a safe way. The internationally accepted definition of Zero Waste is clear:

Definition of Zero Waste.

"Zero Waste is a goal that is both pragmatic and visionary, to guide people to emulate sustainable natural cycles, where all discarded materials are resources for others to use. Zero Waste means designing and managing products and processes to reduce the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing Zero Waste will eliminate all discharges to land, water or air that may be a threat to planetary, human, animal or plant health."

Zero Waste International Alliance

Zero Waste also looks at the methods and resources used in production. It aims to eliminate the use of unsustainable materials and products and substitute natural, renewable sources. This way, all products will be able to be returned to usable forms and resources will not be lost.

The vision of Zero Waste does not view the economy in the traditional linear manner in which a primary good is turned into a final product. It turns the input/output model into a circle in which the end product may again be used as a resource. Nothing should be lost in the process of production.

There are not enough resources present on the earth for development to continue in the form it has taken. It would take three to nine Earths to support a world full of people at the same consumption rates as those in the US. A more sustainable way of using goods must be recognized, for the Earth cannot afford to continue to lose resources from its ecosystems.

Zero Waste is the only way to obtain a truly sustainable society.

Resource availability is at the heart of a range of sustainability issues. Therefore, every aspect of the resource must be utilized and not lost from the system. Plastic goods may be recycled, but there is a limit to the number of times they can be remanufactured. Eventually the plastic will become an unusable, unsustainable waste, depleting a non-renewable resource (fossil fuel - oil) in the process.

Incineration breaks down waste and releases chemicals that are dangerous to life. Zero Waste argues that in addition to the harmful emissions, incineration also removes materials from the economy, leaving them in a form that is unusable. Truly sustainable development cannot afford to have resources lost.

The vision of Zero Waste is becoming more and more accepted throughout the world. While some claim it to be an unachievable target, the reality of Zero Waste exists in everything surrounding us. Every byproduct produced by an ecosystem is used by another organism. Resources are recycled throughout the system and never change into a form that is unusable. Although one company in itself may not be able to eliminate waste, with planning and coordination their byproducts can be used by another company.

South Africa adopted Zero Waste as a national target to be achieved by 2022. (Polokwane Declaration, September 2001).

Five Basic Tenets of Zero Waste

1. Redesigning Products and Packaging

Zero Waste advocates planning in advance to minimise the use of natural resources, water and energy, phase out the production and use of toxic materials, and the over-packaging of products. Resource minimisation is advocated by recovering materials through the processes of sorting, reusing, recycling or composting materials. This is achieved through implementing Clean Design and Clean Production.

2. Producer Responsibility

Zero Waste places the primary burden of responsibility on manufacturers for the impact that materials they produce have on people and the environment. This impact assessment includes materials that end up as waste because they cannot be used otherwise or easily recycled or composted. The process of Zero Waste holds the manufacturer liable for environmental impacts, unlike the present process of waste management which holds the government solely responsible. Rather than seeing the end point of material flow through society as landfill or incineration, Zero Waste maintains that manufacturers are responsible for full financial and physical responsibility for their products and processes. This principle is implicit in South African legislation.

3. Infrustructural Investment

Instead of using tax money to buy technology and fill land with “waste” materials that degenerate into harmful substances, communities can invest in new resource recovery facilities. In this way social development can benefit from sustainable use of natural resources.

4. Monetary Efficiency

Manufacturers use natural resources as raw materials partly because there are tax subsidies and policies which make the use of such resources cheaper and easier than finding alternatives or using recycled resources. This system needs to be changed to make manufacturers pay for the externalities (or "real cost") of their products, such as the environmental impacts of virgin resources extraction, the social impacts of public health problems caused by the pollutants in the extraction of virgin materials, the cost of disposal of non-recyclable products in landfills, etc. Making manufacturers pay for these true costs of using virgin resources would drive up the cost of using virgin resources and would make recycled and recyclable materials a financially logical choice for manufacturers.

5. Job Creation

Land filling and incineration are wasteful processes because they waste limited materials that could otherwise be put to good use. They also waste business opportunities that could be created if alternatives to current waste management practices can be explored. Such alternatives will also help preserve precious resources that cannot otherwise be sustainably supplied. According to research, sorting and processing recyclables alone sustains 10 times more jobs than landfilling and incinerating.

Zero Waste and Sustainable Development

The three major options for waste right now are recycling, landfilling, and incineration. Many see recycling as the most environmentally sound practice for material reclamation. Yet recycling uses energy and cannot always reclaim all the materials in the same form as they were at the beginning of the recycling process, and further, if all post-consumer waste was recycled, this would still only result in the successful management of less than 5% of all waste, normally around 2%.

A complementary solution would be to design out the waste in the first place and use recycling only for those necessary materials able to be viably recycled which cannot be reused.

Land filling and incineration are highly unsustainable practices. Land filling takes up usable land while leaching complex chemicals into the surrounding soil and groundwater. Incineration releases toxic and carcinogenic chemicals into the air and the resulting ash. Through both processes materials which do no longer satisfy human want are treated as waste. In fact both processes make waste not only of materials, but also of the soil, water, air and all that depend on them to live, as well as wasting energy and water in the entire process.

Materials are removed from the socio-economic flow where they are either stored as useless matter or turned into useless, harmful by-products. Such wasting of material goes against the very idea and pillars of sustainable development. This robs current and future generations of resources they will need for their well being.

Challenging Questions of Zero Waste

To understand better how products that are manufactured help or harm the environment we depend on we need only find answers to the following questions:

- Which products that are manufactured are truly necessary?
- Are the products able to be sustainably reused, remanufactured, or composted?
- Can products be redesigned from processes and materials that are not harmful to the environment?
- Can materials and products be transported safely with minimum packaging?
- Can products be made closer to the place of consumption?

Reforming Production and Consumption

Zero Waste proponents believe that:

- There should be legally corrective means that promote efficient material flow from mining, forestry, and agriculture through to the consumer and back into the production systems, with a view to moving towards genuinely sustainable resources in a short period of time.
- Products and materials that cannot be safely and sustainably recovered should be phased out.
- Full advantage of the fact that materials recovery is relatively labour-intensive rather than capital intensive must be taken.

- § Work should be done with Full Cost Accounting professionals in government to make sure that they understand that resource recovery must be made relevant to all social groups.
- § Civil society must be educated about damages caused by over-consumption and waste.

Zero Waste will be possible when:

- § Civilians start to think of the things they throw away as resources and means of economic and social development instead of waste.
- § Corporations become responsible for reusing and recycling potential "waste" they generate through implementation of Extended Producer Responsibility legislation and regulation.
- § Local governments with the support of provincial and national government begin to support comprehensive alternatives to landfills, incinerators, and other resource deficient technologies.

What is the Institute for Zero Waste in Africa?

Our Mission Statement

Working towards a world without waste through public education and practical application of Zero Waste principles.

Charter Principles

1. Redesign products and methods of production to eliminate waste by mimicking natural processes and developing closed-loops
2. Convert waste to resources for the benefits of local production and the creation of a healthy and sustainable society.
3. Resist incineration and land filling in order to promote innovation in resource conservation and methods of production
4. Collaborate with others with common interests worldwide

Objectives

1. To advance the education of the public by all appropriate communication means and through supporting the elimination of waste and the associated health impacts.
2. To promote and fund appropriate research for the public benefit, including education
3. To promote the effectiveness of other Zero Waste initiatives
4. To promote the principles of waste avoidance and minimisation, re-use, repair, recycling and composting, through sustainable resource management in accordance with best environmental options.

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