

Author's Accepted Manuscript

Transforming Waste into Resources for the Indian Economy

Joseph Fiksel, Rattan Lal



www.elsevier.com/locate/envdev

PII: S2211-4645(17)30269-5
DOI: <https://doi.org/10.1016/j.envdev.2018.02.002>
Reference: ENVDEV379

To appear in: *Environmental Development*

Received date: 25 September 2017
Revised date: 24 December 2017
Accepted date: 14 February 2018

Cite this article as: Joseph Fiksel and Rattan Lal, Transforming Waste into Resources for the Indian Economy, *Environmental Development*, <https://doi.org/10.1016/j.envdev.2018.02.002>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Transforming Waste into Resources for the Indian Economy

Joseph Fiksel^{a*}, Rattan Lal^{b,c}

^aResearch Associate Professor, Integrated Systems Engineering

^bProfessor, School of Environment and Natural Resources

^cThe Ohio State University, Columbus, Ohio 43210 USA

*Corresponding author. Tel.: +1 614 226 5678. fiksel.2@osu.edu

ABSTRACT:

India faces the daunting challenge of rapidly increasing municipal, industrial and agricultural waste generation due to several factors—population increase, urbanization, and economic growth. The result is significant air, soil and water pollution, as well as safety problems and health impacts upon both workers and nearby residents. Recycling and composting programs are unable to keep pace with the growth of waste, although small startup companies and non-governmental organizations are introducing new solutions ranging from high-tech waste processing to improved training and support for waste picker communities. For India to achieve continued economic growth, poverty alleviation, hunger elimination, human development, and environmental improvement, new transformative solutions are needed rather than incremental improvements. This paper proposes an integrated systems approach towards waste policies and practices, based on an understanding of the interdependence among economic, environmental, and social processes. Drawing upon the results of a conference on Waste Management Innovation held in Mumbai in April 2017, the paper examines the current status of waste management in India, provides examples of innovative practices and emerging technologies that can help to ameliorate the situation, and offers recommendations for a path forward.

KEYWORDS: Waste management; circular economy; sustainable development; India

1. Introduction

India faces the daunting challenge of rapidly increasing municipal, industrial and agricultural waste generation due to several factors—population increase, urbanization, and economic growth. Urban areas in India generate more than 100,000 metric tons (MT) of solid waste every day, yet only about 70% to 90% of this waste is removed by municipal services because of insufficient fiscal and logistical resources (Yedla, 2016). The vast majority of these wastes are dumped in an unhygienic manner without proper treatment or containment. The Municipal Corporation of Greater Mumbai, for example, collects over 6,000 MT of municipal waste every day (Annepu, 2012) but only four disposal sites are available for the city, one of which has been in operation since 1927. Similarly, a large proportion of agricultural wastes, including crop and animal residues are burnt in the fields or used as traditional household fuels. The resulting problems of air, soil and water pollution are well documented, as well as safety problems and health impacts upon both workers and nearby residents. The waste pickers of India are the basis of a large informal recycling sector in India; for example, in some areas up to 70% of all plastics are

Download English Version:

<https://daneshyari.com/en/article/8848278>

Download Persian Version:

<https://daneshyari.com/article/8848278>

[Daneshyari.com](https://daneshyari.com)