6 Decoding Green Productivity - A Transition to Sustainability

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ABSTRACT

Humans are an integral part of world's ecosystems, constantly changing them and often damaging the ability of ecosystems to provide the services necessary for human well being. The deterioration of global environment is threatening the very continuation of life on our planet. To provide and satisfy the requirements of all, we may need two to three more planets, full of resources. But we have only one. Our population continues to grow. By the end of the 21st century, the United Nations predicts that this figure may even double. That means, to provide everyone with today's industrial standard of living, we would need the resources of eight planets, or more. We cannot do that. Instead, we must learn a new way of life. We have no choice. We must learn to provide affluence without effluence. We must do so by consuming less from the environment, not more. Therefore, the present study is undertaken to understand and explore the concept and importance of Green Productivity.

Key words: Green Productivity, Sustainability.

1. INTRODUCTION

The concept of green productivity stems from the 1992 Earth Summit and was picked up enthusiastically by the Asian Productivity Organization, a body which brings together productivity centers and institutes from throughout the Asia-Pacific region. (At the closing of the 1992 Earth Summit in Rio, more than 178 Governments adopted Agenda 21, the Rio Declaration on Environment and Development, Statement of Principles for the Sustainable Management of Forests. This was perhaps the first time that rhetoric started to be translated into results.)

In a way, the industrial economy is like a business that doesn't keep good track of money it uses. The earth is a huge bank, full of resources that we can withdraw and spend. Yet no one is drawing down our accounts when we make withdrawals. We pay for earth's resources according to their cost of extraction, not their cost of creation. That is like valuing your life savings according to the cost of driving all the way to ATM for cash withdrawal. The challenge, of course, is to operationalize the concept – to show how green productivity works in practice. In particular to demonstrate that a concern for the environment is not a drain on business – an additional cost – but an opportunity to change business practices and increase productivity. Just as we expect a business to keep track of the *economic* resources it draws from society, and replenish them by adding value, Business organisation should track the *environmental* resources it consumes — and take responsibility for replenishing them.

1.1. SIGNIFICANCE OF THE STUDY

Green Productivity leads to gains in profitability through improvement in productivity and environmental performance. It attempts to answer society's needs, therefore, by increasing productivity through environmentally sound practices and businesses, thereby catering to customer requirements for more environmentally

sound products while ensuring a healthy and safe environment. Green Productivity will benefit businesses by lowering its operational and environmental compliance costs preventing the generation of waste through effective and efficient utilization of resources. Workers will benefit from Green Productivity because it justifies wage increase and improves health and safety in the workplace.

2. OBJECTIVES OF THE STUDY

I. To understand the concept of Green Productivity.

II. To cite different organizations implementing Green productivity.

2.1. DATA TOOLS

The secondary data is collected from research journals, government publications, books and websites.

OBJECTIVE I: TO UNDERSTAND THE CONCEPT OF GREEN PRODUCTIVITY

The economic development policies of most developing countries have lead to industrialization and urbanization of its nation. This has resulted in major environmental crisis and has become a challenging issue to economies in recent years as a result through extraction, production and consumption of natural resources as well as generation of wastes. Furthermore, the demand for energy, initially through burning of wood, charcoal later by consumption of coal, oil, natural gas has resulted in the depletion of natural resources and has produced adverse effects to the globe.

The word productivity first time appeared in literature in 1766 used by French mathematician in his study (Sumanth, 1990). Fabricant broadly defines productivity as always a ratio of output and input (Afzal, 2004). Productivity is the name of reaching higher level of performance with least expenditures of resources. Sumanth (1990) believes that productivity is a ratio family of output to input.

According to Lawlor (1985), productivity is a comprehensive measure about how efficiently and effectively organizations satisfy the following five aims: objective achievements, efficiency of the process, effectiveness, comparability with other organizations and trend productivity measured over a period. Baig (2002) has defined productivity in the following words; doing things right at the least possible cost in least possible time with the highest possible quality and to the maximum level of satisfaction of the customers and employees. Vittal (2002) says that productivity, at a basic level can be defined as output by input. But mere increase in output is of no value unless the output also has a bearing on the objectives of the organization or the environment under which the transaction takes place. In this context, productivity is associated not only with output and input but also with the value of the environment.

Evolution of Green Productivity - Productivity is above all a state of mind. It is an attitude that seeks the continuous improvement of what exists. It is a conviction that one can do better today than yesterday and that tomorrow will be better than today. Furthermore, it requires constant efforts to adapt economic activities to ever-changing conditions and the application of new theories and methods. It is a firm belief in the progress of humanity (APO, 2009).

Green Productivity (GP) reconciles two needs that are often in conflict: the need for business to earn profit and the need for everyone to protect the environment. The term green productivity covers two complementary, but different, concepts: Firstly, it is used to describe attempts at improving productivity whilst maintaining a concern for the environment i.e. the focus is on improving economic productivity but at the same time minimizing the harm done to the environment. Secondly and more correctly, it is used to describe attempts to improve the efficiency and effectiveness with which we use natural resources i.e. the focus is on the productivity of those natural resources. Green Productivity has two “silver bullets”. It enables us to do more, and use less.

"Doing more" is a function of innovation. Designer William McDonough calls that *eco-effectiveness*. "Using less" is a function of efficiency — or what environmentalists call *eco-efficiency*. Green Productivity puts them together.

Green Productivity can be defined as **"**A strategy for simultaneously enhancing productivity and economic performance to achieve overall socio-economic development. It involves the combined application of appropriate productivity, environmental management tools, techniques and technologies that reduce the environmental impact of an organization's activities, products services whilst enhancing profitability and competitive advantage."

Improvement in the quality of life is often associated with an increase in demand for goods and services. Production of these goods and services, however, often has two negative aspects on the environment, in a way it depletes the natural resources and generates pollutants which, if dumped into natural bodies, often cause environmental damage. Even though such techniques may sometimes be economically attractive but are not sustainable because of their potential threats to society.

OBJECTIVE II: TO CITE DIFFERENT ORGANIZATIONS IMPLEMENTING GREEN PRODUCTIVITY.

Previous approaches to environmental protection have tended to ignore economic performance. Essentially the practice of Green Productivity results in using material resources and energy more efficiently as well as sustainably. Spurring innovation for products/services enhances economic development, therefore greening innovative minds enables development with less risk of socio-economic and environmental degradation.

The new millennium is rapidly changing the world. Humans' expectations and needs are in flux. To meet or exceed such demands from traditional customers is a challenge. However, there are other parties who are now placing new demands outside the traditional business relationships. They hold us accountable for not only what we do but how we do it. It is critical to address these challenges, maintain control of business, and remain profitable. Saxena et.al (2003) supported that current economic policies highlighted only productivity and economic growth, without addressing environment, have resulted in adverse and irreversible environmental impact.

Green Productivity offers a logical means of excelling. It is the combined application of appropriate productivity and environmental management tools, techniques and technologies that reduce the environmental impact of an organization's activities, products/services while enhancing profitability and competitive advantage. Green Productivity is a dynamic strategy to harmonize economic growth and environmental protection for sustainable development. It is a practical strategy to increase productivity, protect the environment simultaneously.

The increased competitiveness, internationalization and sophistication of markets, the globalization of manufacturing and increased concern about social and ecological issues make productivity improvement more important. Liang-Hsuan et al. (2001) stressed important role that productivity improvement can play in the preservation, rehabilitation and enhancement of the environment is increasingly recognized. Productivity improvement through better utilization of energy, materials, water, solvents, etc. is now seen as an effective tool in preventing pollution at source. Productivity improvement must therefore take into full consideration about the impact of production, distribution, consumption and disposition processes on the environment.

While meeting customer needs, products/ services supplied and the processes used to produce as well as distribute them must have minimum negative impact on the physical environment (Liang-Hsuan et al., 2001). Regardless of the environment the firm is operating in, there is substantial business benefits associated with green productivity strategies that more than offset

additional costs associated with assuming responsibility for the societal costs associated with a given business. Bob Willard (Willard, 2002) says that there are 7 types of business benefits that can be achieved from adopting a sustainable business strategy. These areas of benefit include: Easier hiring of the best talent, higher retention of top talent, increasing employee productivity, reduced expenses in manufacturing or services provided, reduced expenses at commercial sites, increased revenue/market share and reduced risk, easier financing, reducing the cost of operations through better resource utilization, reducing long term liabilities, complying with government regulations, and improving corporate image that will eventually impact profitability. He also points out that in order to achieve these benefits; the firm must invest a substantial amount in education of all employees.

In an era of growing concern for environmental issues –we need to pursue the concept of green productivity and there are certain organizations whose footsteps we need to follow:

- **Ford Motors**

Ford Motor Company showed how a blue chip company with a sharp eye on the bottom line adopted a triple top line vision. When Ford's executives and engineers began to plan the renovation of their famed Rouge River manufacturing plant they wanted to maximize economic value. So along with other innovative designs, they conceived a storm water management system based on a 450,000 square-foot roof of topsoil and growing plants. In concert with porous paving and a series of wetlands and swales, the "living roof" would filter storm water run-off, replacing a water treatment facility at a savings of $35 million. Now Ford executives are dreaming of the day when children will safely and happily play along the Rouge.

- **Reading**

This organization made upholstery fabric for office furniture as a supplier to Steelcase. The European Government regulators declared the waste trimmings from the factory to be hazardous waste. McDonough and Braungart set out to redefine the process so that the trimmings could become mulch for gardens – application of the cradle to cradle principle. The key was to find chemicals for the production process that would lead to the desired performance characteristics for the fabric and have none of the hazards. They screened 8,000 chemicals and eliminated 7,962 as being too dangerous. However with only 38 chemicals, they were able to design a production process that produced an entire line of fabrics that met the customer requirements and had none of the toxic chemicals. When regulators came to test the effluent out of the plant, they thought their instruments were broken. After testing the influent as well, they realized that the equipment was fine. The water coming out of the factory was as clean as the Swiss drinking water going in. The manufacturing process itself was filtering the water.

- **Hoang Thach**

This Cement Company, a state-owned enterprise under Vietnam National Cement Corporation. It is one of the largest and most technologically advanced cement companies in Vietnam, and has two lines of production with a total installed capacity of 2.3 million tons of cement per year. It employs around 2,700 employees who work on three shifts. The Green Productivity implementation resulted in savings of four tons of cement per month with an investment to VND 100 million (USD 6410) and a payback of 10 months. The sustainability of the program derives from improving the awareness of employees regarding green productivity.

- **Ansell Healthcare**

This organizations European company has reduced the carbon dioxide emissions by 20% in four years (2004 - 2008) and a further reduction is targeted for the next five years. They have reduced the amount of water used in manufacturing processes, reclaiming and reusing water where possible and sensible. They have

minimized environmental impact of distribution centers by making smarter desicions on location sites, reduced truck mileage and fuel consumption by making transportation routes more efficient. Unused gloves are donated to non-profit organizations.

They have redesigned exam glove packaging to increase glove count per box and reduce packaging waste they recycle. Their collateral is printed on FSC (Forest Stewardship Council) approved materials using soy-based inks. The council promotes responsible management of world's forests by meeting the needs of present and future generations through social, economic and ecological management.

- **Ford & Lio Ho**

Taiwan established a Corporate Synergy System (CSS) with its suppliers to enhance its overall corporate environmental performance. Ford Lio Ho has also requested that all of its suppliers become certified under ISO 14000. The environmental benefits generated from these GPDP options during the second year are listed below and resulted in savings of US$ 6.8 million:

- Raw materials consumption reduced by 8,000 tons;
- Water consumption reduced by 58,000 tons;
- Electricity consumption reduced by 8,900,000 kW;
- General waste reduced by 1,000 tons;
- Hazardous waste reduced by 290 tons; and
- CO_2 emissions reduced by 4,500 tons.

The total investment in the Green Productivity Demonstration Programs (GPDP) options and corporate synergy projects was estimated to be US$ 15.6 million.

- **Shwee Shwian Food Corp**

A cleaner production program was implemented in Shwee Shwian Food Co., a medium-sized ginger factory in northern Thailand. The factory produces preserved ginger for export. Ginger was taken fresh from farms and washed by machine. The major problem at the factory was raw ginger has a high soil content, it required large amounts of washing water and therefore generated high volumes of waste water. It was estimated that about 12% of raw ginger weight was actually soil coating outside of the ginger. The results showed that incentive program linked to benefits gained by the company through better control of ginger quality led to better results than the awareness programs. The farmers could benefit from improving the quality of their ginger, lower their operating costs, and improve their productivity as well.

- **Indopherin Jaya PT**

PT Indopherin Jaya, an Indonesian company focused on finding alternatives to reduce liquid waste during the production process of automotive glue using phenol. The alternatives to reduce waste disposal were evaluated by using the concept of Green Productivity Indicator and through a financial feasibility analysis. The company proved that the best solution from the alternatives was to install the chiller and there was an increased rate of productivity by around three percent.

- **Du Pont Corp**

DuPont, Eco-Innovations Drive Costs Down and Market Share up, as they took on a journey to transform DuPont into a sustainable growth company, one where they increased societal value while decreasing their ecological footprint. Results have been promising. For example, between 1991 and 2000, the company increased production by 35%, while cutting greenhouse gas emissions 45%. Motivated by the zero waste goals, DuPont has cut toxic releases 74%, halved its landfill waste, and saved $200 million on its $1 billion-a-year environmental costs bill since 1987.

3. CONCLUSION

Green Productivity starts with an intellectual dare to shift from a monochrome bottom line to a more colourful triple bottom line. The emerging markets demand that organizations be novel, agile, profitable, and sustainable. Green Productivity provides tools, but it is up to every employee in every organisation in reality to put them to use. There is a strong urgency to identify where one can make a difference, and begin. There is a critical need to involve everyone to protect environment and preserve precious natural resources. By going 'green,' we make a promise to promote a lifestyle that ensures our environmental impact on the world around us is minimal and as positive as possible. Again, the exploratory study has facilitated the development of a conceptual framework to carry out Empirical study. There is hope that there will be awakening of heartfelt knowledge that we are caretakers of this planet.

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