Title: Application of 6R principles in achieving circular economy – lessons learnt from recent experiences

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I. Abstract Body

A circular economy is a regenerative system in which resource input (i.e. energy and materials) waste, and emissions associated with the production of products and services are minimised by slowing, closing, and narrowing material and energy loops. The 6R principles, including reduce, reuse, recycle, recover, redesign and remanufacture can potentially be used to enhance this regenerative system in an economically, socially and environmentally feasible way. In our research, redesigning a product have been found to ease the remanufacturing process or allow capability for remanufacture (e.g. Fuji Xeros). Reduce involves reducing the use of the product/materials by developing lighter but durable products. Reuse encompasses reusing parts or whole components with no or minimal changes to the part. Recycle consists of applying further machining and/or chemical processes to a machine or component so that the raw materials are useable for same or another purpose. We have successfully used life cycle assessment (LCA) tools to determine the sustainability benefits of the application of 6R principles. This presentation will also include recent case studies that have already achieved circular economy as well as social, economic and environmental objectives of sustainability using 6R principles.

II. Image:



http://news.curtin.edu.au/media-releases/research-could-help-reduce-carbon-tax-for-major-industries/

III. Reference:

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IV. Biography:

Dr Wahidul Biswas is a Senior Lecturer and Program Coordinator at the Sustainable Energy Group, Curtin University, Western Australia. Wahidul was trained as a Mechanical Engineer. He has a Masters in Environmental Technology from Imperial College, London, and a PhD in Sustainable Futures from the University of Technology, Sydney. Dr Biswas has carried out extensive life cycle assessment and sustainability related research for the Australian agricultural, alternative fuels, civil works, building and construction, wastes, manufacturing, beef, mining, gas and water sectors.

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