Cleaner Production And Sustainability: Shift Towards Steady State Economy

Sustainability

Public awareness of environmental issues has increased in many countries as the anthropogenic impact on the environment become more apparent and environmental degradation worsens (Ehrlich and Ehrlich, pp. 2). Sustainability is widely recognized as the key concept in generating effective actions to solve these environmental problems such as depletion of natural resources, declining biodiversity, climate change, etc (Rockström et al., pp. 8). It leads to the desired condition in which human demands on natural, economic and social resources are met in such a way that a human population can survive and thrive indefinitely (Lecture 7, slide 6). To find lasting prosperity of the planet, sustainability should be considered as a holistic approach that takes account of ecological, technological, economic and social dimensions (Lecture 9, slide 29). This essay will identify examples of modern technological development, political and economic development, and value and psychological changes that are necessary and relevant obstacles that need to be overcomed to move towards sustainability.

Cleaner Production and Sustainability

Nowadays, technology is valued more for its actual and potential role in curing and preventing environmental problems, ultimately contributing to sustainable development (Mol and Sonnenfeld, pp. 6). One of the technological shift toward more sustainable processes of production with pollution prevention and management is cleaner production ('Cleaner production', pp. 1). Cleaner production is conducive to minimizing environmental impacts like water and air pollution, and soil degradation. Implementations of cleaner production include improved housekeeping practices, switching to renewable energy sources, increasing material efficiency, redesigning of products, and re-using and recycling by-products. Cleaner production considerably contributes to sustainability because it desires to slow down the rate of resource consumption and create a closed-loop similar to nature’s that everything is used and recycled ('Cleaner production', pp. 1).

Even though a concept of cleaner production has already been admitted, the number of industries that adopt this program is still low. One of the most influential barriers in implementing cleaner production in industry is business owners’ low awareness of the economic benefits of the application of cleaner production and hence reluctance to invest upfront costs (Lecture 7, slide 12). More specifically, the barriers can be lack of awareness of cost savings from cleaner production, lack of access to finance, and fear of high transaction and operational cost. Recommendations for overcoming these barriers can be attracting more socially responsible capital also known as green capital, and socialization of the potential economic benefits of cleaner production implementation through promotion and campaign. In fact, environmental performance is becoming increasingly important as an indicator of economic performance and as a means of attracting capital and green investors (Eisner, pp. 173). Moreover, companies that adopt cleaner production techniques can actually reduce operational cost by waste reduction and lower cost of complying with environmental legislation ('Cleaner production', pp.

1).

The shift towards Steady State Economy

The economy is a subsystem of the finite biosphere that supports it. When the economic growth encroaches too much on the surrounding biosphere, human begin to sacrifice natural capital such as animals, plants, minerals and fossil fuels that is worth more than the man-made capital like roads, factories, appliances added by the growth (Daly, pp. 12). The transition to a steady-state economy is necessary to solve the fundamental conflict between economic growth and environmental protection, and consequently contributes to the sustainability of the entire biosphere. To achieve a steady-state economy, first of all, people should stop growing economy based on measurements such as GDP, and in fact so-called economic growth already has become uneconomic, increasing environmental costs faster than any production benefits, making people poorer not richer, particularly in high-consumption countries (Ecological Economics, Lecture 8, 0:00-1:30) (Martínez-Alier, pp. 62). A steady-state economy is characterized by stable population; stable per capita consumption; energy and material flows are reduced and kept within ecological limits; and constant stocks of natural and man-made capital (Lecture 8, slide 34). By maintaining a steady-state economy, human's consumption rate of natural capital will be significantly reduced and the current generation will eventually avoid borrowing the supply belonging to future generations and accumulating more wastes in the environment to develop sustainability in the long run (Lecture 9, slide 29).

One of the obstacles in the path toward the steady-state economy is the phenomenon, "tragedy in common", which refers to the depletion of a shared resource such as fossil fuel by individuals acting independently and rationally, according to one's selfish interest about economic growth, despite knowing that an abuse of the common resource eventually inhibits long-term gains for all individuals in the group (Tragedy of the Commons, Lecture 3, 0:00-4:30). An example can be that strong economic forces are encouraging the use of the atmosphere as a free-for-all dumping ground for greenhouse gases, which aggravates air pollution. To overcome this obstacle, sustainability and system thinking education must be a major priority to educate citizens, change mental models, build social and ecological responsibilities and finally achieve mutual long-term benefits.

The shift from Consumerism to Sustainability

The scientific evidence overwhelmingly demonstrates that humanity, in the past few hundred years, has dramatically disrupted the ecological systems on which it depends due to its current unsustainable consumption patterns. Calculation of humanity's ecological footprint has shown that humanity is now using the resources and services of 1.31 Earths, indicating that humanity is using nearly a third more of Earth's capacity than is available, thus undermining the resilience of the ecosystem services on which humanity depends (Assadourian, pp. 4). At the moment, a shift from the consumerism paradigm that encourages people to define their well-being through their consumption patterns towards a sustainability paradigm that works to find an alternative set of aspirations enhancing human and ecological well-being seems urgent (Lecture 6, slide 27). The shift undoubtedly stimulates sustainable development as it helps people find value and meaning in life through ecological restoration; works to achieve greater equity, less violence, more life satisfaction; discourages consumption that undermines human welfare; and encourages products that eliminate waste and are completely recyclable (Lecture 6, slide 40).

However, sometimes, government plays a role in inhibiting the shift away from consumerism. Government reinforces consumerism through subsidies and policies that stimulate the growth of consumption. In the early twenty-first century, western governments encouraged their citizens to go out and shop after the terrorist attacks of September 11th. They also provided subsidies for particular industries, where cheap oil or electricity had utilized to boost the economy without bearing the responsibility for the environmental and social costs of production, further stimulating consumption (Assadourian, pp. 13). A practical solution to this situation is that governments and authorities should establish policies such as carbon pricing, and cap and trade that limit industries' consumption of resources and pollutant discharge (Lecture 8, slide 12) (Cap and Trade and Carbon Tax, Lecture 8, 0:00-8:56).

Conclusion

Meeting fundamental human needs while preserving Earth's life support systems requires a significant transition toward sustainability. However, this transition cannot be accomplished without limiting consumption of resources, reducing waste and pollution, limiting economic growth and changing towards a sustainable worldview. On the other hand, I believe that we, as individuals, also have an important role to play. We should reconsider our lifestyle, assume part of the responsibility and start taking the necessary steps and personal actions in order to promote sustainable development. Some practical practices can be recycling everything that I can; buying products made with recycled materials; purchasing only the products that I need; avoiding excessive packaging; using public transportation; and reducing my utility bills. Collective change is a transformative process where small individual changes are fundamental. When practised consistently, small actions lead to value change that also motivates broad action (Lecture 10, slide 10). In summary, adopting sustainable practices, whether large or small, can have significant impacts in the long run.

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