

# SAVING THE OCEANS

## And the plastic recycling crisis

Mikko Paunio





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## About the author

Mikko Paunio, MD, MHS was born in Turku, Finland in 1961. He graduated and then completed and defended his doctoral thesis at the University of Helsinki in 1990. He has post-graduate training from the Free University of Brussels in 1991 and has graduated from the Johns Hopkins Bloomberg School of Public Health (Master of Health Science in 1993). He is a certified (University of Helsinki) specialist in public health (1999) and is an adjunct professor in general epidemiology at the University of Helsinki.

He comes from a family with academic traditions and is a third generation social democrat. He joined Finland's Social Democratic Party in 1977. He has worked in the following institutions: the Institute of Health and Welfare of Finland, University of Helsinki, Johns Hopkins Bloomberg School of Public Health, the European Commission, the World Bank and Finland's Ministry of Social Affairs and Health. He is a member of the American Council on Science and Health Board of Scientific and Policy Advisors. He has 40 publications listed in the US National Library of Medicine at the National Institutes of Health.

For the past 20 years he has actively followed and participated in discussions on EU and international waste policy issues from health protection angle. His earlier GWPF paper on the plastics crisis, *Save the Oceans: Stop recycling plastic*, was published in 2018.

*The views in this report are those of the author alone, and do not necessarily represent those of his employer.*

## **Executive summary**

The United Nations has just decided to add mixed and contaminated plastic waste to the schedule of materials that are regulated under the Basel Convention. This decision will have major implications.

Firstly, it represents a major victory for the environment because it will effectively prevent a large proportion of exports of plastic waste to developing countries. Much of this material ends up in the oceans, so the UN decision does away with a major contribution to the problem of marine waste.

However, it will also mean that the problem of what to do with plastic waste will return to countries that produce it. What is worse, the EU is putting in place stringent new rules on plastic recycling, which will only increase the size of the problem, as will its new rules on landfill.

As a result, EU countries will find themselves faced with a growing mountain of plastic waste, and with few means at their disposal to deal with it. The EU has previously been deeply opposed to incineration of waste because of green dogma: they believe that recycling is virtuous in its own right, as well as seeing it as part of the fight against climate change. And even if they were to change their views, there could still be major problems because the incineration capacity available falls far short of what is required.

A rapid expansion of waste incineration capacity is urgently required to stop the plastic waste problem turning into a disaster.



# 1 Introduction

One month after my report *Save the Oceans: Stop Recycling Plastic* was published in 2018,<sup>1</sup> the UK's National Audit Office published a report that came to similar conclusions,<sup>2</sup> describing plastics recycling in the UK as follows:

...the system appears to have evolved into a comfortable way for government to meet targets without facing up to the underlying recycling issues...it relies on exporting materials to other parts of the world without adequate checks to ensure this material is actually recycled, and without consideration of whether other countries will continue to accept it in the long term. Despite it now being 20 years since the system was established, the Department does not know what value the system has added nor whether the Agency's approach to tackling the risks of fraud and error is proportionate. Our overall sense is that over a long period government has allowed the obligations to keep rolling forward without asking the important questions.

The report also confirmed marine plastic pollution as an important consideration in the context of plastic recycling.

In brief, by exporting post-consumer plastic and other types of 'recyclates', the UK, like many other EU states, has met EU recycling requirements without proper consideration of environment protection, sustainability of the chosen policy in the long term, or economic viability.

In mid-August the *Independent* revealed that thousands of tons of toxic waste were being returned to the UK, described as 'plastic recyclates' so as to hide their true nature.<sup>3</sup> This confirmed another concern that I had raised in my report, after the International Solid Waste Association had noted this as a likely effect of China refusing to take further imports of recyclates.

In late summer 2018, the UK media became very interested in the enormous difficulties involved in recycling mixed dirty post-consumer plastic waste. In the early autumn, a headline in the *Independent* declared that:<sup>4</sup>

Everything you've been told about plastic is wrong – the answer isn't recycling  
and continued

Recycling is an easy cop-out for governments and large corporations, but the truth is that we have to take very different action if we want to stop irreversibly poisoning the planet.

Later, in the autumn, the UK Environment Agency set up a team of investigators, including three retired police officers, in an attempt to deal with complaints that organised criminals and firms were abusing the waste management system.<sup>5</sup> Among other things, the team were tasked with investigating the claim that UK plastic waste was not being recycled but was being left to leak into rivers and oceans. Even the *Guardian* seemed to come to its senses,<sup>5</sup> announcing in a headline that:

UK plastics recycling industry under investigation for fraud and corruption

The *Guardian* now seems to accept that plastics recycling has failed miserably, and that the system is corrupt and leaking plastic litter into rivers and oceans.

At around this time, I received information from the recycling industry that China's decision to ban almost all recyclate imports, starting from 1 January 2018, had started to reduce the EU's exports of plastic waste. By the second half of the year, plastic was starting to pile up quickly and, for example, in late October 2018, the *Daily Telegraph* warned that huge piles

of rubbish were appearing around the country. One heap was said to be large enough to be seen from space.<sup>6</sup>

Plastic is becoming too expensive to recycle, councils across Britain will warn on Saturday, raising fears that homeowners' efforts to sort through their waste may be futile. The warning by the Local Government Association comes as the *Telegraph* reveals mountains of plastic waste are sitting on an abandoned airfield because the local council cannot afford to send it to be recycled.

The ever increasing amount of plastic waste being accumulated in EU member states is having many repercussions: smugglers are trying to remove it illegally; some of it is being sneaked into landfills in Eastern Europe, and large quantities are ending up in the Mediterranean.<sup>7</sup>

## 2 A warning from the past

Before describing the current meltdown of the global plastic recycling industry, it is important to describe the prelude: the notorious Naples waste crisis. In the mainstream media, the narrative was that this was the result of mafia involvement in the waste management industry in the Campania region. However, in reality the ultimate cause was the decision by the local authorities to adopt an anti-incineration waste policy in the late 1990s. The theory was that waste should be mechanically separated into a combustible fraction of mixed waste (known as refuse-derived fuel or, more colloquially, 'ecoballs') for co-incineration with traditional fuels, and an organic fraction for composting or anaerobic digestion. However, the 2000 EU Waste Incineration Directive, with its costly regulatory demands, made it uneconomic to co-incinerate ecoballs.

With few other ways of dealing with the material, the authorities were left with a problem. Over time, all the legal landfills were filled with ecoballs, after which illegal landfills sprang up. But these quickly filled too, and by 2008 the situation had become a crisis. Seven million tons of ecoballs had accumulated,<sup>8</sup> and the landfills were full and would not accept further deliveries. Hauliers therefore started to refuse to collect waste from homes and businesses. After this, the only way to get rid of waste at source was to burn it in the open air. As a result, the Campania region became heavily polluted with dioxins and furans and restrictions had to be imposed on Campania's famous dairy products. The Italian military had to be called in to help calm the chaotic situation.

A big waste incinerator was finally opened in Accurro in 2009. This could handle 600,000 tons of waste per year, but even this wasn't enough. Ultimately, ecoballs had to be sent at great cost to other European countries for incineration, and it was many years until the situation was completely resolved.<sup>8,9</sup>

## 3 The global waste crisis

The Campania crisis is a clear warning to governments about the problems that can be caused by blindly following green ideology. Now, it has become clear that a much larger crisis, global in scale, may almost be upon us. The global plastics 'recycling' industry is already on the verge of meltdown as a result of China's import ban. Not only the biggest plastic waste exporter – the European Union – but also the rest of the English-speaking world, Japan and even Brazil, a developing country, are now witnessing rapidly growing mountains

of plastic waste.<sup>6,7,10</sup> In all these countries, the people who have in good faith been sorting their plastic waste for recycling can quite rightly feel betrayed.

Wealthy countries have tried to deal with China's import ban by exporting waste to countries like Bangladesh, Indonesia, Malaysia, the Philippines and Vietnam. However, waste management in these places is often primitive, and the result has been severe problems with marine pollution. So even though these imports bring much-needed revenue, the situation is becoming so bad that legislative barriers are being raised to prevent them.

One of the indicators of the seriousness of the situation is the diplomatic row that has blown up between the Philippines and Canada. The two countries are in dispute over a large shipment of municipal waste that has sat in Manila since its arrival in 2013. More than 100 shipping containers, which the Canadians had declared to hold recyclable plastic, turned out to be full of household trash, plastic bottles and bags, newspapers, and used adult diapers.<sup>11</sup> With no sign of a resolution, President Duterte of the Philippines has declared 'trash war' on Canada.

One of the most important developments, which has received little international attention, is the silent decision of hundreds of municipalities in the US to stop recycling solid waste altogether. These are not 'Trumpian' decisions, but decisions made by both Democrats and Republican administrations at local level across the country.<sup>12</sup>

## 4 Policy 'fixes'

The landmark 2015 paper in *Science* by Jambeck *et al.* revealed important metrics of marine plastic pollution (although, as noted in my earlier report,<sup>13</sup> it failed to mention the important role played by recycling in the problem).<sup>14</sup> The paper attracted a great deal of media attention and propelled waste management to the top of the policy agenda, kicking-off several major international developments.

**The Plastic Strategy and the Circular Economy package** In its plastic strategy,<sup>15</sup> the EU claimed to be at the forefront of plastic recycling, although the Commission seems to be vaguely aware of its sins, when reading the last paragraph of the strategy. The strategy was a key document behind the Circular Economy package of 2018, which amended several other directives (e.g. packaging, waste and landfill).<sup>16</sup> The strategy relies a great deal on the Jambeck paper, and so did not directly address the problem of marine plastic waste. Instead, motivated mainly by climate change concerns, it demands that by 2030 55% of plastic packaging should be recycled, thus being more likely to increase marine plastic waste than to reduce it. Moreover, this required level of recycling is so high that it will almost certainly prove impossible to achieve. The result is likely to be social unrest and a substantial waste of money, with only negative environmental impacts.

**The 'Straw Directive'** In April 2019, the EU outlawed single-use plastic items such as straws, balloon sticks, forks, knives, chopsticks, and plates.<sup>17</sup> The directive has its origins in a survey of European beaches. In other words, EU law was formulated to deal with items that are littering beaches; it does not address the big issue of marine plastic litter, of which the EU is a major cause. The 'polluter pays' principle does not apply to EU itself. The ban comes into force from 2021, but when panic and strict but arbitrary timetables drive legislation, the end results are usually far from good. Already many people are foreseeing chaos and even the disruption of free trade, which is supposed to be one of the EU's *raison d'être*.

**Norway's proposal** The Basel convention is the treaty that regulates the trade in hazardous waste. In June 2018, Norway proposed an amendment to the treaty that would add mixed and contaminated plastic waste to the list of materials covered by the convention.<sup>18</sup> And because the EU has banned exports of hazardous waste or waste that requires special attention, the listing would effectively prevent a large proportion of Europe's plastic waste exports.

## 5 The EU's confused position on incineration

So the EU's policy response to the marine plastic waste problem has been to adopt policies that will do little to reduce plastic waste, and which will probably cause the problem to become worse. The example of the Campania crisis, which was only resolved by extensive use of incineration, is therefore likely to become important. Incineration is superior to all other waste management options in terms of climate change mitigation, because it avoids the complex and resource-hungry schemes involved in, for example, turning it into diesel fuel or converting it to some other product. Meanwhile, incineration directly reduces demand imports of coal used in large quantities to produce heat and electricity.<sup>19</sup> Recycling is certainly worse on other fronts too, not least the fact that recycling plants release microplastics in their waste water streams, while only delivering low-quality recycled material that cannot be used in important applications like food packaging.

The Commission *has* argued in favour of incineration, but only very rarely. In a paper entitled, *'A Clean Planet for All'*, released before UNFCCC COP 25 in Katowice, it argued for a carbon-neutral economy fuelled by biomass, although it was reticent about explaining where this biomass should come from. The answer is found in an accompanying document, which explains that it will actually be waste that is burned, and suggests that waste incineration capacity should increase to 100 million tons in 2050.

However, mostly it has been strongly against the idea. For example, in reference to the Circular Economy proposal,<sup>20</sup> it said that of the possible approaches to waste management, recycling was to be preferred, apparently on climate change mitigation grounds, although it presented no evidence to support this claim. It also said that reprocessing waste into fuels is not recycling, but is, like waste incineration, 'material recovery'. As a result, it has declared that its new cohesion fund will not fund waste incineration plants.

And it has sometimes gone even further in its opposition. In 2018, the EU Budget Commissioner Gunther Öttiger proposed a waste incineration levy. This would have brought an extra €40 billion into EU coffers, a welcome boost with the loss of the UK contribution looming as a result of Brexit. It would also have killed off waste incineration in Europe. In a situation where plastic mountains are growing and Europe is polluting oceans with plastic litter, this would have turned a crisis into a disaster, but fortunately, the proposal was quickly killed by two Dutch professors who observed that a family would have to recycle plastic for 60 years to offset the carbon emissions of a single passenger flying from Amsterdam to Los Angeles. They also noted that mitigating climate change by recycling plastic is even less efficient and more expensive than doing so through renewable energy.<sup>21</sup>

## 6 The coming waste tsunami

In recent days, however, it appears that the UN has taken the matter out of the EU's hands. Late on 10 May 2019, the 14th Conference of Parties to the Basel Convention made the his-

toric decision to accept the Norwegian proposal to list contaminated plastic waste, thus making it subject to much tighter regulation. As noted above, this would effectively put a stop to a significant volume of EU plastic waste exports to developing countries (and ultimately to the rivers and oceans of Asia). This is an important victory for the environment, and in particular for the oceans, which will at least no longer be filled with waste from Europe.

It goes without saying that most of the recycling industry has vehemently opposed Norway's proposal, and the US, a major recycler of plastic waste, was opposed too, although it is not a party to the Basel Convention. China may well have supported the initiative, because it no longer imports recyclates. Finland, and some other EU member states, may have done so too. Green NGOs were in favour,<sup>22</sup> although they were low-key actors in the process, no doubt concerned that the problems caused by plastic recycling might become widely known.

However, the very fact of the new regulation of plastic waste is likely to put those problems in the headlines regardless. The inability to export all but the cleanest sorted waste adds to the problems faced by the EU recycling industry, already struggling to deal with the loss of the Chinese export market and the relentless tightening of restrictions on landfill. Moreover, it already lacks – by a considerable margin – the incineration capacity necessary to deal with current levels of waste, let alone the extra volumes that will result from the stringent requirements of the Circular Economy package and from the Basel Convention decision.

This will put the recycling industry, green-minded politicians, and their supporters in the mainstream media into a very difficult position. The waste management industry will no longer be able to dump waste on poor countries and pretend that they are 'recycling'. The cost of annually recycling tens of millions of tons of dirty plastic scrap in EU will be astronomical, while still producing a very large proportion of reject material, which will have to be incinerated anyway. Politicians and the media may well be forced to come clean about what a bad deal they have been giving taxpayers up until this point.

Either way, EU member states are going to have to quickly increase incineration capacity. If they do not they will bring about an environmental disaster that will make the Campania crisis look like a walk in the park.

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## **About the Global Warming Policy Foundation**

The Global Warming Policy Foundation is an all-party and non-party think tank and a registered educational charity which, while openminded on the contested science of global warming, is deeply concerned about the costs and other implications of many of the policies currently being advocated.

Our main focus is to analyse global warming policies and their economic and other implications. Our aim is to provide the most robust and reliable economic analysis and advice. Above all we seek to inform the media, politicians and the public, in a newsworthy way, on the subject in general and on the misinformation to which they are all too frequently being subjected at the present time.

The key to the success of the GWPF is the trust and credibility that we have earned in the eyes of a growing number of policy makers, journalists and the interested public. The GWPF is funded overwhelmingly by voluntary donations from a number of private individuals and charitable trusts. In order to make clear its complete independence, it does not accept gifts from either energy companies or anyone with a significant interest in an energy company.

**Views expressed in the publications of the Global Warming Policy Foundation are those of the authors, not those of the GWPF, its trustees, its Academic Advisory Council members or its directors.**

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