Overpopulation and Sustainable Waste Management

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ABSTRACT

Civilization and Industrialization are two main side effects of overpopulation. Production of food and living requirement for new generations needs raw materials and production process as well as changing natural environment for infrastructure construction. Huge municipal solid waste, anthropological pollution in terrestrial, aquatic and atmosphere media are responses of numerous industries for engaging with humankind requirement. Economic circumstances, ecological condition as well as effective management of production process by selecting smart managing methods in order to decreasing hazardous wastes which produce throughout the manufacturing human living requirements, will be a suitable or even favorable target for green living and environmental protection. This manuscript will discuss on wastes sources, production and practical strategies for decreasing their hazard effect throughout current human activities. In other words, how civilization and industrialization can engage with emerging requirements of humankind as well as concerning to environmental protection?

KEYWORDS

Agroindustry, Civilization, Concrete Waste, Deforestation, E-Waste, Industrialization, Recycling, Smart Municipal Waste Management, Wastewater Treatment Strategy

1. INTRODUCTION

Two main factors contributing to the production of municipal solid waste (MSW) are industrialization and civilization (Turan et al., 2009). Both of these factors are the results of overpopulation. As a matter of fact, all types of pollution are straight consequences of human activities (Singh, 2016) which, their living requirements are massive and continuously increasing. Furthermore, the ability of the earth to accept so many pollutants is limited (Portney & Stavins, 2016). Overpopulation is causing environmental impacts and social problems that their side effects now seen as global climate warming (Bristow & Ford, 2016). The story of overpopulation will contact with human dignity and in an overpopulate human community, human dignity can’t survive (Parry, 2016). Based on the report of (Ott, 2016), the average of happiness in cities which more than a quarter million people are living there, is significantly lower than those in the country and towns. Export growth in goods and services reduces by overpopulation in big cities which is a result of increased commuting and urban sprawl (Burnett, 2016). On the other hand, there is a high correlation between lifestyle and volume of waste produced. Levels of concern about environmental risk and health care issues is different between whites and African American (Macias, 2016). Nowadays managing annually 1.3 billion tons
MSW converted to a globally malty subject issue and it will be further criticized when our unique earth faces 2.2 billion tons of waste in 2025 (Soltani et al., 2015). Nevertheless, future cities should be highly adapted and smartly developed to be socioeconomically creative and productive in greater incentives to energy saving and reducing in energy consumption as two critical management policy for supporting lower waste generation (Riffat et al., 2016). Japan has a smart industrialized civilization, minimizing waste generation and following the zero waste policy (Sant’ana, 2016). On the other hand, Prohibition rules for decreasing early marriage (Karamat, 2016) in Malaysia and the critical effect of education for girls, forming smaller families as the direct result of their knowledge (Sonam Bedi, 2016) has been reported from India. Finally, it should be considered that overpopulation highly depends on the ratio of population to available sustainable resources (RAM, 2016).

2. RELATED WORK AND METHODOLOGY

This review will concentrate to present related definitions to overpopulation and wastes which are produced by emerging human societies and their living requirements contain scrap tire, concrete waste, household waste, electronic waste, greenhouse gasses and wastewater treatment strategies. Among these issues, current conditions, traditional management methods and recent sustainable techniques will present. This review tries to illustrate numbers of effective aspects of two mega multi-criteria terms entitle to overpopulation and ‘waste management’.

2.1. Overpopulation

World population to 22th century (Billions) illustrated in Figure 1. As it can clearly see, four billion people will add to current human society and it will be unquestionably threatens for our planet (Lee & Mason, 2011). Population, technology and affluence and any other effective drivers cannot be considered as a lone actor or in additive condition, but it will be reasonable if considered as multiplicative factors (Ahlburg et al., 2013). Based on the empirical results which collected from 37 economies in developed nations in 30 years’ time period (1975-2004) indicate that economic growth will not affect negatively by the high energy price (Bretschger, 2015) thus it needs to change education and social knowledge to establish a reasonable energy application to save energy sources and abatement of GHGs emission and finally global warming as the last part of overpopulation chain.

Based on the united nation reports, by 2100, over 80% of the world people will live in Asia or Africa. Furthermore, Africa will be the fastest-growing region from 2015 to 2050. On the other hand, limited arable lands in most of the world’s countries and overpopulation have interacted together. Figure 2 illustrates arable land in some selected countries in the world. It seems only some of the African countries will go on growing in future decades. In following parts, we will discuss on the amount of major wastes produced as results of overpopulation.

2.2. Scrap-Tire

A large amount of vehicle tires (public and private transportation) daily being discarded worldwide and managing them, had been a serious environmental protection and waste management issue which directly related to overpopulation as the main cause of this problem. More than 4.4, 3.4 and 5.7 million tons of scrap tires produced annually in USA, Europe and the rest of the world (Ware, 2015). Annually, one million tons scrap tires are produced in Japan (Fukumori et al., 2002), and less than one percent of rubber are abraded out from the body of worn-out tires (Adhikari, De, & Maiti, 2000). Degradation of these waste rubbers is a painstaking process, which needs several additives and stabilizers. Based on the report of the (Eldin & Piekarski, 1993) 70-80% of the shredded tires in United States sent to a landfill or stored at the site of shredding. The limitation of available disposal sites and shredding requirements make disposal processing quite expensive. Finding innovative solutions for used tires is a serious challenge for future researchers. Some promising and worldwide-recognized options are listed here:
Phytotoxicity of Oxidised and Reduced Nitrogen Aerosols on Potato (Solanum Tuberosum L.) Crop
www.igi-global.com/chapter/phytotoxicity-of-oxidised-and-reduced-nitrogen-aerosols-on-potato-solanum-tuberosum-l-crop/171713?camid=4v1a

Business Models as Enablers of Ecosystemic Interaction: A Dynamic Capability Perspective
www.igi-global.com/article/business-models-as-enablers-of-ecosystemic-interaction/206190?camid=4v1a