



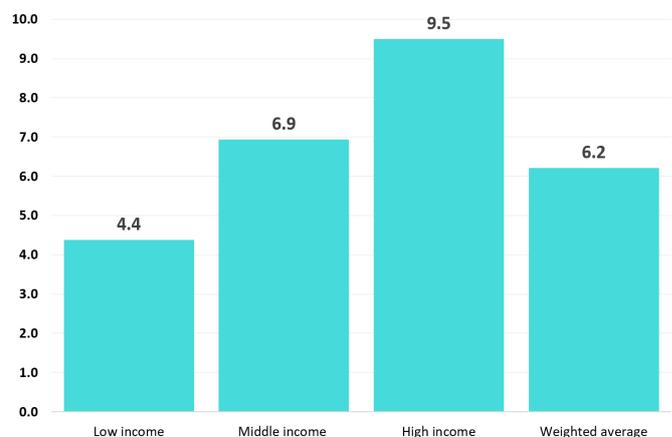
PLASTIC CONSUMPTION AND RECYCLING IN ADDIS ABABA, ETHIOPIA

DID YOU KNOW...

- ... that the average annual plastic use per capita in Ethiopia rose from 700 grams in 2007 to a projected 3.8 kg in 2022? This is a 540% increase in 15 years!
- ... that the average annual plastic use per capita in Addis Ababa is almost twice as high as the national average, with 6.2 kg in 2021?
- ... that richer households not only use more plastic, but also a wider variety of plastic products?
- ... that waste collectors can sell baled/pressed PET bottles at a price 40% higher than non-baled/pressed ones?

PLASTIC USE

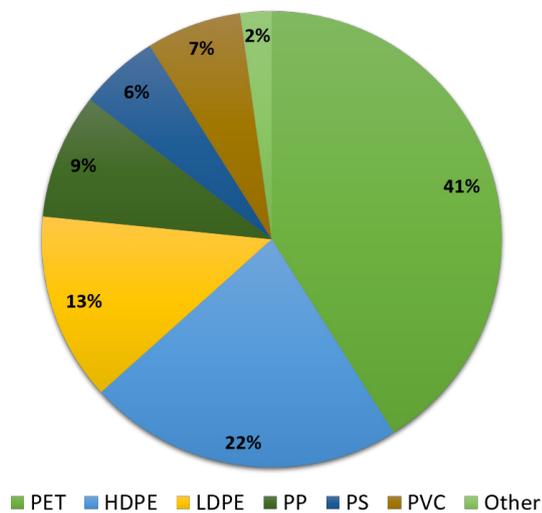
On average, every citizen in Addis Ababa, Ethiopia's capital, is estimated to generate about 51 kg of waste per year. About half of that waste is organic, which includes predominantly food waste. About 7.92 kg, or 15.5% of the total waste generated, is plastic. Although not surprising, people with a higher income generally use (and dispose) more plastic than their lower earning peers, with the former also using more different sorts of plastic.



Per capita plastic waste generation rate in Addis Ababa (in kg/year).

POPULAR PLASTICS

PET, which is used for plastic bottles (e.g. water, cola) is by far the most popular plastic in Addis Ababa and ever present, followed by HDPE. HDPE is often used for shower gel holders, shopping bags, and even water pipes, but also for jerrycans, which are used to collect water from collective water points – this explains the relatively high share of HDPE in the ‘plastic mix’ of people with a lower income. While PET and HDPE account for almost two-thirds of the total plastic consumption, LDPE, used mainly in agriculture for irrigation tubing and mulch films – covering and protecting crops – as well as for garbage bags, and PP, which is used as packaging boxes for warm meal takeaways, are also popular plastics.



Plastic waste composition in Addis Ababa.

PROBLEMS WITH PLASTICS

Plastics are very handy, lightweight, flexible, cheap and versatile. What is the problem? They are non-biodegradable. With this nature, plastics can persist in the environment for hundreds of years with a detrimental effect on the environment and biodiversity. By ending up in the environment, plastics inadvertently end up in human food chains. The past few years, a lot of WWF and Greenpeace reports show that our fishing trips in the future will most likely catch more plastics than fish.¹

¹ Greenpeace Research Laboratories Technical Report (2016): Plastics in Seafood – full technical review of the occurrence, fate and effects of microplastics in fish and shellfish; WWF (2018): Out of the Plastic Trap. Saving the Mediterranean from plastic pollution.

This issue is not limited to marine life however, and urban farmers in Addis Ababa have started noticing their livestock eating plastic waste increasingly often. Apart from this possibly leading to the animals suffocating, consumption of urban livestock might become less appealing knowing their full diet.

Another challenge Addis Ababa sees itself faced with is littered plastic clogging much-needed drainage systems during the rainy season. With the rainwater not being able to run off through the drainage channels, streets and neighbourhoods face floods, which in turn lead to economic losses – either direct through damage caused by the floods, or indirect through shopkeepers not being able to open their shops – and in some cases to loss of life.

PET - Polyethylene Terephthalate is a smooth, transparent and relatively thin plastic used for soft drinks, water bottles, takeaway containers, etc.

HDPE - High Density Polyethylene is heat-resistant plastic produced from petroleum used for shopping bags, milk bottles, etc.

LDPE - Low Density Polyethylene is a thermoplastic used for irrigation tubing, squeeze bottles etc.

PP - Polypropylene is a thermoplastic polymer used for microwave dishes, lunch boxes, etc.

PS - Polystyrene is a naturally transparent thermoplastic used for CD cases, plastic cutlery, imitation glassware, etc.

PVC - Polyvinyl Chloride is a naturally white and one of the most commonly used thermoplastic polymers worldwide. It is used for cosmetic container, plumbing pipes and fittings, electrical conduct, etc.

Other - this category includes automotive and appliance components, computers, electronics, cooler bottles and packaging.



The Addis Ababa City Administration Solid Waste Management Agency campaigning to clean plastic clogged drainages.

SOLUTIONS TO PROBLEMS – PROBLEMS WITH RECYCLING

An obvious solution to plastic-related challenges would be recycling. Although this might sound like a no-brainer, there are several factors in Addis Ababa that impede the efficiency of recycling or hinder it altogether.

Household level waste sorting

Pre-collection waste sorting at household level can greatly benefit the further value chain of different kinds of waste: by not throwing all waste in just one bin or bag, waste collectors not only save time, disposed materials are also of higher quality. Think of organic waste that has less pollutants like plastic particles – which cannot be composted – or plastics that are not disposed at the same place as diapers, which pollute the plastics and make more thorough cleaning – which comes at a cost – necessary. During discussions with selected communities in Addis Ababa, participants estimated that only around 60% of households sort in any way; a survey conducted showed that around 58% of households sort their waste. In most cases however, the sorting is limited to separating plastics from non-plastic waste. While this is merely anecdotal evidence, it does show the huge potential that household sorting still holds.

Waste collection

Household level waste collection in Addis Ababa is carried out by formal associations that each have several Kebeles (sub-districts) they serve – as opposed to waste pickers that roam the streets, and commercial companies that collect waste at large institutions like hotels and hospitals. Collected waste is brought to a hub, from where

the household waste is transported to the Reppi Landfill, or further sorted and sold. Sorting of waste however needs space, which the associations lack. The official associations also mostly lack access to water and electricity on their site.

While water would improve working conditions, electricity would allow collectors to potentially scale up their business using on-site machinery like baling/pressing machines. By baling plastic, transport costs can be reduced significantly, while the price per kilogram increases.



Efficient space utilization with baled PET.

NIMBY

Most people, whether in Addis Ababa, Paris or Mumbai, are not very happy having a waste collection hub next door – a typical case of Not In My Back Yard (NIMBY), where everyone wants to have access to a certain service, whether that is waste collection or quality transportation, but no one wants to have the infrastructure that needs – a waste collection hub, railroad tracks or an airport – too close by. The NIMBY phenomenon is often observed regarding utilities like waste management. Reducing it requires community engagement in urban planning and sensitization to change behaviour. This requires an inclusive approach. Through working with multi-stakeholder partnerships and bringing together public and private sector stakeholders, as well as community organizations, environmental stewardship can contribute to reducing NIMBY feelings, and enable effective waste management and recycling.



A neighbourhood waste collection center in Bole sub-city.

Plastic recycling

Although recyclers source from formal associations, the bulk of their raw resources are procured from informal waste pickers. One key challenge plastic recyclers face is the low quality of the collected plastic, which is often too dirty for further use and needs to be disposed of. Ethiopia currently does not have any full circle recycling, and most recycling companies only flake plastic for export. Those that do recycle, produce PET preforms and plastic bags. Large potential customers for packaging products, like water bottlers, supermarkets, and food producers, are currently only working with new, virgin material, out of fear of losing customers, who they feel would not trust the quality of packaging made out of recycled plastics.

BEING PART OF THE SOLUTION

Together with partners, NatuReS is currently working to improve collection and recycling of used PET by designing and piloting manual baling machines. By introducing this technology, PET collectors without access to electricity will be able to bale PET, which will improve space efficiency and reduce transpor-

tation cost. In addition, PET collectors will get a 40% price premium by selling PET baled. This intervention is expected to stimulate the plastic value chain with more PET collection and job creation.

The role of policy in sustainable management and protection of the environment is not to be underestimated either. Recognizing this, NatuReS is supporting its partner the Environment Protection Authority (EPA) in passing an Extended Producer Responsibility (EPR) law that mandates producers to be responsible for the management of their product until post-consumer stage.

ABOUT NATURES

The partnership is part of the Natural Resources Stewardship Programme (NatuReS), a multi-stakeholder programme funded by the German Ministry for Economic Cooperation and Development (BMZ), the European Union (EU) and the Foreign, Commonwealth and Development Office (FCDO).

The programme enables private-public-civil society partnerships to sustainably manage the natural resources they need for improved livelihoods and continued economic development. NatuReS is implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), which is a trusted partner within the international community of natural resource stewardship practitioners.

It is currently active in Ethiopia, Tanzania, Uganda, Zambia and South-Africa. NatuReS is a continuation of the International Water Stewardship Programme (IWasP), which was active from 2013 to 2019. The predecessor programme has reached more than 2.7 million people with more than 180 partners in 38 partnerships and leveraged private sector investments of EUR 15 million.

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