



International Environmental
Technology Centre

Annual Report

2020



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Table of Contents

Page

4 Message from the Director

5 IETC's Vision

6 IETC's International Advisory Board

8 Achievements in 2020

10 Knowledge Products

10 West Asia Waste Management Outlook

12 The Future of Electric Vehicles and Material Resources: A Foresight Brief

14 Waste Management during the COVID-19 Pandemic: From Response to Recovery

15 CCET guideline series on intermediate municipal solid waste treatment technologies

17 In-country Support

18 Nepal, Mongolia and Bhutan

20 Jamaica

21 South Africa

22 Hyderabad, India

23 Negombo, Sri Lanka

24 Promotion of Environmentally Sound Practices

24 Covid-19

25 UNEP Sustainability Action

27 Project on Environmentally Sound Management, Treatment and Technology on Plastic Waste in Asia

28 Outreach

28 Global Visibility

31 Visibility in Japan

33 IETC Social Media Outreach Results

36 Publications in 2020

38 Farewell to our Director!

39 Thank you to our staff!

39 Our interns: Where are they working now?

40 Greening the Blue at IETC

42 Finances

Message from the Director



Keith Alverson
Director (2016-2020),
International Environmental
Technology Centre
United Nations
Environment Programme

On the day after American Thanksgiving this year, I was enjoying a breakfast of leftover apple pie when I came across an unappetizing story in the local newspaper. Apparently, a county solid waste operator in the state of Vermont, United States (US), had illegally dumped "thousands of cubic yards of crushed glass". This was surprising, as unlike other waste that might be illegally dumped, glass is routinely separated for recycling because it is one of the easiest and most cost-effective materials to recycle. Yet in one of the richest countries in the world, in a state that is particularly proud to be at the national forefront on environmental sustainability efforts, illegal dumping is allegedly occurring. One might be tempted to dismiss this story as a globally insignificant local issue. Unfortunately, it isn't. Rather, in recent years there has been an ongoing, systemic and significant global decoupling between our use of recyclable materials and our efforts to recycle them. Although global markets and trade policies clearly play a role, the failure to separate and recycle waste is always based on local cost-benefit calculations. The cumulative impact of these local decisions is global.

The day after US Thanksgiving is also "Black Friday", one of the busiest shopping days of the year. These sales are an important source of income for companies, both large and small, and particularly during COVID constraints, some mail-order retail therapy may also be a source of psychological well-being for consumers. Finding a better balance, though, between consumption and sustainability is almost certainly both achievable and desirable. So this year, I am giving thanks to everyone globally who reuses products to keep them in circulation longer, separates their waste for composting and recycling, and pressures their local communities to ensure that recycling and composting are in fact carried out whenever they are technologically and financially feasible.

IETC's Vision

The International Environmental Technology Centre (IETC) works with developing countries to implement sustainable solutions to environmental challenges, with focus on holistic waste management.

To realize this vision, we provide technical and advisory support to national and local governments to enhance their use of environmentally sound strategies and approaches. We also implement in-country demonstration projects using innovative waste prevention and management methods and technologies to improve human well-being, reduce the impact of climate change, increase resilience and create jobs. We work with governments as well as academia, civil society and the private sector. We provide learning opportunities around the world and organize public outreach activities, expert groups and policy dialogues. Working with a wide range of partners and in line with relevant multilateral environmental agreements, our mission is to serve as a global centre of excellence on environmentally sound technologies with focus on holistic waste management.



Waste segregation in Tegucigalpa, Honduras

IETC's International Advisory Board



IETC's Internal Advisory Board at their 11th meeting, 20 May 2019, in Osaka, Japan.

The International Advisory Board of the International Environmental Technology Centre has been established for the purpose of providing the Director of IETC with policy-level and technical advice on the strategic direction and content of the programme of work of the centre. The board consists of members with various backgrounds including senior policy advisers with policy expertise and well-regarded technical experts covering major geographical regions.

Yuriko Koike, Chair	Governor of Tokyo, former Minister of the Environment of Japan
Linda Godfrey	Principal Scientist, The Council for Scientific and Industrial Research, South Africa
Jairam Ramesh	Former member of Parliament for Andhra Pradesh, India
Lina Pohl	Former Minister of the Environment and the Natural Resource of El Salvador
Jiang Wu	Executive Vice President, Tongji University, China
Bettina Lorz	Senior Legal Officer at the European Commission
Judi Wakhungu	Kenyan Ambassador to the French Republic, Portugal, Serbia and the Holy See
Antonis Mavropoulos	International Solid Waste Association (ISWA) President
Khaled Fahmy	Former Minister of Environment of Egypt
Noelle Eckley Selin	Director, Technology and Policy Program, Massachusetts Institute of Technology, United States



Achievements in 2020

IETC is playing a key role in achieving one of the three expected accomplishments of United Nations Environment Programme's (UNEP's) work on chemicals, waste and air quality, particularly on promoting the scientific and technical knowledge and tools needed to implement sound waste management in countries, including among major groups and stakeholders. The number of governments, private-sector entities and civil society organizations using risk assessment and management tools for sound waste

management with the support of IETC has been increasing steadily over the years (2014-2020).

This includes governments that have developed and implemented national and city-level waste management strategies, businesses that have developed and implemented best practices to prevent and manage waste soundly, and organizations that have embraced holistic waste management approaches, such as universities and non-governmental organizations.

In 2020 **13** governments, **5** private-sector entities, and **3** civil society organizations began using sound waste management tools and technical knowledge with the support of IETC.

Examples



Governments

IETC, the Institute for Global Environmental Strategies Centre Collaborating with UNEP on Environmental Technologies (IGES-CCET) and the **Ministry of Environment and Forestry in Indonesia** developed *National Plastic Waste Reduction Strategic Actions for Indonesia*, which was published in June 2020. A new strategy action plan was developed with **Hyderabad, India**. "Enhancing Circular Economy – Plastic Waste Management Strategy and Action Plan for Greater Hyderabad Municipal Corporation" was officially approved and adopted by the city in November 2020 (see p.22).



Businesses and industries

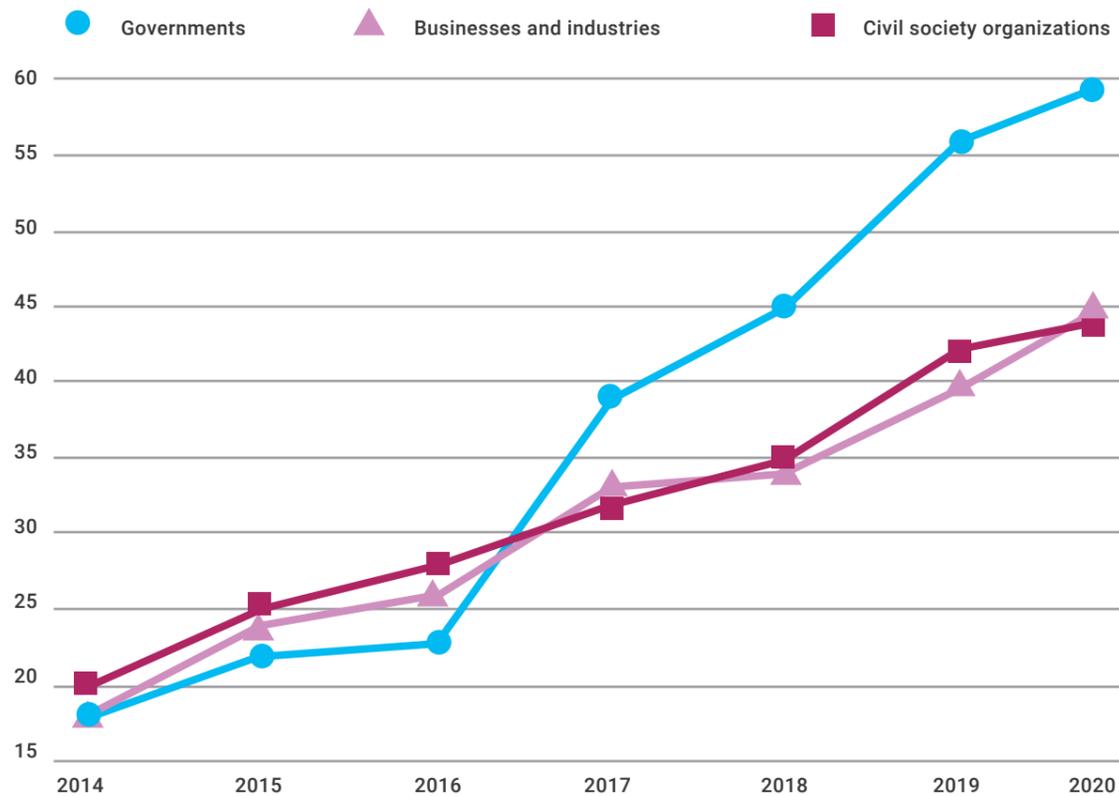
Seven & i Holdings, which includes the 7-Eleven retail chain and is the 15th-largest retailer globally (2018), joined the UNEP Sustainability Action and is promoting plastic reduction and reusability in its operations. The UNEP Sustainability Action was promoted on the front page of the Seven & i Holdings website. A second edition of the children's book *Bright Minds for a Brighter Future* on marine litter was published by **Covestro** as part of the UNEP Young Champions of the Earth initiative.



Civil society organizations

In partnership with the **University Consortium for Sustainable Waste Management** in Latin America and the Caribbean, additional capacity-building activities were conducted during 2020, including four regional certificate courses hosted by universities in Chile, Panama, and Trinidad and Tobago. These courses build on previous activities by the consortium aiming to consolidate its international programme on sustainable

Number of partners that have implemented sound waste management practices with IETC support



Knowledge Products

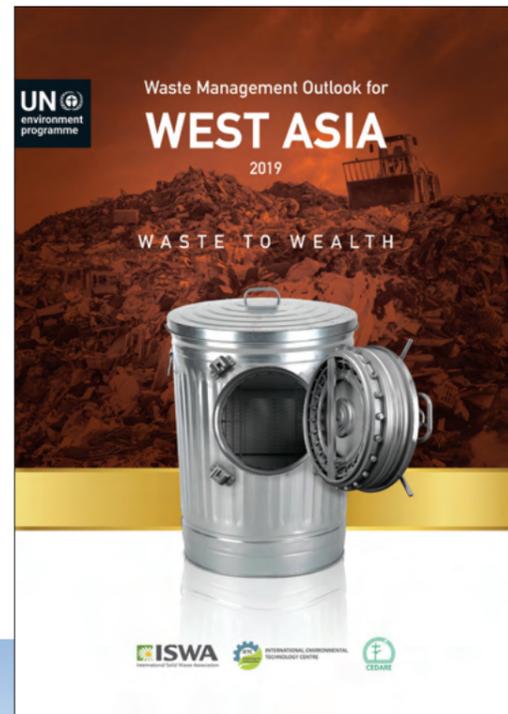


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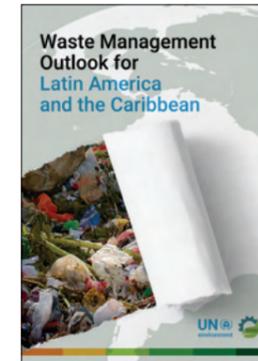
West Asia Waste Management Outlook

Since 2015, IETC has developed seven Regional Waste Management Outlooks, geographically targeted reports that address waste and waste management issues based on local context and constraints. The *Waste Management Outlook for West Asia* was published on World Environment Day 2020, and is adding to the previously produced outlooks: **Asia**, **Central Asia**, **Africa**, **Latin America and the Caribbean (LAC)**, **Mountain Regions**, and **Small Island Developing States (SIDS)**.

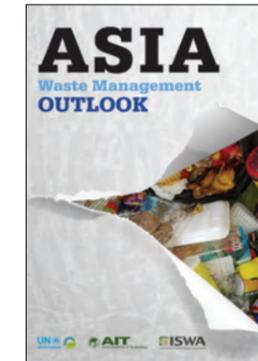
The outlook assesses current legal and legislative systems related to waste management in the 12 West Asian countries and highlights the potential of the circular economy, and has a strong focus on waste management systems, finance and governance. The outlook outlines a path towards sustainable waste management to enable a transition from a region historically dependent on the low cost of dumping waste to one utilizing waste as a resource.



Africa



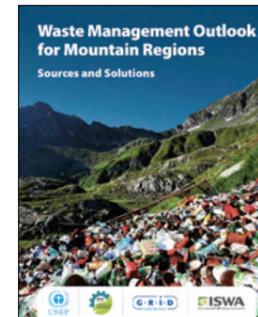
LAC



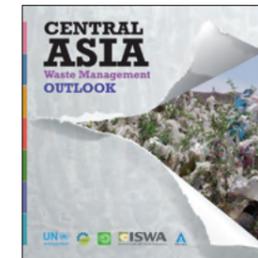
Asia



SIDS



Mountain Regions



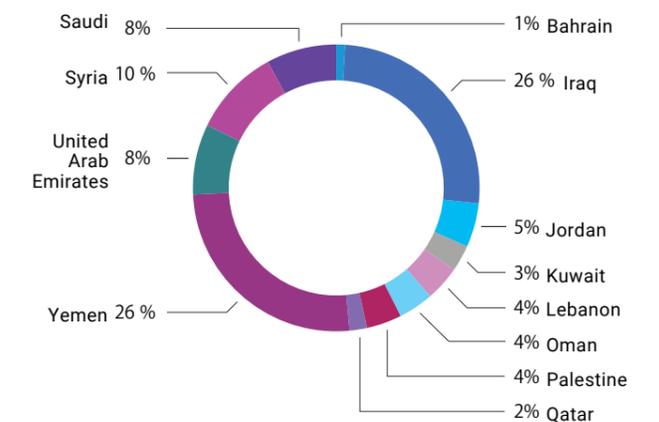
Central Asia

The six previous Regional Waste Management Outlooks

The outlook provides an extensive set of waste-related data for each country in the region. For example, the population has grown from 99 million in 2000 to 155 million in 2016; this coupled with the ratio of urban residents increasing from 63% to 70% means there is a significant increase in waste generated and thus a higher pressure for sound waste management. Municipal solid waste was estimated at about 60.4 million tons in 2016, with the informal sector collecting an estimated 7% of this and about 17% remaining uncollected. An estimated 87% of all municipal solid waste goes to land disposal, of which 40% goes to uncontrolled dump sites. The waste treatment level is only at about 11%, with sanitary landfills accounting for roughly two-thirds of the treated waste. The overall deficiency in waste treatment capacity is 46.4 million tons. Other annual waste streams assessed include 71 million tons of construction and demolition waste.

The *Outlook* will serve as a resource for stakeholder and policymakers at the regional, national and municipal levels.

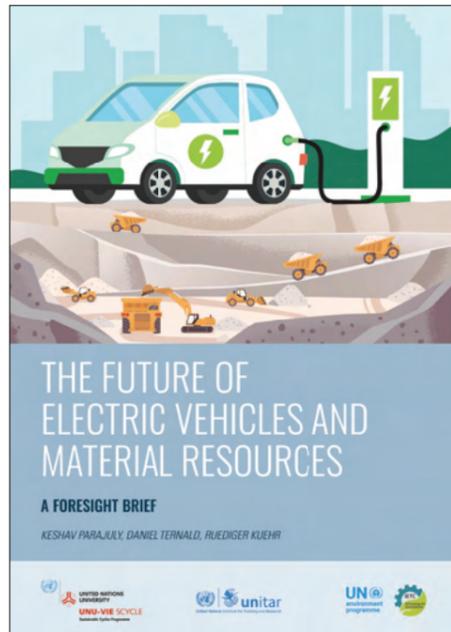
Waste generated per country



The Waste Management Outlook for West Asia was published on World Environment Day 2020

The Future of Electric Vehicles and Material Resources: A Foresight Brief

Electric vehicles (EVs) offer an opportunity to replace fossil fuels in the transport sector. Electrification of the transport sector can also bring benefits in terms of increased energy efficiency and reduced local pollution. However, there are genuine concerns about meeting the future energy demand for batteries used in EVs using clean and renewable sources. More importantly, the issue of long-term sustainability is underscored by the supply risks of critical material resources used in the batteries. Extraction of some of these material resources are linked to significant environmental impacts as well as social and ethical issues.

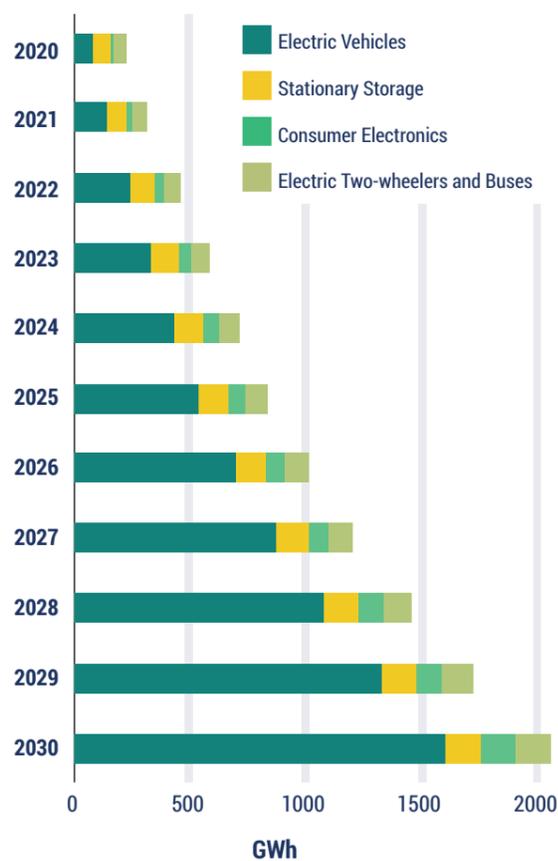


Recent developments show an optimistic trend for the EV industry. With major car manufacturers joining the race, a rapid growth in production and sales of electric cars is expected in the coming years. The global electric car fleet reached 7.2 million in 2019, with 2.1 million units being added that year. Despite the slowdown caused by the COVID-19 pandemic in 2020, annual EV sales are expected to grow to approximately 9 million units by 2025 and nearly 26 million by 2030, after which the fleet of petrol and gasoline cars will begin declining. Electric passenger cars are forecast to take over internal combustion engine cars in global annual sales before 2040.

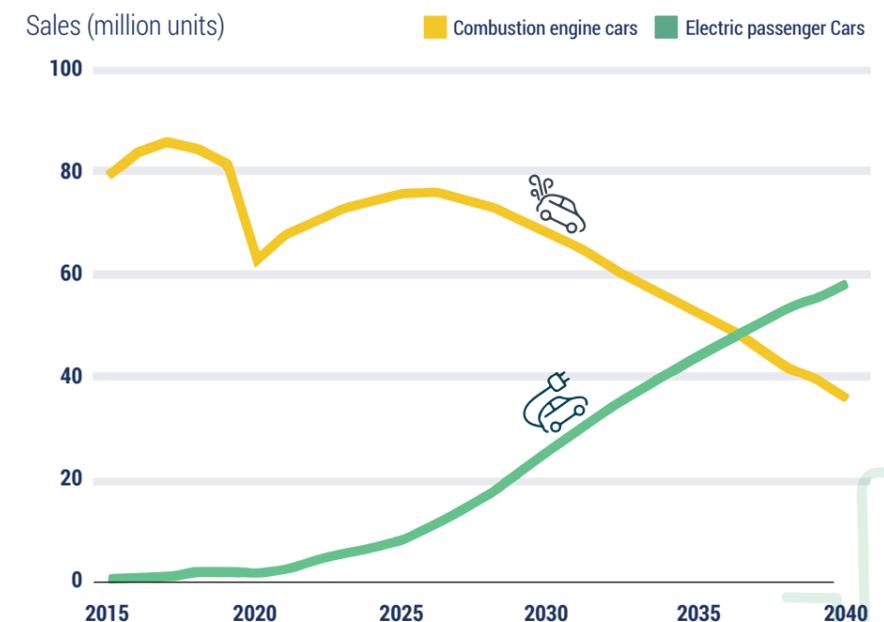
The Future of Electric Vehicles and Material Resources: A Foresight Brief was developed by UNEP-IETC jointly with the SCYCLE (Sustainable Cycles) Programme of UNU/UNITAR- (United Nations University/UN Institute for Training and Research). It provides an overview of the EV sector as well as a snapshot of the recent developments, and highlights major challenges and opportunities in the mainstreaming of their uptake and in ensuring a sustainable supply of material resources with a focus on the end-of-life management of EV batteries. The brief also provides an overview of recent policy developments concerning the promotion of EVs and the management of end-of-life batteries. Finally, it offers policy recommendations for ensuring the long-term resource sustainability of EVs.



Growing demand for lithium-ion batteries (LIBs)



Until recently, the main demand for LIBs came from the consumer electronics sector, but that is anticipated to change with the growing EV market. By 2030, approximately 85% of LIB demand (in terms of their capacity) is estimated to come from EVs, with the rest being used in consumer electronics and for stationary energy storage.



Waste Management during the COVID-19 Pandemic: From Response to Recovery

The COVID-19 pandemic is intensifying its impact upon the world's population's health, health-care systems and economy. For solid waste management, municipalities are faced with the challenge of continuing essential services of waste collection and management while at the same time accounting for growing streams of potentially infectious waste and protecting the lives of formal and informal workers.

The report *Waste Management during the COVID-19 Pandemic: From Response to Recovery* reviews current practices for managing waste from health-care facilities, households and quarantine locations accommodating people with confirmed or suspected cases of COVID-19.

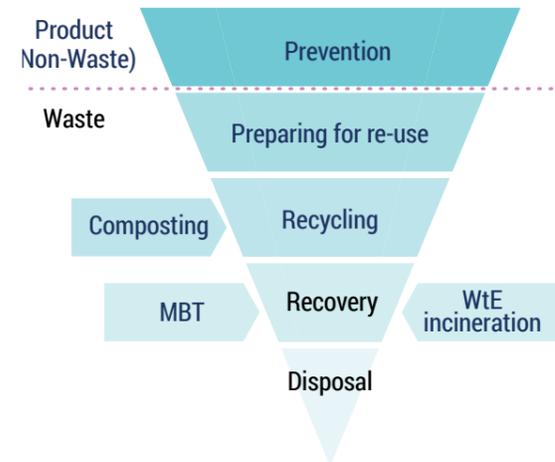
The report considers various approaches, identifies best practices and technologies, and provides recommendations for policymakers and practitioners to improve waste management over the long term. This publication, with its combined "desk review" of international guidelines alongside country-level "facts on the ground" survey responses, aims to provide some guidance and practices for municipalities, particularly in developing countries, as they deal with urgent concerns, as well as building more resilient cities for the future. Cognizant of local conditions, practices that are operationally and technically plausible are identified, and recommendations include ways to adapt existing protocols and practices at both emergency and recovery stages.



More info here



CCET guideline series on intermediate municipal solid waste treatment technologies



CCET has worked with IETC to produce a series of guidelines, each addressing a specific solid waste treatment technology. They each give the reader a comprehensive understanding of the technology, including their advantages and disadvantages. They also provide key evaluation criteria and checklists to objectively determine the feasibility of implementing the technology in a specific setting. The technologies addressed are composting, mechanical-biological treatment (MBT) and waste-to-energy (WtE).

Composting



This publication explores the value of applying composting to municipal solid waste management and its benefits not only for achieving sustainable waste management but also other co-benefits, including resource circulation, mitigating climate change, food security, alleviating poverty and other social impacts that have already documented. However, the application of composting in municipal solid waste management by national and local governments is currently far from satisfactory and is not free of challenges or barriers. This guideline, therefore, aims to assist decision makers and policymakers at the local level in evaluating the feasibility of introducing composting projects as an appropriate strategic option for improving waste management. Based on a holistic understanding about composting systems including both advantages and disadvantages, this simple, user-friendly, evidence-based guideline provides both technical and non-technical aspects of planning sustainable composting projects, applying several evaluation criteria: social conditions, public awareness and cooperation of residents, institutional and governance capability, financial and technological aspects to meet with the local environment.

More info here



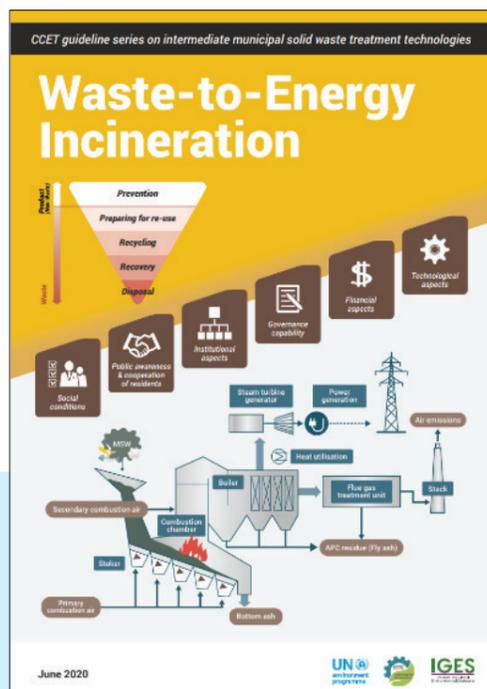
Mechanical-Biological Treatment



This guideline provides a holistic understanding about MBT technology including both advantages and disadvantages as well as information about the technical and non-technical aspects of planning a sustainable MBT facility, and proposes key evaluation criteria and a pre-check flow in the decision-making process to objectively determine and evaluate criteria when considering introducing the technology. MBT is a pre-treatment method with a combination of mechanical crushing and sorting processes and biological treatment (e.g. aerobic and anaerobic decomposition) used before landfilling. The advantage of using MBT within the integrated waste management system is that it can reduce the amount of waste to be disposed of in open dumps. Instant, residual waste can be used to produce refuse-derived fuel or solid recovered fuel and recover recyclable resources, such as metals, through the sorting process. Though MBT facilities are largely operating in Europe and the United States, in recent years urban development has been remarkable in low- and middle-income countries, especially in Southeast Asia, where the focus has been on the introduction of MBT as a technology to cope with the increase in waste volume.

More info
here

Waste-to-Energy Incineration

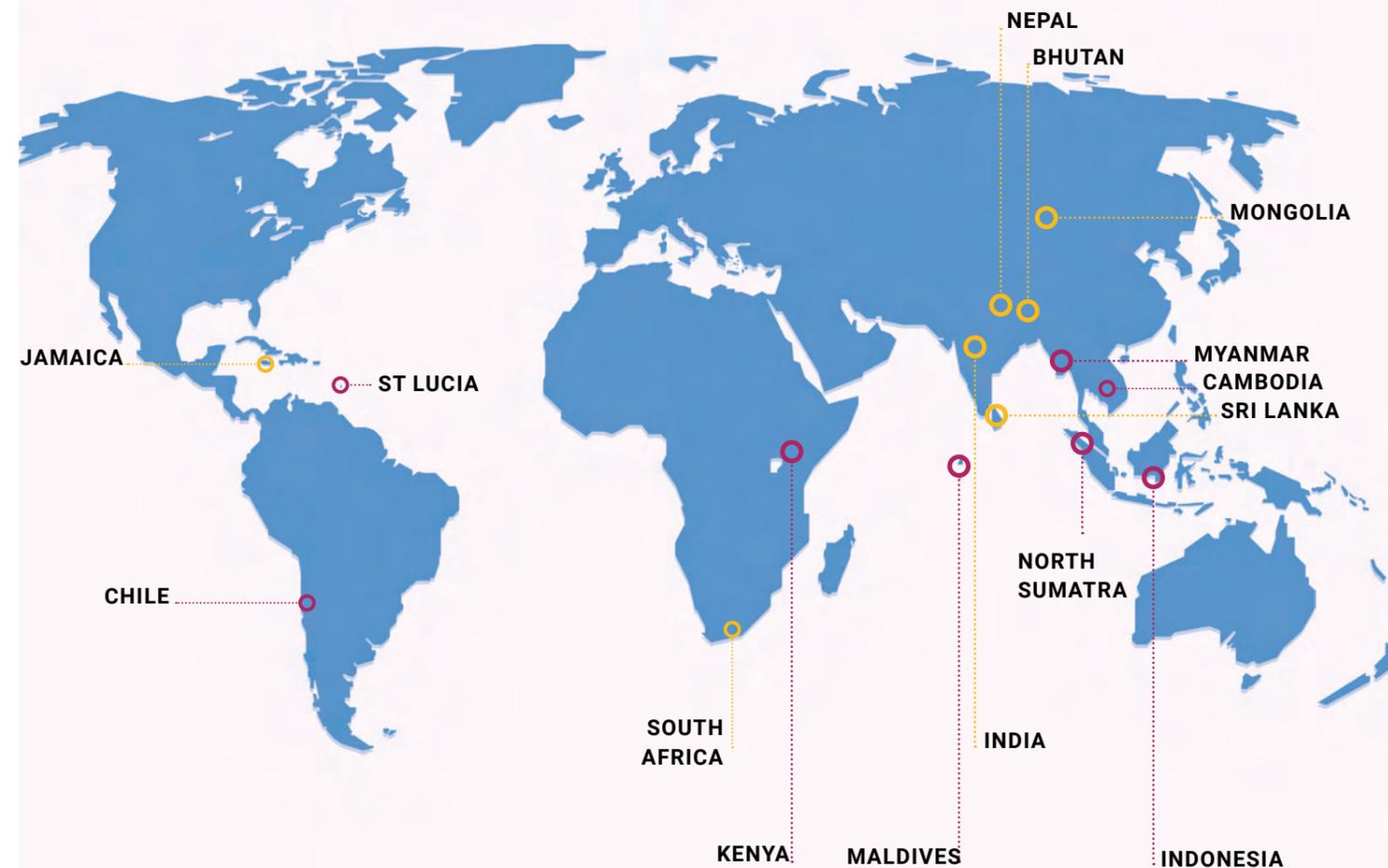


Due to the challenges in handling a growing volume of waste, international pressure and availability of external support, WtE, often referred to as waste incineration (though it needs to include energy recovery to be labelled WtE) has received considerable attention in developing countries recently. Even though WtE has the potential benefits of waste reduction and energy generation, there are challenges regarding its applicability and potential impacts on health, environment and climate, as well as the long-term sustainability of its operation. This guideline thus aims to assist decision makers and policymakers at the national and city levels, who are in search of additional knowledge and information on applying WtE as an appropriate technology to improve waste management. It provides a holistic understanding of WtE incineration technology, including both advantages and disadvantages, as well as information about the technical and non-technical aspects of planning a sustainable WtE incineration plant. It also proposes key evaluation criteria for implementation in municipal solid waste based on the waste hierarchy, which can be used to objectively determine and evaluate criteria when considering the potential of introducing WtE incineration technology in developing countries

More info
here

In-country Support

Active in-country support projects in 2020



Activities in countries displayed in yellow are highlighted in this report

Nepal, Mongolia and Bhutan

Ariunaa Norovsambuu, Asia Foundation.



Since 2017, IETC has been working on a waste and climate change project to reduce the impacts of the waste sector on climate change, through capacity strengthening and policy support at the national and local levels in Bhutan, Mongolia and Nepal. IETC has completed a waste composition study, finalizing the baseline scenario for greenhouse gas (GHG) emissions and short-lived climate pollutants (SLCPs) from waste in all three countries. We have also supported the development of the National Waste Management Improvement Strategy and Action Plans, and assisted in the identification of appropriate environmentally sound technologies for mitigation of GHGs and SLCPs from the waste sector.

In Bhutan, IETC's Partner WWF Bhutan has developed the Thimphu District Waste Management Plan to aid the overall waste management process both within and outside the city perimeter. The document proposes a waste management and implementation plan for improvements in Thimphu Thromde and Thimphu Dzongkhag. It also includes an awareness and communication plan to educate citizens and ensure buy-in of the plan. The WWF Bhutan also signed a memorandum of understanding with the National Statistics Bureau to develop a detailed waste quantification study that will feed into an upgraded National Waste Information Management System.



In Nepal, comprehensive solid waste emissions were analysed in five municipalities using the Solid Waste Emissions Estimation Tool developed by the US Environmental Protection Agency (EPA); this was the first of its kind in Nepal and was carried out by our local partner Leadership for Environment and Development Nepal (LEAD Nepal). These analyses give ideas on GHG and SLCP reduction with improved waste management practices. The project also supports municipalities such as Birendranagar in testing environmentally sound technologies to improve waste management.

Together with our local partner in Mongolia, the Asia Foundation, the project provided support to the Ulaanbaatar City mayor's office to develop a comprehensive citywide regulation on waste

cleaning, segregation, collection, transportation, recycling, disposal and landfilling. Moreover, as a response to the call by UN Framework Convention on Climate Change (UNFCCC) to raise the national ambitions, Mongolia has developed its first Nationally Determined Contributions (NDC) with increased mitigation targets. Mongolia's updated NDC raises the government's ambition in terms of targets and scale for both mitigation and adaptation to climate change, including by increasing the priority sectors for action. The project took an active part in the NDC development process and supported the Ministry of Environment and Tourism to define the baseline and GHG emissions projections for the waste sector and determined the aggregated sector contribution to the updated NDC document.

Jamaica

Kingston, Jamaica



The problem of solid waste disposal and management in Jamaica has been long-standing. About 75% of solid waste generated is collected at legal disposal sites, and the uncollected waste is either buried, burned or left in the environment, often ending up in the ocean.

IETC has been assisting the National Environment and Planning Agency of Jamaica on its Plastic Waste Minimization Project since 2018, with the overall objective of enhancing the capacity of the country and strengthening the policy and legislative framework of Jamaica to reduce and manage plastic marine litter from land-based activities in an integrated and environmentally sound manner.

The Government of Jamaica took the initiative to ban the importation, distribution, manufacture and commercial use of certain types of single-

use plastics beginning in January 2019. The ban does not cover all types of plastics, and more comprehensive measures are required. Therefore, the project carried out the regulatory impact assessment to assess the current policy options and provide policy recommendations for the management of plastic waste and plastic packaging materials including polystyrene. Lee's Food Fair supermarket in Jamaica started the Plastic Recycling Eco-Reward initiative, in which a plastic recycling drop-off centre was established at the supermarket and shoppers earn points on their supermarket loyalty card for depositing plastic for recycling. To date a total of 2,585 pounds of plastic have been collected through the collection centre. The project also provides personal protective equipment for environmental wardens during the COVID-19 pandemic.

South Africa

Waste management outside Newcastle, South Africa



South Africa is estimated to generate domestically a total of 12.7 million tonnes of waste per annum. In the country, municipalities are facing increasing pressures and challenges to provide waste management services due to the growing waste generation. Every year approximately 3.67 million tonnes of this waste are not collected and treated through formal waste collection systems, resulting in large amounts being dumped illegally.

Accordingly, the South Africa Department of Environment, Forestry and Fisheries (DEFF), the Council for Scientific and Industrial Research (CSIR), and UNEP-IETC have partnered to enhance municipal solid waste management.

Nineteen expressions of interest submitted by the municipalities were evaluated, and the Newcastle Local Municipality was selected for the project implementation, after which local challenges and system failures were identified, as well as potential solutions investigated to inform the implementation of interventions.

To ensure a smooth implementation, country ownership and that local expertise is maximized, a unanimous decision was made for the UNEP in-country office to lead the implementation of the project interventions on improving waste management in Newcastle.



Hyderabad, India

Training of waste workers in Hyderabad

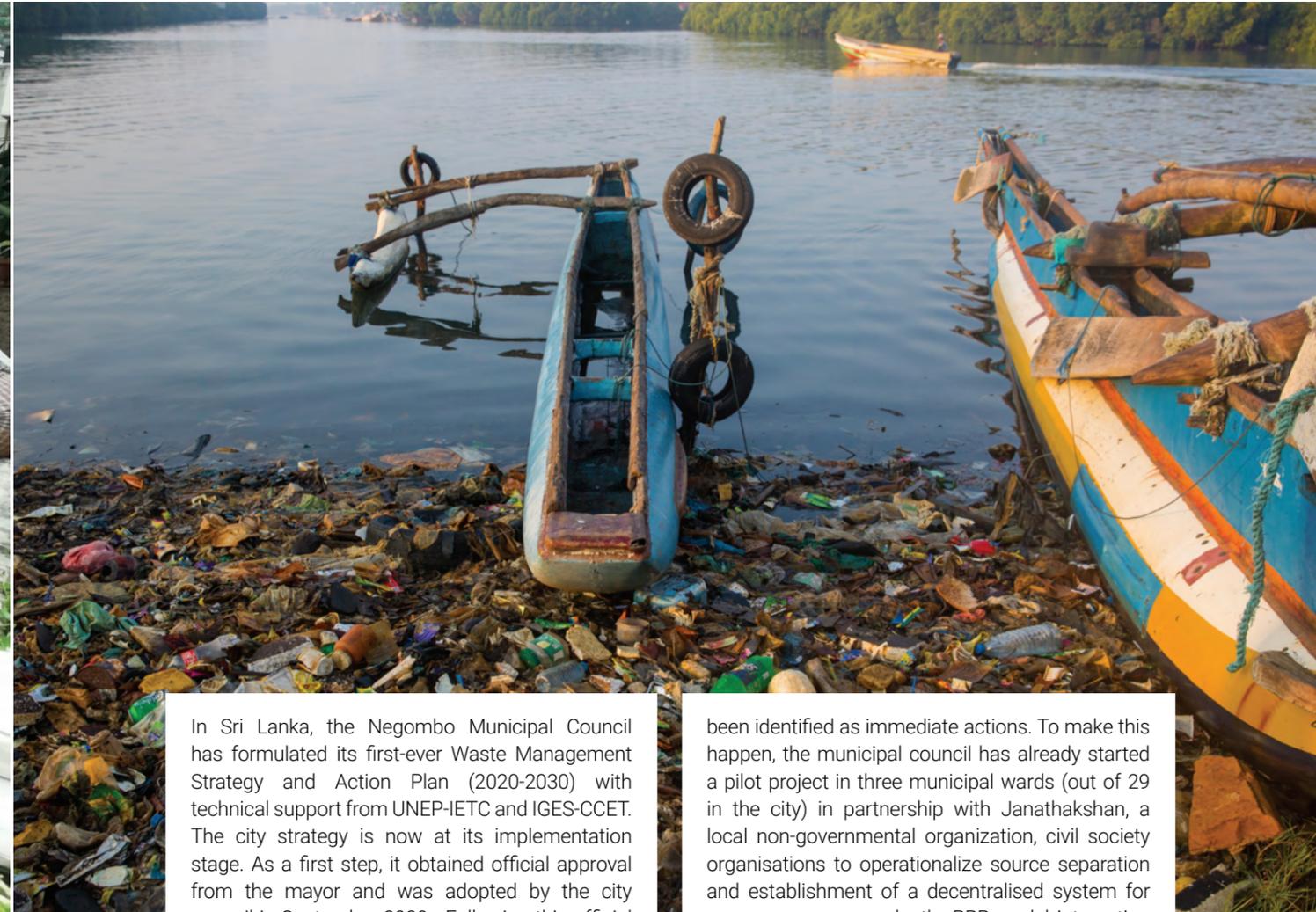


Enhancing Circular Economy Perspectives – Plastic Waste Management Strategy and Action Plan for Greater Hyderabad Municipal Corporation (GHMC)" was officially approved and adopted by the city of Hyderabad in November 2020. This strategy, developed in partnership with UNEP-IETC, IGES-CCET, and local partner ICLEI-South Asia, will act as a guiding document for GHMC to ensure holistic management of plastic waste in the city of Hyderabad and compliance with the national plastic waste management rules from 2016 (amended in 2018) and the national policy to ban single-use plastic by 2022. It provides policy directions, enabling framework, technical alternatives and financial incentives to adapting a circular economy, influencing

consumer behaviour and developing better waste management practices at the community level. GHMC and ICLEI-South Asia have also initiated a pilot project to build local capacity among women and self-help groups to produce cloth bags as a green alternative to single-use plastic bags. An eco-label award system has been set up to encourage shops at the pilot area of Naubat Pahad, one of the tourist areas of the city, to use those alternative bags for packing. Additionally, a "reverse vending machine" has been introduced under a public-private partnership (PPP) to ensure segregated collection and circular treatment of PET (polyethylene terephthalate) bottles and to create awareness among citizens on plastic waste management.

Negombo, Sri Lanka

Negombo, Sri Lanka



In Sri Lanka, the Negombo Municipal Council has formulated its first-ever Waste Management Strategy and Action Plan (2020-2030) with technical support from UNEP-IETC and IGES-CCET. The city strategy is now at its implementation stage. As a first step, it obtained official approval from the mayor and was adopted by the city council in September 2020. Following this official adoption, the Strategy and Action Plan has been published in local languages – Sinhala and Tamil – and shared with relevant stakeholders and concerned government agencies. Community leaders (green leaders) also presented the city strategy to the citizens. The action plan is based on a holistic and integrated waste management approach and identified six priority goals for the successful transformation towards resource efficiency and a zero-waste society. Among them, waste separation at source, separated waste collection, and the establishment of a resource recovery centre to increase the rate of resource efficiency and stop open burning and disposal have

been identified as immediate actions. To make this happen, the municipal council has already started a pilot project in three municipal wards (out of 29 in the city) in partnership with Janathakshan, a local non-governmental organization, civil society organisations to operationalize source separation and establishment of a decentralised system for resource recovery under the PPP model, integrating informal waste recycling and recovery groups in the area. The waste characterization and a household survey to understand waste management and citizens' behaviour have been conducted. Based on that, new source separation and collection systems have been designed and information and education materials developed. The municipal council has already started the construction of the resource recovery centre by allocating land and part of investment cost. UNEP-IETC and IGES-CCET provided a remaining budget for the construction under its support scheme to Sri Lanka, and it is expected to start its operation in early 2021.

Promotion of environmentally sound practices

Covid-19

Medical waste, including used syringes



In previous annual reports we included thematic articles on topics important to the waste sector: gender and waste in 2018, and private-sector engagement in 2019. This year we focus on Covid-19 and waste, as it has a profound impact on waste generation and management.

2020 was an extremely tumultuous year with the Covid-19 pandemic heavily impacting every corner of society, from implementation of telecommuting from home on a global scale and complete and partial lockdowns and quarantines to avoid infections, to impacting the environment with the influx in waste from single-use products such as masks, gloves and other safety equipment. IETC, and UNEP as a whole, transitioned to working from home in March, and immediately mobilized personnel to support member states in addressing the management of large increases of medical waste produced in response to combating the spread of and treating the infection. UNEP has been, and still is, educating front line decision makers on how to deal with COVID-19 medical waste with a focus on resource efficiency and circularity. It is helping nations incorporate

pandemic waste strategies in crisis preparedness and response.

A report, *Waste Management during the COVID-19 Pandemic: From Response to Recovery*, was also developed and includes emergency recovery and response plans, and describes how these can be implemented during the pandemic, as well as long-term solutions with the aim of building back better. The report also has a section on gender to describe the potential impact of COVID-19 on gender in waste management and proposed actions to be taken. Additionally, under the leadership of the World Health Organization (WHO), UNEP developed a series of nine infographic fact sheets aimed at highlighting the potential environmental impact from increased waste production in the health sector, and these were translated into all official UN languages plus Portuguese. Going forward, UNEP is encouraging economic actors to invest in building back better by linking recovery efforts with the clean energy transition, nature-based solutions and the Paris Agreement.

UNEP Sustainability Action

UNEP-IETC launched UNEP Sustainability Action in June 2020. It is an interdisciplinary platform of the United Nations, governments, businesses, citizens and other organizations that aims to promote sustainability in the context of global environmental issues, particularly from the perspective of resource recycling, and to adopt and implement "sustainability actions" in our daily lives.

At the initial stage, UNEP-IETC started working with Fast Retailing Co., Ltd. and Seven & i Holdings with support from the Global Environment Centre Foundation (GEC) secretariat to initiate UNEP Sustainability Action. Later, EARTH MALL with Rakuten also joined the team. This is a unique combination between UNEP-IETC (the front line to combat global environmental challenges – the furthest from consumers) and global companies (the closest to consumers) that was

created to promote waste minimization and environmentally sound waste management. In order to make our society sustainable and to achieve the Sustainable Development Goals (SDGs) by 2030, it is important that everyone take more responsibility and take action to live more sustainably, even small things such as bringing one's own bags when shopping and drinking from reusable water bottles in one's daily life. UNEP Sustainability Action enables us to change people's behaviours and act more sustainably.

Through this initiative, we will build international networking opportunities among stakeholders, integrate top-level talks, organize consumer campaign activities and project activities in developing countries, and maximize the power of everyone's connections to achieve a sustainable society.



Project on Environmentally Sound Management, Treatment and Technology on Plastic Waste in Asia



- a Daimaou Kosaka (Comedian, Producer of PIKOTARO, Goodwill Ambassador for Promoting the SDGs)
- b Satoru Morishita (Vice Minister for Global Environmental Affairs, Ministry of the Environment, Japan)
- c Yuuna Okanishi (Calligrapher/Artist)
- d Mayumi Tsuruyu (Executive Officer, Sustainability Development Department, Seven & i Holdings Co., Ltd.)
- e Keith Alverson (UNEP-IETC Director)
- f Yukihiro Nitta (Group Senior Vice President, Sustainability, Fast Retailing Co., Ltd.)
- g UNEP and GEC staff members.

In December 2020, UNEP Sustainability Action was featured in FRaU. It is one of the best-selling magazines in Japan on women's fashion and lifestyle. FRaU's January issue was its special edition that focused on the SDGs. UNEP Sustainability Action was introduced as one of the active projects on environmental issues in Japan. Moreover, the first speaking event was held online, with video released on the official website of UNEP Sustainability Action. Team members shared background stories of how the project started in June and expectations that each of them has for future collaborations within the team to achieve sustainable goals. More events are coming up in 2021.

More info here 



With a financial contribution from the Ministry of Foreign Affairs of Japan, UNEP-IETC has been implementing the Project on Environmentally Sound Management, Treatment and Technology on Plastic Waste in Asia in 2020-2021, based on the Osaka Blue Ocean Vision in the G20 Osaka Leaders' Declaration. The project focuses on environmentally sound technologies for plastic waste management based on the SDG standard, which introduces a stepwise approach among different levels of environmentally sound technologies appropriate for different capacities of waste management corresponding to four income levels.

The project has been analysing the needs and demands for plastic waste management mainly in Asia and plans to develop a digital platform where information about environmentally sound technologies for plastic waste is disseminated, and the needs and demands of such technologies are matched. UNEP-IETC applies integrated solid waste management for plastic waste and supports countries and cities integrating plastic waste into holistic waste management.

In November 2020, UNEP-IETC organized an online UNEP seminar, A Way towards Circular Economy with Plastic Waste Management in Developing Countries, for EcoPro Online 2020. For further details, please see the EcoPro Online 2020 event in the session on Visibility in Japan.

UNEP-IETC has been implementing the Project on Environmentally Sound Management, Treatment and Technology on Plastic Waste in Asia in 2020-2021, based on the Osaka Blue Ocean Vision in the G20 Osaka Leaders' Declaration

Outreach

Global Visibility

In total, IETC staff presented at 16 live events such as webinars, workshops and other knowledge-sharing events. A few select ones are presented below:

Rethinking Waste expo

Rethinking Waste was a two-day virtual expo and forum organized by the International Solid Waste Association (ISWA) and Waste Management World. The event focused on solutions relating to waste collection and handling, biological waste treatment, recycling, WtE and closing dump sites. The opening session was a fireside gathering hosted by ISWA president Antonis Mavropoulos and IETC Director Keith Alverson, and focused on the development on the upcoming Global Waste Management Outlook 2, planned to launch in the first quarter of 2021, touching on the findings and themes of the outlook and promoting its launch.

Webinar: How to Continue Waste Management Services During the COVID-19 Pandemic

UN-Habitat (Waste Wise Campaign) and the Wuppertal Institute organized a webinar to discuss on waste management services during the Covid-19 pandemic. IETC Director Keith Alverson highlighted UN Environment's basic principles regarding waste monitoring, policies and existing technologies, explaining that the primary component of institutional health-care waste is plastic. There was an emphasis on uncontrolled dumping of health-care waste, and how it needs to be addressed, particularly in the middle of the pandemic, in order to have our societies built back better.

More info here



More info here

International webinar: Ocean Panel's policy recommendations

In December, Shunichi Honda from IETC participated in an international webinar as part of the High-Level Panel for a Sustainable Ocean Economy launched by an initiative of the Government of Norway. It was organized by the Ocean Policy Research Institute of the Sasakawa Peace Foundation together with

the Ministry of Foreign Affairs. During Japanese Prime Minister Yoshihide Suga's opening speech, he mentioned UNEP-IETC as a main partner organization of the Japanese government to combat the issue of marine plastic litter.



“To realize the vision which aims to reduce additional pollution by marine plastic litter to zero by 2050, Japan will actively tackle this problem with relevant partner organizations, such as UNEP-IETC headquartered in Osaka, to facilitate technical assistance to developing countries”.

– Prime Minister Yoshihide Suga

Global Environmental Action International Conference 2020

The Global Environmental Action (GEA) International Conference 2020 was held on 15 December in Tokyo. The conference opened with Emperor Naruhito's opening remark and a message from Prime Minister Yoshihide Suga. During the event, relevant ministers and experts discussed solutions to environmental issues and sustainable development. IETC Director Keith Alverson attended remotely to introduce IETC's

works on holistic waste management to assist countries in implementing sustainable solutions to environmental challenges. Various publications and projects by IETC were presented not only to show our contribution but also to emphasize the necessity of prompt actions to reduce plastic waste.



Gender and Waste Nexus video series

A new video series, Gender and Waste Nexus, was launched in celebration of International Women's Day in March 2020 to mainstream gender in waste management.

The series is based on Gender and Waste Nexus: Experiences from Bhutan, Mongolia and Nepal (UNEP-IETC and GRID-Arendal, 2019) and the gender mainstreaming workshops and interviews conducted in 2019 with women and men from

Bhutan, Mongolia and Nepal, and introduces voices of a wide range of stakeholders such as national and local governments, the private sector, civil society organizations, and community women. Made up of five videos, the series introduces the gendered state of waste management and highlights the household's role in waste management in the three countries. It also calls for gender-responsive waste management policy while stressing the importance of empowering women in the waste sector.

Experiences from Bhutan, Mongolia and Nepal



More info here



Visibility in Japan

Interview – ODA Mail Magazine

Shunichi Honda, a Programme Officer, was featured in ODA Mail Magazine by the Ministry of Foreign Affairs of Japan. He explained the mission and activities of

IETC as well as the significance of the environmental technology that is embedded in SDGs.



More info here



Interview – Nikkei ESG Magazine

Nikkei ESG, a magazine published by Nikkei BP, interviewed Shunichi Honda (Programme Officer). His

comment on plastic waste and circular economy was highlighted in one of the articles of the magazine.

EcoPro 2020 online event

In November, UNEP-IETC held a special online seminar for EcoPro 2020. It is the biggest exhibition on environmental products and services in Japan and this year it was held online due to Covid-19. This webinar's subject was A Way towards Circular Economy with

Plastic Waste Management in Developing Countries, and it invited experts from the Ministry of Foreign Affairs, Osaka City, Institut Teknologi Bandung, Solid Waste Management Association Thailand and GEC.

11月25日(水) 10時より公開

UN environment programme IETC OSAKA CITY 大阪市

エコプロ Online 2020

UNEP Special Online Seminar

循環経済に向けた開発途上国におけるプラスチック廃棄物管理の在り方について
～社会的課題解決型システムを考える～

UNEP IETC 本多 俊一氏 (司会)	外務省地球環境課 滝 祥光氏	大阪市環境局環境施策部 井原 優子氏	Solid Waste Management Association Thailand Mr. Patarapol Tularak	バンドン工科大学 Prof. Enri Damanhuri	地球環境センター コンサルタント 薬地 洋氏

More info here



Dialogue event with the Ministry of Agriculture, Forestry and Fisheries

In September, UNEP-IETC collaborated with the Ministry of Agriculture, Forestry and Fisheries for Sustainable Week and organized an online dialogue event. IETC Director Keith Alverson and Masamichi Saigo, Japan's Ambassador to Nepal, were invited to discuss the global food system and its sustainability, also touching on how our lives could be in the post-COVID19. Ambassador Saigo explained the impacts of climate change that are affecting agriculture

and forestry in Nepal and also the necessity of thinking about Japanese food waste to tackle climate change. Director Alverson shared his own experience of living in Japan and described the importance of acknowledging different cultural values that are tied into waste management system in each country. He also stated, "UNEP and IETC and many governments will learn lessons from COVID-19 and will be able to build better and sustainable future".

This event was broadcasted on YouTube, and the video has been archived on IETC's channel.



More info here



UNEP Sustainability Action speaking event no. 1 and FRaU magazine

As mentioned in the previous section of this report, UNEP Sustainability Action organized its first

online speaking event in December. The Ministry of Agriculture, Forestry and Fisheries; Seven & i Holdings; EARTH MALL with Rakuten and FRaU joined the discussion on the future of sustainability in Japanese society. This event was also featured in FRaU magazine published on 22 December.



More info here



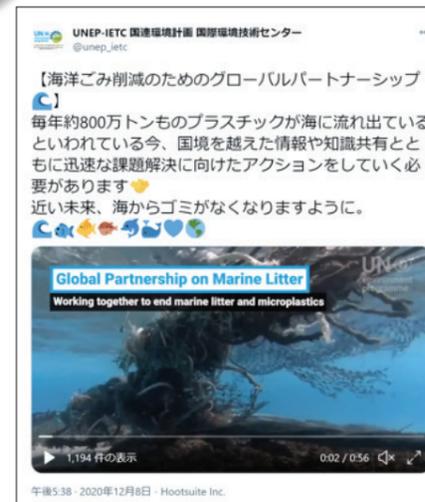
IETC social media outreach (As of December 2020)

In 2020, IETC actively reached out to broader audiences through social media platforms. In addition to Twitter, Instagram and YouTube, a new official Facebook page was created in August. IETC's Facebook and Twitter pages are

updated on a daily basis with content promoting new publications and webinars. They also play an important role in advocating environmentally sound technologies and enhancing IETC's visibility within Japan and overseas.



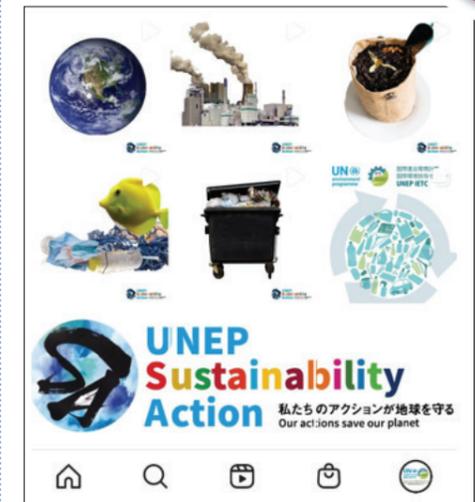
@unep_ietc



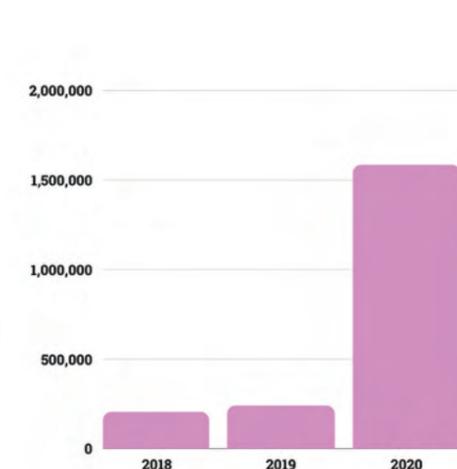
Access to Twitter profile



@unep_ietc



Tweet Impression

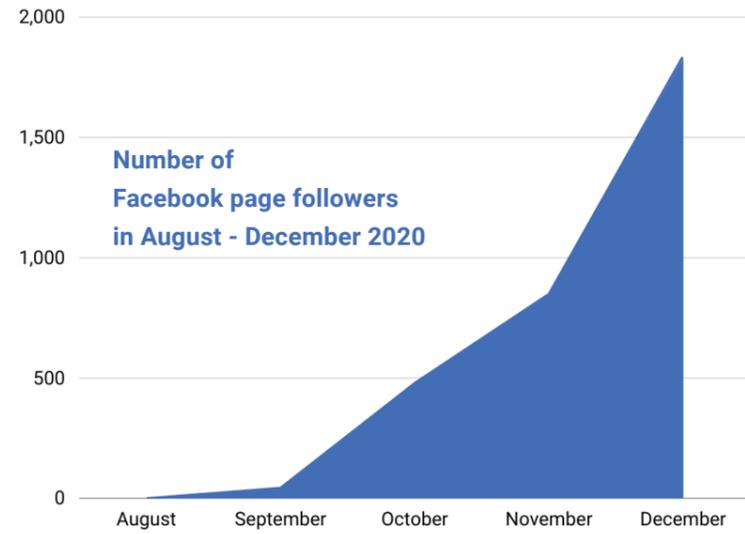




@unepietc2020



Since the launch of the official Facebook page in mid-August, the number of page followers has been steadily increasing as the graph below shows.

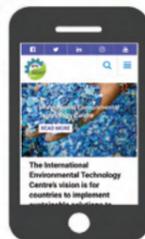


Official Website

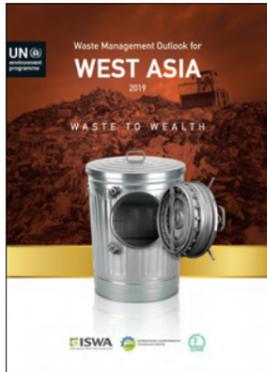
<https://www.unep.org/ietc/>



71,143 page views in 2020



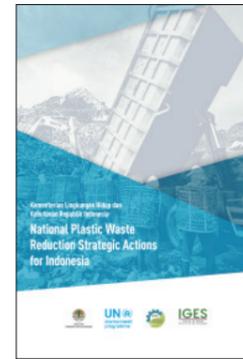
Publications in 2020



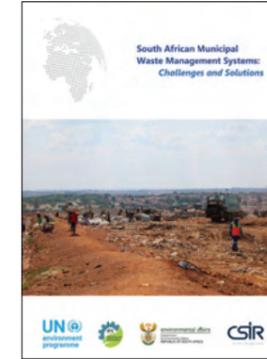
Waste Management Outlook for West Asia
Full Report [English](#)
Summary for Decision-Makers [English, Arabic](#)



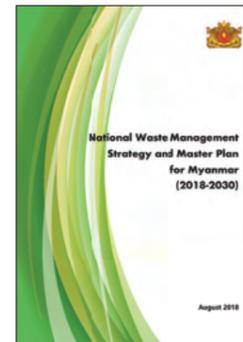
Waste Management during the COVID-19 Pandemic:
From Response to Recovery
Full Report [English](#)



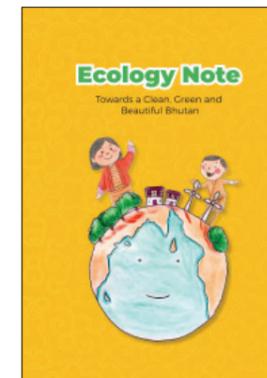
National Plastic Waste Reduction Strategic Actions
for Indonesia
Full Report [English](#)



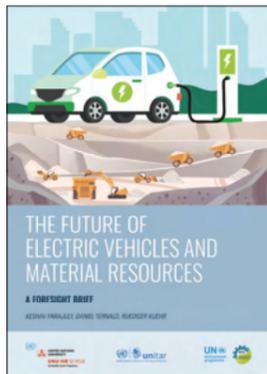
South African Municipal Waste Management
Systems: Challenges and Solutions
Full Report [English](#)



National Waste Management Strategy and Master
Plan for Myanmar (2018-2030)
Full Report [English](#)



Ecology Note: Towards a Clean, Green and
Beautiful Bhutan
Full Report [English](#)



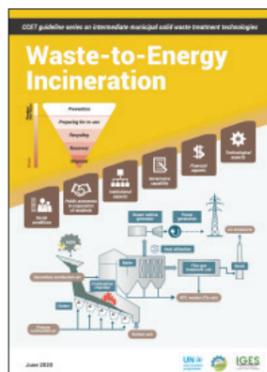
The Future of Electric Vehicles and Material
Resources: A Foresight Brief
Full Report [English](#)



CCET Guideline Series on Intermediate Municipal
Solid Waste Treatment Technologies: Composting
Full Report [English](#)



Leaflet of the pilot project recycling center in Lake
Toba, Indonesia
Full Report [English](#)



CCET Guideline Series on Intermediate Municipal
Solid Waste Treatment Technologies: Waste-to-
Energy Incineration
Full Report [English](#)



CCET Guideline Series on Intermediate Municipal
Solid Waste Treatment Technologies: Mechanical-
Biological Treatment
Full Report [English](#)

All our publications are available at:
www.unenvironment.org/ietc/resources

Farewell to our Director!

Mr. Keith Alverson
Director (2016-2020)

IETC and its staff would like to thank Director Keith Alverson for his time leading the unit, as he left his post at UNEP at the end of December 2020. We wish him all the very best as he moves on to new challenges in 2021.

During his tenure, Keith had a great impact on the IETC office and staff, providing strong leadership and guidance, and at the same time his door was always open. He took great interest in his staff's well-being and was supportive of everyone's work. He always took extra time and effort to encourage all staff to come up with new initiatives, assume ownership and take responsibility in all our activities, and would always go that extra mile in supporting staff members as well as interns to make sure they thrived, but also assisting them in going further in their careers.

He also enjoyed spending time with staff informally, personally attending environmental events, fun activities, cleaning campaigns, summer firework festivals, Christmas celebrations, global health challenges and tennis matches, to mention a few activities.

We hope to be able to build upon our achievements together as IETC continues our mission into the new year.



Thank you to our staff!

IETC would like to thank them for their contributions and wish them every success in their new endeavours.

Ms. Claudia Giacobelli
Associate Programme Officer
(at IETC 2016-2020)

Claudia was responsible for the implementation of the IKI Waste and Climate Change project in Bhutan, Mongolia and Nepal, as well as the development of new project proposals and knowledge products such as the regional and thematic *Waste Management Outlooks*, the single-use plastic roadmap for sustainability, and the Gender and Waste Nexus report. In January 2020 she took the post of Programme Management Officer in the Life Cycle Unit in the UNEP Paris Office.



Our interns: Where are they working now?

IETC continues its support and encouragement of young professionals beginning their careers in environmental management and development. IETC would like to thank all its interns for their contributions in 2020.

Ms. Raphaëlle Delmas
(at IETC 2019-2020)

Working at IETC has been a great learning experience. Coming into a small and welcoming team, not only was I encouraged to get involved with many projects, but I was able to interact with and learn from everyone in the office. Under the excellent guidance of my supervisor, I assisted with many projects at different stages, developing my knowledge of holistic waste management and my project management skills. I had the chance to spend most of my time working on the production of the *Global Waste Management Outlook 2*, and following my internship was offered a position as a consultant by their partner ISWA (International Solid Waste Association) to keep working on the same project. I can enthusiastically say that an internship at IETC is one of the best choices for anyone who is interested in and wishes to pursue a career in waste management.



Mr. Lok Hin (Nelson) Fung
(at IETC 2019)

I cannot express how grateful and lucky I am to be able to work with and learn from the experts and talents at IETC. Following the guidance from my supervisor, and the support from the staff and my fellow interns, I gained a lot of hands-on experience and professional knowledge on how the projects on waste and climate change were implemented, and how the issue of gender is important to waste management in developing countries. The internship experiences also helped me a lot in my career development, where I am currently working as a sustainability consultant, facilitating the net-zero target in the green building and business sector.



2020 Interns

Ms. Raphaëlle DELMAS France

Ms. Hikaru SHIRAI Japan

Greening the Blue at IETC

IETC is making great strides in reducing its environmental footprint by greening its activities in terms of energy and water consumption, travel, and waste generation. Each year IETC and its staff members strive to reduce their environmental footprint, and reduce waste generation. However, due to the Covid-19 pandemic, mandatory telecommuting was implemented for all UNEP staff starting in the March 2020, effectively emptying the office. This unique situation makes it difficult to compare the amount of waste generated as well as water and electricity used in previous years.

The waste data collected reflects the time period October 2019 to September 2020, which includes six months of a largely empty office due the telecommuting policy. In spite of the office being empty for the half the reporting, the recorded waste generated at the office this year in fact increased with 446kg compared to the previous year. However, this was due to an effort to clear up and recycle a large number of older publications from storage dating back years. This clean-up accounts for almost

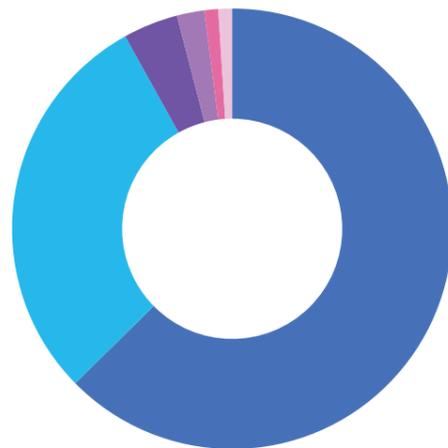
the entirety of the total waste generated, and close to 100% of all waste at IETC was recycled.

Regarding air travel and related emissions there is a one-year lag in data collection, thus the following data is from 2019. That year the average emissions per staff member was 5.7 tons of CO₂, up from 3.8 tons in 2018. However this is still less than half the average emission per staff calculated for UNEP as a whole.



Entrance of UNEP-IETC office in Osaka

Waste collected for recycling in IETC in 2019



● Paper 62% ● Garden refuse 29% ● Plastic 4% ● Glass 2% ● Cardboard 1% ● Metal 1%



Plum tree in Tsurumi Ryokuchi park, adjacent to IETC office

Finances

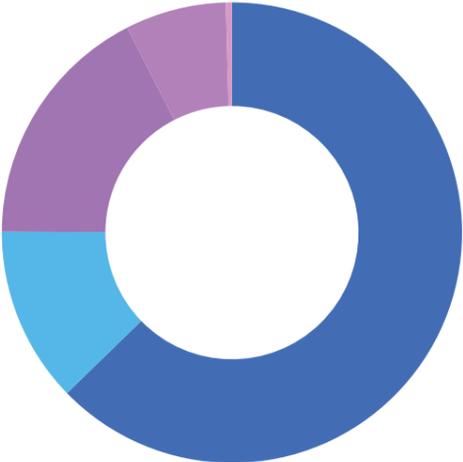
Financial Report as of 31 December 2020

	USD, thousands
Balance from 2019	3,365
Income	
Government of Japan	2,931
Ministry of Foreign Affairs	272
Ministry of the Environment	500
Ministry of the Environment - Earmarked	1,250
Ministry of Foreign Affairs - Earmarked	909
United Nations Environment Programme	577
International Climate Initiative - Government of Germany	813
Swedish International Development Cooperation Agency	332
Global Environment Centre Foundation	20
Total income in 2020	4,673
Expenditures	
Personnel	1,226
Project and Activities	2,461
Operating cost	54
Total expenditures in 2020	3,741

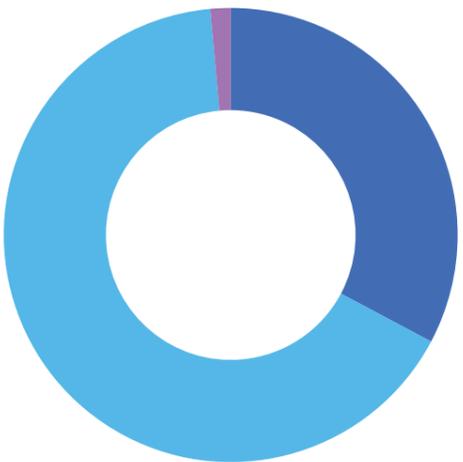


IETC benefits from numerous in-kind contributions, including our office space in the city of Osaka.

2020 Income (%)



2020 Expenditures (%)



- Government of Japan 63%
- United Nations Environment Programme 12%
- International Climate Initiative - Government of Germany 17%
- Swedish International Development Cooperation Agency 7%
- Global Environment Centre Foundation 1%

- Personnel 33%
- Project and Activities 66%
- Operating cost 1%

Note: These are not the audited figures



Beach cleanup in Watamu, Kenya.

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Technology Centre (IETC)**

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United Nations Environment Programme

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