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WASTE TO WEALTH: THE ROLE OF A MORDERN CHEMIST

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The more advanced the community is, the greater the interruptions of the natural process of waste utilization thus waste abound in different forms, size, posing all kinds of hazard to human health and environment. The concept of waste to wealth literally means moving waste from a platform of exhausted utility to valuable and desirable levels. This means that not all wastes are potentially of secondary benefits. Waste can be treated or recycled by converting or reforming the material that would otherwise be considered as waste into another useful product. Waste are all things we consider as unfit, unwanted and discarded due to economic reasons or ignorance of alternative technologies to sense them. It can also be seen as a solid, liquid or thing that is discarded as useless but has potentials of causing death or illness if improperly treated, stored, transported or discarded. Research in biological science and chemistry has revealed that industrial process in chemistry and petro chemistry could play a role in developing solutions to environmental problems such as waste management. The waste management establish that there is no waste that does not possess some level of chemical properties in them i.e. Having different types and forms of chemicals for example, waste bakery is converted into chemicals such as succinic acid or biodegradable polymers (e.g. polyhydroxybutyrale, PHB by simply selecting adequate microbial strains in fermentation processes and higher alcohols including butanol, isobutanol and derivatives are produced from glucose and sugar derived from residues by using bioengineered Escherchicoli bacteria.

The more advanced the community is, the greater the interruptions of the natural process of waste utilization, thus waste abound in different forms, size, posing all kinds of hazard to human health and environment. The quantity of solid waste generated In urban areas in

industrialized countries, is higher than in developing countries, still municipal solid waste management remain inadequate in the recent time occupied researchers such that are generated and converting already generated waste into useful products. The concept of waste to wealth literally means moving waste from a platform of exhausted utility to valuable and desirable levels. This means that not all wastes are potentially of secondary benefits (Ogwueleka 2003). According to (Ogwueleka 2009), Waste are all things we consider as unfit, unwanted and discarded due to economic reasons or ignorance of alternative technologies to sense them. It can also be seen as a solid, liquid or thing that is discarded as useless but has potentials of causing death or illness if improperly treated, stored, transported or discarded (Tchnobauoglous, Theisen and uigil 1993). Zurbrugg (1999), Stated that, waste generations are conditioned to an important degree of people's attitude towards waste especially their patterns of material uses and waste handling, their interest in waste reduction and minimization, the degree to which they separate waste and the extent to which they refrain from indiscriminate dumping and littering.

The environment of man lies at the mercy of both natural disaster and negligence on the part of man in the course of controlling the gifts of nature. Wastes generally have been a major environmental menace in many part of the world (Egunlobi 1996). Majority of the waste generated by the plastic and allied material are non-biodegradable unlike waste from woods papers, water human excretions foods etc.

Rodgers (2011) contends that waste management is a systematic control of generation, storage, collection, transportation, separation, processing recovery and disposal of solid waste. The waste management establish that there is no waste that does not possess some level of chemical properties in them i.e. having different types and forms of chemicals for example, waste bakery is converted into chemicals such as succinic acid or biodegradable polymers (e.g. polyhydroxybutyrale, PHB) Zhang et al 2013; by simply selecting adequate microbial strains in fermentation processes (Aracon RAD et al 2013) and higher alcohols including butanol, isobutanol and derivatives are produced from glucose and sugar derived from residues by using bioengineered Escherchicoli bacteria (Atsumi et al 2008).

Applications of chemical science have contributed significantly to the advancement of human civilization. Chemist as scientist trained in the study of chemistry studies the composition of matter and its properties. Without chemist, we might never have truly understood these problems. They use this knowledge to learn the composition and properties of unfamiliar

substances, as well as to reproduce and synthesize large quantities of useful naturally occurring substances and useful processes. In parrarel chemist and petrochemistry are now researching new methods that are more sustainable and environmentally friendly while maintaining the development of our economy and industry. Examples includes; transportation fuels derived from biomass. A wide range of biomass products such as sugarcane,, grape seed, corn, straw, wood, animal and agriculture residues and waste can be transformed into fuel for transport (Lancaster 2001). Rotich et al 2006 established a positive relationship between income levels and waste generation at the household level as high income earners consume more packaged product which result in a high percentage of inorganic materials metals, plastics, glass and textile. Going by the rising cost of raw materials used in producing plastics polythene products, it becomes more economic viable to recycle the wastes generated from nylon/plastic materials and reuse for production again based on handbook of solid waste management 2003.

According to Uche (2010), recycling such as food scraps and plant matter into humus, a soil like material compost acts as a natural fertilizer by providing nutrients to the soil, increasing beneficial solid organism and suppressing certain plant disease thereby reducing the need for chemical fertilizers and pesticides in land scraping and agricultural activities. Valuable metals such as ferrous metal, aluminum and copper can be recycled and recovered from electronic waste. It has been estimated that personal computers which are disposed contain 4,400 tons of ferrous metal, 3050 tons of aluminum and 1,500 tons of copper. Pyrolysis as a recycling process is often used in different types of waste impute such as pyrolysis yield a recovered energy source that can be an alternative to fossil fuels (Czajc Zynska D. et al 2017). Pyrolysis is a process of thermochemical decomposition of organic materials by heat in the absence of oxygen which produces various hydrocarbon gases (Oxford reference). Pyrolysis of solid waste converts the material into solid liquid and gas products. The liquid and gas can be further refined into other chemical products (chemical refinery). The solid residue (char) can be further refined into products such as activated carbon. Also phasing out the use of chlorofluorocarbon, (CFCS) in refrigerant has played a role in creating the ozone hole developing more efficient ways of making pharmaceuticals including the well-known pain killer ibuprofen and chemotherapy drugs taxol and developing cheaper, more efficient solar cells.

So many other processes of recycling waste into useful products by chemist is often viewed as a resource conservation activity, chemical education, waste management and wealth creation chemistry that will allow economic and environmental progress to proceed in harmony(Lancaster 2001). Therefore the knowledge of chemistry has helped in the recovery and re-use of solid waste and its produced due to human activity such as wen factories extract and process of raw materials. (United Nations statistics 2017).

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