

# WHAT A WASTE 2.0

A Global Snapshot of Solid Waste Management to 2050



Silpa Kaza, Lisa Yao, Perinaz Bhada-Tata, and Frank Van Woerden



## What a Waste 2.0

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What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050

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## A Global Snapshot of Solid Waste Management to 2050

Silpa Kaza, Lisa Yao, Perinaz Bhada-Tata, and Frank Van Woerden

With Kremena Ionkova, John Morton, Renan Alberto Poveda, Maria Sarraf, Fuad Malkawi, A.S. Harinath, Farouk Banna, Gyongshim An, Haruka Imoto, and Daniel Levine



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#### Foreword

As you will see in this report, the world is on a trajectory where waste generation will drastically outpace population growth by more than double by 2050. Although we are seeing improvements and innovations in solid waste management globally, it is a complex issue and one that we need to take urgent action on.

Solid waste management affects everyone; however, those most affected by the negative impacts of poorly managed waste are largely society's most vulnerable—losing their lives and homes from landslides of waste dumps, working in unsafe waste-picking conditions, and suffering profound health repercussions.

Too often, the environment also pays a high price. In 2016, the world generated 242 million tonnes of plastic waste—12 percent of all municipal solid waste. Plastic waste is choking our oceans, yet our consumption of plastics is only increasing. Cities and countries are rapidly developing without adequate systems in place to manage the changing waste composition of citizens.

Meanwhile, an estimated 1.6 billion tonnes of carbon dioxide– equivalent ( $CO_2$ -equivalent) greenhouse gas emissions were generated from solid waste management in 2016. This is about 5 percent of global emissions. Without improvements in the sector, solid waste–related emissions are anticipated to increase to 2.6 billion tonnes of  $CO_2$ equivalent by 2050. More than 80 countries committed to reduce emissions through the historic 2017 Paris Agreement—improving waste management is one way of contributing to this effort.

Solid waste management is a critical—yet often overlooked—piece for planning sustainable, healthy, and inclusive cities and communities for all. However, waste management can be the single highest budget item for many local administrations. Municipalities in low-income countries are spending about 20 percent of their budgets on waste management, on average—yet over 90 percent of waste in low-income countries is still openly dumped or burned. As these cities and countries grow rapidly, they desperately need systems to manage their growing waste and mechanisms to pay for the essential services that keep their citizens healthy and their communities clean.

We need cities and countries to plan holistically and manage our precious resources better than we have in the past. This report shows what governments around the world have done to manage their solid waste and highlights the latest trends across income levels and geographies. Building on *What a Waste: A Global Review of Solid Waste Management* from 2012, this report highlights the overwhelming cost of waste management and the need for solutions.

Using the rich findings and data from this report, I urge stakeholders to think ahead and to integrate waste management into their paradigm of economic growth and innovation. It is the responsibility of every citizen, government, business, city, and country to create the healthy, inclusive, and livable shared world that we strive for.

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## **Abbreviations**

ANGed	National Agency for Waste Management
AVAC	automated vacuum collection
BAMX	Mexican Food Banking Network
BOO	build-operate-own
BOT	build-operate-transfer
C&D	construction and demolition
CDM	Clean Development Mechanism
CFB	circulating fluidized bed
$CO_2$	carbon dioxide
DBFO	design-build-finance-operate
DBO	design-build-operate
DBOT	design-build-operate-transfer
EAP	East Asia and Pacific
ECA	Europe and Central Asia
EPR	extended producer responsibility
EU	European Union
FLW	food loss and waste
GCC	Gulf Cooperation Council
GDP	gross domestic product
GHG	greenhouse gas
GWP	global warming potential
HIC	high-income country
IFC	International Finance Corporation
INR	Indian rupees
JWMA	Japan Waste Management Association
kg	kilogram
LAC	Latin America and the Caribbean
LDPE	low-density polyethylene

LIC	low-income country
LMIC	lower-middle-income country
MENA	Middle East and North Africa
MPIIC	Ministry of Public Infrastructures, Industries and Commerce
MSW	municipal solid waste
MWh	megawatt hour of energy
NA	North America
OECD	Organisation for Economic Co-operation and Development
PET	polyethylene terephthalate
PMC	Pune Municipal Corporation
PPP	public-private partnership
PRO	producer responsibility organization
RBF	results-based financing
RFID	radio-frequency identification chips
SAR	South Asia
SAR	special administrative region
SAyDS	Secretariat of Environment and Sustainable Development
SSA	Sub-Saharan Africa
SWaCH	Solid Waste Collection and Handling or, officially,
	SWaCH Seva Sahakari Sanstha Maryadit, Pune
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change