To What Degree Is Sustainability Practiced In South African Paper Manufacturing Companies?

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Abstract

Is there a relation between manufacturing system scheduling and sustainability? Companies sightlessly devote ceaseless times and efforts on 'sustainability'. No single approach to sustainable development or framework is consistently useful, given the variety of scales inherent in different conservation programmes and different types of companies. The concept of needs (translated to demand in manufacturing arena), in particular the essential needs of the worlds' poor (companies with non-stock), to which priority should be given, and the idea of limitations imposed by the state of technology and social organization on the environments ability to meet present and future requirements. In its simplest form, all matter required for the production of any product depends, either directly or indirectly, on natural environment. Sustainability in manufacturing systems is crucial to ensure society have and continue to have, electricity, water, materials and resources to protect the environment and many companies.

Aggregate "examination and optimization" of all resources and materials of the world is a necessity in scheduling (or planning) for it affectsproductivities of the global earth. Research by Knight (1999) particularly focuses on the development of a future vision for sustainable lifestyle and highlights the importance of optimizing all forms of consumptions in existence. Knight pointed out that most researchers (Herrmann, *et al*, 1993; Pinedo, 2008; Allahverdi, 1996, etc.) have shown that current levels of consumption are far beyond the level the planet can sustain. Knight further stated that "if everyone lived and companies operated as the west countries does, the population would need three to five times more of what the planet is estimated to provide presently". Clearly, the situation is unsustainable, and as world population increases, demands for products also increases, the situation will worsen, e.g., Eskom's limited capacity that results in load shedding. A much more attractive vision to sustainability is to innovate, use science and technology to develop a future in which the next generation of the whole universe can enjoy a good standard of living. That is to say, a standard similar to the level they have in the west, except that by necessity, the wasteful aspects will be removed or greatly reduced. Many aspects of production scheduling processes where waste occurs as a result of random disruptions have to change mainly in dynamic manufacturing environment.

For case study, South African giant paper manufacturing companies are identified for analysis. From the growing of trees to the creation of end product, and recycling – this study seeks to unearth how sustainable and unsustainable these companies are. Present study further reveals unsustainable degree/intensiveness by considering the current population increment for the analysis using forecasting methods and theories of probability. It is proved that with current settings the universe will become unsustainable in the year 2030 if things remain unchanged. It is a big challenge to sustain current systems. The pressure is on, and the time to shape and develop sustainable lifestyle for the forthcoming generation is now.

Keywords
Forecasting, Theory of Probability, Sustainability, Materials Utilizations.