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# Ecology and Industry

Friends or Foes?

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A decisive collision looms. On one side is the 'grow-or-die' industry of Capitalism, lurching out of control. On the other, the fragile conditions known as the biosphere necessary for the maintenance of advanced life forms on this planet. Does there have to be one or the other? Ecologists, economists and sociologists are beginning to find common ground between ecology and industry, and discovering that by working together and abolishing the 'grow-or-die' aspect of industry, a sustainable future may really be possible.

The vision of whole networks of industries, each efficiently feeding off others by-products to eliminate waste and pollution, like natural ecosystems may not be as idealistic as it once seemed. Harmful emissions wouldn't just be curbed to a governments (un)acceptable level, they'd be abolished completely. In ecosystems, materials flow cyclically from producers (plants) to consumers (animals), and recycled by decomposers (fungi, microbes) and scavengers (vultures, hyenas and so on). Everything is put to use and the concept of 'waste' is meaningless. In the present Capitalist industries by severe contrast, materials move in a linear

fashion from manufacturer to consumer and then straight into the air or into a dump. 'Waste' is essentially a human invention.

Industrial ecology aims to 'close the loop'; making waste and pollution obsolete. This requires industries to recycle more resources, use raw materials to the full and create as few unwanted by-products as possible. However, big business executives are more concerned with getting a stable supply of materials of consistent quality than accepting the by-product of the industry next door. It demands a shift in thinking. Products need to be seen not as the end of the line, but as temporary embodiments of materials. Curbing industrial emissions to 'zero' may not be possible for as long as industry continues to use fossil fuels. Nature's ecosystems are powered by the Sun, while we burn fossil fuels, and that, inevitably produces greenhouse gases including carbon dioxide. The difficulty in eliminating or recycling such emissions means that there will always be some pollution and waste. But this needn't deter us from trying to cut waste as much as we can now.

In Kalundborg, Denmark — a seaside town of 10,000 — everyone knows about 'industrial symbiosis'. A coal-fired power station pumps steam heat, which would normally be lost energy, into an oil refinery, a drugs company and to the town. Additional recovered heat goes to a nearby fish farm. Gypsum created by the power plants scrubber is sold to a local plasterboard manufacturer which also uses the refinery's light gas, normally burnt off as waste, to fire its ovens for drying the wallboard. The refinery pumps its cooling water to the power plant for use in cleaning as boiler feedwater. Organic sludge from the fish farm and drugs company, where microbes are cultured, provides fertiliser for farmers' fields.

Perhaps the most perfectly balanced, but frequently forgotten and overlooked, example of industrial ecology is that of crop rotation in agriculture, a system that is ages old and yet rarely employed by the factory farms of today.

Information and education is the key to success for industrial ecology, expensive new technologies are not. If it is so relatively easy to create eco-industrial parks then why aren't we seeing such complexes sprouting up like mushrooms? Many people find it difficult to envisage systems, rather than linear mechanical set-ups. Companies are accustomed to focusing on a 'core' business strategy, namely making profit, that prevents them from considering other opportunities.

The growth pattern that capitalism necessarily follows is neither ecologically or economically sustainable. It is creating a high cost of living and a low quality of life. The only resource which we possess in virtual abundance is that of human potential, and yet it is a resource which is squandered with even greater profligacy than the whole of the Earth's finite resources. It is time humanity used ecological knowledge and applied it to create a society worth living in, one based on equality between people and harmony with the rest of nature. The supposedly unavoidable conflict between our 'insatiable needs' and 'scarce natural resources' only exists under capitalism; it need not always be the case. If humanity is governed by the competitive marketplace maxim 'grow or die', industry will literally devour the biosphere, turning forests into lumber and soil into sand.

*'If you make yourselves the soil, and cooperate with your neighbours; if you utilise what experiment has already taught us, and call to your aid science and technical invention, you will see that to grow that yearly food of a family, under rational conditions of culture, requires little labour and little from the soil...' — Kropotkin.*