

A Simple study on industrial ecology.

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Introduction

Industrial ecology (IE) is the take a look at material and energy flows through industrial systems. The global industrial economy may be modelled as a network of industrial processes that extract resources from the Earth and transform those resources into commodities that may be bought and sold to meet the needs of humanity. Industrial ecology seeks to quantify the material flows and report the commercial techniques that make cutting-edge society a feature. Industrial ecologists are often concerned with the influences that business activities have on the environment, with using the planet's supply of natural resources, and with troubles of waste disposal. industrial ecology is a young however growing multidisciplinary subject of research that combines factors of engineering, economics, sociology, toxicology, and the natural sciences [1].

Industrial ecology has been defined as a "systems-based, multidisciplinary discourse that seeks to apprehend emergent behaviour of complicated included human/natural structures. The sector approaches problems of sustainability by way of examining issues from a couple of views, normally regarding factors of sociology, the surroundings, financial system, and era. The call comes from the idea that the analogy of natural structures ought to be used as a resource in information on how to design sustainable industrial systems [2].

Industrial ecology is concerned with the shifting of commercial process from linear (open loop) systems, in which resource and capital investments flow through the system to become waste, to a closed loop system where wastes can become inputs for new processes [3].

Much of the research focuses on the following areas: [3, 4].

- Material and energy flow studies ("industrial metabolism")
- Dematerialization and decarbonisation
- Technological change and the environment
- Life-cycle planning, design and assessment
- Design for the environment ("eco-design")
- Extended producer responsibility ("product stewardship")
- Eco-industrial parks ("industrial symbiosis")
- Product-oriented environmental policy
- Eco-efficiency

Industrial ecology seeks to understand the manner wherein industrial structures (as an instance a manufacturing unit, an Eco region, or country-wide or worldwide economic system) interact with the biosphere. Natural ecosystems offer a metaphor for understanding how one-of-a-kind elements of industrial systems engage with each other, in an "ecosystem"

primarily based on resources and infrastructural capital as opposed to on herbal capital. It seeks to exploit the concept that herbal systems do now not have waste in them to encourage sustainable layout. In conjunction with more standard strength conservation and material conservation desires, and redefining commodity markets and product stewardship relations strictly as a provider financial system, commercial ecology is one of the 4 objectives of herbal Capitalism. This strategy discourages sorts of amoral shopping bobbing up from ignorance of what is going on at a distance and implies a political economy that values natural capital enormously and is based on more educational capital to design and keep every specific business ecology [4].

Conclusion

The Kalundborg industrial park is located in Denmark. This industrial park is special because companies reuse each other's waste (which then becomes by-products). For example, the Energy E2 Asnæs Power Station produces gypsum as a by-product of the electricity generation process; this gypsum becomes a resource for the BPB Gyproc a/s which produces plasterboards. This is one example of a system inspired by the biosphere-technosphere metaphor: in ecosystems, the waste from one organism is used as inputs to other organisms; in industrial systems, waste from a company is used as a resource by others. Apart from the direct benefit of incorporating waste into the loop, the use of an eco-industrial park can be a means of making renewable energy generating plants, like Solar PV, more economical and environmentally friendly. In essence, this assists the growth of the renewable energy industry and the environmental benefits that come with replacing fossil-fuels.

Additional examples of industrial ecology include:

- Substituting the fly ash byproduct of coal burning practices for cement in concrete production.
- Using second generation biofuels. An example of this is converting grease or cooking oil to biodiesels to fuel vehicles.

References

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