Chapter 8
Life Cycle Costing on Waste Management

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ABSTRACT

Sustainability is the essential key point in every aspect of our life. It cannot be successful when it is limited to some certain issues in daily life. It is a revolutionary step for continuous development without any impact to the nature that should be adapted to the economy, manufacturing, urbanization, industrialization, etc. Increasing population and increasing wealth causes increase in the necessities of the human being. If it is considered as inevitable to give many bad impacts to the environment, this type of perspective is more dangerous and harmful to the environment and society than giving unconscious damages. This point of view might make these impacts to be accepted as legal, and this is what should be strongly discarded. There should be a new concept which enlarged our sphere of concern to include the entire physical environment including animals, plants, and landforms.

INTRODUCTION

There should be a new concept which enlarged our sphere of concern to include the entire physical environment including animals, plants, and landforms. Assuming responsibility for other individuals, society, whole environment (plants, animals, soil, water, atmosphere, etc.) should be the main idea in sustainable development and manufacturing. An ethic, of course, cannot prevent the alteration, management, and use of these 'resources,' but it does affirm their right to continued existence, and, at least in spots, their continued existence in a natural state.

This chapter will focus on the necessity of sustainability for the future of humanity by highlighting the environmentally friendly manufacturing technologies by explaining the methodology of life cycle assessment and costing to choose the correct production and marketing techniques.

Manufacturing and technology make life easier, more comfortable and more accessible. The production is inevitable for that reason; the production systems and processes should be more logical and gentler to the human and nature. Uncontrolled increase in human population with exponential growth is one

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of the essential problems. As the world is facing with limited resources in the limited regions and the necessities are also increasing not only because of the population increment but also because of growing demand for the welfare & wealth, the technological development should be long-running status not to exploit all the resources from today. Sustainability should be the environmental objective for everyone and especially for the major decision makers. Renewable and nonrenewable resources should be applied to the sustainable global economy with the balance of nature approach. Finite resources cannot support an exponential increase of people forever.

Related to the increasing population and industrial activities; the convergence of three entities of 'resources, needs and wastes' is the crisis. Crisis is inevitable with;

1. Absence of moral direction in treatment of natural resources,
2. Inability for social institutions to adjust to reduce environmental stress,
3. Abiding faith in technology.

It will be impossible to supply resources and a high-quality environment in the next century for the entire world's population. Besides that; overpopulation, urbanization, industrialization trigger the size of the crisis. Increased awareness, changes in political, social and technological systems can only be the solution for this problem. The main motto is hidden in the maximum benefits with the minimum of disturbance to the natural environment. Regardless of personal profits, it is important to achieve a sustainable global economy with an integrated approach by;

- Changing the bulky, useless technologies that disturb the nature and resources (A resource utilization plan for nonrenewable resources that does not damage the global environment, and provides for future generations),
- Adopting new environmentally friendly manufacturing technologies (A utilization plan or renewable resources such as water, forests, grasslands, fisheries that don't deplete the resource or destroy the ecosystem),
- Completely restructuring energy programs (An energy policy is needed that does not pollute, and cause climatic change),
- Developing an effective population control strategy (Populations of humans and other organisms must live in harmony with natural support systems such as air, water, and land),
- Instituting economic planning, financial aid and tax incentives (careful management and wise use of the planet and its resources),
- Instituting social, legal, political, and educational changes with a goal to maintain environmental quality (A legal, social, and political system dedicated to sustainability and a socially just global economy).

Earth is the only suitable habitat we have, and the resources are limited. Some resources are renewable, but many others are not renewable. For this reason, there is a huge necessity for large-scale recycling of many materials. The recycling can be achieved only by an integrated waste management. In fact, some economists have the idea of 'finding resources is less problematic than finding ways to use existing ones and technology and ingenuity will overcome lack of resources', however it is a great fact that resources are finite, so this type of reasoning is fallacious because the population increase with a finite resource